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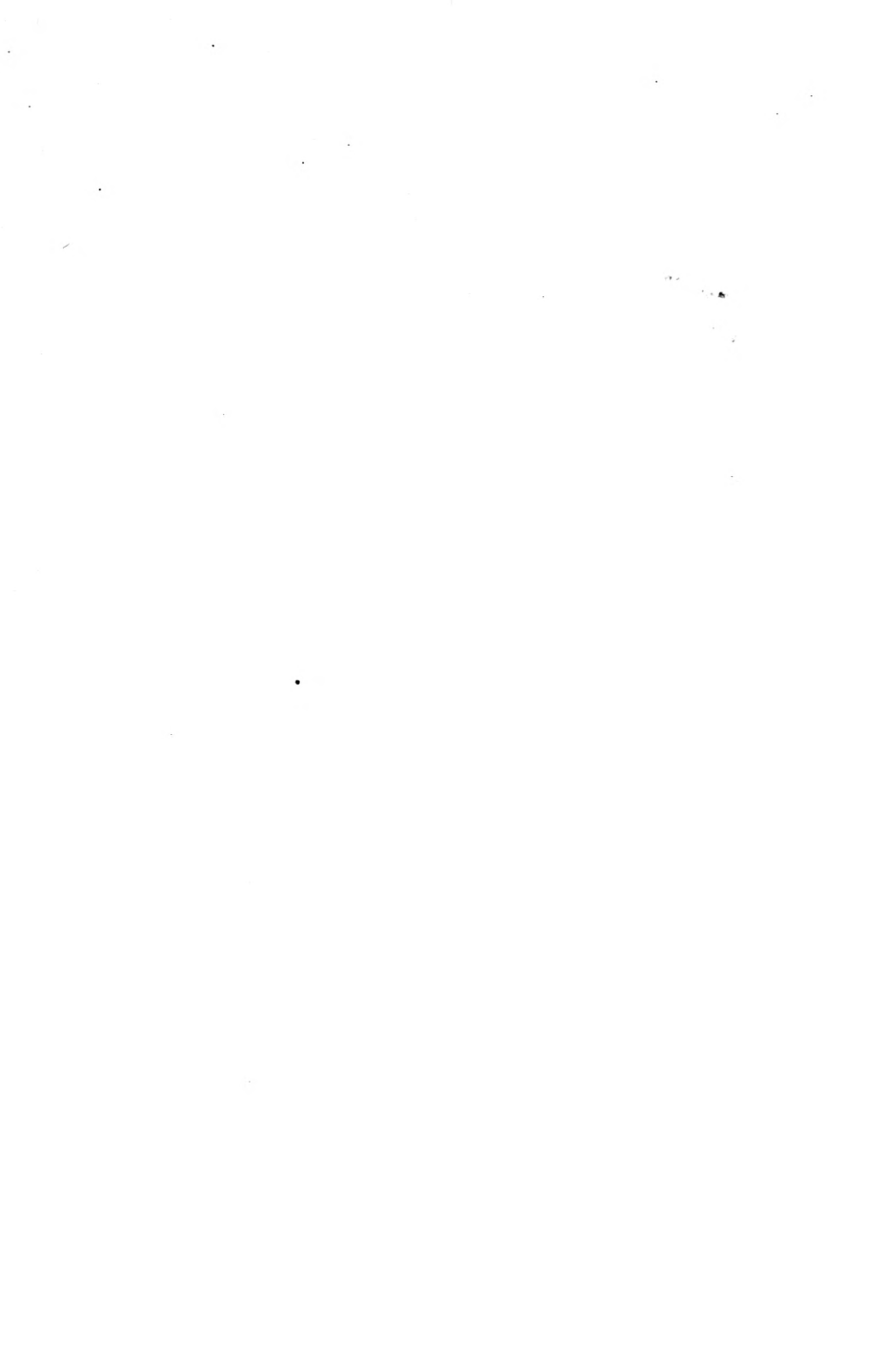
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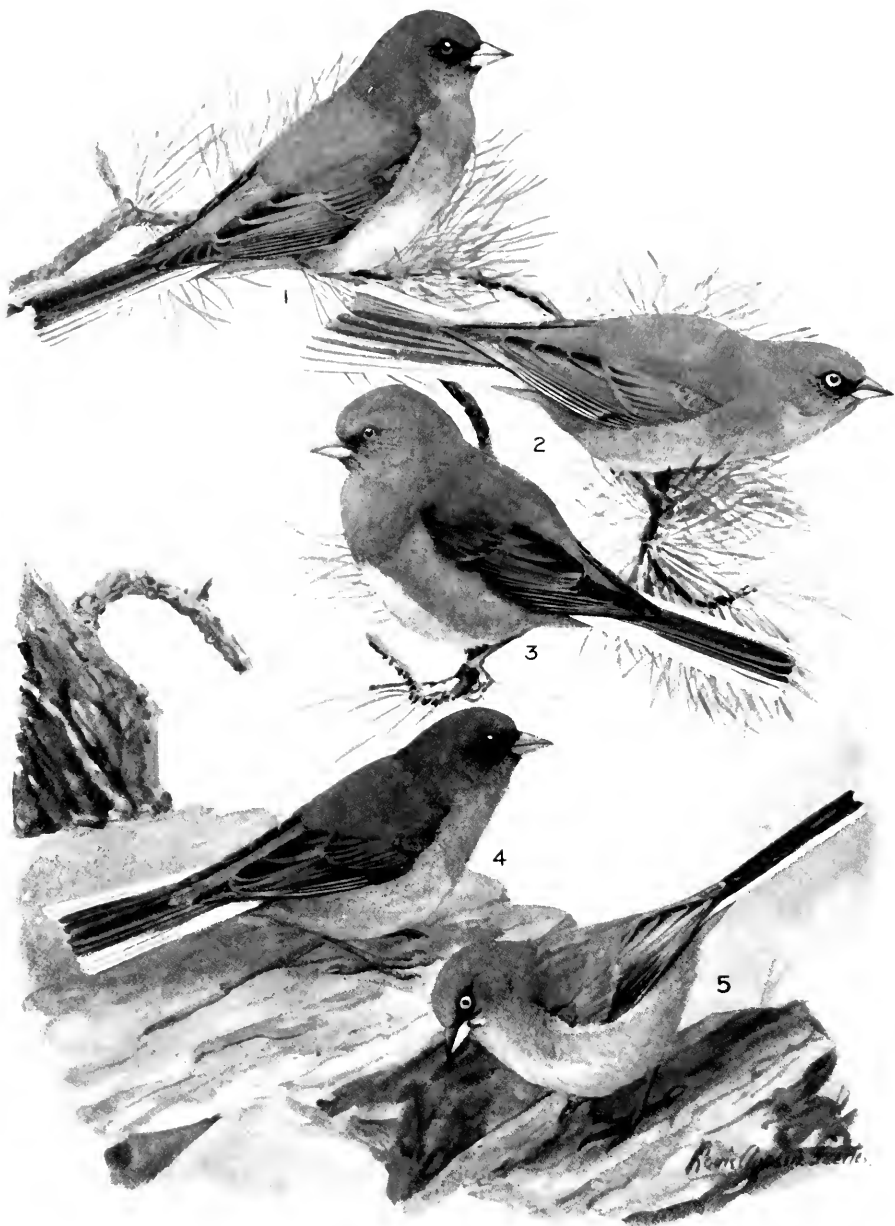
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1. GRAY-HEADED JUNCO
2. ARIZONA JUNCO

3. PINK-SIDED JUNCO
4. GUADALUPE JUNCO

5. BAIRD'S JUNCO
(One-half Natural Size)

Bird-Lore

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No. 1

Bird-Life in Southern Illinois

II. Larchmound: A Naturalist's Diary

By ROBERT RIDGWAY

WHEN it became evident that Bird Haven was impossible for summer residence, another place was purchased. Larchmound* appealed to us at first sight on account of its many fine trees: two European larches, a ponderosa pine, a white pine of exceptional symmetry, three hemlocks, two Norway spruces, many large red cedars, a magnificent silver maple, two boundary rows of large red maples, and others, planted more than fifty years ago; besides a few examples of the original growth, among them seven persimmon trees ranging in height from sixty to eighty feet, a splendid pin oak nearly eleven feet in circumference and at least ninety feet high, a spreading and very fruitful mulberry, a large wild cherry, several handsome shellbark hickories, and two elms, one of which has a spread of top measuring one hundred and ten feet.

Although located within the town limits, Larchmound is so near the corporation line as to be practically suburban, its eight acres of area occupying much of the greater part of a rectangle bounded by a street along each of its four sides. A small piece of woodland occupies a little more than one and a half acres at one end, the trees being mostly laurel oak (*Quercus imbricaria*), hickories (five species), white ash, wild cherry, persimmon, sassafras, white elm, white oak, and a few others, named nearly in the order of their relative abundance. The undergrowth is very dense, affording an excellent covert for such birds as the Cardinal, Towhee, Catbird, Brown Thrasher, and others of like habits. About two acres are comprised in an open field (now sown

*So named by the previous owners, in courtesy to whom the title is retained. There are two fine European larch trees standing near the house, but it requires considerable imagination to discover any mound. The original name of the locality was Persimmon Hill, the site having been occupied, in part, by a grove of persimmon trees, of which several fine specimens remain; but, again, the 'hill' is only imaginary. The explanation is that here, in a nearly level country, the least irregularity of surface is magnified by comparison; as it is in southern Florida, where occasional banks three or four feet high along the lower Kissimmee River are in local nomenclature, called bluffs!

to timothy and red clover), the remaining four acres (more or less) being occupied by the residence, lawn, ornamental planting, nursery, garden, and orchard.

Many years before Larchmound had been a fine and well-kept place, but of late had been sadly neglected, and much labor was required to restore its former beauty. Although abundantly supplied with trees, there was a great deficiency of shrubbery, which consisted of two lilacs, two 'syringas' (*Philadelphus grandiflorus*), a 'bridal-wreath' spirea, a snowball, a flowering almond, a Japan quince, a large clump of the old-fashioned blush rose, and a few other kinds, most of them, especially the lilacs, the 'syringas,' and the snowball, very old and grown to a large size. The need of additional sheltering and nesting-places for birds near the dwelling being evident, the planting of borders and groups was among the very first of the improvements started, and now there are several hundred additional shrubs growing, so that very soon the birds will be well provided for in this respect. Many pans of water are kept constantly filled by the Mistress of Larchmound, who also provides, with a lavish and loving hand, cracked nuts, suet, and other food; the result being that birds have already greatly increased in numbers, and are yearly becoming more numerous. On March 14 of the present year, nesting-boxes, of various sizes, were fastened to the trees in all parts of the grounds (the woods included), and an eight-compartment box for Purple Martins put up on a tall pole at one corner of the garden; but this experiment proved only a partial success, for nearly all these boxes were monopolized by one pair of Red-headed Woodpeckers, several pairs of House Wrens, and two or more pairs of flying squirrels. Herein, apparently, lies a serious problem: It seems impossible to have breeding on the same premises the two birds above mentioned and, at the same time, other species who also like nesting-boxes. The Red-headed Woodpecker, although one of our most strikingly handsome birds, and in many ways a most interesting one, is, unfortunately, extremely selfish and aggressive. Our single pair prevented any other Woodpeckers (the Downy, Hairy, and Red-bellied) from nesting in any of the boxes, drove two pairs of Flickers and one pair of Crested Flycatchers from boxes which they had chosen, and even attacked the Purple Martins whenever they alighted on the box put up for them.* The Flickers and Crested Flycatchers eventually found nesting-places in a remote corner of the grounds, but the other Woodpeckers mentioned gave up and disappeared during the nesting-season. The House Wren is equally tyrannical, and no other small bird can nest in his vicinity. Several pairs of Carolina Chickadees and Tufted Titmice, and a pair of Bewick's Wrens, that had been with us all winter, would have nested in boxes near the house but for the rascally House Wrens, who, though possessing boxes of their own, drove

*This, however, when only one or two Martins came. Later, when the Martins appeared 'in force,' that is to say a dozen or more pairs at once, the Redheads did not molest them; but one of the compartments was occupied by a pair of flying squirrels (as I discovered too late) and the Martins did not return.



A CORNER OF THE WOODS AT LARCHMOUND

the other birds away; though the first two species mentioned found boxes in the woods which they occupied without molestation.

Our continuous residence at Larchmound from early in June, 1913, to the present time (November 27, 1914), has enabled me to observe for an entire year, or indeed for an entire summer or winter, for the first time in nearly half a century, the birds of that section of our country where, as a boy, I first studied them. What this has meant to me, and how much the privilege has been enjoyed and appreciated, may be more easily imagined than told.



REAR VIEW OF LARCHMOUND

Both summers and the single winter of our sojourn at Larchmound were conspicuously abnormal, the former being characterized by severe droughts (the worst in thirty-two years) and excessively high temperature, the latter by unusual conditions. December was slightly colder than the average for that month (the mean temperature being 34.16° against the average of 35.22° for a period of twenty-two years), while January was slightly warmer (the mean being 33.24° against the average of 32.68°); but February, while at no time excessively cold (the minimum being 6° *), was *steadily* cold, the mean temperature being the lowest ever recorded for that month (23.40°) and eight and a half degrees colder than the average for twenty-two years (32.93°). The first half, or more, of March was nearly as cold as February, but I have not the official records for that month.

*The minimum for the same date at the Weather Bureau Station in town was 2°

The normal or average mean temperature of the different months at Olney*, as shown by the records for twenty-two consecutive years, are as follows: January, 32.68°; February, 32.93°; March, 44.91°; April, 55.58°; May, 66.58°; June, 76.02+°; July, 78.85+°; August, 77.67+°; September, 70.83°; October, 57.62°; November, 44.68°; December, 35.22°. The average mean annual temperature for the same period is 56.18° (extremes being 53.85° and 58.48°). The average date of the first killing frost in autumn is October 21†. The average annual precipitation for the same period is 39.39 inches, but varies from 29.33 inches (in 1891) to 52.91 inches (in 1907), the monthly averages being as follows: January, 2.96+ inches; February, 2.98+; March, 4.33+; April, 3.86; May, 3.69+; June, 3.73; July, 3.53+; August, 2.67+; September,



A BIT OF LARCHMOUND

3.41; October, 2.36; November, 3.18+; December, 2.67+. The distribution is not, however, so uniform as might appear from these averages, being, in fact, extremely irregular; that is to say, scarcely two years are closely similar in distribution of the rain- and snow-fall, and any one of the twelve months may represent either the maximum or minimum monthly precipitation for the year. Thus, in the twenty-two-year period the maximum monthly precipitation for a given year has fallen in every month except August and November, these monthly maximums (for the year) ranging from 3.98 inches in (January, 1899) to 12.33 inches (in September, 1911), the greatest amount recorded for each

*The latitude of Olney is 38°43'53"; longitude, 88°03'39"; altitude, 486.3 feet above mean tide at Sandy Hook.

†The records are very incomplete as to the last killing frost in spring, the date having been recorded for four years only. The average for these four years is April 24, the extremes being April 1 and May 10.

month during the twenty-two-year period being as follows: January, 7.53 inches (in 1907)*; February, 6.42 (1909); March, 11.77 (1897); April, 10.44 (1893); May, 6.63 (1908); June, 7.93 (1911); July, 8.67 (1896); August, 6.37 (1907)†; September, 12.23 (1911); October, 8.70 (1905); November, 6.71 (1891); December, 5.16 (1901).

The hottest month may be either June, July, or August, the coldest either of the three winter months. The highest mean temperature recorded for each month is as follows: January, 40.39° (in 1890); February, 41.66° (1890); March, 54.47° (1910); April, 64.12° (1896); May, 72.45° (1896); June, 79.30° (1911); July, 85.85° (1901); August, 83.09° (1900); September, 74.77° (1911); October, 64.46° (1900); November, 54.23 (1909); December, 42.07° (1891). The lowest mean temperatures being: January, 23.33° (1893); February, 24.44° (1899)‡; March, 35.81° (1906); April, 49.90° (1904); May, 61.45° (1907); June, 70.10° (1903); July, 75.03° (1895); August, 72.52° (1890); September, 61.99° (1890); October, 51.39° (1895); November, 39.49° (1911); December, 27.20° (1909). The lowest temperature recorded is -21° (on January 7, 1912), and the highest 109° (on July 24, 1901).

Probably in no other way can the seasonal changes in bird-life and vegetation—the two being intimately related—be more concisely told than by quoting extracts from my diary, omitting dates when there was nothing of interest to record. I do not remember to have seen such a record in print, and therefore believe that the following, covering, as it does, a period of seventeen consecutive months, will be of interest.

1913

June 5. *En route* from Washington to Olney, via B. & O. Southwestern. *Catalpa speciosa* in full bloom near and for some distance west of Cincinnati; past bloom (flowers all fallen) at Olney, where *C. catalpa* is coming into bloom.

June 7. *Catalpa catalpa* in nearly full bloom; orange day-lily (*Heimerocallis fulva*) with first flowers open.

June 16. *Spiraea tomentosa* and *Hypericum aureum* commencing to bloom.

June 23. Japanese varnish tree (*Kal-reuteria paniculata*) in full bloom.

June 26. Common Elder in full bloom (belated by drought?).

July 2. Rose of Sharon (*Hibicus syriacus*) commencing to bloom.

July 8. First flowers open of Meehan's mallow marvels.

July 18. Maximum temperature (official record), 106°.

July 27. First flowers of Chinese trumpet-vine (*Tecoma grandiflora*) open.

July 30. Maximum temperature (official record), 104°.

August 5. First flowers open of scarlet hibiscus (*H. coccineus*) and *Datura meteloides*. (Both these species absolutely hardy here.)

August 6. Maximum temperature (official record), 104°.

August 7. Maximum temperature (official record), 103°.

August 10. First flowers open of crepe

*In January, 1913, the precipitation was 9.01 inches.

†During August, 1914, the precipitation was 7.83 inches.

‡The mean temperature of February, 1914, however, was 23.40°. The records for 1912 and 1914 are incomplete, and therefore these years are not included in the averages cited.

myrtle. (Would have bloomed in July, but first set of flower-buds destroyed by aphides.)

August 19. *Dasystoma (virginica?)* in full bloom (in woods); a noble and striking plant, some stalks six to eight feet high; flowers numerous, bignonia-like, lemon yellow.

September 6. Crepe myrtle now in full bloom.

September 10. First Rose-breasted Grosbeak seen.

September 14. Purple turtle's-head (*Chelone obliqua*) in bloom.

September 20. Red-breasted Nuthatch and Ruby-crowned Kinglet arrived; blue lobelia (*L. syphilitica*) in bloom.

September 25. Olive-backed Thrush arrived.

October 1. Red Crossbill and Bay-breasted Warbler arrived.

October 2. Pine Siskin arrived.

October 4. Myrtle Warbler arrived.

October 11. Winter Wren arrived.

October 18. White-throated Sparrow arrived.

October 19. Song Sparrow arrived.

October 24. Brown Creeper first seen.

October 31. First Purple Finches heard; flocks of Red-winged Blackbirds flying southward; heavy frost (the first of the season) and thin ice (temperature at 6 A.M., 30°).

November 1. Coldest morning (temperature at 6.30 A.M., 24°), but a beautiful, bright, calm day.

November 20 and 21. Maximum temperature, 72°.

November 22. Maximum temperature 73°. Caught a garter snake and a tree-toad (*Hyla versicolor*); grasshoppers and other insects out.

November 23. Maximum temperature 75°.

November 29. Temperature at 7.30 A.M., 58°, at 5 P.M., 60°. Sweet violets (*V. odorata*) in bloom.

December 5. Temperature at 6.30 A.M., 53°. Sweet violets and yellow jessamine (*Jasminum nudiflorum*) in bloom.

December 6. Grass still vividly green; California privet and trifoliate orange still in full green leaf.

December 7. Sudden drop in temperature (27½° at 4.30 P.M.), with snow flurries and strong wind from N. W.

December 8. Temperature at 7 A.M., 22°, but a fine, clear day, thawing in the sun.

December 12 and 13. Beautiful Indian-summer-like weather.

December 15. Cloudy and excessively damp, with water constantly dripping from trees.

December 25. Temperature at 6 A.M., 33°; ground white with snow, and snowing hard, but ground wet and soft.

December 27. A Bewick's Wren visited the feeding-box by dining-room window. (Both this species and the Carolina Wren are very fond of cracked nuts, especially hickorynuts and black walnuts.)

(The succeeding article will contain the diary for 1914)



The Story of a Red-tailed Hawk.—In Two Parts

PART I

By MRS. A. B. MORGAN, Woodstock, Vt.

FATE decreed that June 12, 1912, and the story of a Red-tailed Hawk should be inseparably connected, since on that day a fledgling, rescued from a fallen tree that contained a Hawk's nest and three young birds, two of which met death in the fall, was brought to me in a bran-sack by the mail-carrier, who remarked with animation, "There's something your brother sent you from Appledore Farm, and I'd like to know what you'll do with it?" Little did I think *then* that his question would come to be my daily, almost hourly, cry.

With eager curiosity I snatched the sack open and saw before me an awkward, downy object that at first glance seemed to be mostly eyes and feet. That it was a Hawk there could be no doubt, and a very young one at that. As I took it in my hands to examine it further, it feigned dying, gasping with pitiful sobs as if in mental anguish and leading me to take it to cover at once and provide a soft nest for it in a slatted box. No sooner had I placed it therein than the strange creature raised its head and slowly drew back the films from the most appealing pair of eyes I have ever looked into. Something compelled me to say, "Why Johnny, Appledore Johnny, do you want something to eat?" At this he seemed to swoon, lying flat with his head buried in the excelsior I had placed in the box and oblivious to all my coaxings. I had nothing in the house that seemed like proper bird-food, but knowing that chickens thrive when first hatched on the yoke of hard-boiled eggs, I decided to give him some. I forcibly opened the big mouth and thrust the egg down his throat, following it with two teaspoonfuls of water. The operation, judging from his actions, was both painful and distasteful. With a baffled feeling, I turned away, thinking that I might have administered his death potion, but not so—he was destined to a future with me. I was called away for two days so that 'Johnny,' as I henceforth called him, staid in his box without being disturbed, and with no nourishment forced upon him. Upon my return he showed real hunger, and I fed him small pieces of juicy beefsteak. In less than a week from that time, so vigorous and lively did he seem that I fixed up a nest for him in the corner of a shed measuring 12 by 14 feet, and there he was destined to have his home.

For a few days I carried his food to his nest in a secluded corner of the shed, but soon I called him to the door to get it for himself and nothing could be funnier than to see him waddle toward me, lurching first on one side and then on the other, all the time crying out in peevish *e-e-e's* as if he could not wait to reach the morsel that I dangled before him. If he were very hungry when I first opened the door, he would give the scream that identified him in my mind as a Red-tailed Hawk; and so he proved to be.

His feathers, especially of wings and tail, grew rapidly, and soon the soft

fawn-color and bright brown crowded out the downy gray of his first days. Just one month from the day he came, July 12, I stretched out my hand to stroke his back as I had formed the habit of doing while he fed, and, at the touch, he lifted his wings and flew far enough away to be out of my reach. From that time he never *willingly* allowed human hands to touch him. I caught him occasionally and for a long time he manifested great fear, uttering a most pitiful sound and begging with all his art for mercy. The feathered films, now white, would close as if in death over his terrified eyes. If, as sometimes happened, I tied a cord to his leg and took him out - of - doors, upon his realizing that I was about to catch him to return him to his nest, he would throw himself on his back, spread out his wings to their fullest extent, curl up his feet, and then beg. But as time went on, he seemed to realize that somehow he always came out all right, and like the wise Hawk that he was, he ceased to struggle much or to be greatly annoyed when I picked him up. He never used his bill to strike me—his talons



"JOHNNY"

were for his protection, and though he became gentle with me in their use, with a stranger, or one he feared, he would use them mercilessly. During the whole of the first summer, if anything frightened or plagued him he would seek shelter in his nest, flattening himself out as if dead.

During the first month I fed him on beefsteak, liver and kidney, being careful to give him no fat, which he disliked decidedly. After that, I began to hunt for him, and the way he took his first mouse was a most striking example of the power of instinct. As I held it before him, his wonderful sight comprehended in an instant that there was the thing that his body craved. With a wild

triumphant screech he bounded to the very roof, and descending, struck the mouse from my hand with his talons. His instinct also taught him to take his prey to cover and to hover over it with outspread wings, sometimes flapping them or quivering them as he gazed with delight at his coming meal. He greatly preferred to have no spectators at this ceremony and generally, when strangers were about, he would utterly refuse to eat but would instead stand with the food covered and scold incessantly for them to depart.

His first frog which he took at a flash, disturbed him considerably by its spasmodic jerkings, and it was a long time before he felt assured of its being a safe thing to swallow; but, after his first taste, he recognized as an epicure that frog's legs are one of the greatest delicacies. A snake he viewed with much suspicion, standing back and looking it over as if it were abhorrent. Finally he gathered himself together and sprang upon it with both feet, but, as he felt the squirming motion, as quickly sprang back. This was repeated till finally he tore it apart in small pieces which he quickly swallowed. Not so with mice, which he gulped down whole, sometimes taking five at a meal. Be it said, however, that the fifth one went down hard. He would look at me with an expression of dread, actually, as if "I cannot waste it—can I eat it?" Then, nipping its skin, he would toss the creature toward me, then jump for it, again giving it a careful survey. After long deliberation he would turn his back on me as if fairly ashamed and work it down his already crowded throat.

Grasshoppers he took at first sight; crickets, which were often in his shed, he would watch interestedly, but never touch. At one time we put angle worms in a squirming mass before him. He struck them with his talons, fiercely recoiling with quivering wings and flashing eyes, and screaming with anger that he should thus be affronted.

One of the strange things to me was that he seemed to want no water. The dish which I filled for him, hoping he might bathe as well as drink, seemed to remain untouched. After putting it before him I would watch through a crack to see what happened. He would crane his head to examine it, sometimes just putting the point of his bill in the water, but invariably shaking it off. Toward the last of the first summer I ceased to put water before him, finding the amount I had put before him undiminished and therefore deciding that the juicy meat satisfied his needs. It was not till his *second* summer that he manifested a real desire for water. It had been an unusually hot day and Johnny drooped, but he also teased as if I had not fed him. He was always most fascinating at such times, turning his pretty head in almost a complete circle, hopping nearer and nearer to me till he could pull at my dress. Naturally I thought that water would meet his needs on such a day so I put before him a large panful. Before I had time to step back he had hurled himself into the pan. Sitting down on his tail, he kicked out with his feet in every direction and he did not cease till he was wet to his skin and was certainly the strangest looking Hawk I ever beheld. Then he began to drink and I felt quite sure he would kill himself, but after a

while he commenced to have something like the hiccoughs, which deterred him from drinking more, and soon hopped up to his perch and commenced preening his be-draggled feathers. This occupied him the rest of the day and when morning came he was the fluffiest and most beautiful creature imaginable. From that time on he drank and bathed regularly.

(To be concluded in the next issue.)

How Winter Thins Their Ranks

By JOSEPH W. LIPPINCOTT, Bethayres, Pa.

With photographs by the author

WHENEVER in the midst of winter I come across a starved or frozen feathered body, it usually occurs to me to look about for signs of animal or other marauder. The cold and the snow may grip all the land and there yet be sufficient shelter and food for each bird if fear of insistent foes does not discourage the industrious fellow from going where he can find both.

In New Jersey and Pennsylvania one now and then picks up in the snow a Quail which is almost a feather-covered skeleton. At first glance it would seem that the cold alone is to be blamed; but has not a Hawk perhaps kept guard over the only field where the weed-seeds still cling abundantly on stalks over the snow, or is not the track of an insidious fox discernible along the thicket edges where the covey cozily bedded until perhaps, in the gray, freezing hours, it was scattered in all directions?

Again and again have I found it so. Certain birds seem to have a terrible fear of large Hawks, though the latter may have no evil intentions toward them. While the Junco feeds happily in the open, shy birds like the Quail circle about the field, too timid to venture into the white expanse until nearly night-time, when they cannot find sufficient provender to maintain strength day after day—the strength that gives bodily heat. The supply within reach goes and they get weaker and weaker until a thaw comes to the rescue or until they give up the long, hard fight.

In January, 1912, I was in South Carolina on the old road from Charleston to Columbia, when the great freeze came with its blinding snowfall, and the mercury dropped to 10°. It caught the birds wintering there completely by surprise. There were quantities of them about the corn- and cotton-fields, cowering silently in the snow-beaten bushes to escape a bitter north wind. For the second time in many years the plantations were gradually buried under a white mantle.

The gloomy day closed with falling mercury and almost no visible signs of bird-life. In walking about, however, I came upon many in a strange variety of hiding-places. Several kinds of Sparrows popped out of bunches of

grass, crevices of wood-piles, even from behind old tree-trunks, while along the ditches Brown Thrashers, Catbirds, Towhees and various other birds could be pulled from under roots or out of rat-holes.



WHERE A FOX HAD DROPPED THEM

From the mouth of one big drain a flock of small birds fluttered, only to return over the snow in ones and twos, nearly frozen. Careful search showed that everywhere in the snow-fields were birds, all cheerless, hopelessly low-spirited and cold—altogether at one's mercy. Their unusual tameness almost made it seem like a new world.

Next morning strong fliers, like the Doves and Meadowlarks, fairly thronged the bare corn-fields, other birds here and there fed on the weed-seeds, but in the cold could scarcely move and, for the most part, sat about hunched in feather balls. Along the edge of the woods one heard Bluebirds, Jays, and an occasional Flicker; otherwise all would have been quiet. In the

afternoon many actually began to lose the power to fly and, consequently, to stick closer than ever to their poor retreat.

The one covey of Quail I saw that day was huddled under a mass of dry grass from which the birds had not dared to stir since the beginning of the snowfall. Strange to say, the shelter they occupied showed no sign of their having moved more than a few inches in thirty-six hours, for the snow above was unbroken until I came, and was not disturbed at the sides. I almost stepped on them in my walk around a field, and instead of the full roar of wings, heard only a fluttering as the already weakened bodies sought other shelter. The bird I saw alight ran into a water-rat's hole.

The Towhees found satisfaction in roosting under loosely built farm-buildings and, during the least cold hours of the day, in following the half-wild pigs which rooted up the snow and earth in soft places. Only a few Cardinals, Blue Jays, Yellow-bellied Sapsuckers, and Tufted Titmice retained any of

their usual spirits. They seemed to understand the situation and to know how to make the best of it. The Ducks and many Herons had apparently left the frozen water for farther south.

The peculiar fact, however, in connection with this unusual experience was that the saddest, most pitiful part of all the cold siege proved to be the work of the predatory animals which seem invariably to be on hand to take advantage of the weather's whims. On the first night every fox in the land seemed to have been abroad for slaughter, and as the rabbits and field-mice were well hidden, the hunting was all for the easy birds.

The tracks of these gray foxes in the feathery snow showed that the animals hunted for the most part in pairs and divided up the ground in such a way as to cover a large amount of territory. They led up wind, this way and that, with here and there a deep long set of marks showing where a spring had been made on a helpless, sleepy little Sparrow that huddled against a few grass blades. Some blood and the crumpled carcass always told the tale. There were no misses that night. In one field a fox killed five Sparrows within about a hundred yards' distance. Not one was eaten.

At midday following, Red-tail and smaller Hawks, Turkey Vultures and Black Vultures, sat on the trees gorged with food. Owls were very noisy at night and may have been destructive to the little birds, because the mice stayed under the snow; but I am glad to say I found no proof whatever of this. To the small boy and the gun belonged much blame. Armed with sticks, parties of plantation lads knocked down surprising numbers of the weakened birds of all kinds and shot any variety that they saw, entirely regardless of size or anything else.

Fortunately, the third day brought the sun to the rescue; it warmed the air and melted out patches of ground from the snow's clutches so that large and small could feed. Beside the briar patches and hedge rows birds fairly swarmed, rejoicing. New, glorious life had suddenly come into things!

I walked a good many miles and explored many out-of-the-way places but



TOWHEE SO WEAKENED BY HUNGER THAT
IT COULD NOT FLY

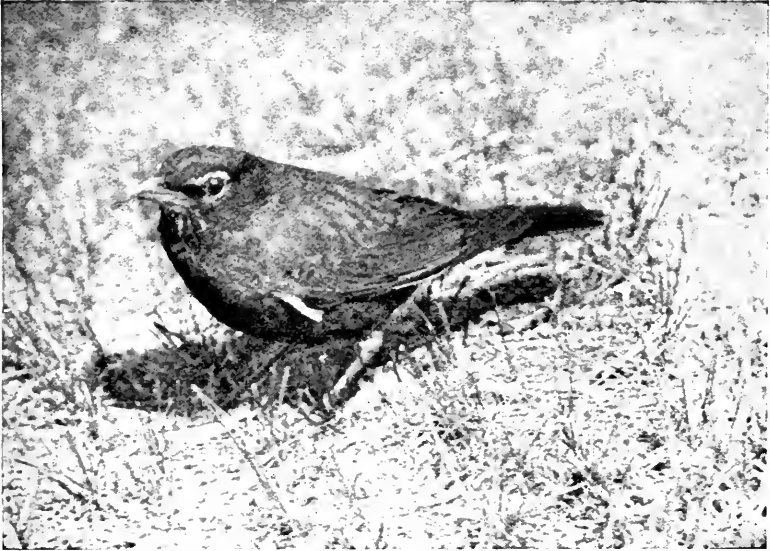
could not find a single bird that had been directly killed by cold or hunger in the two and one-half days they were snowbound. Just as so often happens in the North, all might have been well had not their weakened condition made them easy prey to enemies who fear not the cold.

The sleepy 'possum becomes an alert demon at night when hunger and cold gnaw, while the mere hoot of a Great Horned Owl will spoil the rest of many of the birds within hearing. In the South Carolina cold snap, foxes did more of the killing than other animals and I am trying to be fair to them when I state that the average destruction by each one in that neighborhood must have embraced at least twenty insectivorous and song-birds during the first night,—a startling number indeed! Nor were these buried for future use; they were generally crunched, dropped to one side and simply left in the snow,—sad blots in the almost unbroken whiteness.

In the North, it is much the same. The mice, rats and other legitimate food remain under the snow-crust, so that the birds and rabbits are often the only remaining food for foxes, weasels, etc., at a time when the former are least fit to protect themselves. The tracks in the snow show many a thrilling stalk and escape—and many a tragedy. How much would we know of the happenings of night, that mysterious time, without this wonderful record written in the winter woods and fields?



A SINGING SWAMP SPARROW
Photographed by Arthur A. Allen at Ithaca, N. Y.



AN EARLY BIRD

Two photographs of the Robin, in unusually characteristic poses,
by Arthur T. Henrici, Minneapolis, Minn.



Bird-Lore's Advisory Council

WITH some slight alterations, 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 fifteen years that it has been in operation fully equals our expectations. 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 to members of the Council be accompanied by a stamped and addressed envelope for use in replying.

NAMES AND ADDRESSES OF MEMBERS OF THE ADVISORY COUNCIL

UNITED STATES AND TERRITORIES

ALASKA.—Dr. C. Hart Merriam, 1919 16th. St. N. W., Washington, D. C.

ARIZONA.—Harriet I. Thornber, Tucson, Ariz.

CALIFORNIA.—Joseph Grinnell, University of California, Berkeley, Cal.

CALIFORNIA.—Walter K. Fisher, Palo Alto, Cal.

COLORADO.—Dr. W. H. Bergtold, 1460 Clayton Ave., Denver, Colo.

CONNECTICUT.—J. H. Sage, Portland, Conn.

DELAWARE.—S. N. Rhoads, Haddonfield, N. J.

DISTRICT OF COLUMBIA.—Dr. C. W. Richmond, U. S. Nat'l. Mus., Washington, D. C.

FLORIDA.—Frank M. Chapman, American Museum Natural History, New York City.

FLORIDA, Western.—R. W. Williams, Jr., Tallahassee, Fla.

GEORGIA.—Dr. Eugene Murphy, Augusta, Ga.

ILLINOIS, Northern.—B. T. Gault, Glen Ellyn, Ill.

ILLINOIS, Southern.—Robert Ridgway, U. S. National Museum, Washington, D. C.

INDIANA.—A. W. Butler, State House, Indianapolis, Ind.

INDIAN TERRITORY.—Prof. W. W. Cooke, Biological Survey, Washington, D. C.

IOWA.—C. R. Keyes, Mt. Vernon, Iowa.

KANSAS.—University of Kansas, Lawrence, Kan.

LOUISIANA.—Prof. George E. Beyer, Tulane University, New Orleans, La.

MAINE.—A. H. Norton, Society of Natural History, Portland, Me.

MASSACHUSETTS.—William Brewster, Cambridge, Mass.

MICHIGAN.—Prof. W. B. Barrows, Agricultural College, Mich.

MINNESOTA.—Dr. T. S. Roberts, 1603 Fourth Avenue South, Minneapolis, Minn.

MISSOURI.—O. Widmann, 5105 Morgan St., St. Louis, Mo.

MONTANA.—Prof. J. M. Elrod, University of Montana, Missoula, Mont.

NEBRASKA.—Dr. R. H. Walcott, University of Nebraska, Lincoln, Neb.

- NEVADA.—Dr. A. K. Fisher, Biological Survey, Dept. of Agr., Washington, D. C.
 NEW HAMPSHIRE.—Dr. G. M. Allen, Boston Soc. Nat. Hist., Boston.
 NEW JERSEY, Northern.—Frank M. Chapman, Am. Mus. Nat. History, N. Y. City.
 NEW JERSEY, Southern.—Witmer Stone, Academy Natural Sciences, Philadelphia, Pa.
 NEW MEXICO.—Dr. A. K. Fisher, Biological Survey, Dept. of Agr., Washington, D. C.
 NEW YORK, Eastern.—Dr. A. K. Fisher, Biological Survey, Washington, D. C.
 NEW YORK, Northern.—Egbert Bagg, 191 Genesee Street, Utica, N. Y.
 NEW YORK, Western.—E. H. Eaton, Hobart College, Geneva, N. Y.
 NORTH DAKOTA.—Prof. O. G. Libby, University, N. D.
 NORTH CAROLINA.—Prof. T. G. Pearson, 1974 Broadway, New York City.
 OHIO.—Prof. Lynds Jones, Oberlin College, Oberlin, Ohio.
 OKLAHOMA.—Dr. A. K. Fisher, Biological Survey, Dept. of Agr., Washington, D. C.
 OREGON.—W. L. Finley, Milwaukee, Ore.
 PENNSYLVANIA, Eastern.—Witmer Stone, Acad. Nat. Sciences, Philadelphia, Pa.
 PENNSYLVANIA, Western.—W. Clyde Todd, Carnegie Museum, Pittsburgh, Pa.
 RHODE ISLAND.—H. S. Hathaway, Box 1466, Providence, R. I.
 SOUTH CAROLINA.—Dr. P. M. Rea, Charleston Museum, Charleston, S. C.
 TEXAS.—H. P. Attwater, Houston, Tex.
 UTAH.—Prof. Marcus E. Jones, Salt Lake City, Utah.
 VERMONT.—Prof. G. H. Perkins, Burlington, Vt.
 VIRGINIA.—Dr. W. C. Rives, 1723 I Street, Washington, D. C.
 WASHINGTON.—Samuel F. Rathburn, Seattle, Wash.
 WEST VIRGINIA.—Dr. W. C. Rives, 1723 I Street, Washington, D. C.
 WISCONSIN.—H. L. Ward, Public Museum, Milwaukee, Wis.

CANADA

- ALBERTA.—G. F. Dippie, Calgary, Alta.
 BRITISH COLUMBIA.—Francis Kermodé, Provincial Museum, Victoria, B. C.
 MANITOBA.—Ernest Thompson Seton, Greenwich, Conn.
 NOVA SCOTIA.—Harry Piers, Provincial Museum, Halifax, N. S.
 ONTARIO, Eastern.—James H. Fleming, 267 Rusholme Road, Toronto, Ont.
 ONTARIO, Western.—W. E. Saunders, London, Ont.
 QUEBEC.—E. D. Wintle, 189 St. James Street, Montreal, Canada.

MEXICO

- E. W. Nelson, Biological Survey, Department of Agriculture, Washington, D. C.

WEST INDIES

- C. B. Cory, Field Museum, Chicago, Ill.

GREAT BRITAIN

- Clinton G. Abbott, 153 West 73d St., New York City, N. Y.

The Migration of North American Sparrows

THIRTY-SECOND PAPER

Compiled by Prof. W. W. Cooke, Chiefly from Data in the Biological Survey

With Drawings by LOUIS AGASSIZ FUERTES

(See Frontispiece)

PINK-SIDED JUNCO

The main range of the Rocky Mountains, from southern Canada to northern Mexico, is occupied in summer by four forms of Junco. The Pink-sided is the most northern, breeding from southern Saskatchewan through central Montana to northern Wyoming and southern Idaho. Just to the south of its range comes the Gray-headed Junco, which is the commonest summer bird of the central Rocky Mountain region and is particularly abundant in the mountains of Colorado, where, at eight to nine thousand feet, it nests in dooryards and about porches, like the familiar Chipping Sparrow of the East. It breeds from southern Wyoming to northern New Mexico and west in Utah and Nevada. The principal breeding Junco of New Mexico and Arizona is the Red-backed Junco, which occupies the higher slopes of the mountains of northern Arizona and most of the mountains of New Mexico, except the extreme northern part and a small section in the southwestern part of the state. The Arizona Junco is found principally in northern Mexico, but a few nest in the mountains of southern Arizona and southwestern New Mexico.

The Pink-sided Junco is the commonest winter Junco of the lower parts of the northern Colorado mountains. It arrived at Boulder, September 3, 1910; Colorado Springs, September 30, 1913; Chusca Mountains, N. M., October 1, 1908; Willow Creek, Mogollon Mountains, N. M., October 26, 1906, and the Huachuca Mountains, Ariz., October 18, 1907. The last were noted at Anaconda, Mont., September 30, 1909, and September 25, 1910. The extreme southern limit is found in the Chisos Mountains, Texas, where the species was taken January 23, 1914. It was taken November 2, 1910, as far east as Crawford, Neb.

The first Pink-sided Junco returned to Anaconda, Mont., March 23, 1910, and the last was noted at Silver City, N. M., March 25, 1884; Carlisle, N. M., April 10, 1890; Huachuca Mountains, Ariz., April 15, 1903; Coventry, Colo., April 29, 1908; Colorado Springs, Colo., May 4, 1872, and Golden, Colo., May 15, 1907.

GRAY-HEADED JUNCO

This Junco remains in Colorado throughout the year, breeding in the mountains and wintering in the foothills and on the plains. The first was noted at Boulder, September 19, 1909, and October 1, 1910. It remains here through the winter, this being the most northern known place in its winter home. The

larger part return to the mountains in late March and April, while the last one was noted at Boulder, April 28, 1912; Altoona, May 1, 1903; Fountain, May 3, 1872; Ramah, May 16, 1904, and Buttes, May 16, 1908. Up in the mountains where the species does not winter, the first arrived at Sweetwater, March 5, 1898, and in Estes Park, April 8, 1912. The extreme southern point of the breeding range is the Zuni Mountains, N. M. In fall migration, the species spreads over all of New Mexico west of the Rio Grande and east to the Manzano Mountains, October 8, 1903; Corona, October 12, 1902; and south to the Mogollon Mountains, October 18, 1906. In 1892, it was noted along the southern boundary of New Mexico until April 18, and in 1890, at Carlisle until April 15. The first arrival was noted in the San Francisco Mountains, Ariz., October 14, 1857; Santa Catalina Mountains, October 15, 1884, and the Huachuca Mountains, October 29, 1907. The species remained in these last mountains to April 6, 1902, and a laggard to May 2, 1896. The last one was recorded at Oracle, April 6, 1911. The earliest record at Nogales, Sonora, is October 26, 1893, and the latest at Cienega de las Vacas, Durango, April 3. The species has strayed far beyond its normal limits to Pasadena, Calif., October 26, 1894, and to Julian, Calif., November 18, 1906.

ARIZONA JUNCO

The Arizona Junco is the common breeding form in the mountains of southern Arizona and the neighboring parts of Mexico, though much the larger number of individuals breed south of the United States, while a few breed in the Animas Mountains on Animas Peak in southwestern New Mexico. It is apparently non-migratory and remains throughout the year at its breeding grounds high up in the mountains.

BAIRD'S JUNCO

This is a non-migratory species, inhabiting the mountains of the southern end of Lower California.

GUADALUPE JUNCO

This species is known only from Guadalupe Island, off the coast of Lower California.



Notes on the Plumage of North American Sparrows

THIRTY-FIRST PAPER

By FRANK M. CHAPMAN

(See Frontispiece)

8. **Montana Junco** (*Junco hyemalis montanus*). Resembles the Pink-sided Junco (Fig. 3) in general color, but is darker and the crown is browner and less clearly defined from the back. From the Slate-colored Junco, with which it is sometimes found associated during migrations or in the winter, the Montana Junco differs chiefly in its pinkish brown sides. This character is also shown by some immature (usually female) specimens of the Slate-colored Junco, but such specimens also have the breast heavily washed with brown, whereas in *montanus*, the sides may be strongly pinkish brown and the breast comparatively clear gray.

Range.—"Northern Rocky Mountains. Breeds in Canadian Zone from southern Alberta south to northern Idaho and northwestern Montana; winters south to Arizona, New Mexico, Chihuahua, and Texas, and east casually to Kansas, Illinois, Indiana, Massachusetts, and Maryland." (A. O. U.)

9. **Pink-sided Junco** (*Junco hyemalis mearnsi*. Fig. 3). Distinguished by the broadly pinkish brown sides, pale gray throat, and somewhat darker crown which is clearly demarked from the brownish back.

Range.—"Rocky Mountain region. Breed from southwestern Saskatchewan to southern Idaho and northern Wyoming; winters south through Wyoming and Colorado to southern Arizona, southern New Mexico, and northeastern Sonora." (A. O. U.)

10. **Ridgway's Junco** (*Junco hyemalis annectens*). Although included in the A. O. U. 'Check-List' this is considered by Ridgway to be a hybrid between *Junco caniceps* (Fig. 1) and *J. mearnsi* (cf. Bull. U. S., N. M., 50, I, p. 276)

Range.—"Wyoming, Colorado, Arizona, and New Mexico." (A. O. U.)

11. **Townsend's Junco** (*Junco hyemalis townsendi*). Resembles the Montana Junco but has the back grayer, the brownish wash being much reduced

Range.—"San Pedro Martir Mountains, Lower California." (A. O. U.)

12. **Baird's Junco** (*Junco bairdi*. Fig. 5). Back and sides rusty cinnamon head gray, throat and breast grayish white.

Range.—"Mountains of the Cape Region of Lower California." (A. O. U.)

13. **Guadalupe Junco** (*Junco insularis*. Fig. 4). Resembles the Pink-sided Junco but is smaller, with a longer bill and darker head and breast.

Range.—"Guadalupe Island, Lower California." (A. O. U.)

14. **Arizona Junco** (*Junco phaeonotus palliatus*. Fig. 2). Distinguished among the 'red-backed' Juncos by the reddish brown on the wing-coverts and tertials. According to Brooks ('Condor,' XVI, 1914, p. 116) this Junco has a "brilliant yellow iris," while the upper mandible is "black" and the lower mandible "pale yellow." This author further states of this species: "Its motions

are just as different from other Juncos as its eyes and bill are, as it walks daintily and deliberately over the floor of the forest like a Titlark or Water-Thrush, instead of the shuffling hop of Juncos and Sparrows."

Range.—"Mountains of southern Arizona and northern Mexico in Coahuila, Chihuahua, and Sonora." (A. O. U.)

15. **Red-backed Junco** (*Junco phæonotus dorsalis*). Resembles the Arizona Junco in general coloration but has no reddish brown on the wings, while the bill, according to Brooks, is "pinkish" and the iris "dark claret-colored."

Range.—"Breeds in Transition and Canadian Zones of high mountains in Arizona and New Mexico; winters south to southwestern Texas, Sonora, and Chihuahua." (A. O. U.)

16. **Gray-headed Junco** (*Junco phæonotus caniceps*. Fig. 1). Resembles the Red-backed Junco in general coloration but has the gray areas darker, the belly whiter and more clearly defined from the gray breast.

Range.—"Rocky Mountain region. Breeds in southern Wyoming, Colorado, Utah, Nevada, and northern New Mexico; winters at lower elevations and south to Sonora and Chihuahua; casual in southern California." (A. O. U.)



PHOTOGRAPH OF A DUCK HAWK WHICH HAS MADE THE UPPER STORIES OF THE NEW MUNICIPAL BUILDING IN NEW YORK CITY ITS WINTER QUARTERS. IT LIVED ON PIGEONS.—Courtesy of *The New York Evening World*.

Bird-Lore's Fifteenth Christmas Census

INTRODUCTORY NOTE

THE bird life of our country this winter, as revealed by the Christmas Census, is remarkable chiefly for what it lacks. There are few instances of summer residents' staying exceptionally north, and only the commonest of winter visitors have come south. Song Sparrows seem more abundant and Fox Sparrows are more generally distributed (though usually only one or two to a locality) further north than usual. There is not a Crossbill of either species in the entire Census, Pine Grosbeaks occur in only two localities and Redpolls in three, and Northern Shrikes and even Siskins are rare. Furthermore, Black-capped Chickadees and to some extent Tree Sparrows are at least locally scarce. Several observers speak of the fewness of birds in general.

Santa Barbara, California, with 108 species, breaks by five its wonderful record of 1912. It has no competitors. The great numbers of waterfowl seen there and at Currituck Sound in the East make mighty good reading.

The number of lists published slightly exceeds that of last year, in spite of the exclusion of many as seeming unrepresentative, especially those showing less than two hours spent in the field and those dated before December 20th or after the 30th. There was a general improvement in the make-up of the reports, and only thirteen of those published had to be entirely rewritten. When undated, Christmas Day was assumed.—C. H. R.

Arnprior, Ont.—Dec. 25; 10 A.M. to 4 P.M. Clear; 6 in. of snow; wind north, light; temp. -10° to $+4^{\circ}$. Canadian Ruffed Grouse, 3; American Crow, 1; Purple Finch, 21; Goldfinch, 77; Snow Bunting, 3; Brown Creeper, 1; White-breasted Nuthatch, 5; Red-breasted Nuthatch, 3; Black-capped Chickadee, 16. Total, 9 species, 130 individuals.—CHARLES MACNAMARA and LIGUORI GORMBY.

Franklin and Reaboro, Ont.—Dec. 23; 6.55 A.M. to 1.15 P.M.; 2.20 P.M. to 5.15 P.M. Clear A.M., overcast P.M.; 7 in. of snow with much drifting; wind northwest, moderately strong; temp. 2° to 8° . Canadian Ruffed Grouse, 10; Hairy Woodpecker, 8; Downy Woodpecker, 4; Blue Jay, 17; Purple Finch, 14; Goldfinch, 13; Pine Siskin, 90+; Redpoll, 3; Snow Bunting, 75; Song Sparrow, 1; Brown Creeper, 1; White-breasted Nuthatch, 8; Red-breasted Nuthatch, 7; Chickadee, 45. Total, 14 species, 294 individuals. One Great Horned Owl seen on early morning of 24th. Golden-crowned Kinglet in vicinity.—E. W. CALVERT.

London, Ont. (vicinity of).—Dec. 25; 8.30 A.M. to 12 M. Clear, sun very bright; no wind; 15 to 18 in. of snow; temp. 20° . Trip taken on snowshoes. American Merganser, 22; American Goldeneye, 2; Downy Woodpecker, 1; Blue Jay, 1; Crow, 10; Purple Finch, 1; Tree Sparrow, 30; Slate-colored Junco, 15; Song Sparrow, 3; Brown Creeper, 1; White-breasted Nuthatch, 6; Red-breasted Nuthatch, 1; Black-capped Chickadee, 5; Golden-crowned Kinglet, 7. Total, 14 species, 105 individuals. Also observed recently Vesper Sparrow (first winter record), Bronzed Grackle, Cardinal (pair).—J. F. CALVERT, C. G. WATSON and E. M. S. DALE.

Millbrook, Ont.—Dec. 25; 9 A.M. to 1.30 P.M. Clear; foot of snow; wind north, light; temp. zero. Ruffed Grouse, 2; Blue Jay, 3; Hairy Woodpecker, 1; Downy Woodpecker, 2; Redpoll, 30; Snow Bunting, 300; Chickadee, 10. Total, 7 species, 348 individuals.—SAM HUNTER.

Port Dover, Ont.—Dec. 25; 10 A.M. to 12.45 P.M. Mostly clear; 1 ft. of snow; wind northeast, light; temp. 5° to 7°. Cooper's Hawk, 1; Hawk (apparently Red-tailed), 1; Blue Jay, 8; Crow, 2; Purple Finch, 2; Tree Sparrow, 10; Junco, 3; Song Sparrow, 2; White-breasted Nuthatch, 1; Chickadee, 16; Golden-crowned Kinglet, 3. Total, 11 species, 49 individuals.—ARTHUR W. PRESTON.

Yarmouth, Nova Scotia.—Dec. 29; 8 A.M. to 1 P.M. Cloudy, heavy sleet and rain from 11 A.M. on; 2 in. of snow; wind southeast, moderate; temp. at sunrise, 31°. Crow, 10; Vesper [?Ed.] Sparrow, 1; Junco, 2; Myrtle Warbler, 2; Red-breasted Nuthatch, 1; Acadian Chickadee, 1; Golden-crowned Kinglet, 1. Total, 7 species, 18 individuals.—HARRISON F. LEWIS.

Brunswick, Maine.—Dec. 25; 9 A.M. to 12.30 P.M. Six inches of snow; wind north; temp. —10°. Ruffed Grouse, 3; Downy Woodpecker, 2; Pine Grosbeak, 3; Goldfinch, 2; Pine Siskin, 8; Red-breasted Nuthatch, 1; Black-capped Chickadee, 5. Total, 7 species, 24 individuals.—DR. and MRS. ALFRED O. GROSS.

Nashua, N. H.—Dec. 24; 10.30 A.M. to 4 P.M. Cloudy; 5 in. of snow; wind northwest, very light; temp. 20°. American Merganser, 14; Ruffed Grouse, 3; Ring-necked Pheasant, 2; Hairy Woodpecker, 1; Blue Jay, 16; Crow, 6; Goldfinch, 47; Junco, 1; Brown Creeper, 1; White-breasted Nuthatch, 1; Red-breasted Nuthatch, 2; Black-capped Chickadee, 12. Total, 12 species, 106 individuals. Dec. 21, Downy Woodpecker, 1. Scarcity of Downy Woodpeckers this winter very remarkable; absent where usually common. Juncos also scarce.—MANLEY B. TOWNSEND.

Tilton, N. H.—Dec. 25; 10 A.M. to 1 P.M. Cloudy; about 12 in. of snow; wind northwest, strong; temp. 8°. American Merganser, 36; Canadian Ruffed Grouse, 1; Red-breasted Nuthatch, 5; Chickadee, 13; Golden-crowned Kinglet, 1. Total, 5 species, 56 individuals.—GEORGE L. PLIMPTON, THEODORE F. PLIMPTON and EDWARD H. PERKINS.

Wilton, N. H.—Dec. 25; 8 A.M. to 12.45 P.M. Clear to cloudy; 5 in. of snow; no wind; temp. 10° to 20°. Ruffed Grouse, 2; Downy Woodpecker, 1; Blue Jay, 12; Crow, 7; Tree Sparrow, 26; White-breasted Nuthatch, 1; Red-breasted Nuthatch, 8; Chickadee, 14. Total, 8 species, 71 individuals.—GEORGE G. BLANCHARD

Bennington, Vt.—Dec. 24; 11 A.M. to 12.30 P.M. Cloudy, with a few flakes of snow falling; 3 to 6 in. of snow; wind south, very light; temp. 10° to 20°. Ruffed Grouse, 1; Red-shouldered Hawk, 1; Downy Woodpecker, 3; Blue Jay, 7; Crow, 50+; Starling, 3; White-breasted Nuthatch, 2; Red-breasted Nuthatch, 2; Chickadee, 10. Total, 9 species, 79 individuals.—DR. and MRS. LUCRETIVS H. ROSS.

Boston, Mass.—Dec. 25; Leverett Pond and Arnold Arboretum, 9 A.M. to 12.30 P.M. Fresh Pond, Cambridge, 2 to 3.30 P.M. Clear and cold; ground covered with snow; wind northeast; temp. 15°. American Merganser, 14; Black Duck, 83; American Goldeneye, 1; Ring-necked Pheasant, 4; Ruffed Grouse, 1; Sparrow Hawk, 1; Downy Woodpecker, 1; Flicker, 11; Blue Jay, 19; Crow, 21; Purple Finch, 9; Goldfinch, 2; Tree Sparrow, 16; Song Sparrow, 6; Fox Sparrow, 3; Cedar Waxwing, 78; Brown Creeper, 2; White-breasted Nuthatch, 2; Chickadee, 7. Total, 19 species, 281 individuals.—IDA G. JENKINS and E. E. CADUC.

Boston, Mass. (Arnold Arboretum, Jamaica Pond, and Longwood, and route between).—Dec. 25; 10.15 A.M. to 1.15 P.M. Mainly clear; about 3 in. of snow and ice; wind northwest, moderate, increasing; temp. c. 32°. Herring Gull, 1; American Merganser, 3; Black Duck, 175+; Pheasant, 5; Flicker, 3; Blue Jay, 9; Crow, 14; Purple Finch, 8; Goldfinch, 1; White-throated Sparrow, 9; Junco, 9; Song Sparrow, 1; Cedar Waxwing, 20; Mockingbird, 1; Chickadee, 5; Robin, 2. Total, 16 species, 266 individuals.—MR. and MRS. ROYAL E. ROBBINS and MISS T. R. ROBBINS.

Brookline, Mass.—Dec. 27; reservoir, 11 A.M. to 12 M.; Leverett Pond and Arnold Arboretum, Jamaica Plain, 1 to 3.30 P.M. Overcast and snow squalls; ground covered with snow; wind northwest, light; temp. 20°. American Merganser, 23; Black Duck, 200;

Ring-necked Pheasant, 6; Downy Woodpecker, 1; Flicker, 2; Blue Jay, 11; Crow, 26; Purple Finch, 1; Goldfinch, 1; White-throated Sparrow, 1; Tree Sparrow, 15; Song Sparrow, 2; Cedar Waxwing, 70; Junco, 25; Chickadee, 36. Total, 15 species, 420 individuals.—EUGENE E. CADUC and IDA G. JENKINS.

Dighton, Mass.—Dec. 25; 8 A.M. to 12 M. Partly cloudy; 2 in. of snow; wind north-east, light; temp. 20°. Herring Gull, 12; Merganser, 20; Goldeneye, 5; Bob-white, 8; Ruffed Grouse, 2; Downy Woodpecker, 1; Flicker, 2; Horned Lark, 10; Blue Jay, 6; Crow, 250; Starling, flock of 60; Meadowlark, 10; Goldfinch, 8; Tree Sparrow, 10; Song Sparrow, 6; Northern Shrike, 1; Myrtle Warbler, 20; Chickadee, 5; Golden-crowned Kinglet, 1. Total, 19 species, 437 individuals.—F. SEYMOUR HERSEY and CHARLES L. PHILLIPS.

Duxbury, Mass.—Dec. 28; 8.30 A.M. to 4.30 P.M. Clear; ½ in. of snow; wind very light and variable; temp. 22° to 36°. Horned Grebe, 4; Loon, 10; Red-throated Loon, 1; Black-backed Gull, 7; Herring Gull, 118; Red-breasted Merganser, 24; Black Duck, 600; Goldeneye, 91; Old-squaw, 17; Scoter, 1; White-winged Scoter, 19; Surf Scoter, 4; Night Heron, 1; Bob white, 6; Flicker, 5; Horned Lark, 52; Blue Jay, 2; Crow, 9; Meadowlark, 27; Purple Finch, 3; Goldfinch, 34; Snow Bunting, 55; Ipswich Sparrow, 12; Tree Sparrow, 16; Song Sparrow, 16; Myrtle Warbler, 45; Palm Warbler, 1; Black-capped Chickadee, 22; Robin, 3. Total, 29 species, 1,195 individuals.—J. L. PETERS, JOSEPH KITREDGE, JR., BARRON BRAINERD, J. A. HAGAR and BRADFORD SARGENT.

Fairhaven, Mass.—Dec. 25; 10.30 A.M. to 1.30 P.M. Clear; light snow on ground; wind northwest, strong; temp. 20°. Herring Gull, 2; Bob-white, 15; Blue Jay, 5; Crow, 12; Purple Finch, 7; White-throated Sparrow, 5; Tree Sparrow, 6; Junco, 10; Song Sparrow, 1; Myrtle Warbler, 4; Chickadee, 13; Golden-crowned Kinglet, 3. Total, 12 species, 83 individuals.—MABEL L. POTTER.

Ipswich, Mass. (Castle Hill and Ipswich beach).—Dec. 26; 11 A.M. to 2.30 P.M. Four and one-half inches of snow; wind northwest, light, increasing at noon; temp. 2° below zero. Black-backed Gull, 20; Herring Gull, 30; Black Duck, 13; American Goldeneye, 1; Old-squaw, 2; Brant, 6; Pheasant, 3; Hairy Woodpecker, 1; Crow, 60; Redpoll, 20; Snow Bunting, 15; Tree Sparrow, 12; Song Sparrow, 1; Cedar Waxwing, 50; Northern Shrike, 1; Myrtle Warbler, 25; Brown Creeper, 1; Red-breasted Nuthatch, 1; Chickadee, 4. Total, 19 species, 266 individuals.—ANNIE W. COBB, ANNA K. BARRY and WILLIS BICKFORD.

Jamaica Plain and Nahant, Mass.—Dec. 21; 7 A.M. to 4.15 P.M. Cloudy; ground bare; wind east, moderate; temp. 30°. Holboell's Grebe, 1; Horned Grebe, 2; Loon, 1; Black-backed Gull, 6; Herring Gull, 2,500; Merganser, 18; Red-breasted Merganser, 19; Mallard, 1; Black Duck, 88 (including 1 Red-legged Black Duck); Baldpate, 3; Scaup Duck, 2; Lesser Scaup Duck, 78; Goldeneye, 108; Bufflehead, 26; Old-squaw, 14; Scoter, 1; White-winged Scoter, 12; Surf Scoter, 2; Ruddy Duck, 2; Coot, 2; Bob-white, 8; Ring-necked Pheasant, 19; Downy Woodpecker, 5; Flicker, 11; Blue Jay, 21; Crow, 24; Purple Finch, 4; Goldfinch, 2; White-throated Sparrow, 7; Tree Sparrow, 5; Junco, 15; Song Sparrow, 4; Cedar Waxwing, 52; Brown Creeper, 3; White-breasted Nuthatch, 1; Chickadee, 11; Golden-crowned Kinglet, 13; Robin, 6. Total, 38 species, 3,064 individuals.—RALPH M. HARRINGTON and HAROLD L. BARRETT.

Leominster, Mass. (and vicinity).—Dec. 25; 7 A.M. to 5 P.M. Partly cloudy; 5 in. of snow; wind northwest, light; temp. 25°. Herring Gull, 25; Pheasant, 6; Partridge, 3; Kingfisher, 1; Blue Jay, 13; Crow, 7; Tree Sparrow, 75; Junco, 5; Northern Shrike, 1; Red-breasted Nuthatch, 1; Chickadee, 9. Total, 11 species, 147 individuals.—EDWIN RUSSELL DAVIS.

Malden, Mass. (through Middlesex Fells to the Virginia Woods).—Dec. 28; 9 A.M. to 12 M. Fair; 3½ in. of snow; wind southwest, light; temp. 22° to 30°. Ring-necked Pheasant, 1; Cooper's Hawk, 1; Downy Woodpecker, 1; Blue Jay, 7; Crow, 14;

Goldfinch, 1; Brown Creeper, 3; Chickadee, 6; Golden-crowned Kinglet, 4. Total, 9 species, 37 individuals.—RICHARD GREENLEAF TURNER and GORDON BOIT WELLMAN.

Phillips Beach and Cambridge, Mass. (Belmont, Arlington, and Jamaica Pond).—Dec. 22; 7 A.M. to 5 P.M. Clear; ground snow-covered; wind south, moderate; temp. 30°. Black-backed Gull, 3; Herring Gull, 2,000; American Merganser, 6; Red-breasted Merganser, 6; Black Duck, 1,000; Ring-necked Pheasant, 5; Sparrow Hawk, 1; Downy Woodpecker, 1; Flicker, 1; Blue Jay, 4; Crow, 25; Starling, 12; Purple Finch, 11; Goldfinch, 9; White-throated Sparrow, 12; Junco, 6; Cedar Waxwing, 25; White-breasted Nuthatch, 1; Black-capped Chickadee, 10; Golden-crowned Kinglet, 12; Robin, 10. Total, 21 species, 3,160 individuals.—MYLES PIERCE BAKER, HOWARD M. FORBES and HENRY M. SPELMAN, JR.

Sandwich, Cape Cod, Mass.—Dec. 26; 11.45 A.M. to 1.30 P.M.; 2.15 P.M. to 3.50 P.M. Clear; 2 in. of snow; wind southwest, light; temp. at 11.45 A.M. 10°; at 2.15, 12°. Herring Gull, 1; Bob-white, 6; Hairy Woodpecker, 1; Flicker, 3; Crow, 20; Meadowlark, 3; Goldfinch, 1; Tree Sparrow, 1; Junco, 17; Song Sparrow, 1; Chickadee, 9; Robin, 20; Bluebird, 2. Total, 13 species, 85 individuals.—BEULAH WADSWORTH HIGGINS.

Sheffield, Mass.—Dec. 26; 11.30 A.M. to 1 P.M. Brilliantly clear; 4 in. of snow. wind northwest, sharp; temp. zero. Ruffed Grouse, 2; Blue Jay, 1; Goldfinch, 3; Tree Sparrow, 1; Red-breasted Nuthatch, 5; Chickadee, 4; Golden-crowned Kinglets heard Total, 7 species, about 20 individuals.—HAMILTON GIBSON and TERTIUS VAN DYKE

Shelburne Falls, Mass.—Dec. 20; 9 A.M. to 2 P.M. Clear; 3 in. of snow, which was covered with ice, caused by sleet and rain which fell the previous night; wind west brisk; temp. 28°. Hairy Woodpecker, 1; Blue Jay, 10; Crow, 7; Goldfinch, 1; Tree Sparrow, 6; Northern Shrike, 1; White-breasted Nuthatch, 2. Total, 7 species, 28 individuals December has been unusually cold.—MISSES A. M. SWAN and N. M. RUSSELL.

Wareham, Mass.—Dec. 25; 2.15 to 4.10 P.M. Clear; 1 in. of snow; wind west fairly strong; temp. 18°. Horned Grebe, 2; Herring Gull, 20; American Merganser, 1; White-winged Scoter, 3; Pheasant, 3; Red-tailed Hawk, 1; Downy Woodpecker, 2; Flicker, 4; Blue Jay, 4; American Crow, 35; Meadowlark, 1; Goldfinch, 4; Junco, 50; Song Sparrow, 1; Fox Sparrow, 1; Myrtle Warbler, 12; Catbird, 1; Brown Thrasher, 1; Brown Creeper, 1; Chickadee, 12; Golden-crowned Kinglet, 2; Robin, 2.—Total, 22 species, 163 individuals.—C. A. ROBBINS and FRANK ROBBINS.

Wyoming to West Medford, Mass. (through Middlesex Fells).—Dec. 20; 9.15 to 11.30 A.M. Clear; ground bare; wind west, moderate; temp. 28°. Herring Gull, 17; Black Duck, 150; Ring-necked Pheasant, 1; Mourning Dove, 2; Downy Woodpecker, 1; Flicker, 1; Blue Jay, 3; American Crow, 17; Brown Creeper, 3; Chickadee, 14; Golden-crowned Kinglet, 11. Total, 12 species, 220 individuals. There were 7 Cedar Waxwings and 3 Purple Finches on our place in West Medford.—EDMUND and LIDIAN E. BRIDGE.

Diamond Hill, R. I.—Dec. 25. Clear; light snow on the ground; wind northwest, light; temp. 16°. Bob-white, 2; Downy Woodpecker, 2; Blue Jay, 2; American Crow, 24; Tree Sparrow, 18; Junco, 36; Cedar Waxwing, 60; Myrtle Warbler, 1; Chickadee, 4. Total, 9 species, 149 individuals.—ROLAND HAMMOND.

Glocester, R. I.—Dec. 25; 8 to 10 A.M., one-half hour in afternoon. Sky hazy; 2 in. of snow; wind northwest, light; temp. 16°. Ruffed Grouse, 1; Downy Woodpecker, 1; Blue Jay, 4; Tree Sparrow, flock 20; Chickadee, 1. Total, 5 species, 27 individuals.—J. IRVING HILL.

Providence, R. I. (Neutaconkanut Hill).—Dec. 27; 11.45 A.M. to 2 P.M. Cloudy; ground barely covered with snow; wind northwest, light; temp. 23°. Sharp-shinned Hawk, 1; Flicker, 3; Blue Jay, 3; Junco, 10; Chickadee, 12; Robin, 1. Total, 6 species, 30 individuals.—JOHN W. RUSSELL.

Warwick, R. I.—Dec. 25; 10 A.M. to 2.30 P.M. Clear followed by cloudy; $\frac{3}{4}$ in. of snow; wind northeast, fresh; temp. 20°. Herring Gull, 24; Scaup, 1,200; Bob-white, 16; Sparrow Hawk, 1; Downy Woodpecker, 2; Flicker, 22; Horned Lark, 21; Blue Jay, 32; American Crow, 35; Starling, 1,000; Meadowlark, 1; Goldfinch, 10; Tree Sparrow, 93; Junco, 49; Song Sparrow, 8; Field Sparrow, 3; Fox Sparrow, 2; Myrtle Warbler, 64; Brown Creeper, 3; White-breasted Nuthatch, 1; Chickadee, 12; Golden-crowned Kinglet, 9; Robin, 13. Total, 23 species, 2,621 individuals. Starlings increasing, Juncos and Tree Sparrows more abundant and Myrtle Warblers and Chickadees less common than last year.—HARRY S. HATHAWAY.

Woonsocket, R. I.—Dec. 25; 9.30 A.M. to 12 M. Dim sunshine; 2 in. of snow; wind north, light; temp. 13° to 16°. Ruffed Grouse, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Blue Jay, 11; Crow, 5; Tree Sparrow, 5; Junco, 10; Song Sparrow, 3; Brown Creeper, 1; Chickadee, 3. Total, 10 species, 41 individuals.—CLARENCE M. ARNOLD.

Hartford, Conn.—Dec. 25; 11 A.M. to 12 M. and 2 to 4 P.M. Cloudy; ground covered with snow; temp. 23°. Sparrow Hawk, 1; Downy Woodpecker, 3; Blue Jay, 8; Crow, 8; Starling, 250; Chickadee, 3; Golden-crowned Kinglet, 1. Total, 7 species, 274 individuals.—GEORGE H. GABRIEL.

Hartford, Conn.—Dec. 25; 10.30 A.M. to 3.30 P.M. Slightly overcast; about 5 in. of snow; wind, northwest, light; temp. 25° at start. Sparrow Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Red-headed Woodpecker, 7; Blue Jay, 36; Crow, 2,500; Starling, 500; Song Sparrow, 1; Brown Creeper, 1; Golden-crowned Kinglet, 1. Total, 10 species, 3,049 individuals.—GEO. T. GRISWOLD.

Hartford, Conn.—Dec. 25; 9 A.M. to 12 M. Partly cloudy; ground covered with snow; wind northwest; temp. 18°. Hairy Woodpecker, 2; Downy Woodpecker, 1; Blue Jay, 6; Crow, 18; Starling, 32; Junco, 14; White-breasted Nuthatch, 3; Chickadee, 8; Golden-crowned Kinglet, 2. Total, 9 species, 86 individuals.—CLIFFORD M. CASE.

Meriden, Conn.—Dec. 26; 9.20 to 11.45 A.M. Clear; 2 in. of crusted snow; wind northwest, light; temp. 14°. Downy Woodpecker, 3; Blue Jay, 4; Crow, 5; Starling, 1; Goldfinch, 2; Tree Sparrow, 17; Junco, 8; Song Sparrow, 5; Brown Creeper, 1. Total, 9 species, 46 individuals. Chickadees have been very rare in southern Connecticut this fall and winter.—ARETAS A. SAUNDERS.

Monroe, Conn.—9.30 A.M. to 3.30 P.M. Clear; ground covered+crust; wind northwest, light; temp. 4° to 15°. American Merganser, 5 (flushed from the Housatonic, as next two); Red-breasted Merganser, 1; Black Duck (not certain) 1; Ruffed Grouse, 2; Hairy Woodpecker, 1; Downy Woodpecker, 7; Blue Jay, 6; Crow, 18; Starling, 3; Meadowlark, 5; Bronzed Grackle, 2; Goldfinch, 3; Tree Sparrow, 16; Chipping Sparrow, 2; Field Sparrow, 1; Junco, 100 odd; Song Sparrow, 3; Brown Creeper, 2; White-breasted Nuthatch, 5; Chickadee, 37; Golden-crowned Kinglet, 6. Total, 21 species, 127 + 100 odd individuals.—ARTHUR JACOT.

New Haven, Conn. (Edgewood Park and Westville).—9.30 A.M. to 12.30 P.M. Dull sun; 1 in. of snow over thin crust of ice; wind west, brisk; temp. 26°. Herring Gull, 2; Downy Woodpecker, 1; Blue Jay, 12; Crow, 8; Starling, 6; Tree Sparrow, 6; Field Sparrow, 4; Junco, 31; Song Sparrow, 12. Notable lack of birds, especially complete absence of Chickadees, usually abundant. Total, 9 species, 82 individuals.—CLIFFORD H. and DWIGHT B. PANGBURN.

New London, Conn.—Dec. 26; 11 A.M. to 4.30 P.M. Clear; light snow on ground; wind northwest, high; temp. 4°. Pied-billed Grebe, 2; Herring Gull, 40; Black Duck, 14; Baldpate, 3; Redhead, 6; Greater Scaup, 250; Goldeneye, 13; Bufflehead, 4; Downy Woodpecker, 1; Flicker, 2; Crow, 4; Blue Jay, 1; Meadowlark, 7; Goldfinch, 43; Tree Sparrow, 5; Junco, 10; Song Sparrow, 10; Myrtle Warbler, 4; Golden-crowned Kinglet, 2; Bluebird, 5. Total, 20 species, 424 individuals.—FRANCES M. GRAVES.

South Windsor, Conn.—Dec. 26; 9 A.M. to 2.30 P.M. Clear; 3 in. of snow and ice;

wind northwest; light; temp. 10°. Herring Gull, 1; American Merganser, 15; American Goldeneye, 2; Ring-necked Pheasant, 2; Red-tailed Hawk, 1; Red-shouldered Hawk, 1; Hairy Woodpecker, 2; Downy Woodpecker, 4; Flicker, 1; Prairie Horned Lark, 25; Blue Jay, 5; American Crow, 10; Starling, 7; Purple Finch, 50; Goldfinch, 26; White-throated Sparrow, 3; Tree Sparrow, 30; Song Sparrow, 6; Swamp Sparrow, 1; Brown Creeper, 5; White-breasted Nuthatch, 3; Chickadee, 8. Total, 23 species, 250 individuals.—CHARLES W. VIBERT.

West Hartford, Conn. (Trout Brook Valley and Arnold's New Ice Pond, an 11-mile tramp).—Dec. 25; 8.20 A.M. to 4.20 P.M. Partly cloudy, 2 in. of ice and snow; strong cutting northwest wind; temp. 24° to 15°. Black Duck, 1; Ring-necked Pheasant, 1; Red-shouldered Hawk, 1; Sparrow Hawk, 1; Hairy Woodpecker, 2; Downy Woodpecker, 9; Red-headed Woodpecker, 10 (came in a large October migration, scattered through all the town, have been rare here for 70 years); Blue Jay, 26; Crow, 180; Starling, 118; Tree Sparrow, 2 (unusually small number here this winter); Brown Creeper, 2; White-breasted Nuthatch, 11; Chickadee, 1; Golden-crowned Kinglet, 1. Total, 15 species, 366 individuals.—EDWIN H., MYRON T. and PAUL H. MUNGER.

Aurora, N. Y.—Dec. 26; 11.30 A.M. to 1 P.M. and, by different route, 2 to 3.30 P.M. Clear; ground covered with snow; wind north, light; temp. 6° at start. Horned Grebe, 2; Canvasback, 30; Greater Scaup, 5; Goldeneye, 2; Old-squaw, 2; Hairy Woodpecker, 1; Downy Woodpecker, 6; Crow, 21; Brown Creeper, 2; White-breasted Nuthatch, 6; Chickadee, 18; Golden-crowned Kinglet, 5. Total, 12 species, 101 individuals. Two large flocks of Ducks far out in lake, unidentified. Yellow-bellied Sapsucker was seen 3 times during Christmas week.—ROSAMOND C. SEWALL.

Buffalo, N. Y.—Dec. 26; 2 P.M. to 4 P.M. Clear; 1 ft. of snow; quiet; temp. 38°. Crow, 1; Downy Woodpecker, 2; White-breasted Nuthatch, 2; Chickadee, 3. Total, 4 species, 8 individuals.—JULIA MOESEL and HARRIETT S. BAKER.

Collins, N. Y. (Hospital grounds and Indian Reservation).—Dec. 24; 12.20 to 2.15 P.M. 10 in. of snow, still snowing slightly; temp. 30°. Hairy Woodpecker, 1; Downy Woodpecker, 3; Prairie Horned Lark, 8; Blue Jay, 6; Crow, 5; Tree Sparrow, 10; Song Sparrow, 1; Junco, 5; Brown Creeper, 1; White-breasted Nuthatch, 3; Red-breasted Nuthatch, 1; Chickadee, 20. Total, 12 species, 64 individuals. Dec. 13, Kingfisher; Dec. 22, Goldfinch; Dec. 22, large flock of Snow Buntings; Dec. 13, Red-shouldered Hawk; Dec. 13, Cowbird, 1.—ANNE E. PERKINS, M.D.

Dresden, N. Y.—Dec. 20. 9 A.M. to 5 P.M. Clear; ground covered with snow; wind northwest, light; temp. 20° to 30°. Horned Grebe, 24; Herring Gull, 1; American Merganser, 13; Redhead, 25; Canvasback, 47; Scaup, 68; Goldeneye, 41; Ring-necked Pheasant, 3; Red-shouldered Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 2; Crow, 200; Goldfinch, 2; Tree Sparrow, 21; Junco, 6; Song Sparrow, 7; Brown Creeper, 2; White-breasted Nuthatch, 6; Chickadee, 22; Golden-crowned Kinglet, 10. Total, 20 species, 511 individuals.—B. B. FULTON and OTTO MCCREARY.

Easthampton, Long Island, N. Y.—Dec. 27; 9 A.M. to 1 P.M. Kittiwake, 1; Black-backed Gull, 1; Herring Gull, 500; Bonaparte's Gull, 6; Red-breasted Merganser, 3; Purple Sandpiper, 1; White-winged Scoter, 5; Bob-white, 1; Sharp-shinned Hawk, 1; Sparrow Hawk, 1; Screech Owl, 1; Flicker, 1; Horned Lark, 3; Blue Jay, 2; American Crow, 3; Starling, 10; Meadowlark, 13; White-throated Sparrow, 1; Tree Sparrow, 1; Junco, 6; Song Sparrow, 10; Tree Swallow, 1; Myrtle Warbler, 40; Chickadee, 35; Golden-crowned Kinglet, 5.—GEORGE W. HOLLISTER and J. L. HELMUTH.

Geneva, N. Y.—Dec. 27; 9 A.M. to 4 P.M. Clear; ground covered with snow; wind south, strong; temp. 12° to 20°. Horned Grebe, 7; Ring-billed Gull, 1; American Merganser, 4; Red-breasted Merganser, 1; Black Duck, 16; Redhead, 75; Greater Scaup, 200; Lesser Scaup, 150; Goldeneye, 20; Bufflehead, 1; Old-squaw, 3; Ring-necked Pheasant, 15; Downy Woodpecker, 1; Prairie Horned Lark, 2; Crow, 100; Snow Bunting, 20;

Lapland Loughspur, 1; Song Sparrow, 1; Cedar Waxwing, 40; Brown Creeper, 3; White-breasted Nuthatch, 3; Chickadee, 2; Golden-crowned Kinglet, 5. Total, 23 species 671 individuals.—W. H. EDDY, E. H. EATON, W. W. GRANT and O. C. MCCREARY.

Geneva, N. Y.—Dec. 25; 8.30 to 11.30 A.M. Clear; ground covered with snow; wind light, westerly; temp. 10° to 15° (all the birds seen from my study window). Horned Grebe, 1; Herring Gull, 1; Redhead, 75; Canvasback, 10,000 (flock coming in on lake, number estimated by sportsmen who were hunting them); Scaup, 200; Goldeneye, 4; Old-squaw, 5; Downy Woodpecker, 1; Yellow-bellied Sapsucker, 1 (immature plumage, identification certain); Flicker, 1; Crow, 3; Cedar Waxwing, 30; Chickadee, 3, White-breasted Nuthatch, 2; Golden-crowned Kinglet, 5. Total, 15 species, 10,332 individuals.—ELON HOWARD EATON.

Hamburg, N. Y.—Dec. 22, 1 to 4.30 P.M. Partly cloudy; about 10 in. of snow; wind southwest, brisk; temp. 18°. Ruffed Grouse, 1; Cooper's Hawk, 1; Hairy Woodpecker 1; Downy Woodpecker, 5; Red-headed Woodpecker, 4; Crow, 3; Goldfinch, 37; Brown Creeper, 2; White-breasted Nuthatch, 3; Red-breasted Nuthatch, 4; Chickadee, 7; Golden-crowned Kinglet, 4. Total, 12 species, 72 individuals.—THOMAS L. BOURNE.

Hamburg, N. Y.—Dec. 26; 1.30 to 4.30 P.M. Clear; about 10 in. of snow; no wind; temp. 14°. Downy Woodpecker, 1; Red-headed Woodpecker, 4; Flicker, 2; Crow, 32; Goldfinch, 16; Northern Shrike, 1; Winter Wren, 1; Brown Creeper, 2; White-breasted Nuthatch, 6; Red-breasted Nuthatch, 4; Chickadee, 8; Golden-crowned Kinglet, 6. Total, 12 species, 83 individuals.—HEATH VAN DUZEE.

Ithaca, N. Y. (Renwick Woods and Marsh head of Lake Cayuga).—Dec. 20; 10 A.M. to 1 P.M. Clear, ground deeply covered with snow; everything frozen; wind northwest, strong; temp. 30°. Horned Grebe, 1; Herring Gull, 4; Canvasback, 50; Scaup, 250; Goldeneye, 1; Bufflehead, 7; Short-eared Owl, 1; Downy Woodpecker, 3; Crow, 50; Red-winged Blackbird, adult male (lively and able to fly); Purple Finch, 2; Tree Sparrow, 6; Song Sparrow, 15; Swamp Sparrow, 1; Brown Creeper, 1; White-breasted Nuthatch, 5; Chickadee, 2; Golden-crowned Kinglet, 6. Total, 18 species, 407 individuals. A Robin seen next day.—LUDLOW GRISCOM.

Long Beach, Nassau Co., L. I., N. Y.—Dec. 25; 8 A.M. to 4 P.M. Partly cloudy; ground lightly snow-covered except on beach; marshes frozen; wind northwest, light, increasing in afternoon; temp. 30° to 15°. Holboell's Grebe, 1; Horned Grebe, 1; Loon, 6; Red-throated Loon, 2; Black-backed Gull, 10; Herring Gull, 1,000 +; Red-breasted Merganser, 1; Black Duck, 670 + (one flock of 400); Scaup, 4; Old-squaw, 62; White-winged Scoter, 12; Surf Scoter, 1; Red-backed Sandpiper, 1 (at close range); Marsh Hawk, 2; Pigeon Hawk, 1; Horned Lark, 14; Crow, sp., 39; Meadowlark, 3; Goldfinch, 2; Ipswich Sparrow, 2; Tree Sparrow, 26; Song Sparrow, 4; Myrtle Warbler, 45. Total, 23 species, 1909 individuals.—EDWARD FLEISCHER.

Long Beach, Nassau Co., L. I., N. Y.—Dec. 20; 11.05 A.M. to 5.15 P.M. Clear; ground bare; wind northwest, light; not cold. Horned Grebe, 2; Red-throated Loon, 1; Black-backed Gull, 20 adults; Herring Gull, 5,000; Red-breasted Merganser, 5; Black Duck, 4 + (large flocks not surely identified); Old-squaw, 30; Surf Scoter, 1; Great Blue Heron, 1 (at sunset, out at sea, flying west, rather high); Short-eared Owl, 1; Sparrow Hawk, 3; Horned Lark, flock of 9; American Crow, 10; Starling, 3; Meadowlark, 1; Tree Sparrow, 2; Song Sparrow, 1; Myrtle Warbler, 20. Total, 18 species, about 5,115 individuals.—J. M. JOHNSON, WM. H. WIEGMANN and C. H. ROGERS.

Lynbrook, East Rockaway and Long Beach, Nassau Co., L. I., N. Y.—Dec. 26; 0.30 A.M. to 5 P.M. Fair; ground snow covered; marshes frozen; wind north, strong; temp. 5° to 15°. Loon, 2; Black-backed Gull, 1; Herring Gull, 750; Red-breasted Merganser, 15; Black Duck, 300; Scaup, 50; Goldeneye, 3; Old-squaw, 38; White-winged Scoter, 13; Surf Scoter, 1; Marsh Hawk, 1; Rough-legged Hawk, 1; Sparrow Hawk, 1; Downy Woodpecker, 1; Horned Lark, 10; Blue Jay, 4; Crow, 25; Starling, 50; Meadow-

lark, 6; Vesper Sparrow, 1; Ipswich Sparrow, 2; Sharp-tailed Sparrow, 1; Tree Sparrow, 25; Field Sparrow, 4; Junco, 5; Song Sparrow, 6; Swamp Sparrow, 2; Fox Sparrow, 1; Myrtle Warbler, 38; Golden-crowned Kinglet, 2. Total, 30 species, 1,326 individuals. Scarcity of commoner winter birds remarkable.—JOHN TREADWELL NICHOLS, N. F. LENSSEN, G. W. HUBBELL, JR. (all at Long Beach only), and LUDLOW GRISCOM.

New York City (Van Cortlandt Park).—Dec. 26, 2.30 to 4.30 P.M. Fine; light covering of snow; pond and brooks frozen; wind northwest, brisk; temp. 12°. Herring Gull, 11; Red-shouldered Hawk, 1; Barred Owl, 1; Downy Woodpecker, 2; Blue Jay, 9; American Crow, 7; Starling, 3; White-throated Sparrow, 6; Tree Sparrow, 15; Junco, 8; Song Sparrow, 6 (one singing); Winter Wren, 1; White-breasted Nuthatch, 2. Total, 13 species, 72 individuals.—STANLEY VAUGHAN LADOW.

New York City (Van Cortlandt Park and vicinity).—Dec. 25; 7.30 to 11 A.M. Cloudy; about 1 in. of snow; wind northwest, moderate; temp., 25° to 23°. Herring Gull, 26; Sparrow-Hawk, 1; Downy Woodpecker, 3; Blue Jay, 14; Crow, 10; Starling, 95; Red-winged Blackbird, 5; Grackle subsp., 1; Tree Sparrow, 32; Junco, 16; Song Sparrow, 10; Winter Wren, 1; White-breasted Nuthatch, 2; Robin, 1. Total, 14 species, 226 individuals.—MR. AND MRS. G. CLYDE FISHER.

New York City (Jerome Reservoir and Van Cortlandt Park).—Dec. 31; 9.30 A.M. to 12.30 P.M. Partly cloudy; ground bare; wind northwest, light; temp. 25°. Herring Gull, 150; Merganser, 30; Canvasback, 11; Goldeneye, 3; Hawk (*Buteo* sp.), 1; Downy Woodpecker, 3; Blue Jay, 15; Crow, 6; Starling, 100; Red-winged Blackbird, 3; Grackle subsp., 1; Goldfinch, 1; White-throated Sparrow, 8; Tree Sparrow, 30; Field Sparrow, 10; Junco, 11; Song Sparrow, 9; Winter Wren, 1; Brown Creeper, 2; White-breasted Nuthatch, 4. Total, 20 species, 399 individuals.—LUDLOW GRISCOM and ARETAS A. SAUNDERS.

New York City (Bronx Park).—Dec. 25; 10.30 A.M. to 1 P.M. Cloudy; light snow on ground; wind northwest, light; temp. 30°. Red-shouldered Hawk, 1; Downy Woodpecker, 3; Crow, 5; White-throated Sparrow, 4; Tree Sparrow, 2; Junco, 6. Total, 6 species, 21 individuals.—L. N. NICHOLS and E. G. NICHOLS.

New York City (West Farms to Clason Point, Castle Hill, Unionport, then to Bronx Park, Mosholu Parkway, Jerome Park Reservoir and Van Cortlandt Park). Trolley used between Unionport and Bronx Park; rest of route on foot.—Dec. 26; 8.45 A.M. to 5 P.M. Fine; ground with thin broken areas of snow; ponds and small streams frozen; wind north, brisk; temp. 5° to 11°. Herring Gull, 335; Red breasted Merganser, 75; Canvasback, 2 drakes; Greater Scaup, 500; Goldeneye, 1 drake; Black-crowned Night Heron, 2; Red-tailed Hawk, 1; Kingfisher, 1; Downy Woodpecker, 1; Crow, 7; Starling, 230; Goldfinch, 1; White-throated Sparrow, 50; Tree Sparrow, 15; Junco, 43; Song Sparrow, 17; Golden-crowned Kinglet, 1. Total, 17 species, about 1,282 individuals.—GEORGE E. HIX.

New York City (West New Brighton to New Dorp to Princes Bay to Great Kills, Staten Island).—Dec. 20; 8 A.M. to 5 P.M. Clear; ground frozen beneath surface; wind, northwest, light; temp. 30° at start, rising. Herring Gull, 908; Black Duck, 5; Sharp-shinned Hawk, 1; Sparrow Hawk, 4; Barred Owl, 1; Screech Owl, 1; Downy Woodpecker, 8; Blue Jay, 13; American Crow, 65; Starling, 75; Goldfinch, 100; Pine Siskin, 3; White-throated Sparrow, 1; Tree Sparrow, 51; Junco, 106; Song Sparrow, 14; Fox Sparrow, 2; Brown Creeper, 1; White-breasted Nuthatch, 7; Chickadee, 44; Golden-crowned Kinglet, 4; Ruby-crowned Kinglet [?Ed.], 3; Olive-backed [Hermit? Ed.], Thrush, 1. Total, 25 species, 1,513 individuals.—HAROLD K. DECKER.

New York City (West New Brighton to Great Kills via Bull's Head and Egbertville; and Princes Bay to Tottenville to Great Kills; thence to South Beach, Staten Island). (Operating separately except from Great Kills to South Beach.)—Dec. 27 7 A.M. to 5.10 P.M. Mostly cloudy, clearing in late P.M.; ground thinly covered with snow;

wind northwest, light, falling at times to dead calm; temp. 9° to 26°. The weather for a week preceding this had been unseasonably severe, temperature falling to 4° on at least one occasion. Herring Gull, 618; Red-breasted Merganser, 2; Greater Scaup, 115; Goldeneye, 35; Bufflehead, 37; Red-shouldered Hawk, 3; Sparrow Hawk, 2; Screech Owl, 4; Hairy Woodpecker, 2; Downy Woodpecker, 39; Red-headed Woodpecker, 1; Northern Flicker, 9; Blue Jay, 42; Crow, 151; Fish Crow, 2; Starling, 471; Meadowlark, 67; Goldfinch, 12; Pine Siskin, 18; Snow Bunting, 1; Ipswich Sparrow, 2; Sharp-tailed Sparrow, 1; White-throated Sparrow, 2; Tree Sparrow, 244; Junco, 86; Song Sparrow, 44; Cardinal, 11; Northern Shrike, 1; Myrtle Warbler, 12; Brown Creeper, 1; White-breasted Nuthatch, 10; Tufted Titmouse, 9; Chickadee, 47; Golden-crowned Kinglet, 10; Ruby-crowned Kinglet [?Ed.], 7; Robin, 2. Total, 36 species, 2,120 individuals.—HAROLD K. DECKER and HOWARD H. CLEAVES.

Olean, N. Y. (Maplewood and city).—Dec. 25; 6.30 A.M. to 1.30 P.M. Clear; heavy snow; wind light; temp. 10° to 20°. Pheasant, 3; Hairy Woodpecker, 1; Downy Woodpecker, 2; Pileated Woodpecker, 1; Blue Jay, 8; Goldfinch, 1; Tree Sparrow, 6; Junco, 8; Cedar Waxwing, 3 (eating frozen apples); White-breasted Nuthatch, 2; Chickadee, 18; Robin, 2. Total, 12 species, 55 individuals.—MRS. J. J. NENNO and MRS. I. P. HEWITT.

Orient, L. I., N. Y.—Dec. 27; 7 A.M. to 2 P.M. Cloudy; ground bare; wind northeast, light; temp. 10° to 23°. Horned Grebe, 2; Loon, 1; Black-backed Gull, 12; Herring Gull, 600; Ring-billed Gull, 2; Merganser, 3; Red-breasted Merganser, 6; Black Duck, 35; Red-head, 7; Greater Scaup, 500; Goldeneye, 600; Bufflehead, 50; Old-squaw, 400; Scoter, 2; White-winged Scoter, 300; Surf Scoter, 600; Bob-white, 15; Marsh Hawk, 1; Screech Owl, 2; Kingfisher, 1; Downy Woodpecker, 1; Flicker, 2; Horned Lark, 200; Blue Jay, 1; Crow, 75; Starling, 40; Cowbird, 2 (at lunch table); Meadowlark, 80; Goldfinch, 6; Snow Bunting, 2; Ipswich Sparrow, 1; White-throated Sparrow, 2; Tree Sparrow, 10; Junco, 7; Song Sparrow, 12; Myrtle Warbler, 75; Chickadee, 60; Golden-crowned Kinglet, 30; Robin, 3. Total, 39 species, 3,756 individuals. A Snowy Owl was recorded on Dec. 20.—ROY LATHAM.

Port Chester, N. Y.—Dec. 23; 9 A.M. to 5 P.M. Clear; ground bare; wind west, brisk; temp. 23°. Red-throated Loon, 1; Herring Gull, 160; Ring-billed Gull, 2; Red-breasted Merganser, 15; Old-squaw, 18; White-winged Scoter, 10; Red-shouldered Hawk, 2; Sparrow Hawk, 2; Long-eared Owl, 1; Hairy Woodpecker, 3; Downy Woodpecker, 8; Northern Flicker, 2; Blue Jay, 13; American Crow, 120; Starling, 40; Meadowlark, 6; Purple Finch, 3; Goldfinch, 7; Snow Bunting, 2; White-throated Sparrow, 3; Tree Sparrow, 11; Junco, 30; Song Sparrow, 12; Brown Creeper, 3; White-breasted Nuthatch, 6; Black-capped Chickadee, 7; Golden-crowned Kinglet, 30; Robin, 1. Total, 28 species, 518 individuals. Hermit Thrush seen Dec. 22.—RICHARD L. BURDSALL, JAMES C. MAPLES, SAMUEL N. COMLY, E. MORRIS BURDSALL, PAUL C. SPOFFORD and BOLTON COOK.

Rhinebeck, Dutchess Co., N. Y.—Dec. 25; 8 A.M. to 1 P.M. Partly cloudy; ground snow-covered; wind north, brisk; temp. 20°. Ring-necked Pheasant, 1; Red-tailed Hawk, 1; Sparrow Hawk, 1; Barred Owl, 1; Hairy Woodpecker, 9; Downy Woodpecker, 11; Red-headed Woodpecker, 1; Blue Jay, 16; Crow, 130; Purple Finch, 13; Goldfinch, 71; Tree Sparrow, 19; Junco, 17; Song Sparrow, 2; Brown Creeper, 2; White-breasted Nuthatch, 16; Chickadee, 3; Golden-crowned Kinglet, 2; Bluebird, 4. Total, 19 species, 320 individuals. Presence of Red-headed Woodpecker, and almost total absence of Chickadees considered remarkable.—RHINEBECK BIRD CLUB.

Rochester, N. Y. (Forest Lawn).—Dec. 27; 10 A.M. to 12 M. Cloudy, later clearing; 5 in. of snow; wind southwest, strong; temp. 15°. Herring Gull, 2; Downy Woodpecker, 1; Crow, 6; Chickadee, 4. Total, 4 species, 13 individuals.—NETTIE SELLINGER PIERCE.

Rochester, N. Y. (Highland Park, Bird Sanctuary of Rochester Burroughs Nature

Club and Durand Eastman Park.—Dec. 22; 7.45 A.M. to 4.30 P.M. Cloudy with snow flurries A.M., clear P.M.; 8 in. of snow; wind southwest, brisk; temp. 20°. Herring Gull, 100; Pheasant, 4; Sparrow Hawk, 2; Hairy Woodpecker, 1; Downy Woodpecker, 3; Tree Sparrow, 25; Junco, 4; Cedar Waxwing, 25; Brown Creeper, 3; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 4. Total, 11 species, 172 individuals.—WM. L. G. EDSON and R. E. HORSEY.

Syracuse, N. Y. (Liverpool to Long Branch).—Dec. 26. 10.30 A.M. to 4 P.M. Clear; a foot of snow; no wind; temp. zero. Downy Woodpecker, 5; Red-headed Woodpecker, 4; Crow, 67; Song Sparrow, 4; Migrant Shrike, 1 (eating a sparrow); Brown Creeper, 2; White-breasted Nuthatch, 3; Chickadee, 2. Total, 8 species, 88 individuals.—EMILIE GOULDING and NETTIE M. SADLER.

Woodmere, N. Y.—Dec. 28; 9.30 A.M. to 1.15 P.M. Quite clear; $\frac{3}{4}$ in. of snow; wind northwest, hardly perceptible; temp. 29° to 33°. Herring Gull, 2; Red-shouldered Hawk, 1; Downy Woodpecker, 5; Flicker, 1; Blue Jay, 13; Crow, 24; Starling, 11; Meadowlark, 8; Goldfinch, 5; White-throated Sparrow, 4; Tree Sparrow, 44; Junco, 2; Song Sparrow, 11; Fox Sparrow, 8; Myrtle Warbler, 2. Total, 15 species, 141 individuals. Dec. 11, male Towhee; Dec. 15, Chickadee; Dec. 19, Hermit Thrush.—CHARLES A. HEWLETT.

New York Bay and Sandy Hook, N. J. (From Wall St., Manhattan, by steamer to the Hook; there on foot.—Dec. 26; 7 A.M. to 3.40 P.M. Brilliantly clear; ground lightly snow-covered; wind north, brisk; temp. 4° at start, 17° at end. Black-backed Gull 6 adults; Herring Gull, 880; American and Red-breasted Mergansers, 8 (1 each identified); Black Duck, 2; Goldeneye, 16; White-winged Scoter, flock of 10; Night Heron, 1 juv.; Sparrow Hawk, 1; Downy Woodpecker, 1; Flicker, 1; American Crow, 20; Fish Crow, 150; Starling, 10; White-throated Sparrow, 2; Tree Sparrow, 1; Field Sparrow, 2; Junco, flock of 8; Song Sparrow, 9; Fox Sparrow, 2; Cardinal, 6; Myrtle Warbler, 130; Carolina Wren, 3; Hermit Thrush, 3; Robin, 8. Total, 25 species, about 1,280 individuals.—WM. H. WIEGMANN and C. H. ROGERS.

Camden, N. J. (and vicinity).—Dec. 25; 7.30 to 9 A.M. and 11.30 A.M. to 4.30 P.M. Cloudy; 1 in. of snow; wind northeast shifting to northwest; temp. 27°. Herring Gull, 23; Night Heron, 1; Killdeer, 3; Red-tailed Hawk, 1; Sparrow Hawk, 2; Barn Owl, 3; Long-eared Owl, 1; Downy Woodpecker, 4; Flicker, 1; Blue Jay, 4; Crow, 600; Starling, 110; Meadowlark, 10; Purple Finch, 3; Savannah Sparrow, 1; White-throated Sparrow, 10; Tree Sparrow, 34; Field Sparrow, 8; Junco, 105; Song Sparrow, 17; Swamp Sparrow, 3; Cardinal, 6; Winter Wren, 1; Brown Creeper, 1; White-breasted Nuthatch, 1; Tufted Titmouse, 3; Chickadee, 1; Golden-crowned Kinglet, 5. Total, 28 species, 971 individuals. A Yellow Palm Warbler was seen on Dec. 20.—JULIAN K. POTTER.

Hanover Neck, N. J.—Dec. 20; 11 A.M. to 3 P.M. Clear; ground bare; wind northwest, light; temp. 32°. Ring-necked Pheasant, 1; Marsh Hawk, 1; Red-shouldered Hawk, 2; Hairy Woodpecker, 2; Red-headed Woodpecker, 1; Blue Jay, 15; Crow, 400; Starling, 40; Goldfinch, 5; White-throated Sparrow, 5; Tree Sparrow, 4; Song Sparrow, 2; White-breasted Nuthatch, 1. Total, 13 species, 479 individuals.—CHARLES H. BAUSEWEIN and LOUIS S. KOHLER.

Plainfield, N. J. (to Ash Swamp).—Dec. 25; 6.50 A.M. to 5.50 P.M. Fair; 1 in. of fresh snow; temp. 27°. Marsh Hawk, 1; Red-tailed Hawk, 4; Red-shouldered Hawk, 3; Sparrow Hawk, 1; Screech Owl, 1; Hairy Woodpecker, 4; Downy Woodpecker, 6; Flicker, 3; Blue Jay, 28; American Crow, 300 (mostly flying from roost from 7 to 8 A.M.); Fish Crow, 3; Starling, 16; Meadowlark, 20 (flock, at roost); Blackbird sp., 2 (together); Purple Finch, 4 (flock); Goldfinch, 4; White-throated Sparrow, 3 (flock); Tree Sparrow, 65; Field Sparrow, 4 (flock); Junco, 85; Song Sparrow, 52 (one flock of 17 and one of 15); Swamp Sparrow, 2; Cardinal, 8; Winter Wren, 1; Brown Creeper, 2 (together); White-breasted Nuthatch, 4; Tufted Titmouse, 8; Black-capped Chickadee, 8; Hermit Thrush, 1; Bluebird, 5 (flock). Total, 30 species, 648 individuals. A Barred

Owl was started from its roost in a cedar-grove but was too wary to be seen. W. DEW. MILLER.

Moorestown, N. J. (southwest and north and the Pensauken Valley to the Delaware River).—Dec. 25; 6.40 A.M. to 5.30 P.M. Cloudy; 1½ in. of snow; wind north, fresh and raw; temp. (at start) 28°, at return, 21°. Herring Gull, 1; Duck, sp. 50; Killdeer, 5; Turkey Vulture, 3; Marsh Hawk, 1; Red-tailed Hawk, 9; Sparrow Hawk, 2; Long-eared Owl, 1; Kingfisher, 1; Hairy Woodpecker, 2; Downy Woodpecker, 6; Flicker, 6; Horned Lark, 14; Blue Jay, 8; Crow, 94; Starling, 14; Meadowlark, 61; Purple Finch, 2; White-throated Sparrow, 13; Tree Sparrow, 64; Junco, 63; Song Sparrow, 90; Cardinal, 7; Winter Wren, 1; Brown Creeper, 5; Tufted Titmouse, 4. Total, 26 species, 527 individuals.—WILLIAM B. EVANS and GEORGE H. HALLETT, JR. (northward, all day). ANNA and J. HOWARD MICKLE (southwestward, 10 A.M. to 1.30 P.M.), and GRACE EVANS (at lunch counter).

Morristown, N. J.—Dec. 25; 8.30 to 11.15 A.M. Cloudy; ½ in. of new snow; wind northwest, moderate; temp. 23°. Red-tailed Hawk, 1; Hairy Woodpecker, 2; Downy Woodpecker, 6; Blue Jay, 30; Crow, 24; Starling, 43; White-throated Sparrow, 2; Tree Sparrow, 26; Junco, 21; Song Sparrow, 3; Cardinal, 1; White-breasted Nuthatch, 5; Chickadee, 1; Golden-crowned Kinglet, 4. Total, 14 species, 169 individuals.—R. C. CASKEY.

Newark, N. J.—Dec. 26; 9.30 to 11.45 A.M. (Branch Brook Park and adjacent lots) and 2.30 to 4.15 P.M. (woods near second River). Clear; ground barely snow-covered; wind north, brisk; temp. 10° to 13° A.M., 19° to 16° P.M. Downy Woodpecker, 3; Blue Jay, 2-3; Crow, 1; Starling, 24; White-throated Sparrow, 27; Tree Sparrow, 3; Song Sparrow, 1; Fox Sparrow, 3; Brown Creeper, 1; Golden-crowned Kinglet, 1; Robin, 1. Total, 11 species, 67 individuals.—R. F. HAULENBEEK.

Newfield, N. J.—Dec. 25; 10 A.M. to 3.30 P.M. Cloudy; 1 in. of soft snow; wind north, fresh; temp. 28° at start, 22° at finish. Bob-white, 8; Mourning Dove, 1; Blue Jay, 3; Crow, 5; Tree Sparrow, 4; Song Sparrow, 5; Junco, 100; Chickadee, 4. Total, 8 species, 130 individuals.—WM. W. FAIR.

Rahway River, N. J. (from Cranford down River to Rahway); back'cross country to Roselle.—Dec. 27; 9 A.M. to 4.15 P.M. Partly cloudy; ground lightly snow-covered; almost calm; temp. 10° at start, 24° at end. Duck sp. (male Merganser?), 1; Red-tailed Hawk, 1; Kingfisher, 1; Hairy Woodpecker, 2; Downy Woodpecker, 7; Red-headed Woodpecker, 15; Horned Lark, flock of 11 (each individual identified as *not* Prairie); American Crow, 20; Blue Jay, 15; Starling, 24; Vesper Sparrow, 1 (identity sure); White-throated Sparrow, 24; Tree Sparrow, flock of 4; Field Sparrow, 7; Junco, 41 (1 sang three or four times); Song Sparrow, 35; Fox Sparrow, 1; Cardinal, 1; Brown Creeper, 1; White-breasted Nuthatch, 6; Tufted Titmouse, 8 (singing); Golden-crowned Kinglet, flock of 4. Total, 22 species, about 230 individuals.—D. S. BALL and C. H. ROGERS.

Wayne, Pequannock and Pompton Plains, N. J.—Dec. 25; 12.30 to 3 P.M. Cloudy; ground covered with a tracking snow; wind northwest, brisk; temp. 24°. Sharp-shinned Hawk, 1; Sparrow Hawk, 2; Hairy Woodpecker, 1; Downy Woodpecker, 2; Blue Jay, 75; Crow, 75; Starling, 300; Goldfinch, 10; Pine Siskin, 4; White-throated Sparrow, 2; Tree Sparrow, 200; Junco, 100; Song Sparrow, 5; Swamp Sparrow, 2; Fox Sparrow, 2; Chickadee, 5; Golden-crowned Kinglet, 5; Hermit Thrush, 2. Total, 18 species, 793 individuals.—LOUIS S. KOHLER.

Buckingham, Pa.—Dec. 26; 7 to 11 A.M. Clear; ground snow-covered; wind north; temp. 8° to 20°. Red-shouldered Hawk, 1; Saw-whet Owl, 1; Downy Woodpecker, 2; Blue Jay, 2; Crow, 5; Starling, 7; Junco, 10; Song Sparrow, 1; Cardinal, 2; Brown Creeper, 1; White-breasted Nuthatch, 1. Total, 11 species, 33 individuals.—ELIZABETH COX.

Frazer, Pa.—Dec. 27; 1.30 to 4 P.M. Partly cloudy; light snow on ground; wind

north, very light; temp. 15°. Red-shouldered Hawk, 1; Hairy Woodpecker, 2; Downy Woodpecker, 3; Crow, 25; Tree Sparrow, 10; Junco, 12; Song Sparrow, 1; Cardinal, 1. Total, 8 species, 55 individuals. Chickadees entirely absent this winter.—ARTHUR KELLEY.

Lititz, Pa. (northern Lancaster Co., valley of Hammer Creek).—Dec. 26; 8.30 A.M. to 4.15 P.M. Clear; ground snow-covered; wind northwest, light; temp. at start, —1°. Bob-white, 11; Ruffed Grouse, 2; Turkey Vulture, 10; Red-tailed Hawk, 3; Red-shouldered Hawk, 1; Sparrow Hawk, 2; Downy Woodpecker, 5; Yellow-bellied Sapsucker, 1; Flicker, 1; Horned Lark, 8; Blue Jay, 2; Crow, 2,000; Meadowlark, 2; Goldfinch, 2; Tree Sparrow, 45; Junco, 90; Song Sparrow, 16; Cardinal, 5; Winter Wren, 1; White-breasted Nuthatch, 5; Tufted Titmouse, 1; Black-capped Chickadee, 3; Golden-crowned Kinglet, 3; Bluebird, 4. Total, 24 species, 2,223 individuals.—HERBERT H. BECK and ABRAHAM BECK MILLER.

McKeesport, Pa.—Dec. 26; 10 A.M. to 3 P.M. Clear; 2 in. of snow; wind east, light; temp. 20°. Hairy Woodpecker, 2; Downy Woodpecker, 9; Song Sparrow, 2; Cardinal, 23; Black-capped Chickadee, 5. Total, 5 species, 41 individuals.—CHARLES LINDBERG.

McKeesport, Pa.—Dec. 27; 8.30 A.M. to 5 P.M. Clear; 3 in. of snow, hillsides partly bare; wind southeast, light; temp. 10° to 37°. Distance, 15 miles. Hairy Woodpecker, 1; Downy Woodpecker, 7; Crow, 13; Goldfinch, (about 100 in 1 flock) 119; Tree Sparrow, 19; Junco, 18; Song Sparrow, 15; Cardinal, 5; Cedar Waxwing, 3; White-breasted Nuthatch, 5; Tufted Titmouse, 2; Chickadee, 10. Total, 12 species, 217 individuals.—THOS. L. MCCONNELL.

Morrisville, Pa. (to Yardley; river bank opposite Trenton, N. J.).—Dec. 25; 8.30 to 11 A.M. Cloudy; 2 in. of snow; wind north, fresh; temp. 28°. Sparrow Hawk, 1; Downy Woodpecker, 2; Blue Jay, 2; Crow, 10; Starling, 50; Field Sparrow, 3; Song Sparrow, 20; Cardinal, 4; Winter Wren, 1; Brown Creeper, 2; Golden-crowned Kinglet, 3. Total, 11 species, 98 individuals.—W. L. DIX.

Morristown, Pa. (along Stony Creek).—Dec. 25; 9.30 A.M. to 12 M. Cloudy; 1½ in. of snow; wind north, brisk; temp. 23°. Kingfisher, 1; Downy Woodpecker, 3; Purple Finch, 6; Junco, 68; Song Sparrow, 5; Tree Sparrow, 2; American Crow, 8; White-breasted Nuthatch, 6; Golden-crowned Kinglet, 3. Total, 9 species, 102 individuals.—JOSEPH N. LARUE, ALFRED W. WRIGHT and JOHN E. OVERHOLTZER.

Philadelphia, Pa. (Fairmount Park).—Dec. 27; 9 A.M. to 4 P.M. Clear; an inch of snow; wind northeast, very light; temp. 13° to 27°. Cooper's Hawk, 2; Hairy Woodpecker, 2; Downy Woodpecker, 6; Crow, 24; Starling, 24; White-throated Sparrow, 14; Junco, 48; Song Sparrow, 19; Cardinal, 25; Carolina Wren, 1; Winter Wren, 2; White-breasted Nuthatch, 2; Golden-crowned Kinglet, 2. Total, 13 species, 171 individuals.—DR. WM. PEPPER.

Philadelphia, Pa. (West Fairmount Park).—Dec. 25. Clear; about 1 in. of snow; wind northwest, light; temp. at start 12°. (Red-tailed ?) Hawk, 1; Downy Woodpecker, 1; Flicker, 2; Crow, 4; White-throated Sparrow, 5; Junco, 4; Song Sparrow, 4; Cardinal, 3; Towhee, 1; Hermit Thrush, 1. Total, 10 species, 20 individuals.—G. RUHLAND REBMAN, JR.

Philadelphia, Pa. (Wynnefield to Woodside Park and wooded vicinity).—Dec. 25; 8 A.M. to 12 M. Cloudy; 2 in. of snow; wind northwest, brisk; temp. 24°. Sparrow Hawk, 1; Barred Owl, 1; Hairy Woodpecker, 1; Downy Woodpecker, 3; Crow, 4; Starling, 30; White-throated Sparrow, 7; Tree Sparrow, 1; Junco, 150; Song Sparrow, 16; Cardinal, 13; Carolina Wren, 1; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 8. Total 14 species, 237 individuals.—J. WILSON CORRISTON.

Pittsburgh, Pa. (across the country to Harmarville, Pa.).—Dec. 24; 8 A.M. to 5 P.M. Dark and cloudy; light snowfall for several hours in the morning; 1 in. of snow; no wind; temp. 26°. Distance covered, 15 miles. Hairy Woodpecker, 4; Downy Wood-

pecker, 9; Crow, 5; Goldfinch, 8; White-throated Sparrow, 2; Tree Sparrow, 65; Junco, 25; Song Sparrow, 37; Towhee, 2; Cardinal, 35; Carolina Wren, 2; Winter Wren, 2; Brown Creeper, 2; White-breasted Nuthatch, 7; Tufted Titmouse, 20; Chickadee, 14. Total, 16 species, 234 individuals.—THOS. D. BURLEIGH.

Reading, Pa.—Dec. 27; 8.30 to 11.30 A.M., 1.30 to 4 P.M. Clear; 1 in. of snow; temp. 3° to 20°. Hawk sp., 1; Downy Woodpecker, 1; Blue Jay, 7; Crow, 30; Meadowlark, 10; Tree Sparrow, 40; Junco, 115; Song Sparrow, 20; Cardinal, 1; White-breasted Nuthatch, 2; Robin, 5. Total, 11 species, 232 individuals.—MR. and MRS. G. HENRY MENGEL.

Sewickley, Pa.—Dec. 25; 10 A.M. to 12.30 P.M. Light clouds; feeble sunshine; ground snow-covered; wind west, light; temp. 22°. Hairy Woodpecker, 1; Downy Woodpecker, 4; Blue Jay, 5; Crow, 2; Purple Finch, 2; Goldfinch, 9; Tree Sparrow, 5; Junco, 30; Song Sparrow, 3; Cardinal, 10; White-breasted Nuthatch, 3; Tufted Titmouse, 25; Chickadee, 17; Golden-crowned Kinglet, 3. Total, 14 species, 119 individuals.—B. H. CHRISTY and F. A. HEGNER.

Springs, Pa.—Dec. 26; 9 A.M. to 1 P.M. Clear; 8 in. of snow; no wind; temp. zero to 20°. Ruffed Grouse, 1; Hairy Woodpecker, 1; Downy Woodpecker, 2; Goldfinch, 10; Tree Sparrow, 3; Junco, 5; Cardinal, 1; Winter Wren, 1; Brown Creeper, 1; White-breasted Nuthatch, 5; Tufted Titmouse, 3; Chickadee, 17; Robin, 1. Total, 13 species, 52 individuals.—ANSEL B. MILLER.

West Chester, Pa.—Dec. 25; 12.30 to 3.30 P.M. Light snow on ground; wind north, moderate; temp. 23°. Red-tailed Hawk, 1; Sparrow Hawk, 1 (eating a mouse); Downy Woodpecker, 11; Crow, 56; Starling, 11; Meadowlark, 61; Purple Finch, 4; White-throated Sparrow, 11; Tree Sparrow, 8; Junco, 175; Song Sparrow, 106; Cardinal, 9; Winter Wren, 1; White-breasted Nuthatch, 4. Total, 14 species, 459 individuals.—C. E. EHINGER.

White Marsh Valley, from Chestnut Hill to Fort Washington, Pa.—Dec. 26; 11.30 A.M. to 4.00 P.M. Clear; ground snow-covered; wind northwest, light; temp. 12°. Red-shouldered Hawk, 2; Sparrow Hawk, 2; Hairy Woodpecker, 1; Downy Woodpecker, 5; Flicker, 1; Blue Jay, 2; Crow, 170; Starling, 50; Junco, 60; Song Sparrow, 9; Northern Shrike, 2; Towhee, 1; Cardinal, 2; Golden-crowned Kinglet, 5. Total, 14 species, 312 individuals.—GEORGE LEAR.

Williamsport, Pa.—Dec. 24; 9 A.M. to 2 P.M. Cloudy; 8 in. of snow; no wind; temp. 25°. Distance walked, about 6 miles, the two of us walking together. Horned Grebe, 1; Goldeneye, 9; Bufflehead, 1; Bob-white, 10; Downy Woodpecker, 8; Flicker, 1; Crow, 15; Purple Finch, 3; Tree Sparrow, 1; Junco, 20; Song Sparrow, 3; Cedar Waxwing, 2; Winter Wren, 1; Brown Creeper, 2; White-breasted Nuthatch, 2; Tufted Titmouse, 5; Chickadee, 2; Golden-crowned Kinglet, 6; Bluebird, 2. Total, 19 species, 94 individuals.—JOHN P. YOUNG and CHAS. V. P. YOUNG.

York, Pa.—Dec. 26; 8.30 A.M. to 3 P.M. Clear; 2 in. of dry snow; wind north, moderate; temp. 8°. Bob-white, 15; Red-tailed Hawk, 2; Sparrow Hawk, 1; Hairy Woodpecker, 1; Blue Jay, 1; Crow, 45; Meadowlark, 5; Goldfinch, 4; Tree Sparrow, 20; Junco, 24; Song Sparrow, 6; Cardinal, 2; Winter Wren, 1; Golden-crowned Kinglet, 4. Total, 14 species, 131 individuals.—DAVID SMYSER and FREE OTTEMILLER.

Baltimore, Md. (Windsor Hills and Valley of Gwynn's Falls).—Dec. 26; 8.05 A.M. to 1 P.M. Clear; 1½ in. of light snow; wind northwest; temp. 10° to 24°. Bob-white, 12; Turkey Vulture, 5; Downy Woodpecker, 2; Red-headed Woodpecker, 4; Northern Flicker, 1; Blue Jay, 9; American Crow, 29; Purple Finch, 2; Goldfinch, 1; White-throated Sparrow, 33; Tree Sparrow, 9; Junco, 88; Song Sparrow, 10; Cardinal, 13; Carolina Wren, 1; Winter Wren, 1; White-breasted Nuthatch, 5; Tufted Titmouse, 8; Golden-crowned Kinglet, 1; Hermit Thrush, 1. Total, 20 species, 235 individuals.—SIDNEY HOLLANDER and JOSEPH N. ULMAN.

Brooklyn, Md. (and the Lower Patapsco Valley).—Dec. 30; 10 A.M. to 3 P.M. Morning clear, afternoon cloudy; ground covered with snow in spots only; wind north, from 10 to 20 miles per hour; temp. at start, 45°. Herring Gull, 200; Duck, 1; Bob-white, 10; Turkey Vulture, 2; Marsh Hawk, 1; Sparrow Hawk, 1; Kingfisher, 1; Downy Woodpecker, 1; Crow, 27; Meadowlark, 33; Goldfinch, 1; Tree Sparrow, 6; Junco, 9; Song Sparrow, 14; Swamp Sparrow, 15; Cardinal, 2; Black-capped Chickadee, 1; Carolina Chickadee, 1. Total, 18 species, 326 individuals.—CLAYTON H. RANCK and JOHN C. FRENCH.

Cambridge, Dorchester Co., Md.—Dec 25; 8 to 11 A.M. Cloudy with showers; slight snow on ground; wind north to northeast, light; temp. 20° at start, 36° at finish. Turkey Vulture, 8; Cooper's Hawk, 1; Red-tailed Hawk, 10; Screech Owl, 2; Kingfisher, 1; Hairy Woodpecker, 1; Downy Woodpecker, 5; Flicker, 8; Crow, 8; Meadowlark, 29; Purple Grackle, 2; Purple Finch, 5; Goldfinch, 2; White-throated Sparrow, 19; Field Sparrow, 7; Slate-colored Junco, 296; Cardinal, 0; Mockingbird, 4; Carolina Wren, 1; White-breasted Nuthatch, 1; Tufted Titmouse, 5; Carolina Chickadee, 5; Ruby-crowned Kinglet, 14; Hermit Thrush, 2; Robin, 7. Total, 25 species, 443 individuals.—RALPH W. JACKSON.

Chevy Chase, Md.—Dec. 25; 10 to 11.30 A.M. and 3 to 5 P.M. Sky overcast with dull, leaden clouds; about 4 in. of snow; wind north, light; temp. 26° A.M., 21° to 17° P.M. Distance 5 miles (in Chevy Chase and 2 miles out toward the northeast to and along Rock Creek). Turkey Vulture, 11; Red-shouldered Hawk, 1; Downy Woodpecker, 5; Flicker, 2; Blue Jay, 12; American Crow, 20; White-throated Sparrow, 8; Meadowlark, flock of 13; Junco, 128; Song Sparrow, 26; Cardinal, 26 (8 in a flock); Mockingbird, 2; Brown Creeper, 1; White-breasted Nuthatch, 5; Tufted Titmouse, 2; Carolina Chickadee, 5. Total, 16 species, 267 individuals. A year ago I counted 75 Tree Sparrows in a portion of this same territory; this year none.—S. W. MELLOTT, M. D.

Washington, D. C. (actual trip, Anacostia River, D. C., Dyke and Arlington, Va.)—Dec. 27; 9.30 A.M. to 12.30 P.M.; 1.30 P.M. to 3 P.M.; 4 to 5 P.M. Clear; ground covered with snow; no wind; temp. 5° to 20°. Herring Gull, 1; Great Blue Heron, 1; Turkey Vulture, 73; Marsh Hawk, 2; Cooper's Hawk, 1; Red-shouldered Hawk, 4; Sparrow Hawk, 1; Downy Woodpecker, 10; Yellow-bellied Sapsucker, 1; Flicker, 3; Horned Lark, 75; Blue Jay, 4; American Crow, 109; Fish Crow, 8; Meadowlark, 3; Goldfinch, 30; White-throated Sparrow, 57; Tree Sparrow, 46; Field Sparrow, 2; Junco, 47; Song Sparrow, 27; Cardinal, 17; Myrtle Warbler, 1; Mockingbird, 1; Carolina Wren, 5; Long-billed Marsh Wren, 2; Brown Creeper, 1; Tufted Titmouse, 12; Carolina Chickadee, 10; Hermit Thrush, 3; Robin, 88; Bluebird, 3. Total, 32 species, 558 individuals.—KATHERINE B. BAIRD, MAY T. COOKE and WELLS W. COOKE.

Washington, D. C. (actual trip, Aqueduct Bridge, Georgetown, D. C., to Wellington, Va.)—Dec. 27; 8 A.M. to 5.25 P.M. Sunny but hazy at times, sky overcast in early morning; calm to very light wind; temp. 5° to 20°. Great Blue Heron, 2; Killdeer, 1; Bob-white, 10; Turkey Vulture, 7; Sharp-shinned Hawk, 1; Red-shouldered Hawk, 4; Sparrow Hawk, 1; Barred Owl, 1; Kingfisher, 1; Downy Woodpecker, 8; Red-headed Woodpecker, 5; Flicker, 11; Blue Jay, 15; Crow, 100; Fish Crow, 2; Meadowlark, 3; Rusty Blackbird, 3; Purple Finch, 3; Goldfinch, 4; White-throated Sparrow, 24; Tree Sparrow, 46; Field Sparrow, 7; Junco, 82; Song Sparrow, 30; Swamp Sparrow, 3; Towhee, 10; Cardinal, 20; Cedar Waxwing, 1; Migrant Shrike, 1; Myrtle Warbler, 1; Mockingbird, 3; Carolina Wren, 3; Brown Creeper, 3; Tufted Titmouse, 8; Carolina Chickadee, 14; Golden-crowned Kinglet, 2; Hermit Thrush, 12; Robin, 8; Bluebird, 7. Total, 40 species, 473 individuals.—E. A. PREBLE and ALEX WETMORE.

Washington, D. C. (actual trip, Wellington, Va., to Warwick, Va.)—Dec. 24; 9.30 to 10.30 A.M. Heavy snowstorm; wind northwest; temp. 32°; distance, 2 miles. Herring Gull, 12; Turkey Vulture, 1; Sparrow Hawk, 1; Kingfisher, 1; Downy Wood-

pecker, 6; Flicker, 7; Blue Jay, 6; Crow, 6; Fish Crow, 25; Purple Grackle, 1; Goldfinch, 25; White-throated Sparrow, 50; Tree Sparrow, 100; Field Sparrow, 2; Junco, 85; Song Sparrow, 12; Swamp Sparrow, 1; Cardinal, 10; Myrtle Warbler, 1; Carolina Wren, 1; Tufted Titmouse, 3; Carolina Chickadee, 6; Bluebird, 7. Total, 23 species, 369 individuals.—MR. and MRS. LEO D. MINER and RAYMOND W. MOORE.

Lawrenceville, Va.—Dec. 27; 10.20 A.M. to 2.45 P.M. Cloudy; wind northwest, moderate; 4 in. of snow; temp. 18°. Killdeer, 1; Mourning Dove, 1; Turkey Vulture, 8; Black Vulture, 2; Hairy Woodpecker, 3; Downy Woodpecker, 7; Yellow-bellied Sapsucker, 2; Pileated Woodpecker, 1; Flicker, 3; Crow, 16; Meadowlark, 7; Rusty Blackbird, 1; Purple Finch, 42; Goldfinch, 2; White-throated Sparrow, 18; Slate-colored Junco, 60; Song Sparrow, 32; Towhee, 1; Cardinal, 7; Myrtle Warbler, 28; Pipit, 4; Carolina Wren, 5; Winter Wren, 4; Brown Creeper, 1; White-breasted Nuthatch, 1; Tufted Titmouse, 6; Chickadee, 5; Golden-crowned Kinglet, 16; Wilson's Thrush (?), 4; Hermit Thrush, 7; Bluebird, 6. Total, 31 species, 301 individuals.—JOHN B. LEWIS.

Charleston, Kanawha Co., W. Va.—Dec. 26; 8 A.M. to 5 P.M. Fair; ground partly cleared of snow; no wind; temp. 28° to 37°. Sparrow Hawk, 1; Hairy Woodpecker, 1; Southern Downy Woodpecker, 2; Flicker, 1; Crow, 1; Goldfinch, 1; Junco, 10; Song Sparrow, 8; Fox Sparrow, 1; Towhee, 12; Cardinal, 1; Carolina Wren, 2; White-breasted Nuthatch, 1; Tufted Titmouse, 2; Black-capped Chickadee, 2; Robin, 1. Total, 16 species, 47 individuals.—TRUTH N. KEELY.

Lewisburg, W. Va.—Dec. 26; 12 M. to 5 P.M. Clear; 9 in. of snow; no wind; temp. 12°. Turkey Vulture, 28; Screech Owl, 1; Hairy Woodpecker, 1; Downy Woodpecker, 3; Yellow-bellied Sapsucker, 1; Red-bellied Woodpecker, 3; Flicker, 1; Prairie Horned Lark, 10; Blue Jay, 3; American Crow, 117; Tree Sparrow, 43; Slate-colored Junco, 83; Cardinal, 5; Winter Wren, 1; White-breasted Nuthatch, 4; Tufted Titmouse, 3; Robin, 1. Total, 17 species, 308 individuals.—CHARLES O. HANDLEY.

Currituck Sound and Beach to Snowden, N. C.—Jan. 3; 7.15 A.M. to 4 P.M. Fair; wind north, fresh; temp. about 32°. Country visited—ocean beach; marshes; waters and shores of the Sound (including live oak and palmetto); woodland (much pine) and farming country between Sound and Snowden. Pied-billed Grebe, 12; Herring Gull, 20; Bonaparte's Gull, 15; Red-breasted Merganser, 40; Mallard, 16; Black Duck, 400; Baldpate, 250; Teal sp., 3; Pintail, 1,000; Redhead, 2,500; Canvasback, 1,200; Scaup, 500; Goldeneye, 40; Ruddy Duck, 3,000; Canada Goose, 1,500; Whistling Swan, 1,000; Coot, 200; Wilson's Snipe, 5; Sanderling, 30; Black-bellied Plover, 6; Killdeer, 5; Mourning Dove, 1; Turkey Vulture, 25; Marsh Hawk, 10; *Buteo* (Red-tailed?), 1; Bald Eagle, 8; Sparrow Hawk, 1; Southern Hairy Woodpecker, 1; Flicker, 6; Crow, 75; Fish Crow, 75; Red-winged Blackbird, 100; Meadowlark, 10; Boat-tailed Grackle, 15; Savannah Sparrow, 7; White-throated Sparrow, 15; Field Sparrow, 3; Junco, 15; Song Sparrow, 40 (singing); Swamp Sparrow, 3; Fox Sparrow, 7 (singing); Cardinal, 15 (singing); Orange-crowned Warbler, 1; Myrtle Warbler, 25; Palm Warbler, 1; Pine Warbler, 1; Maryland Yellowthroat, 2; Catbird, 3; Mockingbird, 10; Carolina Wren, 12 (singing); House Wren, 1; Long-billed Marsh Wren, 1; Brown Creeper, 2; Brown-headed Nuthatch, 6; Tufted Titmouse, 1; Carolina Chickadee, 8; Golden-crowned Kinglet, 25; Ruby-crowned Kinglet, 5; Robin, 100 (singing); Bluebird, 1. Total, 60 species, 12,413 individuals. The Orange-crowned Warbler is the third record for the state. Seen also in the two preceding days:—Holbell's Grebe, 5; Horned Grebe, 30; Gannet, 2; Old-squaw, 30; White-winged Scoter, 12; Great Blue Heron, 2; Sora, 1; Sharp-shinned Hawk, 1; Red-shouldered Hawk, 1; Southern Downy Woodpecker, 1; Red-cockaded Woodpecker, 2; Ipswich Sparrow, 1; Brown Thrasher, 2; Winter Wren, 2.—JOHN TREADWELL NICHOLS and LUDLOW GRISCOM.

Aiken, S. C.—Dec. 30. Clear; wind southwest, light; temp. 62°. Black Vulture, 1; Sparrow Hawk, 1; Yellow-bellied Sapsucker, 1; Red-headed Woodpecker, 2; Blue

Jay, 4; Crow, 2; White-throated Sparrow, 4; Junco, 10; Song Sparrow, 2; Mockingbird 1; Brown Creeper, 1; Brown-headed Nuthatch, 2; Tufted Titmouse, 2; Carolina Chickadee, 2; Golden-crowned Kinglet, 4; Ruby-crowned Kinglet, 4. Total, 16 species, 43 individuals.—JOHN DRYDEN KUSER.

Columbia, S. C.—Dec. 25; 11 A.M. to 1 P.M. Rainy; ground bare; wind north, light; temp. 38°. "Partridge," 8; Red-headed Woodpecker, 4; Flicker, 1; Blue Jay, 25; White-throated Sparrow, 50; Slate-colored Junco, 40; Song Sparrow, 2; Towhee, 8; Cardinal, 4; Cedar Waxwing, 8; Mockingbird, 2; Brown Thrasher, 3; Carolina Wren, 10; Brown Creeper, 2; Black-capped Chickadee, 2; Ruby-crowned Kinglet, 20. Total, 16 species, 189 individuals.—BELLE WILLIAMS.

Atlanta, Ga. (Piedmont Park, Collier's Woods and South River Valley).—Dec. 27; 5:45 A.M. to 5 P.M. Cloudy; wind northeast; ground wet; temp. 32°. Pied-billed Grebe, 1; Canada Goose, 16; Great Blue Heron, 1; Wilson's Snipe, 7; Killdeer, 10; Bobwhite, 12; Mourning Dove, 10; Turkey Vulture, 30; Black Vulture, 6; Cooper's Hawk, 1; Red-tailed Hawk, 4; Red-shouldered Hawk, 2; Sparrow Hawk, 2; Kingfisher, 1; Hairy Woodpecker, 10; Downy Woodpecker, 15; Yellow-bellied Sapsucker, 1; Red-headed Woodpecker, 2; Flicker, 30; Phoebe, 3; Blue Jay, 50; Crow, 30; Red-winged Blackbird, 4; Purple Grackle, 3; Meadowlark, 100; Purple Finch, 20; Goldfinch, 20; Vesper Sparrow, 10; Savannah Sparrow, 6; White-throated Sparrow, 200; Chipping Sparrow, 10; Field Sparrow, 12; Junco, 150; Song Sparrow, 80; Swamp Sparrow, 20; Fox Sparrow, 6; Towhee, 60; Cardinal, 20; Cedar Waxwing, 18; Loggerhead Shrike, 3; Myrtle Warbler, 1; Pine Warbler, 3; Pipit, 200; Mockingbird, 6; Brown Thrasher, 1; Carolina Wren, 30; Bewick's Wren, 1; House Wren, 6; Winter Wren, 2; Brown Creeper, 20; White-breasted Nuthatch, 10; Brown-headed Nuthatch, 6; Tufted Titmouse, 10; Carolina Chickadee, 30; Golden-crowned Kinglet, 20; Ruby-crowned Kinglet, 4; Hermit Thrush, 10; Robin, 1; Bluebird, 40. Total, 59 species, 1,387 individuals.—JAMES M. SANFORD.

Savannah, Ga.—Dec. 25; 9 A.M. to 1 P.M. Partly cloudy; ground bare; wind south, brisk; temp. 68°. Herring Gull, 350; Ring-billed Gull, 45; Bonaparte's Gull, 20; Great Blue Heron, 2; Killdeer, 8; Bobwhite, 9; Mourning Dove, 3; Turkey Vulture, 7; Black Vulture, 11; Sharp-shinned Hawk, 3; Cooper's Hawk, 5; Red-tailed Hawk, 1; Bald Eagle, 1; Sparrow Hawk, 1; Belted Kingfisher, 2; Southern Hairy Woodpecker, 3; Southern Downy Woodpecker, 14; Yellow-bellied Sapsucker, 4; Red-bellied Woodpecker, 6; Southern Flicker, 7; Phoebe, 1; Blue Jay, 5; Crow, 9; Fish Crow, 20; Red-winged Blackbird, 35; Meadowlark, 12; Vesper Sparrow, 22; Savannah Sparrow, 50; White-throated Sparrow, 25; Chipping Sparrow, 17; Field Sparrow, 10; Towhee, 5; Cardinal, 3; Orange-crowned Warbler, 1; Myrtle Warbler, 7; Pine Warbler, 4; Pipit, 1; Mockingbird, 2; Brown Thrasher, 2; Carolina Wren, 10; Brown-headed Nuthatch, 3; Carolina Chickadee, 11; Hermit Thrush, 2; Robin, 100; Bluebird, 2. Total, 45 species, 861 individuals.—W. J. ERICKSEN.

Daytona Beach, Fla.—Dec. 22. Clear; wind northwest in P.M.; temp. 75° to 53°. Herring Gull, 15; Bonaparte's Gull, 78; Royal Tern, 3; Florida Cormorant, 1; Brown Pelican, 28; Lesser Scaup, 89; Ward's Heron, 17; Egret, 2; Louisiana Heron, 5; Little Blue Heron, 5; Yellow-crowned Night Heron, 1; Sanderling, 140; Spotted Sandpiper, 2; Black-bellied Plover, 7; Killdeer, 4; Piping Plover, 1; Ruddy Turnstone, 54; Mourning Dove, 8; Ground Dove, 11; Turkey Vulture, 16; Black Vulture, 6; Belted Kingfisher, 11; Red-bellied Woodpecker, 12; Flicker, 3; Phoebe, 4; Florida Blue Jay, 3; Florida Crow, 3; Florida Redwing, 25; Southern Meadowlark, 8; Florida Grackle, 219; White-throated Sparrow, 4; Florida Cardinal, 11; Tree Swallow, 50; Cedar Waxwing, 1; Loggerhead Shrike, 15; Myrtle Warbler, 3; Pine Warbler, 12; Palm Warbler, 5; Mockingbird, 35; Catbird, 1; Brown-headed Nuthatch, 20; Tufted Titmouse, 1; Carolina Chickadee, 5; Ruby-crowned Kinglet, 1; Robin, 75; Bluebird 500 (low estimate). Total, 46 species, 1,576 individuals.—EMMA J. SLOAN and SARAH F. AINSWORTH.

Houston, Texas.—Dec. 26; 10.15 A.M. to 2.45 P.M. Clear; ground bare, soft and muddy; wind north, light; temp. 45°. Killdeer, 16; Bob-white, 2; Western Mourning Dove, 14; Turkey Vulture, 1; Black Vulture, 3; Marsh Hawk, 2; Texas Red-shouldered Hawk, 2; Sparrow Hawk, 3; Southern Hairy Woodpecker, 1; Southern Downy Woodpecker, 2; Sapsucker, 1; Red-headed Woodpecker, 1; Red-bellied Woodpecker, 1; Northern Flicker, 7; Phoebe, 2; Florida Blue Jay, 13; Southern Crow, 2; Cowbird, 1; Red-winged Blackbird, 3; Meadowlark, 18; Brewer's Blackbird, 25; Goldfinch, 3; White-throated Sparrow, 2; Louisiana Cardinal, 5; Tree Swallow, 58; Cedar Waxwing, 4; White-rumped Shrike, 7; Myrtle Warbler, 27; Pine Warbler, 36; Pipit, 47; Mockingbird, 8; Brown Thrasher, 1; Carolina Wren, 3; Tufted Titmouse, 7; Carolina Chickadee, 3; Ruby-crowned Kinglet, 13; Hermit Thrush, 2; Robin, 1; Bluebird, 18. Total, 39 species, 365 individuals.—GEORGE FINLAY SIMMONS.

Marshall, Texas.—Dec. 25; 2.30 to 4 P.M. Cloudy; drizzling rain during middle of day; ground bare; wind north, light; temp. 41°. Black Vulture, 1; Red-shouldered Hawk, 1; White-throated Sparrow, 6; Chipping Sparrow, 50; Slate-colored Junco, 3; Cardinal, 1; Myrtle Warbler, 5; Mockingbird, 2; House Wren, 3; Brown Creeper, 1; White-breasted Nuthatch, 1; Tufted Titmouse, 5; Plumbeous Chickadee, 1; Black-capped Chickadee, 5; Ruby-crowned Kinglet, 15. Total, 15 species, 109 individuals.—EARL MOFFAT.

Taylor, Texas.—Dec. 26; 9 A.M. to 12 M. Cloudy and threatening; ground bare; wind north, 5 miles an hour; temp. 32° to 35°. Woodcock, 1; Killdeer, 2; Mourning Dove, 25; Red-shouldered Hawk, 1; Sparrow Hawk, 1; Burrowing Owl, 1; Red-bellied Woodpecker, 2; Flicker, 2; Phebe, 1; Horned Lark, 6; Crow, 2; Western Meadowlark (there is a possibility that some were of the eastern species), 45; Grasshopper Sparrow, 2; Song Sparrow, 12; Cardinal, 7; White-rumped Shrike, 1; Sprague's Pipit, 10; Mockingbird, 7; Carolina Wren, 2; House Wren, 1; Tufted Titmouse, 2; Plumbeous Chickadee, 4; Ruby-crowned Kinglet, 4; Robin, 3; Bluebird, 3. Total, 25 species, 147 individuals.—H. TULLEN.

Coolidge, Kan. (Riverside Farm).—Dec. 26; 11 A.M. to 4 P.M. Clear; ground partly covered by a light snow; wind northwest, 5 miles per hour; temp. 20°. Bob-white, 115; Marsh Hawk, 2; Swainson's Hawk, 1; Bald Eagle, 1; Sparrow Hawk, 1; Long-eared Owl, 2; Short-eared Owl, 1; Hairy Woodpecker, 2; Red-shafted Flicker, 12; Horned Lark, 450; Magpie, 12; Red-winged Blackbird, 275; Arkansas Goldfinch, 6; Tree Sparrow, 35; Slate-colored Junco, 80; Song Sparrow, 26; Towhee, 1; White-rumped Shrike, 1; Robin, 1. Total, 19 species, 1,024 individuals.—RAYMOND T. SHANSTROM.

Wichita, Kan.—Dec. 26; 1.30 to 4.30 P.M. Overcast; about 1 in. of snow; wind southeast, strong; temp. 40°. Bob-white, 8; Marsh Hawk, 1; Southern Downy Woodpecker, 2; Yellow-bellied Sapsucker, 1; Flicker, 3; Prairie Horned Lark, 75; Crow, 2; Meadowlark, 20; Harris's Sparrow, 35; Tree Sparrow, 8; Slate-colored Junco, 27; Montana Junco, 1; Song Sparrow, 4; Towhee, 4; Cardinal, 3; White-rumped Shrike, 1; Mockingbird, 2; Brown Creeper, 3; Chickadee, 2; Townsend's Solitaire, 1; Bluebird, 2. Total, 21 species, 205 individuals.—FAIRMOUNT COLLEGE AUDUBON SOCIETY.

Concordia, Mo.—Dec. 25; 1 to 3 P.M. Cloudy; 4 in. of snow; wind east; temp. 22°. Red-tailed Hawk, 2; Hairy Woodpecker, 1; Downy Woodpecker, 2; Red-bellied Woodpecker, 1; Flicker, 6; Blue Jay, 9; Goldfinch, 2; Tree Sparrow, 42; Slate-colored Junco, 65; Song Sparrow, 2; Cardinal, 15; White-breasted Nuthatch, 1; Tufted Titmouse, 5; Chickadee, 11. Total, 14 species, 164 individuals.—DR. FERDINAND SCHREIMAN.

Joplin, Mo. (2 miles east).—Dec. 25; 10 A.M. to 12 M. Cloudy; ground covered with ice; wind 35 miles; temp. 16°. Red-tailed Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 7; Red-bellied Woodpecker, 1; Flicker, 24; Blue Jay, 13; Crow, 37; Goldfinch, 20; Tree Sparrow, 50; Junco, 800; Fox Sparrow, 2; Cardinal, 24; Black-capped

Chickadee, 5; Tufted Titmouse, 3; Mockingbird, 2. Total, 15 species, 990 individuals.—HARRY R. WALMSLEY.

Marionville, Mo.—Dec. 27. Cloudy and windy, turning to clear and calm; ground covered; wind, varying; temp. average 33°; 5 miles. Bob-white, 30; Cooper's Hawk, 1; American Goshawk, 2; Screech Owl, 1; Hairy Woodpecker, 3; Downy Woodpecker, 4; Red-bellied Woodpecker, 2; Flicker, 1; Prairie Horned Lark, 12; Blue Jay, 24; American Crow, 128; Meadowlark, 2; Goldfinch, 1; Harris's Sparrow, 2; White-throated Sparrow, 2; Tree Sparrow, 100; Field Sparrow, 92; Slate-colored Junco, 300; Song Sparrow, 8; Lincoln's Sparrow, 1; Fox Sparrow, 1; Cardinal, 25; Loggerhead Shrike, 1; Mockingbird, 1; Winter Wren, 1; Carolina Wren, 1; White-breasted Nuthatch, 1; Tufted Titmouse, 8; Black-capped Chickadee, 6. Total, 29 species, 762 individuals.—JOHNSON NEFF and IRA NEFF.

Marshall, Mo.—Dec. 28; 10 A.M. to 2 P.M. Cloudy; ground covered with snow; wind south, light; temp. 40°. Bob-white, 7; Red-tailed Hawk, 2; Sparrow Hawk, 7; Screech Owl, 7; Hairy Woodpecker, 2; Downy Woodpecker, 11; Red-bellied Woodpecker, 2; Flicker, 6; Prairie Horned Lark, 20 (first in 8 years); Blue Jay, 40; American Crow, 52; Red-winged Blackbird, 61; Goldfinch, 3; Tree Sparrow, 131; Slate-colored Junco, 263; Towhee, 1; Cardinal, 16; Northern Shrike, 1; Carolina Wren, 4; Brown Creeper, 3; White-breasted Nuthatch, 3; Tufted Titmouse, 3; Carolina Chickadee, 15.—Total, 23 species, 642 individuals.—J. A. LAUGHLIN.

Knoxville, Tenn.—Dec. 26; 8 A.M. to 2 P.M. Clear; ground bare; wind north, keen; temp. 26°. Downy Woodpecker, 3; Yellow-bellied Sapsucker, 1; Blue Jay, 5; Purple Grackle, 5; Goldfinch, 1; Junco, 4; Towhee, 3; Cardinal, 3; Carolina Wren, 3; White-breasted Nuthatch, 4; Tufted Titmouse, 12; Chickadee, 15; Bluebird, 3. Total, 13 species, 62 individuals.—MAGNOLIA WOODWARD and O'CONNOR WOODWARD.

Knoxville, Tenn. (Chilhowee Park to Love's Creek, Tennessee River to Junction of French Broad).—Dec. 25. Ground wet; wind east, light; temp. 40°. Pied-billed Grebe, 1; Green-winged Teal, 5; Blue-winged Teal, 2; Wood Duck, 3; Canada Goose, 1; Woodcock, 1; Wilson's Snipe, 3; Bob-white, 25; Mourning Dove, 50; Turkey Vulture, 12; Sharp-shinned Hawk, 1; Cooper's Hawk, 1; Red-tailed Hawk, 2; Sparrow Hawk, 1; Barred Owl, 1; Hairy Woodpecker, 4; Downy Woodpecker, 20; Yellow-bellied Sapsucker, 5; Red-headed Woodpecker, 4; Flicker, 22; Blue Jay, 30; Crow, 200; Cowbird, 150; Red-winged Blackbird, 275; Purple Grackle, 50; Goldfinch, 50; White-crowned Sparrow, 10; White-throated Sparrow, 20; Field Sparrow, 50; Junco, 200; Song Sparrow, 10; Swamp Sparrow, 12; Towhee, 11; Cardinal, 7; Tree Swallow, 22; Loggerhead Shrike, 3; Mockingbird, 2; Carolina Wren, 10; Bewick's Wren, 2; House Wren, 1; Long-billed Marsh Wren, 2; Brown Creeper, 1; White-breasted Nuthatch, 3; Brown-headed Nuthatch, 4; Tufted Titmouse, 2; Chickadee, 50; Golden-crowned Kinglet, 2; Ruby-crowned Kinglet, 5; Robin, 30; Bluebird, 50. Total, 52 species, about 1,500 individuals.—GLENN H. MARCHBANKS.

Tazewell, Tenn.—Dec. 28; 9 A.M. to 3.55 P.M. Cloudy; some snow on ground in patches; very little wind and it irregular; temp. 32° at start, 38° at return. Bob-white, 5; Mourning Dove, 14; Cooper's Hawk, 1; Hairy Woodpecker, 4; Downy Woodpecker, 5; Red-bellied Woodpecker, 2; Yellow-bellied Sapsucker, 2; Pileated Woodpecker, 2; Flicker, 9; Phoebe, 1; Blue Jay, 4; Crow, 7; Purple Finch, 11; Goldfinch, 2; White-throated Sparrow, 11; Field Sparrow, 33; Junco, 22; Song Sparrow, 13; Towhee, 3; Cardinal, 5; Cedar Waxwing, 25; Myrtle Warbler, 19; American Robin, 23; Mockingbird, 3; Carolina Wren, 5; Bewick's Wren, 1; Brown Creeper, 1; Tufted Titmouse, 6; Chickadee, 4; Golden-crowned Kinglet, 7; Hermit Thrush, 3; Bluebird, 16. Total, 32 species, 270 individuals.—H. Y. HUGHES.

Berea, Ky.—Dec. 24; 8.30 A.M. to 2.30 P.M. Clear; ground bare; wind west, light; temp. 28°. Bob-white, 6; Mourning Dove, 11; Hairy Woodpecker, 2; Downy Wood-

pecker, 1; Flicker, 4; Blue Jay, 16; Crow, 12; Meadowlark, 2; Goldfinch, 3; White-throated Sparrow, 4; Junco, 2; Song Sparrow, 8; Fox Sparrow, 1; Cardinal, 6; Carolina Wren, 4; Winter Wren, 2; Brown Creeper, 2; Chickadee, 12; Golden-crowned Kinglet, 10; Robin, 1; Bluebird, 5. Total, 21 species, 112 individuals.—MERRIAM G. LEWIS.

Fort Wayne, Ind.—Dec. 27; 7.45 A.M. to 1 P.M. Cloudy; 7 in. of snow; wind southeast; temp. 10°. Cooper's Hawk, 1; Red-tailed Hawk (?), 1; Short-eared Owl, 1; Downy Woodpecker, 8; Flicker, 2; Blue Jay, 27; Crow, 21; Savannah Sparrow, 15; Tree Sparrow, 67; Slate-colored Junco, 7; Song Sparrow, 6; Cardinal, 16; Cedar Waxwing, 7; White-breasted Nuthatch, 4; Black-capped Chickadee, 7; Golden-crowned Kinglet, 3. Total, 16 species, 103 individuals.—CHAS. A. STOCKBRIDGE, A. A. RINGWALT and JOHN H. CRAIG.

Indianapolis, Ind.—Dec. 23; 2 to 4 P.M. Partly cloudy; 6 in. of snow with hard crust; wind west, light; temp. 22° to 20°. Bob-white, 10; Red-shouldered Hawk, 1; Belted Kingfisher, 1; Downy Woodpecker, 1; Crow, 5; Meadowlark, 1; Bronzed Grackle, 11; Tree Sparrow, 27; Slate-colored Junco, 25; Song Sparrow, 5; Cardinal, 5; Brown Creeper, 3; White-breasted Nuthatch, 2. Total, 13 species, 97 individuals.—ETTA S. WILSON.

Indianapolis, Ind.—Dec. 24. Cloudy; 3 to 4 in. of snow; wind west, fairly strong; temp. 30°. Bob-white, 15; Sparrow Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 9; Flicker, 4; Blue Jay, 7; Crow, 12; Bronzed Grackle, 1; Tree Sparrow, 9; Junco, 8; Song Sparrow, 20; Cardinal, 14; Winter Wren, 1; Brown Creeper, 1; White-breasted Nuthatch, 3; Tufted Titmouse, 8; Chickadee, 7. Total, 17 species, 121 individuals.—HAROLD A. EHRENSPERGER, IVAN GRABHORN and ARGYLE CAMPBELL.

Lafayette, Ind.—Dec. 25; 9.30 to 11.30 A.M. Slightly cloudy, bright sunshine mostly; 5 in. of snow and crusted, trees partly covered; wind northwest, light; temp. 30°; distance, 4 miles. Sparrow Hawk, 1; Hairy Woodpecker, 4; Downy Woodpecker, 5; Flicker, 2; Blue Jay, 10; Crow, 10; Goldfinch, 2; Junco, 6; Song Sparrow, 3; Cardinal, 5; White-breasted Nuthatch, 6; Titmouse, 15; Golden-crowned Kinglet, 4. Total, 13 species, 73 individuals.—M. L. FISHER.

Marco, Ind.—Dec. 26; 1.30 to 3.45 P.M. Clear; 3 in. of snow and sleet; wind southeast, light; temp. 30°. Marsh Hawk, 2; Sparrow Hawk, 1; Southern Downy Woodpecker, 4; Red-headed Woodpecker, 14; Red-bellied Woodpecker, 1; Flicker, 5; Blue Jay, 7; Crow, 83; Meadowlark, 1; Purple Finch, 1; Goldfinch, 10; Tree Sparrow, 41; Junco, 43; Song Sparrow, 6; Cardinal, 11; Tufted Titmouse, 7; Black-capped Chickadee, 6; Golden-crowned Kinglet, 4.

Roachdale, Ind.—Dec. 26; 9 A.M. to 1 P.M. Clear; 5 in. of snow; wind southeast, light; temp. 8° to 14°. Mourning Dove, 1; Downy Woodpecker, 11; Red-bellied Woodpecker, 2; Flicker, 4; Prairie Horned Lark, 10; Blue Jay, 14; Crow, 65; Tree Sparrow, 10; Junco, 35; Song Sparrow, 14; Cardinal, 1; White-breasted Nuthatch, 6; Tufted Titmouse, 7; Chickadee, 16. Total, 14 species, 205 individuals.—WARD J. RICE.

Cadiz, Ohio.—Dec. 20; 9.30 A.M. to 12.30 P.M. Cloudy; 3 in. of snow, crusted; wind east, moderately light; temp. 23° to 25°; distance, 6 miles. Bob-white, 14; Hairy Woodpecker, 2; Downy Woodpecker, 4; Red-bellied Woodpecker, 6; Flicker, 5; Blue Jay, 1; Crow, 1; Tree Sparrow, 50; Junco, 10; Song Sparrow, 2; Cardinal, 1; White-breasted Nuthatch, 7; Tufted Titmouse, 7; Chickadee, 2; Robin, 5; Bluebird, 3. Total, 16 species, about 130 individuals.—HARRY B. MCCONNELL, JOHN WORLEY and RAYMOND TIMMONS.

Campbellstown, Ohio.—Dec. 25; 12 M. to 2 P.M. Clear; 6 in. of snow; wind north to northeast, light; temp. 8°. Sparrow Hawk, 1; Screech Owl, 1; Hairy Woodpecker, 1; Downy Woodpecker, 2; Flicker, 1; Blue Jay, 1; American Crow, 30; Tree Sparrow, 2; Slate-colored Junco, 2; Song Sparrow, 7; Cardinal, 2. Total, 11 species, 50 individuals.

A month of very severe weather has made birds conspicuous by their absence.—W. H. WISMAN.

Canton, Ohio.—Dec. 25; 7 A.M. to 1.30 P.M. Cloudy, with light snowfall till 10 A.M., 6 in. of snow; wind northwest, light; temp. 16°. Ring-necked Duck, 1; Sparrow Hawk, 2; Downy Woodpecker, 5; Blue Jay, 7; Tree Sparrow, 210; Junco, 56; Song Sparrow, 4; Cardinal, 7; Brown Creeper, 1; White-breasted Nuthatch, 5; Tufted Titmouse, 5. Total, 11 species, 303 individuals.—EDWARD D. KIMES.

Chardon, Ohio.—Dec. 25; 8 to 11 A.M. Partly clear; 8 in. of snow; temp. 25°; distance, 6 miles. Canada Goose, about 25 (flock); Hairy Woodpecker, 1; Downy Woodpecker, 6; Red-headed Woodpecker, 3; Red-bellied Woodpecker, 1; Blue Jay, 6; Tree Sparrow, 20; Song Sparrow, 1; Tufted Titmouse, 4; Chickadee, 2. Total, 10 species, 69 individuals.—F. E. FORD.

Cincinnati, Ohio.—Dec. 26; 9 A.M. to 1 P.M. Clear; ice and snow on ground; wind east, light; temp. 6°; distance, 6 miles. Downy Woodpecker, 7; Yellow-bellied Sapsucker, 2; Red-bellied Woodpecker, 4; Flicker, 4; Blue Jay, 7; Crow, 10; Meadowlark, 5; Slate-colored Junco, 41; Song Sparrow, 14; Cardinal, 6; Carolina Wren, 8; Brown Creeper, 5; White-breasted Nuthatch, 1; Tufted Titmouse, 20; Carolina Chickadee, 42; Robin, 30; Bluebird, 4. Total, 17 species, 210 individuals.—HOWARD LAWLESS and FALLIS REES.

Columbus, Ohio.—Dec. 26; 8 A.M. to 4 P.M. Clear; ground covered with snow over a glare of ice; temp. 8°. Red-shouldered Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 5; Flicker, 5; Blue Jay, 8; Crow, 15; Purple Finch, 12; Tree Sparrow, 75; Slate-colored Junco, 225; Song Sparrow, 3; Cardinal, 4; Brown Creeper, 4; White-breasted Nuthatch, 4; Tufted Titmouse, 25. Total, 14 species, 387 individuals.—LAURA E. LOVELL.

Delaware, Ohio (4 miles out from city limits).—Dec. 30; 10 A.M. to 4 P.M. Cloudy; light snow; wind northwest, brisk and sharp; average temp. 32°. Cooper's Hawk, 1; Sparrow Hawk, 2; Great Horned Owl, 1; Barred Owl, 2; Hairy Woodpecker, 6; Downy Woodpecker, 12; Red-headed Woodpecker, 4; Red-bellied Woodpecker, 5; Northern Flicker, 17; Prairie Horned Lark, 8; Blue Jay, 7; Crow, 3; Purple Finch, 5; Goldfinch, 25; Tree Sparrow, 28; Junco, 23; Song Sparrow, 12; Towhee, 2 (both males—the first record for this section in December); Cardinal, 14; Carolina Wren, 3; Winter Wren, 2; Brown Creeper, 3; White-breasted Nuthatch, 18; Tufted Titmouse, 22; Black-capped Chickadee, 5. Total, 25 species, 230 individuals.—CHAS. R. WALLACE.

Delphos, Ohio.—Dec. 22; 9.30 A.M. to 3 P.M. Clear; ground covered with snow and ice; wind southwest, moderate; temp. 12°. Mourning Dove, 3; Red-tailed Hawk, 2; Sparrow Hawk, 1; Barred Owl, 1; Screech Owl, 1; Hairy Woodpecker, 4; Downy Woodpecker, 15; Red-headed Woodpecker, 1; Red-bellied Woodpecker, 2; Flicker, 17; Blue Jay, 8; American Crow, 27; Tree Sparrow, 18; Junco, 12; Song Sparrow, 5; Towhee, 1; Cardinal, 5; White-breasted Nuthatch, 13; Tufted Titmouse, 11; Golden-crowned Kinglet, 1; Bluebird, 1. Total, 21 species, 150 individuals.—L. H. GRESSLEY.

East Liberty, Ohio.—Dec. 28; 7.30 to 10 A.M. Rather cloudy, occasional sunshine; 6 in. of snow, thick crust, thawing some; temp. about 45°; distance, 3 miles. Hairy Woodpecker, 2; Downy Woodpecker, 4; Red-bellied Woodpecker, 4; Flicker, 3; Blue Jay, 11; Crow, 8; Song Sparrow, 9; Cardinal, 5; White-breasted Nuthatch, 10; Tufted Titmouse, 9. Total, 10 species, 63 individuals. Saw Goldfinch on Dec. 27.—RUSKIN S. FREER.

Huron, Ohio.—Dec. 25; 7.30 A.M. to 4.30 P.M. Partly cloudy; 2 in. of snow; wind southwest, moderate; temp. 18° to 30°. Merganser, 34; Goldeneye, 1; Bald Eagle, 1; Sparrow Hawk, 1; Barred Owl, 1; Screech Owl, 1; Hairy Woodpecker, 1; Downy Woodpecker, 5; Red-headed Woodpecker, 4; Red-bellied Woodpecker, 1; Flicker, 1; Blue Jay, 12; Red-winged Blackbird, 1; Meadowlark, 2; Tree Sparrow, 27; Slate-colored Junco, 15; Song Sparrow, 2; Cardinal, 14; Carolina Wren, 1; Brown Creeper, 2; White-breasted

Nuthatch, 6; Tufted Titmouse, 3; Chickadee, 1; Golden-crowned Kinglet, 2. Total, 24 species, 139 individuals.—H. G. MORSE.

Laceville, Ohio (12 miles west of Cadiz).—Dec. 20; 8.30 to 11.30 A.M.; 12.30 to 3 P.M. Partly cloudy; 3 in. of snow, crusted; wind east; temp. 24° to 30° to 28°; distance about 6 miles. Bob-white, 14; Cooper's Hawk, 1; Screech Owl, 1; Hairy Woodpecker, 3; Downy Woodpecker, 3; Red-bellied Woodpecker, 6; Flicker, 5; Crow, 3; Cowbird, 9; Purple Finch, 20; Prairie Horned Lark, 11; Tree Sparrow, 100; Junco, 50; Song Sparrow, 15; Cardinal, 3; White-breasted Nuthatch, 5; Tufted Titmouse, 20; Chickadee, 15. Total, 18 species, about 285 individuals.—E. E. SMITH.

Mt. Vernon, Ohio.—Dec. 25; 10 A.M. to 1 P.M. Light clouds; 4 in. of snow, crusted; wind north to northwest; temp. 15°; roadsides and along river; about 4 miles (walked). Red-shouldered Hawk, 2; Sparrow Hawk, 3; Screech Owl, 1; Kingfisher, 1; Hairy Woodpecker, 3; Downy Woodpecker, 6; Red-bellied Woodpecker, 1; Flicker, 6; Blue Jay, 12; Crow, 6; Meadowlark, 6; Tree Sparrow, 8; Junco, 8; Song Sparrow, 30; Cardinal, 24; Brown Creeper, 3; White-breasted Nuthatch, 5; Tufted Titmouse, 8; Bluebird, 4. Total, 10 species, 137 individuals. Many favorable localities barred on account of cattle foot-and-mouth disease.—VICTOR A. DEBES.

Salem, Ohio (southwest and west of city).—Dec. 26; 9.30 A.M. to 12.45 P.M. Clear; about 6 in. of crusted snow; temp. 10°; distance 4 miles. Sparrow Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 4; Red-bellied Woodpecker, 3; Flicker, 3; Blue Jay, 2; Tree Sparrow, 4; Song Sparrow, 3; Towhee, 4; Cardinal, 2; White-breasted Nuthatch, 12; Chickadee, 1. Total, 12 species, 40 individuals.—H. W. WEISGERBER.

West Lafayette, Ohio.—Dec. 25; 9 A.M. to 4 P.M. Cloudy; 3 in. of snow, crusted; wind north, sharp; temp. 20°; distance 14 miles. Ruffed Grouse, 1; Sparrow Hawk, 2; Downy Woodpecker, 3; Red-headed Woodpecker, 6; Red-bellied Woodpecker, 7; Blue Jay, 3; Crow, 25; Song Sparrow, 3; Cardinal, 8; White-breasted Nuthatch, 2; Tufted Titmouse, 8; Chickadee, 10; Bluebird, 22. Total, 13 species, 100 individuals.—SHERIDAN F. WOOD and KENNETH M. WOOD.

Wilmingon, Ohio.—Cloudy; 2 in. of snow; wind easterly, moderate; temp. 22°; distance 11½ miles. Bob-white, 4; Mourning Dove, 1; Sharp-shinned Hawk, 1; Red-tailed Hawk, 3; Sparrow Hawk, 1; Screech Owl, 1; Hairy Woodpecker, 4; Downy Woodpecker, 5; Red-bellied Woodpecker, 10; Flicker, 5; Horned Lark, 50; Blue Jay, 10; Crow, 136; Tree Sparrow, 13; Junco, 80; Song Sparrow, 39; Cardinal, 11; Carolina Wren, 2; Brown Creeper, 5; White-breasted Nuthatch, 4; Tufted Titmouse, 19; Chickadee, 7. Total, 22 species, 411 individuals.—GEO. D. HAWORTH and H. N. HENDERSON.

Youngstown, Ohio.—Dec. 25; 8 A.M. to 4 P.M. Cloudy; about 6 in. of snow; wind northeast, moderate; temp. 20°; distance walked about 10 miles. Bob-white, 74; Ruffed Grouse, 8; Sparrow Hawk, 2; Barred Owl, 1; Screech Owl, 1; Great Horned Owl, 2; Kingfisher, 1; Hairy Woodpecker, 8; Downy Woodpecker, 32; Red-headed Woodpecker, 14; Red-bellied Woodpecker, 4; Blue Jay, 38; Crow, 4; Meadowlark, 1; Tree Sparrow, 54; Slate-colored Junco, 57; Song Sparrow, 30; Towhee, 14; Cardinal, 33; Brown Creeper, 9; White-breasted Nuthatch, 53; Red-breasted Nuthatch, 15; Tufted Titmouse, 14; Black-capped Chickadee, 81; Golden-crowned Kinglet, 26. Total, 25 species, 585 individuals.—GEORGE L. FORDYCE, VOLNEY ROGERS, C. A. LEBDY, and MR. and MRS. WILLIS H. WARNER.

Detroit, Mich.—Dec. 26; 2 P.M. to 4 P.M. Clear; 1 ft. of snow; wind southwest, light; temp. 10°; distance covered about 3 miles on Belle Isle. Herring Gull, 5; American Merganser, 28; American Goldeneye, 2; Downy Woodpecker, 8; Crow, 3; White-breasted Nuthatch, 10; Chickadee, 3; Golden-crowned Kinglet, 1. Total, 8 species, 60 individuals.—MR. and MRS. F. W. ROBINSON.

Chicago, Ill.—Dec. 25; 2 to 5 P.M. Clear; snow 1 ft. deep; wind northwest, hard;

temp. 12°. Herring Gull, 9; Bronzed Grackle, 1; Song Sparrow, 1. Total, 3 species, 11 individuals.—W. W. LYON and L. L. MACKENZIE.

Hinsdale, Ill.—Dec. 25; 8.30 A.M. to 3 P.M. Cloudy; 1 ft. of snow; wind northwest, light; temp. 24°. Herring Gull, 4; Bald Eagle, 1; Hairy Woodpecker, 2; Downy Woodpecker, 10; Crow, 11; Purple Finch, 1; Tree Sparrow, 85; Junco, 25; Song Sparrow, 1; Cardinal, 4; Brown Creeper, 13; White-breasted Nuthatch, 4. Total, 12 species, 161 individuals.—MISS ESTHER CRAIGMILE and MRS. C. E. RAYMOND.

La Grange, Ill.—Dec. 25; 1 to 4 P.M. Six inches of snow; wind north; temp. 10°. Herring Gull, 7; Red-shouldered Hawk, 1; Hairy Woodpecker, 4; Downy Woodpecker, 3; Blue Jay, 2; Crow, 3; Purple Finch, 1; Tree Sparrow, 14; Junco, 7; Cardinal, 2; Brown Creeper, 8; White-breasted Nuthatch, 2; Chickadee, 5; Golden-crowned Kinglet, 1. Total, 14 species, 60 individuals. Wild Geese seen on 15th; Screech Owl on 23rd, and Lapland Longspurs on 24th.—JAMES D. WATSON.

La Grange, Ill.—Dec. 20; 8 A.M. to 12 M. Cloudy; 6 in. of snow; wind west; temp. 10°. Bob-white, 1; Red-shouldered Hawk, 1; Screech Owl, 1; Hairy Woodpecker, 6; Downy Woodpecker, 12; Prairie Horned Lark, 20; Blue Jay, 2; Crow, 12; Goldfinch, 2; Lapland Longspur, 6; Tree Sparrow, 150; Song Sparrow, 1; Cardinal, 4; Northern Shrike, 1; Brown Creeper, 6; White-breasted Nuthatch, 1; Chickadee, 6; Golden-crowned Kinglet, 7. Total, 18 species, 239 individuals.—EDMUND F. HULSBERG.

Lewistown, Ill.—Dec. 24; 8 to 10 A.M. Partly cloudy; 7 in. of snow; wind west, blowing at times; temp. at start, 10°, return 16°; distance, 2½ miles and return; railroad track, open country, Down Creek Valley. Hairy Woodpecker, 1; Downy Woodpecker, 6; Red-bellied Woodpecker, 3; Horned Lark, 3; Blue Jay, 2; Tree Sparrow, not less than 200; Junco, 75; Cardinal, 7; White-breasted Nuthatch, 1; Tufted Titmouse, 10; Black-capped Chickadee, 20. Total, 11 species, 330 individuals.—W. S. STRODE, M.D.

Moline, Ill. (Arsenal Island, Mississippi River).—Dec. 23; 11 A.M. to 1 P.M. Snow 5 in. deep; wind southeast, light; temp. 9°. Bob-white, 25; Golden Pheasant, 6; Hairy Woodpecker, 3; Downy Woodpecker, 3; Blue Jay, 6; Crow, 5; Tree Sparrow, 20; Junco, 25; Fox Sparrow, 1; Cardinal, 12; Brown Creeper, 3; Chickadee, 10. Total, 12 species, 119 individuals.—MRS. E. H. PUTNAM and GRACE PUTNAM.

Peoria, Ill.—Dec. 28; 10 A.M. to 2.30 P.M. Partly cloudy; 6 in. of snow; wind south, light; temp. 29° to 24°. Bob-white, 30; Hairy Woodpecker, 4; Downy Woodpecker, 5; Blue Jay, 4; Crow, 5; Goldfinch, 1; Tree Sparrow, 12; Slate-colored Junco, 80; Song Sparrow, 3; Cardinal, 9; Winter Wren, 2; Brown Creeper, 4; White-breasted Nuthatch, 9; Tufted Titmouse, 5; Chickadee, 15; Golden-crowned Kinglet, 1. Total, 16 species, 189 individuals.—JAMES H. SEDGWICK and REGINALD PACKARD.

Rantoul, Ill.—Dec. 25; 10 A.M. to 2 P.M. Light clouds with occasional snow flurries; ground covered level with a 12-in. snow; wind north, strong; temp. zero. Bob-white, 80; Prairie Hen, 10; Cooper's Hawk, 1; Red-tailed Hawk, 1; American Rough-legged Hawk, 4; Hairy Woodpecker, 1; Downy Woodpecker, 30; Yellow-bellied Sapsucker, 1; Flicker, 7; Prairie Horned Lark, 36; Blue Jay, 3; Crow, 200; Lapland Longspur, 10; Tree Sparrow, 10; White-throated Sparrow, 2; Slate-colored Junco, 20; Song Sparrow, 1; Towhee, 1; Cardinal, 6; Brown Creeper, 15; White-breasted Nuthatch, 2; Red-breasted Nuthatch, 2; Tufted Titmouse, 4; Chickadee, 10; Golden-crowned Kinglet, 16. Total, 25 species, 473 individuals. Screech Owl, Northern Shrike and Red-winged Blackbird are additional species noted the past week.—GEORGE E. EKBLAU.

Rockford, Ill. (Black Hawk Park).—Dec. 25; 11 A.M. to 3.30 P.M. Cloudy; 6 in. of snow; wind south, light or calm; temp. —10° to +10° (—23° during night). Hairy Woodpecker, 2; Downy Woodpecker, 1; Blue Jay, 1; American Crow, 12; Brown Creeper, 5; White-breasted Nuthatch, 6; Black-capped Chickadee, 4. Total, 7 species, 31 individuals.—NATURE STUDY SOCIETY of ROCKFORD.

Rock Island, Ill.—Dec. 25; 10.30 A.M. to 12.30 P.M. Partly cloudy; 6 in. of snow; wind northwest, light; temp. 7°. Hairy Woodpecker, 1; Downy Woodpecker, 5; Red-bellied Woodpecker, 1; Blue Jay, 2; Crow, 1; Cardinal, 1; Brown Creeper, 2; Chickadee, 4. Total, 8 species, 17 individuals.—BURTIS H. WILSON.

Zuma Township, Rock Island Co., Ill.—Dec. 24; 8.45 to 10.30 A.M., and 12.30 to 3.20 P.M. Dark and cloudy A.M., partly cloudy P.M.; about 4 in. of snow; wind north, brisk; temp. 21° to 13°. Bob-white, 16; Great Horned Owl, 1 (heard after sundown); Hairy Woodpecker, 8; Downy Woodpecker, 5; Red-bellied Woodpecker, 3; Blue Jay, 4; Crow, 4; Meadowlark, 3; Goldfinch, 2; Tree Sparrow, 60; Junco, 75; White-breasted Nuthatch, 5; Chickadee, 15. Total, 13 species, 201 individuals.—J. J. SCHAFER.

Elkhorn and Lauderdale Lakes, Wis. (and vicinity).—Dec. 20; 1.30 to 4.30 P.M. Cloudy; ground covered with snow; no wind; temp. 23°. Observers worked in three groups. Brisk snowstorm the latter half of the trip. Marsh Hawk, 1; Long-eared Owl, 1; Hairy Woodpecker, 1; Downy Woodpecker, 3; Flicker, 1; Blue Jay, 6; Crow, 15; Tree Sparrow, 7; Slate-colored Junco, 25; White-breasted Nuthatch, 4; Black-capped Chickadee, 6. Total, 11 species, 70 individuals. A Red-bellied Woodpecker is wintering with us. It is the first known appearance of this bird in our vicinity. He feeds at two different lunch-counters.—SARAH FRANCIS, LULA DUNBAR, MABEL BECKWITH, CONSTANCE BECKWITH, HELEN MARTIN and MARIAM SKIFF.

Hartland, Wis.—Dec. 26; 9 A.M. to 1 P.M. Clear; 8 in. of snow; no wind; temp. 20° below zero. Downy Woodpecker, 1; Blue Jay, 7; Crow, 4; Brown Creeper, 2; White-breasted Nuthatch, 4; Chickadee, 8; Golden-crowned Kinglet, 9. Total, 7 species, 35 individuals.—SUSIE L. SIMONDS.

Racine, Wis. (all along Lake Michigan shore).—Dec. 25; 8.30 A.M. to 12 M. Clear; 3 in. of snow; wind west, light; temp. 18°. Holboell's Grebe, 1; Horned Grebe, 2; Red-throated Loon, 1; Herring Gull, 80; Ring-billed Gull, 8; American Merganser, 1,200; Red-breasted Merganser, 20; Hooded Merganser, 30; Goldeneye, 40; Old-squaw, 30; Canada Goose, 15; Crow, 1. Total, 12 species, about 1,400 individuals.—H. D. MITCHELL.

Westfield, Wis.—Dec. 22. Clear, then cloudy; ground covered with snow; wind west, brisk; temp. 8°; about 5 miles. fields, tamarack and spruce swamp. Bob-white, 30; Hairy Woodpecker, 4; Downy Woodpecker, 5; Red-headed Woodpecker, 3; Blue Jay, 12; Crow, 1; Goldfinch, 1; Tree Sparrow, 25; Slate-colored Junco, 20; White-breasted Nuthatch, 5; Black-capped Chickadee, 10; Golden-crowned Kinglet, 1. Total, 12 species, 117 individuals. On Dec. 18 I saw 10 Evening Grosbeaks.—PATIENCE NESBITT.

Whitewater, Wis.—Dec. 24; 8 A.M. to 4 P.M. Cloudy in A.M.; 7 in. of snow; wind northwest, light; temp. 8°. Bob-white, 10; Hawk sp., 1; Sparrow Hawk, 1; Screech Owl, 1; Hairy Woodpecker, 1; Downy Woodpecker, 2; Blue Jay, 12; Crow, 4; Tree Sparrow, 15; Junco, 8; Brown Creeper, 1; White-breasted Nuthatch, 2; Chickadee, 1; Golden-crowned Kinglet, 8. Total, 14 species, 67 individuals.—FLORENCE L., ETHELL A. and MRS. G. C. SHUTTS.

Eagle Bend, Minn.—Dec. 24; 10 A.M. to 4 P.M. Clear; about 3 in. of snow; no wind; temp. —5°. Bob-white, 12; Ruffed Grouse, 4; Pileated Woodpecker, 2; Hairy Woodpecker, 4; Downy Woodpecker, 3; Evening Grosbeak, 10; White-breasted Nuthatch, 2; Black-capped Chickadee, 11. Total, 8 species, 48 individuals.—J. P. JENSEN.

Sioux City, Iowa.—Dec. 23; 7.30 to 11.30 A.M. Fair; 8 in. of snow slightly drifted; wind raw, southeast, light; temp. 12°. Hairy Woodpecker, 1; Downy Woodpecker, 2; Horned Lark subsp., 7; Crow, 5; Tree Sparrow, 15; Junco, 10; Cardinal, 1 pair; Brown Creeper, 1; White-breasted Nuthatch, 4; Chickadee, 6. Total, 10 species, 53 individuals.—ARTHUR LINDSEY and WALTER W. BENNETT.

Wallingford, Iowa (High Lake Grove).—Dec. 28; 9.30 to 11.30 A.M. and 1.30 to 4

p.m. Snowing, merely cloudy in afternoon; 10 in. of snow; wind southeast, light; temp. 25°. Horned Owl, 1; Hairy Woodpecker, 3; Downy Woodpecker, 4; Blue Jay, 5; Crow, 10; Pine Grosbeak, 1; Tree Sparrow, 50; Brown Creeper, 2; Nuthatch, 27; Chickadee, 48. Total, 10 species, 151 individuals.—B. O. WOLDEN.

Wall Lake, Iowa.—Dec. 25; 11.30 A.M. to 12.30 P.M. and 2 to 4.15 P.M. Clouded over; ground snow-covered; wind northeast, light; temp. 7°. Prairie Chicken, 20; (Screech Owl, 1, Dec. 23; Downy Woodpecker, 1, Dec. 24) Crow, 3; Tree Sparrow, 1; Chickadee, 1. Total, 4 species, 25 individuals. This includes almost all species it is possible to find here this severe winter.—JOHN A. SPURRELL.

Lennox to Canton, S. D. (and thence along Sioux River).—Dec. 23; 9 A.M. to 1 P.M. and 4 to 5.30 P.M. Clear, 6 in. of snow on level; wind southeast, light; temp. 18° to 28°. Barred Owl, 3; Screech Owl, 1; Hairy Woodpecker, 2; Downy Woodpecker, 1; Horned Lark, 2; Crow, 67; Goldfinch, 1; Tree Sparrow, 7; Brown Creeper, 1; White-breasted Nuthatch, 7; Chickadee, 33. Total, 11 species, 125 individuals.—W. B. MALLORY.

Aspen, Colo. (3 miles along Maroon Creek).—Dec. 23; 3 hours. Mild and cloudy; 4 in. of snow; calm. Downy Woodpecker, 1; Black-headed Jay, 3; California Jay, 1; Dipper, 1 (singing); Mountain Chickadee, 4. Total, 5 species, 10 individuals.—Mrs. I. L. LOGUE.

Denver, Colo.—Dec. 25, 10.30 A.M. to 2.30 P.M. Clear; 3 in. of snow; wind south, light; temp. 14° to 39°. Ring-necked Pheasant, 3; American Rough-legged Hawk, 3; Western Flicker, 2; Desert Horned Lark, 65; Magpie, 40; Yellow-headed Blackbird, 1; Red-winged Blackbird (an enormous flock), 1,000; Western Meadowlark, 1; Cassin's Purple Finch, 12; House Finch, 3; Western Tree Sparrow, 20; Shufeldt's Junco, 2; Pink-sided Junco, 8; Gray-headed Junco, 12. Total, 14 species, 1,172 individuals.—W. H. BERGTOLD.

Bozeman, Mont.—Dec. 24; 10 A.M. to 2.30 P.M. Cloudy; 2 in. of snow; calm; temp. 28°. Western Horned Owl, 1; Batchelder's Woodpecker, 1; Red-shafted Flicker, 1; Magpie, 17; Pale Goldfinch, flock about 100 (it is rather unusual for the Goldfinch to winter here); Western Tree Sparrow, 34; Mountain Song Sparrow, 4; Dipper, 1; Long-tailed Chickadee, 20. Total, 9 species, 117 individuals.—NELSON LUNDWALL.

Meridian, Idaho (irrigated farm lands).—Dec. 22; 8.40 A.M. (or sunrise) to 4.20 P.M. Clear; 1 in. of snow, ground bare in spots; very little open water; wind southeast, light, changing to northwest; temp. about 10° to 25°; 12 miles. Bob-white, 60; Chinese Pheasant, 59; Turkey Vulture, 1; Marsh Hawk, 4; Rough-legged Hawk, 4; Hawk sp (small), 1; Long-eared Owl, 3; Short-eared Owl, 3; Red-shafted Flicker, 8; Pallid Horned Lark, 231; Dusky Horned Lark, 54; Magpie, 192; Western Meadowlark, 54; Brewer's Blackbird, 909 (number probably includes some Tricolored Blackbirds); House Finch, 104; Pale Goldfinch, 25; Gambel's Sparrow, 35; Shufeldt's Junco, 136; Merrill's Song Sparrow, 66; White-rumped Shrike, 1; Wren sp., 1; Long-tailed Chickadee, 6; Golden-crowned Kinglet, 1. Total, 23 species, 1,958 individuals. Dec. 24. Mountain Chickadee, 2.—ALEX STALKER.

Flagstaff, Ariz.—Dec. 20; 8 A.M. to 12 M. Partly cloudy; 12 in. of snow following two days' snowstorm; no wind; temp. 25°. Sharp-shinned Hawk, 1; Harris's Woodpecker, 10; Steller's Jay, 15; Intermediate Junco, 20; White-breasted Nuthatch, 8; Pygmy Nuthatch, 50; Mountain Chickadee, 6. Total, 7 species, 110 individuals.—OSCAR F. SCHAEFER.

Bellingham, Wash.—Dec. 25; 9 A.M. to 12 M. Light rain all day; ground bare; wind south, changing to east, light; temp. 40°. About 300 Glaucous-winged, Herring, California, and Short-billed Gulls so intermixed that the different species could not be counted; Wilson's Snipe, 3; Northwest Crow, 100; Oregon Junco, 35; Rusty Song Sparrow, 14; Oregon Towhee, 9; Seattle Wren, 2; Western Winter Wren, 6; Oregon

Chickadee, 2; Western Golden-crowned Kinglet, 7; Ruby-crowned Kinglet, 2; Varied Thrush, 3. Total, 15 species, 483 individuals.—HAROLD ANDERSON.

North Yakima, Wash.—Dec. 25; 9 A.M. to 2 P.M. Clear; 6 in. of snow; no wind; temp. 22° to 27°; two weeks of zero weather preceded. Great Blue Heron, 1; American Merganser, 2; Mallard, 12; Redhead, 2; Green-winged Teal, 2; Coot, 1; Mongolian Pheasant, 117; Western Mourning Dove, 2 (our first winter record); Wilson's Snipe, 6; Killdeer, 4; Long-eared Owl, 1; Short-eared Owl, 2; Saw-whet Owl, 2; Magpie, 45; Red-shafted Flicker, 40; Black-headed Jay, 1; Western Crow, 1,000; Brewer's Blackbird, 15; Western Meadowlark, 10; White-rumped Shrike, 3; House Finch, 10; Pine Siskin, 15; Redpoll, 50; Western Goldfinch, 75; Shufeldt's Junco, 225; Merril's Song Sparrow, 250; Gambel's Sparrow, 250; Spurred Towhee, 1; Bohemian Waxwing, 10; Dipper, 4; Sitkan Kinglet, 2. Total, 31 species, 2,166 individuals. No Chickadee for 3 weeks, though usually a common winter bird; Sparrows, etc., unusually common.—MR. and MRS. JOHN V. ELLIS, JR.

Seattle, Wash. (to Sammamish Valley and Slough, via Juniata).—Dec. 23; I left Madison Park 10.15 A.M., returned 6.15 P.M. (duration of hunt 5½ hours). Fog, cleared at 11 A.M., fair; ground bare, frost in places; wind east and southeast, light to calm; temp. 31° to 44°. Western Grebe, 6; Holboell's Grebe, 3; Western Gull, 2; Herring Gull, 2; Merganser, 1; Mallard, 5; Pintail, 3; Lesser Scaup, 2; Ruddy Duck, 1; Northwestern Coast Heron, 1; Coot, 42; Wilson's Snipe, 1; Oregon Ruffed Grouse, 4; Red-shafted Flicker, 2; Steller's Jay, 2; Western Crow, 8; Slate-colored Junco, 1; Oregon Junco, 3; Rusty Song Sparrow, 70; Oregon Towhee, 13; Western Winter Wren, 2; California Creeper, 4; Oregon Chickadee, 2; Western Golden-crowned Kinglet, 3; Varied Thrush, 2. Total, 25 species, 185 individuals.—F. W. COOK.

Tillanook, Ore. (7 miles southeast).—Dec. 23; 8.30 to 11.30 A.M. and 2.30 to 4 P.M. Fair; wind south, light; temp. 32° to 50°. Western Gull, 3; Bufflehead, 2; Great Blue Heron, 1; Wilson's Snipe, 1; Sharp-shinned Hawk, 1; Dusky Horned Owl, 1; Belted Kingfisher, 1; Harris's Woodpecker, 1; Pileated Woodpecker, 1; Northwestern Flicker, 5; Coast Jay, 15; Raven, 14; Western Meadowlark, 25; Shufeldt's and Oregon Juncos, 85; Pine Siskin, 100; Nuttall's Sparrow, 1; Golden-crowned Sparrow, 1; Rusty Song Sparrow, 53; Fox Sparrow subsp., 2; Oregon Towhee, 8; Seattle Wren, 2; Western Winter Wren, 17; Oregon Chickadee, 1; Chestnut-backed Chickadee, 2; Western Golden-crowned Kinglet, 34; Ruby-crowned Kinglet, 5; Alaska Hermit Thrush, 1; Western Robin, 1; Varied Thrush, 14. Total, 29 species, 409; individuals.—ALEX WALKER.

Berkeley, Calif. (to near Leona Heights, Oakland).—Dec. 26; 1.30 to 3.15 P.M. Cloudy, ending in rain; wind southerly, slight; temp. 53°. Through open canyons, principally roadside associations, Upper Sonoran Zone with slight admixture of Transition. Seven miles. California Quail, 3; Western Red-tail, 2; Red-shafted Flicker, 13; Anna's Hummingbird, 3; Black Phoebe, 3; Coast Jay, 3; California Jay, 5; Western Meadowlark, 3; California Linnet, 3; Green-backed Goldfinch, 8; Gambel's and Nuttall's Sparrows, 50; Sierra Junco, 19; Santa Cruz Song Sparrow, 10; San Francisco Towhee, 5; California Brown Towhee, 7; Audubon's Warbler, 15; American Pipit, 6; Vigors Wren, 1; Plain Titmouse, 1; Coast Bush-Tit, 30; Intermediate Wren-Tit, 7; Western Ruby-crowned Kinglet, 7; Dwarf Hermit Thrush, 1. Total, 23 species, 205 individuals.—TRACY I. STOREK.

Fresno, Calif.—Dec. 25; 11 to 11.30 A.M. and 2 to 4.30 P.M. Hazy; wind very light; temp. 57°; distance, 21 miles by automobile. Actual count excepting Blackbirds, House Finches and Gambel's Sparrows. Green-winged Teal, 3; Shoveler, 3; Ruddy Duck, 7; Great Blue Heron, 3; Sora, 2; Coot, 13; Killdeer, 35; Western Mourning Dove, 8; Marsh Hawk, 5; Sharp-shinned Hawk, 2; Western Red-tail, 10; Prairie Falcon, 1; Sparrow Hawk, 21; Barn Owl, 7; Burrowing Owl, 2; Red-shafted Flicker, 17; Say's Phoebe, 7; Black Phoebe, 2; California Horned Lark, 15; California Jay, 1; Bicolored Blackbird (probably includes Tricolors), 312; Tricolored Blackbird, 1; Western Meadowlark, 145;

Brewer's Blackbird, 216; House Finch, 127; Green-backed Goldfinch, 30; Western Savannah Sparrow, 3; Western Lark Sparrow, 8; Gambel's Sparrow, 87; Heermann's Song Sparrow, 1; San Diego Towhee, 1; California Shrike, 26; Audubon's Warbler, 80; American Pipit, 3; Western Mockingbird, 42; Ruby-crowned Kinglet, 6; Western Bluebird, 8; Mountain Bluebird, 6. Total, 38 species, 1,265 individuals.—MR. and MRS. JOHN G. TYLER.

Pasadena, Calif. (and vicinity).—Dec. 23; 8.30 A.M. to 12 M., and 2 to 4.30 P.M. Clear, after rain, later becoming overcast; temp. 60°. Valley Quail, 90; Desert Sparrow Hawk, 1; California Woodpecker, 8; Red-shafted Flicker, 23; Anna's Hummingbird, 5; Say's Phoebe, 3; Western Black Phoebe, 7; California Jay, 3; Western Meadowlark, 16; Brewer's Blackbird, 150; California Purple Finch, 4; House Finch, 200; Green-backed Goldfinch, 150; Western Lark Sparrow, 48; Gambel's Sparrow, 30; Sierra Junco, 100; San Diego Song Sparrow, 3; Spurred Towhee, 2; Anthony's Towhee, 52; Phainopepla, 2; California Shrike, 16; Audubon's Warbler, 60; Western Mockingbird, 42; San Diego Wren, 2; California Bush-Tit, 40; Ruby-crowned Kinglet, 3; Western Gnatcatcher, 3; Alaska Hermit Thrush, 5; Western Robin, 30; Western Bluebird, 22. Total, 30 species, 1,120 individuals. The Phainopeplas are supposed to be with us only during the summer, but both birds were seen at close range, and were easily identified.—MISSSES ANNIE C. and ADA WIKON.

Upper Santa Ynez Valley, Calif.—Dec. 28; 9 A.M. to 5 P.M. Partly cloudy; ground bare; wind south, light; temp. 50°. California Quail, 50; Band-tailed Pigeon, 7; Sharp-shinned Hawk, 1; Western Red-tail, 4; Sparrow Hawk, 2; Kingfisher, 2; Hairy Woodpecker, 1; Gairdner's Woodpecker, 2; California Woodpecker, 12; Lewis's Woodpecker, 1; Red-shafted Flicker, 43; Black Phoebe, 8; California Jay, 18; Crow, 10; Brewer's Blackbird, 4; House Finch, 2; Green-backed Goldfinch, 5; Western Lark Sparrow, 10; Gambel's Sparrow, 10; Golden-crowned Sparrow, 3; Oregon Junco, 60; San Diego Towhee, 48; Cedar Waxwing, 50; Audubon's Warbler, 5; California Thrasher, 3; Rock Wren, 2; Canyon Wren, 3; Vigors Wren, 2; Plain Titmouse, 30; Bush-Tit, 20; Wren-Tit, 1; Dwarf Hermit Thrush, 1; Thrush sp., 11; Western Robin, 10; Varied Thrush, 5; Western Bluebird, 14. Total, 36 species, 466 individuals.—CARLTON and ALEX. MUZZALL and O. F. SCHAEFER.

Santa Barbara, Calif.—Dec. 26; 6 A.M. to 5.15 P.M. Sky densely overcast; no wind; temp. 50° to 55°. Los Canoes Canyon, lower Mountain Drive, Riviera, the Estero, Stearns' Wharf, Hope Ranch, La Patera, Round Lake, Sandylands—60 miles by automobile, 10 afoot, all within 12 miles of town. All indentifications checked afield by W. L. D. Numbers chiefly estimated. Western Grebe, 25; Holbøll's Grebe, 1; Horned Grebe, 2; Eared Grebe, 6; Pied-billed Grebe, 10; Loon, 2; Pacific Loon, 1; Red-throated, Loon, 2; Glaucous-winged Gull, 6; Western Gull, 300; Herring Gull, 3; California Gull, 150; Ring-billed Gull, 20; Short-billed Gull, 4; Heermann's Gull, 50; Bonaparte's Gull, 300; Royal Tern, 3; Farallon Cormorant, 40; Brandt's Cormorant, 20; Baird's Cormorant, 1; California Brown Pelican, 4; Green-winged Teal, 40; Cinnamon Teal, 4; Shoveler, 1,000; Pintail, 200; Canvasback, 80; Lesser Scaup, 20; Ring-necked Duck, 5; Bufflehead, 6; White-winged Scoter, 150; Surf Scoter, 200; Ruddy Duck, 100; Bittern, 1; California Great Blue Heron, 10; Black-crowned Night Heron, 20; Light-footed Rail, 2; Sora, 1; Yellow Rail, 1; Coot, 400; Least Sandpiper, 40; Red-backed Sandpiper, 10; Sanderling, 120; Marbled Godwit, 6; Greater Yellowlegs, 2; Western Willet, 1; Long-billed Curlew, 7; Hudsonian Curlew, 1; Black-bellied Plover, 1; Killdeer, 40; Snowy Plover, 20; Valley Quail, 1; Western Mourning Dove, 2; Turkey Vulture, 7; Sharp-shinned Hawk, 1; Western Red-tail, 4; Sparrow Hawk, 17; California Screech Owl, 2; Burrowing Owl, 1; Road-runner, 1; California Woodpecker, 20; Lewis's Woodpecker, 20; Red-shafted Flicker, 70; Anna's Hummingbird, 20; Say's Phoebe, 20; Black Phoebe, 8; California Horned Lark, 200; California Jay, 6; San Diego Redwing, 500; Western Meadowlark, 400; Brewer's

Blackbird, 200; California Purple Finch, 1; House Finch, 600; Willow Goldfinch, 8; Green-backed Goldfinch, 200; Western Savannah Sparrow, 10; Belding's Sparrow, 2; Large-billed Sparrow, 2; Western Lark Sparrow, 20; Gambel's Sparrow, 400; Nuttall's Sparrow, 20; Golden-crowned Sparrow, 3; Thurber's Junco, 20; Rufous-crowned Sparrow, 4; San Diego Song Sparrow, 20; Spurred Towhee, 20; Anthony's Towhee, 60; Tree Swallow, 1; California Shrike, 20; Hutton's Vireo, 2; Dusky Warbler, 2; Audubon's Warbler, 300; Tule Yellowthroat, 3; Pipit, 400; Western Mockingbird, 1; California Thrasher, 4; Dotted Canyon Wren, 2; San Diego Wren, 6; Western House Wren, 4; Tule Wren, 10; Plain Titmouse, 8; Bush-Tit, 60; Pallid Wren-Tit, 40; Ruby-crowned Kinglet, 4; Western Gnatcatcher, 10; Dwarf Hermit Thrush, 4; Western Robin, 40; Varied Thrush, 6; Western Bluebird, 12. Total, 108 species, 7,269 individuals.

A Red-breasted Nuthatch was seen by Mrs. H. E. Parmenter before she joined our party. Mr. and Mrs. Parmenter saw Lincoln's Sparrows and a White Pelican on the 27th; and the following additional species during Christmas week: Rhinoceros Auklet, Redhead, Bryant's Marsh Sparrow, Western Grasshopper Sparrow, Brewer's Sparrow, Mountain Song Sparrow, Western Winter Wren. The following additional species were seen by W. L. and W. O. Dawson on the 24th: Forster's Tern, Western Sandpiper, Red-bellied Hawk, Barn Owl, Pacific Horned Owl, Valdez Fox Sparrow, Violet-green Swallow, Mountain Bluebird; and on the 25th, Nuttall's Woodpecker,—a total of 127 species for Xmas week, 1914. A grand total of 162 species has been recorded by W. L. Dawson at this station during Decembers and Januaries since Dec. 25, 1910. Commander H. E. Parmenter of Boston and my son William accompanied these observations closely throughout the day; while Mrs. Parmenter and Mrs. Dawson assisted after 10 A.M.—WILLIAM LEON DAWSON.



WAITING FOR THE CENSUS-TAKER
Chickadee photographed by Ralph Beebe, Newberry, Mich.

Book News and Reviews

DIE VOGEL HANDBUCH DER SYSTEMATISCHEN ORNITHOLOGIE. By ANTON REICHENOW. Zwei Bände. II. Band. Large 8vo. 628 pages; numerous illustrations. Ferdinand Enke, Stuttgart, 1914.

The second and concluding part of this important work comprises the Yoke-toed birds, with the exception of the Parrots, the Kingfishers, Nightjars, Hummingbirds and related groups, and all the perching birds.

While deserving high praise as a practical handbook of the birds of the world, the admittedly artificial classification employed seems to us indefensible. An example of this arrangement is seen in the Woodpeckers, where the first "sub-family" into which the true Woodpeckers, are divided is characterized by the absence of bristles over the nostrils. In this group are associated several of the most divergent types of the family, including a genus of Flickers (allied to certain members of the second subfamily) and a genus of Ivory-bills (closely related to *Campephilus*) in the third subfamily.

Again, *Vireosylva* is transferred from the Vireos to a position in the Wood Warblers next to the Ovenbird, although the character on which this change is based (the presence of only nine instead of ten obvious primaries) does not even hold throughout the genus.

As a result of this ill-advised system, the inexperienced student is liable to be constantly misled as to the actual affinities of the birds regarding which he is seeking information.—W. DeW. M.

THROUGH THE BRAZILIAN WILDERNESS. By THEODORE ROOSEVELT. With illustrations by Kermit Roosevelt and other members of the expedition. 8vo. xvi+383 pages, numerous half-tones, 3 maps. New York, Charles Scribner's Sons, 1914.

To our mind, the most remarkable and significant things about Colonel Roosevelt's explorations in Brazil are first, that he should have embarked upon them,

second, that he should have succeeded in making them.

At this stage of the earth's geographic history, it may be accepted as an axiom that anything in the way of research which has not been done is hard to do. If there be a bird island, mountain top, or river which civilized man has not reached, it may be taken for granted that each and all are difficult of access.

Bird islands may claim only the attention of the ornithologist, mountain tops arouse only the ambition of the alpinist, but rivers appeal to mankind from many viewpoints. It follows, therefore, that our axiom applies to them with especial force. Possibly there are trips in South America which offer more obstacles than the one Colonel Roosevelt here describes; but, so far as we are aware, they have not yet found their historian.

It is particularly to be noted that Colonel Roosevelt selected this route through an unknown region at a time in life when most field-naturalists are conducting their observations in the study. Wallace was twenty-six and Bates twenty-three years old when together they went to the Amazon; Darwin was but twenty-two when he sailed on the 'Beagle.' And not one of the three went so far from the beaten trail as did Colonel Roosevelt at the age of fifty-five.

Dwelling still on certain features which distinguish this volume from most books of travel, it is to be observed that the leader of the expedition is not the 'whole show.' He appears, in truth, as its historian who records the activities of each member of the party (his own being given no more, and possibly less, than their just due), and rejoices in the achievements of his comrades with a whole-hearted cordiality which must have exercised no small influence on the results achieved by the expedition as a whole. It is simply the principle of the "square deal" carried into exploration, and we commend the atti-

tude of Colonel Roosevelt toward his associates to the leaders of expeditions remembered mainly for the personal enmities they have aroused.

It was not to be expected that on a zoölogical reconnaissance of this kind material additions could be made to our knowledge of the habits of the animals encountered. Nor did Colonel Roosevelt have sufficient previous knowledge of the flora and fauna of the region traversed to enable him to discuss its really significant characteristics. What he gives us is a series of clear-cut impressions of the wholly strange scenes and forms of life encountered. Comparison with familiar North American species makes, for North American readers at least, his descriptions doubly pleasing.

It must not be forgotten that George K. Cherrie and Leo E. Miller, whom Colonel Roosevelt took with him as representatives of the American Museum, collected some three thousand specimens of birds and mammals, which constitute a series of definite data on the faunal affinities of the region whence they come. Viewed from a zoölogical standpoint alone, the gathering of this material was in itself no small achievement. Many expeditions have been longer afield with less to show. Here, however, we have not only a valuable, representative collection but we have also an important addition to the narratives of exploration in South America. The moral is, that while not every zoölogical collector may hope to have Colonel Roosevelt's powers of observation and description, he may at least make a larger contribution to our knowledge of the country in which he works than is to be found on the labels of his specimens.—F. M. C.

HANDBOOK OF BIRDS OF THE WESTERN UNITED STATES. BY FLORENCE MERRIAM BAILEY. With thirty-three full-page plates by Louis Agassiz Fuertes, and over six hundred cuts in the text. Fourth edition. Revised. Houghton, Mifflin & Co., Boston and New York. 1914. 12mo. li+570 pages.

The body of the fourth edition of this standard work is printed from the same

plates as preceding editions, but contains as "Addenda" (pp. 486-544) changes in classification and nomenclature, a list, with descriptions, of species to be added and one of species to be eliminated; a list of the birds of the area covered by the work from the A. O. U. 'Check-List' with corrected ranges, titles of various works which have appeared since 1902, when the first edition of the 'Handbook' was published.

While it would, of course, be more convenient to have this additional matter appear in connection with the text which it supplements, a short time spent in cross-referencing will make it readily available. As a matter of fact, the changes are not sufficient to warrant reprinting the book, which by their inclusion is now brought up to date.—F. M. C.

REPORT OF CHIEF OF BUREAU OF BIOLOGICAL SURVEY.

This synopsis of the work of the Biological Survey for the year ending June 30, 1914, shows the wide scope and importance of the activities of this branch of Government service. Increase of population inevitably makes more severe the conflict between man and his environment, and all the greater, therefore, is our need of information as to the best way to conduct ourselves.

The problems of 'Prairie Dogs in National Forests,' 'Burrowing Rodents on Reclamation Projects,' 'Rodents as Enemies of Reforestation,' 'Relations of Birds to the Boll Weevil,' to quote from subject headings in this Report, did not concern our ancestors. But they, and many like them, are of vital importance to us, and it is fortunate that we have a 'Bureau' to which we may look for information and advice as these and allied difficulties arise. Among investigations relative to birds which have been conducted by the Survey during the year mentioned are studies of the food of wild Ducks, of the relations of birds to the alfalfa and the boll weevils, and the range caterpillar, of the economic status of the European Starling, which it is recom-

mended should be denied protection, and of methods of attracting birds, concerning which a bulletin will soon be issued.

Under 'Biological Investigations,' it is stated that work has been continued on the mapping of the distribution of birds and mammals, and on gathering data in relation to bird migration, while announcement is made of a plan for securing "a census of the birds breeding within the United States."

The importance of the Division of Game Preservation is indicated by the résumé of its year's work under the headings, 'Enforcement of the Federal Migratory Bird Law,' 'National Bird Reserves,' 'Importation of Birds and Mammals,' 'Interstate Commerce in Game,' etc.—F. M. C.

The Ornithological Magazines

THE CONDOR.—The November number of 'The Condor,' ending with page 278, completes Volume XVI, the largest in the series.

The three general articles are devoted to the Snowy Heron in Utah, bird-life in the Yakima Valley, and the Bronzed Cowbird in Arizona. In 'A 45-year History of the Snowy Heron in Utah,' by the Treganzas, an account is given of the bird in the marshes at the mouth of Bear River, 60 miles north of Salt Lake City. It seems that a colony has existed here for nearly half a century, but there has been a marked increase in the number of Herons since 1904, probably due to the protection which the birds have enjoyed.

'The Effects of Irrigation on Bird-Life in the Yakima Valley, Washington,' are discussed by C. H. Kennedy, who publishes a table of estimates (based on observations made between 1909 and 1914 on an irrigated ranch) of the numbers of 14 species before and after irrigation. This paper should be compared with Kenagy's accounts of The 'Change in Fauna' on the Minidoka Project in Idaho between 1907 and 1913, in 'the Condor' for May, 1914 (See 'Bird-Lore' XVI, p. 287). Kenagy gives a table of 19 species, which have

undergone marked change, and about half of these species are mentioned in Kennedy's table. As might be expected, there is a marked agreement in the decrease of desert species, and an increase of such birds as the Robin, Kingbird, and Coot in the irrigated area.

Gilman's article on the 'Breeding of the Bronzed Cowbird in Arizona' is an interesting review of repeated efforts to locate the nests of other birds in which the Cowbird deposits its eggs. In 1910 Abert's Towhee and Red-wing Blackbird nests were examined without result. In 1912 and 1913 the examination was extended unsuccessfully in the vicinity of Sacaton and Santan, to nests of Bullock's Oriole. In 1914, acting on a suggestion from Prof. W. W. Cooke, the nests of the Hooded Oriole were examined, with gratifying success. On June 28 a nest of a Hooded Oriole was found with 2 eggs of the Bronzed and 4 eggs of the Dwarf Cowbird; on July 7, one nest was found with 4 Orioles' eggs and one of the Bronzed Cowbird, and another with 3 Orioles' eggs and one of the Dwarf Cowbird; and on July 11, one with 2 Orioles' and 2 Bronzed Cowbirds' eggs. The article is illustrated with photographs of the first- and last-mentioned nests.

An Editorial note states that the Californian non-sale-of-game law, on which the referendum was invoked, was defeated at the election in November [by 8,151 votes] in spite of all efforts put forth in its behalf.—T. S. P.

THE AUK.—The January issue comes to us with a new cover design drawn by Mr. L. A. Fuertes. A Great Auk sitting in solitary dignity upon a rocky shore is a great improvement upon the flock previously occupying the cover, and so obviously snuffing the tainted gale.

The anatomy of another extinct bird is enlarged upon by Dr. R. W. Shufeldt, who has been privileged to dissect the body of the last Passenger Pigeon—one that died in the Cincinnati Zoo on September 1, 1914, at the age of 29 years. Several photographs accompany this arti-

The Audubon Societies

SCHOOL DEPARTMENT

Edited by ALICE HALL WALTER

Address all communications relative to the work of this department to the editor, at 53 Arlington Avenue, Providence, R. I.

A QUESTION FOR UNPREJUDICED CONSIDERATION

The majority of questions affecting public interests arouse strong prejudices pro and con, since each of the opposing parties feels that its claims are just. Questions of minor importance are quite as likely to arouse extreme prejudice as large ones. It is, therefore, well to assume a neutral attitude until one is thoroughly informed and intelligently convinced concerning the merits of any particular issue.

We are hearing more and more about cats nowadays, and the desirability of allowing them to increase without check is being very forcibly brought to our attention. This question is far less trivial than might at first appear; indeed, it is much more important than most people suspect. It is, moreover, a question about which a great many people are undeniably prejudiced.

A good way to become broad-minded on any subject is to look at that subject from more than one point of view. In the case of the cat, there are especial reasons for approaching the debated question of its usefulness by this method.

In the first place, the domesticated cat has a history almost as old as that of civilized man. The ancient Egyptians not only protected the cat, but they also worshipped it. As an object of sacred veneration, this highly cultured people made it a crime to kill a cat, and they even went so far as to preserve dead cats as mummies and to bury them in a cemetery, where their remains have been dug up centuries later by archæologists.

The house cat was regarded as an object of special blessing, and the grief, felt by a family upon the death of its cat was made evident to the outside world by a most peculiar sign, namely, shaving off the eyebrows. In ancient China and Japan, cats were regarded with great affection, and in many parts of Asia, they were considered useful in protecting granaries from rodent enemies. The Romans probably carried domesticated cats to Great Britain, but as late as the year 1000 A.D. there were very few cats in England.

No trace of house cats can be found among the early lake-dwellers of Europe, nor among nomadic tribes. Their history seems to be connected only with that of civilized man, and especially, with that of races devoted to agriculture.

When the fetish-worship of the early Egyptians gave place to a higher standard of religion, the domesticated cat still remained an object of affection. It gradually became associated with the superstitions of uneducated people,

and we find that in the Middle Ages, witches and "spooks" were supposed to assume the form of cats, more particularly of black cats.

As a pet, the house cat seems always to have been cherished in the home. Long ago, ladies of harems fondled their pet pussies and adorned them with ear-rings. So far, then, as history shows, it is evident that the custom of keeping domesticated cats is very old and, consequently, very hard to break.

A second point in this question is the origin of the house cat, in other words, the original place of the cat in nature. We must first distinguish between the wild cats of Europe, Asia and America, and the wild cats of Africa, for, although nearly related to each other, their temperaments, as well as their tails and feet and skulls, are quite noticeably different. The wild cats of Africa are easily tamed, while the wild cats of other countries are fierce and almost untamable creatures. It is probable that the domesticated cats we now harbor in our homes were first derived from the African wild cats, and that, in later ages, they interbred with wild cats in Europe, Asia and elsewhere. By habit, all cats roam widely, and unlike horses, cattle, dogs, and other domesticated animals, cling to their natural diet and inclinations. Now cats are naturally carnivorous, and seek a diet made up of "hares, rabbits, field-mice, water-rats, rats, squirrels, moles, game-birds, pigeons, and small birds." The ancient Egyptians understood this point, for some of their sportsmen trained tame cats to catch birds, just as dogs and falcons were similarly trained centuries afterward.

Whether the wild cats of Africa devour proportionately as large a number of birds as domesticated cats is probably not definitely known, but it is likely that they do not unless other food fails them. This is merely a surmise and one made on the ground that other kinds of prey taken together outnumber birds. Today, domesticated cats devour birds greatly in excess of their actual needs, since most house cats are well-fed, and most stray cats can find an abundance of field-mice and other prey. In so far as this is the case, the balance of nature is being disturbed in a wrong direction, and the fault lies with man, who has to his account too many mistakes of this kind. One has only to call to mind the introduction of the English Sparrow into the United States, of rabbits into Australia and the far West, of unnumbered weed-pests and many other pests into all lands to realize how unfortunate a meddler with Nature man has been and still is. Any reasonable way of correcting such disturbances should be considered without prejudice.

So far, then, as the origin of cats can be traced, the common house cat came to us from Africa (possibly, also from China), with more or less crossing with the wild cats of other countries. Its place in nature is to act as a check upon small rodents chiefly, but by habit it is enabled to seek not only adult birds but also their nests and young, and it is therefore a dangerous enemy to bird-life. [There are many varieties of cats, and it is of curious interest to learn that among them has been found a species, or possibly, only a variety, that actually builds a nest in which to rear its young.]

Still another point to emphasize is the possibility that cats carry infectious diseases from place to place, and from person to person. Here is a source of serious danger to health, and one which should be very thoroughly investigated. No person has a right to let cats breed promiscuously, and to harbor or let loose cats which may carry disease to others. Since cats by nature love freedom, it is a difficult matter to keep them in confinement.

Perhaps these are reasons enough to help us act in a broad-minded way on the question of the desirability of keeping cats. Every person is free to his or her own opinion, but conscientious answers to the following questions may help some who are not decided as to the merits of this question to make up their minds definitely:

1. Am I harboring a cat which may be a disease-carrier?
2. Does my cat trespass on the grounds of other people and interfere with their plans for saving or attracting birds?
3. How many wild birds does my cat catch and bring to my notice each year?
4. Does my cat wander free at night, disturbing my neighbors by fighting with other cats or by making harassing noises?
5. Am I perfectly sure that my cat is a good mouser?
6. Am I sure that rats and mice about barns and houses cannot be more effectively destroyed by some other means than by cats?
7. Am I justified in keeping cats which breed frequently and in letting their progeny go here, there, and everywhere?
8. Do I know how many stray cats are about my neighborhood?
9. Am I taking a broad-minded view of the cat question?

Any person who considers this matter in the light of the public welfare, instead of his own personal interests is the right kind of citizen. Nowadays, we live in communities which are too thickly populated to warrant a superabundance of any animal, be it cat, dog, bird or pig. Favor should be given to those creatures which are doing the most good and not to those which are doing the most harm.

All readers of BIRD-LORE, and especially members of the State Audubon Societies are invited to express their opinions on this matter of keeping cats, and to cooperate with those who are trying to solve the problem wisely and for the best good of all concerned.—A. H. W.

NOTE: It has been definitely proved that cats become infected with trichina, from eating rats and mice; that they may become tuberculous; that they are carriers of diphtheria, and that they are subject to tapeworms and various intestinal and cutaneous diseases. Cats have been known to be infected with whooping cough, ringworm, mange and anthrax, while they are suspected to be carriers of scarlet fever, smallpox, the plague and possibly infantile paralysis (anterior poliomyelitis). More work needs to be done on this subject of cats as disease-carriers, but already there is sufficient evidence to be found in scientific and medical journals, not only to put people in general on their guard, but also to convince thoughtful-minded citizens that some

effective precaution needs to be taken to prevent a too rapid increase in the number of domesticated cats both in the country and about towns and cities.

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SUGGESTIVE METHODS OF BIRD-STUDY: PET ROAD-RUNNERS

By GEORGE MIKSCH SUTTON

By the end of the spring of 1914, I had two Road-runners, much to the apparent dissatisfaction of both birds. When both were fairly well fed, their attitude toward each other was quite friendly, but when hungry there were but few moments of real quietude. Strange to say, they often seemed to enjoy fighting each other, even if they did generally come to an end of their bout somewhat frayed, and minus several feathers. Yet they enjoyed each other's company, for if they were separated they invariably seemed eager to be together again.

It was later found that different degrees of hunger usually incited their pugnacity in varying degrees, for when they were in well-fed condition they lay quietly on the sand, side by side, kicking their feet, spreading their wings, or making weird music. I should dislike to think that they were trying to kill each other during these fighting periods, but I have not yet been able to explain their behavior otherwise.

Though I have often read of this species of bird uttering notes similar to those of a chicken, or some such fowl, I have never heard them. The mosquito-like, rasping note is the only note made, unless it is a hoarse, rather metallic grunt. Rolling or clapping of the mandibles, however, is of very common occurrence.

Not any bird that I have studied can approach this species in the marvelous rapidity of the work of its digestive system, save perhaps the Belted Kingfisher. Though I have never examined the gastric fluid of the Road-

runners, it must be exceedingly sharp and powerful. I have made many experiments with my birds, to determine exactly their rate of digestion, but all failed. There is no doubt, however, that their digestive system is quite unique. The simple fact that the Road-runner swallows his prey entire does not make his assimilative power so wonderful; but the fact that he disgorges no pellets, as do the Hawks and Owls. Bones, feathers, fur, and scales are digested with the flesh and skin, and likely aid greatly in the muscular development of the bird's body.

The rapidity with which these birds swallow their food is also noteworthy. A snake ten inches long is swallowed in twenty-nine seconds, save an inch or less of its tail; one 22 inches long in two minutes and thirty-one seconds. Five English Sparrows, eight days old, were swallowed, on an average, in four seconds apiece, while very small prey is swallowed in less time than it takes to tell of it. Stuffed prey, such as cotton rats, is swallowed very readily after it is once fairly started.

By about the end of the first month of its life, the Road-runner is a very different-looking bird than before. The most marked changes occur in the eyes and mouth. While in a nestling the iris is brown with a blue-black pupil, with very much the same expression as the eye of a young Thrush, in the fledgling it is much different. At this time a pale gray circle gradually incloses the pupil, as the brown of the iris becomes more intense. Then the gray circle becomes lighter and finally pale buff, as it is in the adult bird. During the nestling period, the mouth is bright red with black in spots and on the ridges. When grown, the red becomes black or dusky, and the spots and ridges turn white or pale salmon.

The changes in color and appearance are not nearly so interesting, however, as the changes in actions. There is such a varied program in a day of Road-runner life that only a few interesting items can be cited.

In May, my pets awake shortly after 4 A.M., and immediately begin to preen their feathers. I have been surprised to notice the time which they take to keep the feathers bordering the lower mandible arranged. Standing on one foot, they scratch this region with the other foot, then rub the feathers back into place by running their jaw along a board or stone. Their attention is next directed to the crest. After it is thoroughly preened, it is raised slowly, in satisfaction. To my knowledge, they do not often stretch, and, in fact, never seem stiff or sleepy, even at night! During this time they roll their mandibles about every thirty seconds, and proceed to take a dust-bath and preen their feathers again, perhaps to assure themselves that they are awake. The dust-bath is a queer performance. Shaking all over, and creeping along the ground, by flapping their wings inwardly, they make the dust fly into all their feathers. They often take baths of this kind, but never as yet have taken one in water. A Road-runner, which may have taken a bath, was once seen near a pond, but I am not certain that it did. After the dust-bath, their appetite claims full

attention and they begin the day's chase. With head held high and eyes intent on quarry, they take short, quiet runs, hunting along the way. Their time is employed thus, until sunrise, when they take a sun-bath. When the sun waxes warmer, they skulk under the porch or into the high weeds, and wait for cooler hours. The wild, or undomesticated Road-runners never seem to mind the heat, but my pets are much averse to it. About 4.30 P.M. they come out and hunt until the first signs of dusk, at which time they retire. They enjoy a lofty place of rest, and invariably get as high as possible in the cage. The highest perch is often the means of pronounced disputes.



A PET ROAD-RUNNER IN AN ATTITUDE OF FRIGHT

From a drawing by George Miksch Sutton

I do not hesitate to say that the Road-runner is a most beneficial bird. From actual count, a Road-runner's bill of fare is found to consist largely of insect food, and most of the insects are decidedly noxious. In natural surroundings and ordinarily hungry, a Road-runner's menu is as follows for one day: Hopping grasshoppers 263, flying grasshoppers 73, scorpions 17, sowbugs 28, caterpillars 7, chrysalids 3, angle-worms 14, moths 39, butterflies 1, centipedes 14, spiders 16, tarantulas 2, walking-sticks, 3, small toads 3, horned frogs 3, green lizards 6, small lizards 8, and 1 mouse. Of course, this bird's diet might have been much different another day, but their bill of fare is generally along this line. I was indeed surprised at their enjoyment of toads, since most animals and birds detest them so much. Much time is spent to see that toads are well killed, but they are always eaten. A spider sometimes escapes by running upon

the bird, but, if the other bird is along, it is snatched off immediately. The actions of a horned frog are especially peculiar when confronted by its enemy, from whom it knows it cannot escape. It rises up on all its legs and flattens out to such an extent that to swallow it at the time would be impossible. The Road-runner knows the trick, however, and in about five minutes the horned frog is constituting part of the Road-runner.

My birds are a peculiar sight when running. If not in a great hurry, they remind me somewhat of a pacer, swinging from side to side; but the rate to which the Road-runner can attain may only be described as a 'road-runner gait!' The neck is extended on about a level with the body, as they run stealthily and noiselessly past. I have never estimated the rate of their running, but it surely bids fair to be the fastest of any running bird which flies.

As before stated, there is no limit to the surprises a day's association with these birds can afford. I was fairly frightened when one bird ate mud in pieces as large as my smallest finger tip, with apparent relish! It may have been full of minute crustaceans,—how shall I ever know? When a crayfish was given to one bird, it first pulled off the pincers, and then swallowed it entire. Another time one ate the pellet from a Texan Screech Owl as soon as it was disgorged. In fact, every curious article is picked up, run through the bill, and then either dropped or swallowed.

The small amount of water apparently necessary for the sustenance of these birds is unusual. They rarely drink more than twice a week, and will usually upset the water-pan at other times. They dampen their whole breast when drinking, and take long, measured draughts.

There are but few animals smaller than a prairie-dog which can really frighten a Road-runner in the day; but they are laughably timid at night. A mouse in their cage, after dusk, almost crazes them with fright. They beat against the wire with seemingly hopeless terror, endeavoring to get out. Their lower mandible droops, the wings lift, and the tail spreads to its fullest extent. But the morning sees them fearless again, and the same mouse is dispatched with but slight concern.

During July, we moved to West Virginia, and, being most curious to know how changed food conditions would affect them, the Road-runners were taken along. The morning of our arrival was chill and foggy; and how were the Road-runners? I was almost afraid they would fall over from the thinness of the air at the higher altitude but, instead, they were sprightly and ran up the hill, hunting on the way. They soon found resources, and before long caught English Sparrows with great avidity and dexterity. It took much practice, on their part, however. To catch a Sparrow is no easy thing, and it was interesting to watch them.

The Road-runner would cautiously approach the Sparrow, and when quite near would leap into the air and sail in short circles around the dazed bird, snatching him up with marvelous quickness.

On the second day in their new home, one bird swallowed a large bat. It was most puzzling to see how the great wings were swallowed, but they surely disappeared.

To catch a Sparrow seems to be the summit of the Road-runner's endeavors, and beyond this accomplishment he does not seem to reach. But who can tell? To the actions of a bird so active, free, lawless, and unusual, there can scarcely be a limit.

[In the September-October issue of BIRD-LORE for 1913, there appeared the first contribution of the pet Road-runners' history from Master Sutton, who, a lad of fifteen, had succeeded in the difficult task of rearing these wild birds in captivity. Our readers will be much interested in the above account of the habits and actions of these birds and also, in the fact that they were successfully transported from their natural habitat in Texas to decidedly changed life-conditions in Virginia. As a method of bird-study, this account of two pet Road-runners is especially suggestive. It relates what an observant boy actually saw, and his attempt to solve some of the problems presented by the actions of his strange pets. With regard to the rate of digestion in birds it is instructive to note that their digestive apparatus is peculiarly adapted to their needs. In order to be a successful flying-machine, a bird must be light in weight, and it has for this reason probably discarded teeth and reduced the length of the digestive tube, especially in the region of the large intestine. As an aid to rapid digestion, food passes quickly through this shortened tube. In order to maintain a high degree of energy, a bird must eat large quantities of food and the well-developed crop serves as an additional place of storage for food. It is possible that the peculiar action of the Road-runner which ate mud came from a desire to get gravel for grinding purposes in the gizzard. Seed-eating rather than carnivorous birds, however, have the habit of eating gravel. In connection with the Road-runners' fright when hearing a mouse at night, it may be of interest to know that other birds may be similarly affected. The writer reared a nestling Tanager for a fortnight, and one night it was so frightened by the skittering of a mouse through the room that it was, as Master Sutton says, "nearly crazed."—A. H. W.]

JUNIOR AUDUBON WORK

For Teachers and Pupils

Exercise XIX: Correlated Studies, Reading, Drawing, and Spelling

The New Year always brings pleasant anticipations of things new and untried to those who are eager to learn, and with this thought in mind, we may turn to our studies expectant and full of zeal. Any study that cannot be made to fulfil this hope on the part of a student who really wants to learn is not worthy a place in the curriculum. Imagination and enthusiasm will brighten even the dullest page in any text-book, and this is a statement worth remembering every day in the school year. Nature-study, most happily ought never to be dull, tiresome, or mere drudgery. Since it deals with all forms of animate and inanimate things, it keeps ever before us some phase of the *real* world and, for the most part, the living, moving world.

Of all creatures in our world, birds, we learn, expend the most energy in living and moving. In all probability their blood circulates the most rapidly, their food-capacity is the greatest, and their digestion the fastest of any vertebrate. Why this is so we will try to learn this year in a series of exercises dealing with the structure and adaptations of birds.

I. The Plan of a Bird

A bird is a vertebrate, that is, it has a backbone protecting a tubular nerve-cord; a blood-system which is closed inside its body in a complex network of arteries and veins and capillaries; a skin which we may think of as double, because it is made up of two layers; and limbs or appendages that never exceed four in number. There are more reasons than these that make a bird a vertebrate, but the four mentioned are sufficient for us to remember now. A bird, as a bird, is known by its covering of feathers. No other creature has feathers, but every bird that has ever been discovered bears this distinguishing mark. It is true that a bird is superior in flight to other flying creatures, but it would not be correct to describe a bird by merely saying it could fly.

The plan of a bird in general is a vertebrate plan, distinguished by the peculiar growth of feathers, and *modified* in particular for the purpose of flight. Compared with aeroplanes and airships of whatever description, a bird is the most successful, the most highly perfected flying-machine ever devised. It is from this point of view, perhaps, that we can gain the best idea of the structure of birds for the present. In New Years to come, some of you may be in colleges or universities, where you will discover more in detail the astonishing mechanism of a bird, but this year we can only make a beginning in a very simple study of structure and adaptation.

In addition to adequate *motive power*, a flying-machine must have three things in order to be air-worthy, namely *lightness*, *rigidity*, and *equilibrium*. It has taken man a long time to invent a machine of this kind, and had it not been for the model of the bird's skeleton and plumage, from which so much has been learned about the mechanism of flight, it is doubtful whether there would be any flying-machines to-day better than Darius Green's.

The first thing we notice about a flying bird, is its great extent of wing-surface. The better flier a bird is, the longer wings and better muscles of flight it has. If we think of the wings as sails fastened to a bony mast (the breastbone) in order that they may be rigid, it may help us to understand why the fore-limbs of a bird are so different from its hind-limbs.

The best way to get an idea of this difference is to look at the wing-bones and leg-bones of the next chicken or turkey you eat, and notice how dissimilar they are. You might examine the wing-bones of very many different

kinds of birds only to find that they are so much alike that it seems improbable that they were ever meant to serve any other purpose than that of flight. An exception may be made in the case of the Penguin, whose wing-bones which are covered with tiny feathers that resemble somewhat scales, serve as oar-blades. The Penguin is a fine swimmer, but is awkward on land and practically flightless in air. There are some birds of an ancient type, like Ostriches, Cassowaries, Kiwis, etc., which are called flightless; but an examination of their wing-bones shows that, although these bones are small as compared with the size and weight of the birds to which they belong, they are nevertheless made on the true flying plan. Ages ago the ancestors of these birds doubtless were good fliers. We may think of the wings of a bird, then, as its most important flying apparatus. By means of the rigid breast-bone, to which the huge muscles of flight are attached, the bird attains great stability in the air, but, in order that it can really fly, its wings must also be *flexible*. Examine the wing of a roasting-chicken and see how easily the different joints move in one direction. It is a curious fact that even so small a part of the "wishbone" of modern birds as the tip end is very important in connection with flight. In fact, if it becomes broken, the bird loses control of the flight muscles and becomes unable to fly.

Flight is so much more complicated than walking or crawling or running that we cannot expect to understand it until we have studied the subject a long time, even then, it is doubtful whether anyone could entirely explain it. We can, however, notice that a bird does different things with its wings, such as fluttering, hovering, skimming, and soaring, which are all different motions from plain flying. We can observe, also, which birds are able to soar and hover and which are not.

Wings alone cannot make perfect flying. Lightness, one of the usual accompaniments of good flight, is attained by a very peculiar pneumatic device—that is, hollow bones filled with air together with a system of air-sacs connected with the lungs. Still, not all flying birds have hollow bones. Such fine fliers as the Gulls, for example, lack this pneumatic equipment. *Equilibrium* is an essential to successful flight, and in birds this seems to be correlated with the steering-apparatus. Watch birds in flight and see whether you notice any device like a rudder. The motions of birds in flight are so numerous and complex that one rudder alone would scarcely serve to insure perfect equilibrium. By studying these movements closely it seems evident that the tail and the head and neck together, as well as certain wing-motions aid the bird both in steering its course and at the same time keeping its equilibrium. As we shall see later, the feet are useful in some species as rudders.

Moulting birds are often quite helpless for a time about governing their flight, or even flying at all. The tail, as we see it, is mostly made up of large feathers, and these feathers we soon find are of much importance in aiding

flight. The real tail of a bird, that is, the bony tail, is very short indeed, but the long, stiffened tail-feathers make a very serviceable rudder. Before leaving this matter of steering, we might well examine the neckbones of a chicken, to see how remarkably flexible they are. These bones are tiny, each single one being called a *vertebra*. It is the way they are joined together that makes them of so much use to the bird, not only in flight but also in finding its food. The necks of different birds differ in length, and it is a point worth observing when watching birds in flight. Swans, Herons and Cranes are good examples of long-necked birds, as well as Ducks and Geese. The manner in which the neck is held in flight will often help one to determine the bird when it is too far away to show the color of the plumage.

The wings of the bird are the principal part of the mechanism of flight, but we must remember that only a few kinds of birds live really in the air, that is "on the wing." Very many good fliers find their food about trees or on the ground or in the water, and so have need of some other device than flight for getting about. So various are the habits of birds that we find a great number of special devices by means of which they may adapt themselves to different conditions.

The *Loon* is a good type to begin with in the study of adaptation, because it belongs to a very ancient group of birds which lived in the water, although built on the flying-plan. The wings of the Loon are not particularly different from those of other birds except that they are rather short as compared with the size and weight of the bird.

A trained observer would suspect that, with such short wings, the Loon could not compare in power of flight with Ducks or Gulls, for example. But what this bird lacks in power of flight it makes up for in its ability to dive and swim. Its hind-limbs, or legs, at once attract attention because they are placed so far back on the body. Although they serve as true legs after a fashion, one has only to look at a picture of a Loon on land to see how incapable of walking it is. The word toddle better expresses this bird's power of locomotion on land. But in the water, where its webbed feet have free play as well as its oarlike legs, the Loon is a marvel of dexterity and grace. Its short wings assist it in swimming under water, indeed, one may well quote the description of an old naturalist, who spoke of the Loon as "flying under water." The steering-gear of the diving-birds is much less in evidence than in most of the air-fliers, since the tail is very small or almost lacking; but we should notice that the webbed feet of water birds are an aid in steering, placed as they are so near the end of the body.

The plumage of these water-lovers is noticeably thick and waterproof, and their ribs are long, and jointed to the broad breastbone in such a way as to afford good protection to the delicate digestive organs.

Underneath the skin is a fairly thick layer of fat, in some of the more northern species at least, which is, of course, a great help in conserving the

warmth of the body and in preserving the bird's life in case of hard times, when food is scanty.

Let us briefly sum up in conclusion the few facts we have learned about the plan of a bird:

1. A bird is a *vertebrate* and is built on a vertebrate plan. The presence of a backbone, a closed blood-system, a two-layered skin, and never more than four limbs, are some of the things which make a bird a vertebrate.

2. A bird has a peculiar covering of feathers, which distinguishes it from all other creatures.

3. A bird is not only capable of flight, but possesses the most perfect known mechanism of flight.

4. The wings of a bird are its most important devices of flight, but these depend for their rigidity upon their attachment to a firm breastbone by means of large muscles; for their lightness upon hollow bones and a system of air-sacs, and also upon a feather covering; and, for their flexibility, upon joints that move only in certain desired directions, as well as upon the close but pliable feathers which they support.

5. In addition to wings, a bird must have some means of steering its course and of keeping its equilibrium in flight. The neck and tail, and in some instances the feet, and certain movements of the wings, assist it in attaining a perfect and easy flight.

6. Not all birds live on the wing, and need therefore to be adapted to finding their food on the ground or in the water. The hind-limbs, or legs, of a bird are variously modified to meet this need; and, whereas the wings of different kinds of birds are very similar, their legs and feet are often extremely dissimilar.

7. The Loon belongs to a group of birds known as divers. It is remarkable for the peculiar position of its hind-limbs, which are used more as oars under water than as legs on land. Diving birds have no equal on water, but they are quite helpless on land, and fly rather poorly, or not at all, in air.

SUGGESTIONS

Where are the claws of a bird found? Did you ever know of a bird that had claws on its wings?

How much heavier do you think a bird is than the air in which it flies?

Can a bird fall down out of the air?

Why cannot a bird move its wings around in a rotary way as we do our arms? How does the Penguin use its wings?

Draw the Loon, and make enlarged drawings of its bill and feet.

Draw the Grebe and make enlarged drawings of its bill and feet. Compare these drawings.

Learn to write correctly the following words:

vertebrate	vertebra (plural,	adaptation	rigidity
flexibility	vertebrae)	equilibrium	structure
cassowary	Penguin	stability	conserve
preserve			

What is the derivation of Loon? Look up Penguin, Ostrich, and Kiwi in Newton's Dictionary of Birds, or elsewhere.—A. H. W.

FROM YOUNG OBSERVERS

WINTER BIRD-STUDY IN VIRGINIA AND INDIANA

Mamma and I have been feeding the birds. We love to watch different kinds of birds that come to eat the crumbs we put out for them.

There are many kinds of Woodpeckers around here; Red-headed Woodpeckers, Downy Woodpeckers, Flickers, Hairy Woodpeckers, and Red-bellied Woodpeckers. All of these have eaten off of our lunch-table but the Red-headed Woodpecker. We never knew what the name of the Red-bellied Woodpecker was until we sent for pictures of all of the Woodpeckers. It had more red on its head than the others. It was larger than any of the Woodpeckers and looked something like the Flicker.

This winter I have learned about birds I never heard of before. At school we have an Audubon Society. I enjoy the meetings very much. We have thirty-eight members. All of the pupils in our room are members. We put out corn, fat meat, and crumbs. Some one put some walnuts out. The Nut-hatch liked them very much, but the Titmouse will drive him away when he wants them.

I have learned that winter is a better time to study birds than summer. In winter there are only a few birds, and we can then learn them perfectly, but in the summer there are so many we get confused in their names.

I have enjoyed the birds very much this winter. Mamma said she never enjoyed them so much as she has this winter. I don't think we could get along without birds.—FRANCES HARRIS (aged 9), Fourth grade, *Aldie, Virginia*.

[This very well written account of winter bird-study comes from a primary pupil, and shows the excellent results of Junior Audubon Societies. The teacher of the school in Aldie writes: "We have quite an enthusiastic Audubon Society, and have been so interested all of the winter in our literature. The children show the keenest delight in the birds, and are always on the lookout for some new arrival."—A. H. W.]

WHAT A BIRD-CLUB IS FOR

We have a nice little bird-club in our school.

Do you know what a bird-club is for?

It is to teach us about the lives and habits of the birds, and how to care for them.

There are certain times of the year when they should not be killed.

They should not be killed in the springtime, for that is their nesting-time.

You should not kill birds that one does not want to eat.

We have ten members in our club.

All of them are kind-hearted little girls and boys.—MARY LOUISE MCGHIEE, *Fisher, Louisiana*.

[There is only one exception that can be taken to this concise description of the use of bird-clubs, and that is the statement which refers to killing birds for food. This

would come nearer the purpose of the bird-club if it read: "You should not want to eat birds that ought not to be killed." Perhaps the writer will look up the game-laws of the different states and compare them with the federal laws, and report to her club on the merits and defects of these laws as they now stand. This would make an interesting subject to talk over among the members. There is much that bird-clubs can do for the community, and every member of such a club may well bring up some subject like the above for discussion.—A. H. W.]

JUNCOS

When I was in school the seventeenth of February, I looked out of the window and there was a flock of Juncos out there. The Junco's back is a dark slate color and half of its breast is white. Its bill is short. The Junco is very useful to the farmer because it eats weed seed. Some of the seeds are the hog-weed, the carrot and the silver leaf. The Juncos are seen in the winter about January.—LILA WRIGHT (aged 11), *Logansville, Ind.*

[Can the writer name other winter visitors and residents?—A. H. W.]

WHAT A JUNIOR AUDUBON SOCIETY IS DOING

I live in North Greenwich, Conn. During February we formed a Junior Audubon Class. We have twenty-five boy and girl members. It is named the Quaker Ridge Audubon Club.

The Nighthawk and Meadowlark have been studied. At our next meeting we take up the Robin. We think our leaflets very pretty and enjoy coloring the bird outlines.

The weather has been very severe this winter in the vicinity of New York City. It has given our members a splendid chance to furnish the Nuthatch and Meadowlark with food,—the snow covering the ground in some places for several feet.—EVELYN HUSTED (aged 13), *Secretary of the Quaker Ridge Audubon Club.*

[Although delayed from last season in publication, this welcome letter shows the usual conditions as well as the opportunities of winter bird-study in northern areas subject to more or less frequent snowfalls. It shows also the value of societies for bird-study, and the interest taken in the Educational leaflets published by the National Association of Audubon Societies.—A. H. W.]

A REQUEST

Master William Broderick, whose address is 1003 Belle Street, Alton, Illinois would like some bird friends for correspondents. The School Department would be most glad to introduce to each other any bird-lovers who may wish to exchange observations with someone in a different part of the country, and to forward in every way possible coöperative work among schools or individuals. A Bird Migration Bureau in each state would be an excellent medium for this kind of work, as will later be described in these pages.—A. H. W.]

THE LOON

By ARTHUR H. NORTON

The National Association of Audubon Societies

EDUCATIONAL LEAFLET No. 78

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

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

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

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

Trusting extensively in its powers of swimming over and under water to escape its enemies, and to procure its food, it nevertheless is a strong flier, although progressing with apparently labored movements, and in calm weather finding great difficulty in rising from the water.

It must rise against the wind, so that the pressure of the breeze against its narrow pinions may assist in raising its weight from the surface. Once on the wing it may perform long journeys, as it does on its migrations, which take it many miles overland to and from the lake where it makes its home. On these flights it sometimes sends forth a defiant note, attracting attention to its speeding form far above tree-tops and hills. In flying over the ocean, it seems to feel that its true safety is in the water, for a sudden shout or startling sound will often cause it to drop near the surface. This habit is often taken advantage of by gunners, as the bird flies overhead.



LOON

Order—PYGOPODES
Genus—GAVIA

Family—GAVIIDE
Species—IMMER

National Association of Audubon Societies

The Loon leaves its secluded lake within the realm of the Frost Giants sometime after the breeding-season, and speeds away to spend the winter on the ocean, where the ceaseless currents and toppling waves bid eternal defiance to the grasp of the Ice King. Here it finds an abundance of food, and, with hosts of other sea-fowls, rides out the winter's fury.

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

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

Home and
Family

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

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

Sensitive to
Storms

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

Frequently little parties of from two to half a dozen or more may be seen

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

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



A LOON'S HOME ON LAKE UMBAGOG, MAINE

From the Group in the American Museum of Natural History, New York

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

The beautiful plumage of the Loon has been in demand for millinery purposes; and the Indians and Eskimos tan its skin for the manufacture of gar-

ments and bags. These people also eat its coarse, rank flesh, a habit which T. Gilbert Pearson says is often indulged in by the natives of the coast of North Carolina. Few, however, of the number killed by white men are ever eaten, for usually all are left to decay on the shore of the lake, or, after a brief period of admiration, their bodies are consigned to the compost-heap.

The food of the Loon consists largely of fish, chiefly, no doubt, of the smaller and more worthless species. Yet the fact that it is a fish-eater has brought condemnation upon it from fish-culturists, and that without a trial.

Of the species of fishes naturally occurring in a given lake not more than one-half are food-fishes for man, and only one-fourth may be called game-fishes. Food

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

The possibility that the Loon may render a service to conservers of game-fishes, by holding in check in some degree the destroyers of fish-eggs, such as suckers and horned-pouts, or in destroying the fishes affected with contagious gill-fungus and other diseases, has never been given consideration. There is, however, an element of probability in this, for, by the law of survival of the fittest, the physically inferior individuals, whether inherently weaker or the victims of disease, are the ones that habitually fall prey to their enemies. Unquestionably it is the weaker specimens of the species eaten that constitute the greater part of the Loon's diet. On the other hand some, as the suckers, are very destructive to the finest game-species, eating large quantities of their eggs, while themselves of little value as food or game. Weed and Dearborn say that "the fish they consume are generally worthless." As a matter of fact very little has been made known of the economic status of the Loon, but this little is considerably in its favor.

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

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

The Audubon Societies

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Edited by T. GILBERT PEARSON, Secretary

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WILLIAM DUTCHER, *President*
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 THEODORE S. PALMER, *First Vice-President* JONATHAN DWIGHT, *Treasurer*
 SAMUEL T. CARTER, JR., *Attorney*

Any person, club, school or company in sympathy with the objects of this Association may become a member of it, and all are welcome.

Classes of Membership in the National Association of Audubon Societies for the Protection of Wild Birds and Animals:

\$5 annually pays for a Sustaining Membership
 \$100 paid at one time constitutes a Life Membership
 \$1,000 constitutes a person a Patron
 \$5,000 constitutes a person a Founder
 \$25,000 constitutes a person a Benefactor

TEN YEARS OF PROGRESS

Just ten years ago, that is in January, 1905, the National Association of Audubon Societies was incorporated, and began making its call to the public for support. How well the appeal has been received, and how the Association's financial strength has increased every year, is shown by the following statement of the *actual cash income each year for current expenses*:

Year	Income
1905	\$12,498 07
1906	12,736 07
1907	17,978 53
1908	24,355 51
1909	25,599 26
1910	31,602 62
1911	42,575 20
1912	55,838 21
1913	70,186 72
1914	80,320 90
Total	\$373,691 27

In addition to the above, various amounts have been set aside to constitute a permanent Endowment Fund, the interest only of which has been used for current expenses, and this interest is, of course, included in the above statement. The largest single item that contributed to make the Endowment what it is today came from the bequest of Albert Wilcox, part payment of which was made in 1906, and the remainder in 1907, and which totaled

\$331,072. Other bequests received, and placed in this permanent fund, are as follows; James W. Bartlett, \$475; E. B. Repp, \$284.50; heirs of L. F. Dommerich, \$5,000; Caroline M. Martin, \$1,000; and Elizabeth Drummond, \$3,000.

The Mary Dutcher Memorial Fund, amounting now to \$7,737.70, is a part of the Endowment, as also are certain specific gifts, and the fees of 231 Life Members, the last alone amounting to \$23,100.

If one adds the amount which has been collected for current expenses to the sum of the combined items that have gone to make up the Endowment Fund, it will be seen that the total amounts to \$740,060.30. It is thus that the people have responded to the calls of the National Association of Audubon Societies. The reason for the generous help extended is well illustrated by a typical letter received recently from a member, who, when sending in his annual fee of \$5, said: "I am always glad to send in my small contribution, for I know the management is wisely handled, and the accomplishments of the Society have been astounding."

It is believed that the following tabulated statement of the Endowment Fund will be of interest to many members of the Association.

SOURCES OF ENDOWMENT FUND OF THE NATIONAL ASSOCIATION
OF AUDUBON SOCIETIES

Year	Life Members	Patrons	Bequests	Gifts	Mary Dutcher Fund	Total
1905 . . .	\$2,000 00	. . . .	. . . .	. . . .	. . . .	\$2,000 00
1906 . . .	1,700 00	. . . .	\$11,072 00	. . . .	. . . .	12,772 00
1907 . . .	1,600 00	. . . .	320,000 00	\$555 00	. . . .	322,155 00
1908 . . .	1,300 00	. . . .	475 00	. . . .	. . . .	1,775 00
1909 . . .	2,100 00	\$1,000 00	. . . .	50 00	. . . .	3,150 00
1910 . . .	1,100 00	. . . .	. . . .	793 91	\$7,100 00	8,993 91
1911 . . .	1,400 00	. . . .	. . . .	. . . .	632 70	2,032 70
1912 . . .	2,600 00	1,000 00	284 50	. . . .	5 00	3,889 50
1913 . . .	3,600 00	. . . .	5,000 00	. . . .	. . . .	10,500 00
			1,000 00			
1914 . . .	5,700 00	. . . .	3,000 00	10 00	. . . .	8,710 00
Total . . .	\$23,100 00	\$2,000 00	\$341,731 50	\$1,408 91	\$7,737 70	\$375,978 11

The Endowment Funds are all carefully invested in compliance with the strict laws of New York State governing membership organizations. For the most part the Association holds as securities first-mortgage bonds on New York City real estate.

MRS. RUSSELL SAGE

It was in the summer of 1910, apparently, that Mrs. Russell Sage first became deeply interested in the subject of the protection of wild birds; or, it would be more correct to say, perhaps, that it was then that she began her series of generous contributions to the cause of bird-protection. In July of that year, in response to a request made by the Secretary of the National Association, she subscribed \$500 for the work of Robin protection. A little later she sent her check for \$5,000 for bird-study and bird-protective work in the Southern States, with special reference to arousing a better appreciation on the part of the people for that much-abused bird. She also contributed \$1,500 in the same summer to the Mary Dutcher Memorial Fund, then being collected as an addition to the Endowment of the Association. Since that time she has given annually to the Audubon work, her total subscriptions to the Association now amounting to \$27,000. She contributed, also, on one occasion, to the California State Audubon Society.

In 1912 Mr. E. A. McIlhenny, one of the members of the Association, interested

her in purchasing Marsh Island on the coast of Louisiana as a bird-refuge. The total cost of that island was about \$150,000. Some time ago she also contributed \$10,000 to the wild-life-protection fund of the New York Zoological Society.

These splendid gifts have resulted not only in making possible many notable accomplishments for bird-protection, but have stimulated others to contribute to the cause.

The Audubon Association has received \$41,000 from two interested members who were moved to provide these funds as a direct result of seeing what Mrs. Sage had done, and what the Association had accomplished with the funds she had intrusted to its hands.

Mrs. Russell Sage is greatly interested in everything that makes for the up-building of the human race; and among her wide range of benefactions has not neglected the wild birds and animals, which she often enjoys in her walks afield within Central Park, where she is on intimate terms with the squirrels, or at her country place, where no doubt the birds know her as well as she knows them.



MRS. RUSSELL SAGE

THE LURE OF THE WILD DUCK

By WILLIAM L. FINLEY*

Photographs by H. T. Bohlman



FOR three days we had tramped the trails across southern Oregon, where the Cascade Range joins the Siskiyou. These trails led up and down the silent

aisles through a great pine-forest. The morning of the fourth day found us following down the eastern slope to the edge of the ridge that overlooked the basin of the Lower Klamath, and its broad marshes. The wide wastes were silent in the summer sun, hazy, far away, mysterious. Here lay the land of my dreams. After twenty years of waiting I was looking out over this place of mystery that lay far beyond the northern rim of my home hills. How the land where the wild ducks breed had lured me!

From this distance, as I stood on the mountain slope, the marsh was a level sea of green; but, as I discovered afterward, that view was totally deceptive of its real character. The ocean's surface tells nothing of the thousand hidden wonders—so the marsh. There is a lure in the untrodden stretches. The unmeasured extent of these tules is just the same as when Lewis and Clark blazed the first trail into the Oregon forest. They will defy civilization to the end. The trapper and the hunter have plied the streams, and the water of the lake itself, but the tule-marsh lies untouched, a maze, forbidding, impenetrable.

The charm of the tule-marsh lay in its wildness. It is the ancestral nesting-ground of many species of wild fowl. We camped at the edge of the marsh that night, and early the next morning bailed out an old

*Mr. Finley for many years has represented the National Association of Audubon Societies as agent in the Pacific Coast region. Many of his experiences with western bird-life while on field-trips for the Association will be given in a series of articles of which this is the first.

trapper's boat, and paddled down the right bank of the river. There were many marsh sounds that I shall never forget. The Red-winged and Yellow-headed Blackbirds fluttered in and out, and swung and sang on the bending tops of the tall canes.

Edging silently along, close to the reeds, I came to a turtle lying asleep on a water-soaked log. He didn't see me until I touched him on the back. Once or twice a snake glided away among the tules. All the time I had been coming nearer to a place where a Bittern was pumping. He was a ventriloquist, for when I thought he was twenty feet away, I still sneaked fifty feet nearer. *Punk-a-lunk, punk-a-lunk*, so he said, but this pumping was only the end of the call. The beginning was a *blub blub!* like water bubbling down into a big empty cask. I kept pulling myself along by the overhanging tules. Suddenly I met him face to-face, and he flapped away with a frightened *quork*.

At the next bend of the river I waded out through two feet of water to a small grassy island. It looked like an ideal place for ducks to nest, but a duck's home is not easy to find. Suddenly, however, a female Mallard flushed from between my feet; I had straddled a nest of ten eggs before the mother flapped off lamely through the grass. Such boldness is a common trait of the ducks. Twice during the morning I planted my foot within a few inches of a brooding duck before she flew.

Ducks are very different in individuality. I was floundering along at the edge of the water when I came upon a Pintail on her nest in the dry tules. By chance I saw her squatting low on the nest, and passed within ten feet, as if I had not seen her. I circled and went back three times, drawing a bit nearer, saying by my actions, if not by my eyes, "I haven't the faintest idea you are there." The surprising part of it is, she believed me. I went on nosing



H. T. BOHLMAN PHOTOGRAPHING IN HIS BLIND

about, minding my own business, fixing my reflex camera, aiming it here and there and snapping pictures right and left, until the old Pintail must have thought I was a harmless lunatic, for she actually

let me get a picture of her within four feet.

The next day we called again. The duck didn't understand the game, and hardly knew whether to be afraid or not.



CANVASBACKS SWIMMING PAST MR. BOHLMAN'S BLIND

She certainly knew by this time that I knew she was there, for when I approached she turned nervously. When I got a bit closer she arose slightly and began drawing soft down about the edge of the nest, tucking it under with her bill, so her eggs would be protected if she really had to leave.

Not fifty yards away we found a second Pintail's nest where the owner was very much wilder. The incubation of the eggs was at about the same stage in both nests, yet the two ducks were very different in

its nest in the most remote corner it can find. The duck has many enemies which do not seem to disturb the other birds. In one place I found several different duck-nests that had been raided by some egg-sucking animals; nothing but the shells remained.

Ducks do not always nest in the midst of the marsh. I found one nest half a mile from the river in the woods. There are many destructive animals in the woods, yet, perhaps, not many more than on the open marsh.



A PAIR OF CANADA GEESE WITH THEIR SIX YOUNG

individuality. The owner of the second nest was a great deal wilder. Even with a blind to shield the camera, we could not get near enough for a picture.

For a month and a half we cruised and camped along Klamath River, Lower Klamath Lake and White Lake, and then crossed over to Lost River and down into Tule Lake. Out in the lakes, on the floating tule-islands, we found large colonies of pelicans, cormorants, grebes, gulls, and other birds. There were hundreds and thousands of nests crowded together in a comparatively small area. A gull or pelican nests in the open, but a duck will hide

When we reached Tule Lake, we camped in an old stack-yard at the mouth of Lost River. This was a rendezvous for water-fowl. It was in the midst of the breeding-season, when one might think all the birds were mated or going in pairs, yet here in the midst of the marsh we found ducks in large flocks. Perhaps these were birds that were not breeding. In some instances we saw flocks of males, which perhaps indicated that the females were brooding.

We camped one evening about six o'clock at the mouth of Lost River. Soon after the ducks began coming in from the lakes and dropping down where the water

was shallow, and where reedy bogs lay scattered about. As it grew darker, we lay in camp listening to the rush of wings as the night-comers flocked in to their resting-places. At first there was a faint whirr of wings, which increased to a loud swish as the band passed. Then from out on the water would come the light flapping and the *quack, quack*, as the flock settled for the night.

In the gray light of morning I awoke to find a pair of Cinnamon Teals making love not twenty feet away. We had camped within a few feet of their nest. Searching about in a patch of grass, perhaps an acre or so in extent, we discovered seven nests of Cinnamon Teals and of Pintailed Ducks.

The following morning I saw an old Mallard with four young, swimming about thirty feet away. The ducklings were diving and playing, while the mother was quacking low words of caution and encouragement. They were quite unaware of our presence. A young duck dives with an enthusiasm that is amusing. He puts his whole soul into it. He jumps up, turns on end, and disappears with his tail and toes sticking straight in the air.



TELEPHOTO VIEW OF FEMALE PINTAIL



MOTHER PINTAIL ON NEST

Several times we came suddenly on an old duck with her family, swimming in the shallow water. Each time the mother would flap along like a wounded bird, trying to lead us off, while the young were under water in an instant, and scattering in all directions to hide. Even where the water was shallow it was almost impossible to catch a glimpse of the young after they had separated.

By good luck we caught a baby duck one day, and being anxious to photograph him, took him over to a shallow place. The plan was to set him gently on the surface, and snap his picture before he moved. The camera-man speeded the shutter to one-six-hundredth part of a second, and said "ready!" The instant the toes of that duckling struck water it was gone. The camera-man snapped, but did not even get the record of a tail. The duckling seemed to disappear by some underground channel. Under water a duckling goes like a streak. He looks much more like a frog than a bird. His downy coat lies tight to his body, and he flashes through the water using both wings and feet.

We rounded a bend in the river one day,



NEST AND NEWLY-HATCHED PINTAILS

and came upon a female Redhead with nineteen downy ducklings. We rowed hard to catch up with her. When within thirty feet, she went flapping over the surface, followed by her young. We followed, and finally separated the old bird from a part of her brood. As soon as they lost their leader, the ducklings seemed fearless, and apparently were more hungry than afraid. We approached in the boat to within a few feet of them, but they kept paddling along, diving for bugs and flies as they went.

Nearby I saw a Canada Goose and a band of goslings swimming out in the middle of the river. I made for her as fast as I could row, as I wanted to get a picture. When I came up within ten yards, the mother set out, flapping and splashing over the water, followed by her brood. I headed her off from the east bank, where I knew she would glide through the tules and soon be lost in the great marsh beyond. She started straight up the river and two of the goslings followed, but the rest dove. They came up on all sides, but not one with head high in the air as before. Each bird lay flat on the surface with his back low, and nothing visible to the eye save a wedge cutting the water, and leaving but

a slight ripple in the rear. I headed off one youngster. Upon seeing that he was pursued, he raised his head and paddled for dear life. "I'll run him down," I thought. He dove, and came up in another direction. I was right after him. He kept diving, and each time he went in a different direction. In time I was nearly exhausted, but his dives were getting shorter and I would soon catch him. In working back and forth he had pushed me pretty well over to the bank, but I had him headed off. Suddenly he took breath for a longer dive, and went clear under the boat, coming up at the edge of the tules, and in an instant was gone. I was completely outgeneraled, and by that time every other bird had disappeared.

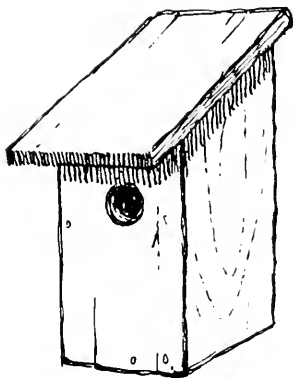
South Carolina Audubon Society

The South Carolina Audubon Society, which has been somewhat inactive for the past two years, was reorganized in Columbia on December 16, 1914, when Frank Hampton was elected president, and Miss Belle Williams, Secretary. The Society intends to take immediate steps for greatly increasing its membership and educational activities.



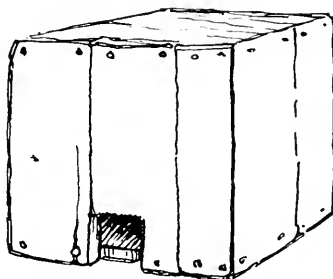
NEST AND EGGS OF A PINTAIL

PROPER BIRD-BOXES



THE RIGHT KIND OF BIRD-BOX

The time of year will soon arrive when one should begin to make preparations for constructing and erecting the boxes for the hole-nesting birds, when they begin to arrive from the South. In thousands of schools this kind of work has already been begun by eager children under the direction of earnest teachers. As yet, however, there is a very hazy conception of how to make a proper kind of bird-box. Last spring about two hundred photographs of Junior Audubon Classes were received at the Association's office. In the majority of the pictures the pupils were displaying the bird-houses they had made—five out of every six were wholly worthless for the purpose for which they had been built! The child's untutored conception of a bird-house is very naturally that of a diminutive human house, especially in the matter of placing the door, or entrance-hole, on a level with the floor. This is absolutely



THE WRONG KIND OF BIRD-BOX

wrong, except in a very few cases. The hole should be at least six inches from the floor of the box, as is shown in the "right" one of the accompanying illustrations.

The question of suitable situation for placing bird-boxes should also be carefully studied by all those who desire to provide nesting-places for wild birds.

Bearing on this point, especial attention should be called to a most useful publication recently issued by the United States Department of Agriculture (Farmers' Bulletin No. 609) entitled "Bird Houses and How to Build Them," and written by Ned Dearborn, of the Biological Survey. The pamphlet contains many suggestions, drawings, and specifications for constructing bird-houses. Every teacher of a bird-study class should possess one, and it may be procured by writing to Henry W. Henshaw, Chief of the Biological Survey, Washington, D. C.

JUNIOR AUDUBON CLASSES

The organization of Junior Audubon Classes continues to make rapid gains. The number of children who have paid fees, and been enrolled as Junior Members during the present school-year to January 1, 1915, shows an increase of one hundred per cent over the number enrolled during a like period last year. This satisfactory

growth is due in part to the increasing interest in bird-study, and in part to more perfect business arrangements for handling the subject.

The following comparative statement for the two years will be of interest to those who have watched the rapid development of this phase of the Association's work.

NORTHERN STATES

Summary Ending January 1, 1914.

States	Classes	Members
California	2	44
Colorado	8	125
Connecticut	5	113
Idaho	1	16
Illinois	17	409
Indiana	5	143
Iowa	1	10
Kansas		4
Maine	25	413
Massachusetts	45	1106
Michigan	16	335
Minnesota	10	153
Nebraska		1
New Hampshire	6	78
New Jersey	180	3741
New York	304	5456
North Dakota	2	51
Ohio	82	1745
Oklahoma	1	42
Oregon	1	12
Pennsylvania	30	640
Rhode Island	5	74
Vermont	10	196
Washington	1	19
Wisconsin	4	07
Wyoming	2	33
Canada	14	322
Totals	777	15,348

Summary Ending January 1, 1915

States	Classes	Members
California	15	221
Colorado	6	79
Connecticut	7	123
Delaware	3	45
Illinois	92	1709
Indiana	60	1117
Iowa	31	706
Kansas	90	1470
Maine	11	145
Massachusetts	68	1315
Michigan	77	1358
Minnesota	41	804
Missouri	22	431
Montana	6	110
Nebraska	41	849
Nevada	2	25
New Hampshire	30	743
New Jersey	173	3551
New Mexico		5
New York	492	8532
North Dakota	8	124
Ohio	80	1741
Oklahoma	22	471
Oregon	4	60
Pennsylvania	132	2491
Rhode Island	31	624
South Dakota	8	134
Utah	2	40
Vermont	9	215
Washington	11	167
Wisconsin	11	156
Wyoming	1	11
Canada	71	1201
Totals	1,627	30,773

SOUTHERN STATES

Summary Ending January 1, 1914

States	Classes	Members
Alabama	1	10
Arkansas	1	10
Florida	1	10
Georgia	5	128
Kentucky	9	174
Louisiana	2	22
Maryland	3	56
Mississippi	1	33
North Carolina	11	160
Panama(C. Zone)	1	31
South Carolina	4	67
Tennessee	23	439
Texas	11	262
Virginia	14	254
West Virginia	18	393
Totals	105	2,040

Summary Ending January 1, 1915

States	Classes	Members
Alabama	7	100
Arkansas	4	184
District of Columbia	1	10
Florida	6	138
Georgia	12	230
Kentucky	25	431
Louisiana	6	139
Maryland	23	461
Mississippi	4	84
North Carolina	13	249
South Carolina	12	230
Tennessee	15	228
Texas	224	3811
Virginia	20	357
West Virginia	31	627
Totals	406	7,279



ELIZABETH DRUMMOND

Miss Elizabeth Drummond, who died at Lake Forest, Illinois, on October 3, 1912, was one to whom the wild birds brought much pleasure during the long years of pain and suffering with which her life was clouded. Her sister, Miss Mary Drummond, writes:

"From the windows of her room in Lake Forest she looked down upon a little thicket of shrubs planted chiefly for the birds. There, too, was the water for their comfort, and near one of her windows always

lay her opera-glass. Many an hour of her days of weakness and pain was spent in watching the birds, and she and my other sister—also an invalid—would telephone each other of the coming and going of their bird-friends."

Although Miss Drummond was deprived of the joy of doing much for the birds while she lived, she provided in her will for extending the work for their protection by leaving the generous sum of \$3,000 to the National Association.

NEW MEMBERS AND CONTRIBUTORS

Enrolled from October 20, 1914, to January 1, 1915.

Life Members.

Bates, Mrs. Ella M.
Camden, J. M.
Lefferts, M. C.
Phelps, Mrs. J. W.

Sustaining Members.

Adams, William L.
Aldrich, Mrs. James Herman
Aldrich, Nelson W.
Aldridge, George W.
Balch, Henry G.
Banton, Mrs. Edward H.
Birmingham Public Library
Bradley, Dr. Mark S.
Bushnell, Mrs. H. L.
Butler, Miss Frances Clark
Chamberlin, Miss A. H.
Cist, Charles M.
Clement, Neal F.
Columbus Audubon Society
Crowninshield, Mrs. Francis B.
Cruft, George T.
Davis, Miss Alice
Dennison, Henry S.
Emmet, R. S.
Emmet, W. L. R.
French, Mrs. Edward V.
Fries, Erik
Good, Miss Margaret J.
Guinzburg, A. M.
Hamilton, Mrs. Charles S.
Hitch, Mrs. Frederic Delano
Hodges, Miss Lucy
Hotaling, Frederick C.
Huntington, Mrs. E. A.
Lincoln, Mrs. Rufus P.
Lyman, Mrs. Wm. L.
Mercer, Jesse E.
Montague, Charles D.
Norris, George H.
Nugent, James R.
Phillips, Ebenezer S.
Ross, Dr. Lucretius H.
Seymour, Mrs. Belden
Shattuck, A. F.
Smith, Mrs. Frank P.
Snow, C. W.
Spokesman-Review (The)
Thrall, Mrs. W. G.
Valentine, L. L.
Vann, Irving Dillaye
Vann, Irving G.
Walker, Edwin H.
Wallace, Mrs. L. H.
Wason, Charles M.
Wentworth, Mrs. Thomas F.
Will, Mayor Louis
Winchester Repeating Arms Com-
pany

Contributors.

A Friend
Anonymous
Bishop, William Henry
Chadwick, J. W.
Clark, Walter
Durand, Mrs. Wallace
Fuller, W. E.
Greeley, W. R.
Hills, Mrs. G. E.
Holcombe, Mrs. John M.
Marvin, Dwight E.
Park, A. G.
Plummer, Dr. Charles G.
Sawyer, E. J.
Stephens, Miss Ada
Steppany, Miss Dorothy
Townsend, Mrs. R.
Washington State Audubon Society
Wason, L. C.

Egret Protection.

Abbott, Holker	\$1 00
Baird, Thomas E., Jr.	5 00
Behr, Herman	2 00
Bissell, Mrs. P. St.G.	1 00
Bliss, Miss Catharine A.	25 00
Boggs, Miss M. A.	5 00
Bond, Miss Mary Louise	1 00
Brewer, Edward M.	10 00
Burpee, W. Atlee	5 00
Busk, Frederick T.	1 00
Caesar, H. A.	1 00
Carter, Mrs. W. T.	2 00
Clark, Mrs. L.	3 00
Dana, Charles E.	5 00
Davis, Richard Harding	10 00
Dexter, S. W.	5 00
Durham, J. E.	1 00
Edwards, Miss Laura J.	2 00
Ensign, Charles S.	1 00
Estabrook, Arthur F.	10 00
Faulkner, Miss Fannie M.	10 00
Feaster, Miss Florence G.	5 00
Hubbard, Mr. and Mrs. T. H.	10 00
Hunter, William T., Jr.	1 00
Jones, Miss Ella H.	2 00
Judson, H. I.	1 00
Kimball, Mrs. D. P.	25 00
Kuhn, A. K.	5 00
Lewis, Edwin J.	1 00
Lewis, Mrs. Herman E.	5 00
Lincoln, Mrs. Lowell	1 00
Lunt, Miss Flora E.	1 00
May, Miss Eleanor G.	2 00
Morgan, Miss J. N.	5 00
Oppenheim, Myron H.	1 00
Peterson, Mrs. Wilson	5 00
Phelps, Mrs. J. W.	15 00
Righter, William S.	5 00

Egret Protection, continued

Schurz, Miss Marianne . . .	\$5 00
Shannon, William Purdy . . .	7 00
Snow, Mrs. Frederick . . .	5 00
Spong, Mrs. J. J. R. . . .	25 00
Sturgis, F. K.	5 00
Tate, J. M., Jr.	1 00
Tod, J. Kennedy	10 00
Tyler, Mr. and Mrs. W. G. . .	2 00
Walker, Charles C.	5 00
Warburg, Mrs. Felix	1 00
Winkley, Henry W.	2 00

GENERAL NOTES

John Muir

John Muir, of the California Sierras, is dead. For a generation and more he has been one of the most potent influences in our country in turning the eyes of mankind to the charm of the great out-of-doors. His studies of glacial action in California, Alaska, and northern Europe, and his constructive work for the establishment of National Parks, have made his name famous in every home where the things that really count in life are ever uppermost. He was deeply interested also in wild animals. His writings on these, and kindred subjects, are to be found in scores of articles published in magazines and newspapers. "Our National Parks," perhaps the best known of his six published books, was written "with a view of inciting people to come and enjoy the wild mountain forest reservations."

To many who are devoting their lives to the conservation of natural wild beauty in its various forms, John Muir has been a potent inspiration; and long will be the years that the would-be destroyers of wild-life and mountain scenery will have to reckon with the influences which he set in motion.

His death occurred at Daggett, a little town in the desert of San Bernardino County, California, on December 24, 1914. He was born in Scotland on April 21, 1838.

Support for the Migratory-Bird Law

The following is taken from a set of six resolutions, adopted by the Wisconsin State Audubon Society, in which that

organization registers its protest against the strong efforts continually being made to modify harmfully the Federal migratory-bird law. It will be noted that our friends in the Middle West are as opposed to the spring-shooting of wildfowl as are all Audubon workers in the East. All Audubon Societies that have not taken similar action should do so, and then file their resolutions with the senators and representatives from their states. These resolutions are:

"That we approve the Migratory-Bird Law and Regulations, and feel that they are the only adequate legislation ever enacted to save the valuable bird-life from absolute extermination.

"That we urge our senators and representatives in Congress to do their utmost to afford adequate funds for the proper execution of the law and regulations.

"That we are absolutely opposed to the wasteful and barbarous practice of spring-shooting, and we protest against any change in the regulations that will permit spring-shooting anywhere in the United States."

The Mt. Meenahga Bird-Sanctuary

One of the most recently established bird-sanctuaries is that at Mt. Meenahga, near Ellenville, Ulster County, New York, where the Burroughs Nature Club has been the means of introducing appliances for bird-protection. President Albert H. Pratt describes it thus:

"This great estate of 700 acres, originally acquired for a country home by U. E. Terwilliger and his son, is admirably adapted to the use of the birds. A mountainous strip, well wooded, and lying between two deep ravines, with streams and natural springs abounding in its area, Mt. Meenahga offers unusual resources for attracting and developing wild-life. Both in the wild sections, and in the neighborhood of the many rustic summer-houses along the roadways of the estate, nesting-boxes will offer homes for the feathered guests. Seventy such boxes have already been installed in accordance with the advice of E. H. Forbush, New England Agent of the National Association

of Audubon Societies. The boxes are designed to accommodate Tree Swallows, Bluebirds, Chickadees, and Wrens. Some of the springs in the Mt. Meenahga territory will be set aside for the use of the birds, so that they may bathe and drink in these natural pools without fear of molestation.

"The educational possibilities of making bird-reserve work a feature in a summer resort are patent. It is for the uninformed, the indifferent, or the skeptical, that a

Mr. Roosevelt in setting apart reservations as refuges for breeding birds. On May 6, 1913, he segregated as a reserve Petit Bois Island, a long sand-beach in the Gulf of Mexico near the adjoining coasts of Alabama and Mississippi. On July 17, 1913, he established as a reservation Blackbeard Island, a large marshy and bushy island at the entrance of Sapelo Sound, on the coast of Georgia. On June 6, 1914, he constituted Smith and Minor Islands, near the south shore at the western



NESTING-BOXES FOR MT. MEENAHGA BIRD-SANCTUARY

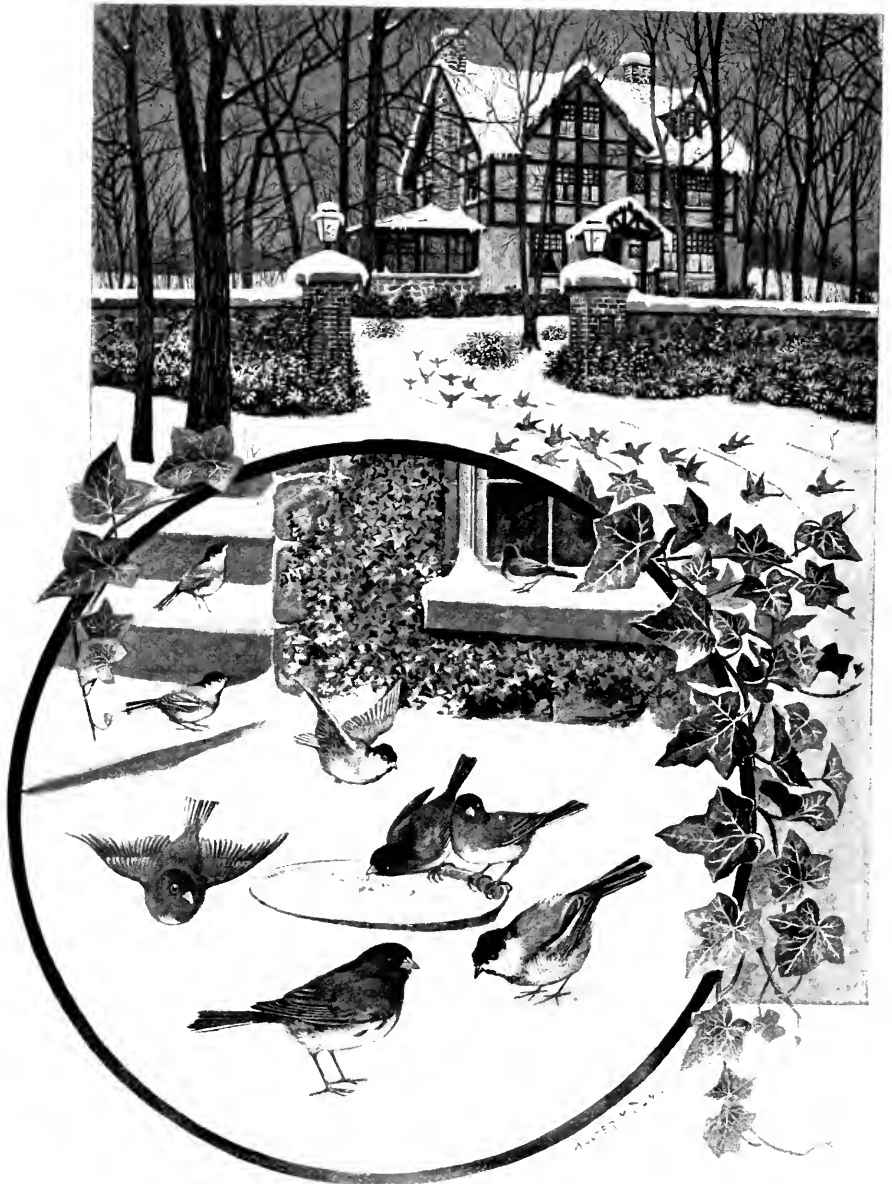
Photographed by Albert H. Pratt

picturesque demonstration of the benefits of living with our feathered friends is most desirable, as an object-lesson and an inspiration. It is hoped that the interest aroused in the Mt. Meenahga reserve will serve as an awakening to many visitors, and that they will be moved to make some personal experiment in bird-protection in their home communities."

New Federal Bird-Reservations

President Wilson has continued the beneficent practice of his predecessors since

end of the Strait of San Juan de Fuca, connecting Puget Sound with the Pacific Ocean, a bird-reserve. The last-named is especially important, as both of these rocky islets bear lighthouses, whose keepers will always be present to prevent raids upon the breeding sea-birds that congregate there. Finally, on September 4, 1913, Anaho Island, in Pyramid Lake, Nevada, was made a reserve. As this is within an Indian Reservation it is doubly protected against spoliation, and will be a boon to many kinds of ducks and shore-birds.



THE COMING OF THE WINTER GUESTS
From a drawing by Walter M. Dunk

The Brush Hill Bird Club

The Brush Hill Bird Club, of Milton, Massachusetts, began its existence in the spring of 1913, and at once took thought of "what it could do for the township." It has lately issued an illustrated report abounding in useful and suggestive information, copies of which are for sale by this Association at 50 cents. Its activities were many; and to arouse and sustain local interest it held an exhibition in the Public Library at Milton, which had a wide influence in showing what could be done in the way of protecting and fostering the birds in a suburban community whose residents are desirous of preserving the natural beauties and advantages of their locality, and appreciate the value and presence of the birds.

This exhibition included a variety of bird-baths, a large collection of branches of berry-bearing and seed-bearing trees and shrubs, and the seed-stalks of weeds, an assortment of grains, a collection of selected books and pamphlets on bird-life, the texts of game-laws and posters, numberless colored pictures of birds, a sparrow-trap, suet-pudding, a food-stick, and a bird's Christmas tree.

This exhibition and the Club's methods as shown in the handsome report, are worthy of study and imitation.

Bird-Calendars

The *Bird Almanac* for 1915, issued by the Buffalo Audubon Society, is a most interesting object with which to adorn the home of any bird-lover. It measures nine by twelve inches, and consists of seventeen sheets, held together by a cord. There is a separate calendar-sheet for each month. Thirty splendid photographs of birds, and perhaps half as many drawings, combine to make this one of the most artistic and attractive bird-calendars which has yet been published. It may be procured by sending 60 cents to Mrs. G. M. Turner, Secretary, 12 Clarendon Place, Buffalo, New York.

The *Audubon Calendar* for 1915, pub-

lished by the Massachusetts Audubon Society, consists of seven sheets about ten by fourteen inches. To six of the pages are attached colored pictures of birds, the following subjects being used: Least Sandpiper, Woodcock, Least Bittern, Spotted Sandpiper, Semipalmated Plover, and Turnstone. The calendar may be obtained for \$1.50 by addressing Winthrop Packard, Secretary; 234 Berkeley St., Boston, Massachusetts, or by sending to the office of the National Association.

Alaskan Bird-Life

The book on Alaskan birds, of which earlier mention has been made, came from the press on December 15, 1914. It is largely composed of writings by Nelson, Bent, Dawson, Joseph Grinnell, and others personally acquainted with the bird-life of that Territory. Ernest Ingersoll arranged and edited the manuscripts. The book was published by the National Association, and, through Dr. P. P. Claxton, United States Commissioner of Education, 8,000 copies are being distributed to the people of Alaska. It is intended that one of these books shall be placed in the hands of every school child of Alaska. It is illustrated with colored plates and photographs. The entire expense of the undertaking, as well as one-half the expense of sending two agents to Alaska to gather data, was borne by Miss H. Meyer, one of the Association's most useful and generous members.

From the general fund of the Association a small stock of extra copies was printed, and until the supply is exhausted these will be supplied to those desiring them for \$1 each.

Feeding the Birds

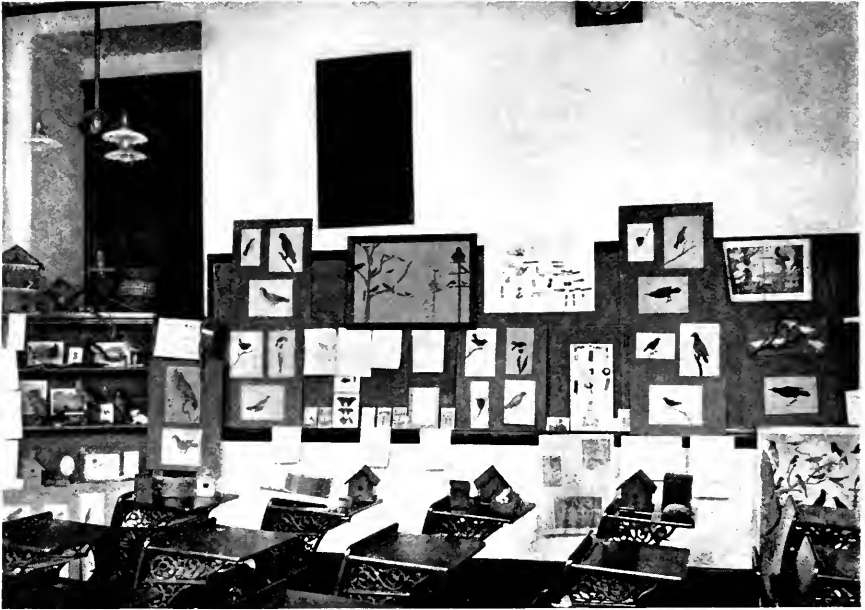
W. J. Carmichael, a bird-lover of Willoughby, Ohio, writes:

"I am a regular reader of *BIRD-LORE* and interested in the work of the Association. I thought it might be of interest to some to report the twelve kinds of birds which have been seen in and around our

feeding-tables since November 15, 1914. Two White-breasted Nuthatches; 3 Downy Woodpeckers, 2 males, 1 female; 2 Brown Creepers; 6 Cardinals, 2 females, 4 males; 3 Chickadees; 1 young Squealing Wood-

Miss Katharine H. Stuart, Virginia Agent for this Association.

Realizing the importance of emphasizing the value of bird-life to the state, steps were taken in this annual gathering to have



AN AUDUBON EXHIBIT IN RICHMOND, VIRGINIA

pecker or Sapsucker; 6 Blue Jays; 1 Song Sparrow; 1 Winter Wren; 1 fine male Red-bellied Woodpecker; 1 Golden-winged Woodpecker; and 1 female Hairy Woodpecker. All of these birds have been with us two winters except the Sapsucker, Song Sparrow, and Wren. We were told last winter that the Red-bellied Woodpecker was an unusual visitor in this locality, but we have him again.

"The food we have used has been suet, corn (whole), corn (cracked), sunflower seed, peanuts and bread-crumbs. We have three Von Berlepsch nesting-boxes in place for spring."

The Virginian School-Exhibit

At the Teachers' Conference held in Richmond, Virginia, in November last, a Junior Audubon Exhibit was arrayed by

a department created where the bird and nature work done by Virginia school children could be shown. The greatest interest and enthusiasm were exhibited by the teachers, principals, superintendents, and supervisors of schools, in the remarkable work displayed. In the exhibit Miss Stuart had the hearty aid and co-operation of Mrs. R. B. Smithy, of Ashland, Secretary of the Virginia Audubon Society. Talks were given throughout the day by eminent speakers and educators. Among these were Mrs. Moffett, conductor of the Rural School Department, Dr. William Plecker of the Board of Health, and Miss Milstead of Accotinck. Miss Milstead spoke of feeding-stations and Christmas-trees for birds, and told of counting twenty-five Cardinals at one of their school Christmas-trees. Talks were also given by Miss Stuart and Mrs. Smithy.

The beauty of the exhibit was enhanced by many useful and attractive bird-boxes, loaned by various manufacturers for the occasion. Literature furnished by the National Association, and by the United States Department of Agriculture, was freely distributed.

The success of the undertaking was such that it is hoped similar exhibits may be held in Virginia from year to year.

Exhibits in South Carolina

Some time ago the National Association employed Miss Belle Williams, of South Carolina, to prepare an Audubon Exhibit for the State Fair to be held in Columbia, October 26-30, 1914. So successfully did she carry out her commission, and so pronounced was the interest shown by visitors, that the management of four other fairs held in South Carolina earnestly requested

that she also take the Audubon Exhibit to their gatherings. This the Secretary authorized Miss Williams to do. The exhibit was therefore shown at Spartanburg, November 2-7; Barnwell, November 16-21; Bishopville, November 25-28; and Lancaster, December 2-8.

New Arrangements in North Carolina

The North Carolina Audubon Society has drafted and is backing two bird-and-game-protective bills in the legislature of that state. One of these provides for the establishment of a State Game Commission, to be supported by a resident and non-resident hunter's license, and for the various details incident to the operations of such a department. The second bill provides for hunting-seasons consistent with, and agreeing with, the season provided for that region by regulations as at



AN AUDUBON EXHIBIT IN SOUTH CAROLINA

present constituted under the Federal migratory-bird law. It also contains provisions for the artificial propagation of game, bag-limit, restrictions on sale and shipment of game, and the trapping of fur-bearing animals. In the first bill the Audubon Society asks to be relieved of the authority of enforcing the bird-and-game laws, which were granted to it by a special charter from the legislature in March, 1903.

Minnetonka Bird-Sanctuary

Lake Minnetonka has been made the Minnetonka Bird-Sanctuary by the petitions of hundreds of residents of the region and by the activities of leading citizens, and of many sportsmen of Minneapolis. Dr. Thomas S. Roberts, of Minneapolis, one of America's leading ornithologists, and long a member of the National Audubon Association, has taken a leading part in creating the wide interest which has had this gratifying result. The State Game Commission has now prohibited shooting, and even the carrying of firearms, either on the lake or on a surrounding zone of land one mile in width.

Good Work at a State Fair

The opportunity to show the beauty and advantage of gathering and favoring the song-birds about the farm and house, afforded by the large assemblage of visitors at a state fair, was seized by the ladies of Washington, who organized a "Court of the Birds" at the Washington State Fair held at North Yakima in September of 1914. Strenuous efforts were made by Mrs. Granville Ross Pike, who planned the exhibit, and by the ladies associated with her, to gather an exhibit of wide educational interest, to which the National Association sent such aid as it could; and the effort was rewarded with striking success. One valuable feature was a series of prize-competitions for young people in writing essays on the usefulness of various birds; in the construction of bird-houses and

nesting-places; and in photographs of natural objects. It is highly desirable that this example should be followed.

Birds in the Great War

The effect of a war on the wild birds and animals of the region affected is usually of a beneficial character. No doubt game-animals, especially, have increased during the past four years of political disturbance in the unhappy republic of Mexico. In Europe, game-preserves in northern France and eastern Prussia have probably suffered, but, on the whole, bird-life in eastern Europe has enjoyed, during the past six months, a freedom from persecution to which it has long been a stranger. France has stopped all hunting, and the Minister of War has issued an order that the sale of no native game will be tolerated. Ordinarily more than *one thousand tons* of native-killed game are annually sold in the markets of France. The Larks of Belgium will evidently enjoy a year of unusual freedom from disturbance. In time of peace the people of Belgium export to France alone every year more than fifty thousand of these interesting birds. It is a pleasure to feel that some small good at least is to come out of the unspeakable holocaust we are now witnessing in Europe.

A Law-Violator Fined

Mrs. E. E. Coulson, of Bradentown, Florida, who has long been an active Audubon worker, recently sent us word that King W. Wiggins, a prominent business man of that section, had taken the game-laws into his own hands, and exceeded the bag-limit by killing four wild Turkeys in one day. She also reported that the local game-warden seemed disposed to wink at the case. We at once communicated with E. Z. Jones, State Game Warden, with a result that Wiggins was haled into court and fined. The case created much local interest, and won increased respect for the game-laws.



1. KENNICOTT'S WILLOW WARBLER
 2. RUBY-CROWNED KINGLET, Male
 3. RUBY-CROWNED KINGLET, Female

4. GOLDEN-CROWNED KINGLET, Male
 5. GOLDEN-CROWNED KINGLET, Female
 6. BROWN CREEPER

(One-half Natural Size)

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. XVII

MARCH—APRIL, 1915

No. 2

Bird-Life in Southern Illinois

III. Larchmound: A Naturalist's Diary

By ROBERT RIDGWAY

THE diary for 1913 was, necessarily, started much too late in the season to include the spring migration; in fact, the last species to arrive among the summer residents or transients had come very nearly a month earlier. The record for 1914, however, extends from the first of the year to the end of November, broken only by short intervals when there was nothing special to note, or pressure of other duties required neglect of observations.

The Spring of 1914 was by no means an early one, but rather the contrary, and the dates of arrival recorded for several species are much later than usual. Thus the Purple Martin, first observed April 13, usually arrives near the first of the month, often during the last week in March; and the Barn Swallow and Chimney Swift, first noticed on April 16 and 17, respectively, are normally due at least a week earlier. It is probable, however, that these, as well as other species, really arrived in the vicinity of Olney earlier than the dates when they were first seen at Larchmound.

1914

January 2. Light rain, preceded by light snow during night; maximum temperature 39°, dropping to 33° at 10 P.M.

January 4. California privet, common privet, crimson rambler, carmine pillar, and some other roses, some other shrubs, hepatica, etc., still in green foliage. Neither sun, moon, nor stars have been visible for nearly three weeks!

January 6. Still overcast, but with signs of clearing (sun appeared in afternoon). Temperature at 7 A.M., 30½°; at 2 P.M., 33°.

January 7. Maximum temperature 45°; a beautiful, clear, calm day.

January 8. Maximum temperature 55°; a perfect spring-like day.

January 9. Temperature at 7:30 A.M., 42°, with damp S. W. wind, dropping to 38° at 10 A.M.

January 11. Temperature at 8 A.M., 21°; maximum, 33°, but a most beautiful day, thawing slightly in sun.

January 12. Temperature at 7 A.M., 17½°, but bright and clear, with slight wind from North. First Tree Sparrows

appeared near house; Bewick's Wren again at feeding-box by window.

January 13. Temperature at 7 A.M., 16°; day clear and calm.

January 15. Temperature at 7 A.M., 36°; maximum, 50°; a perfect day.

January 16. Temperature at 7 A.M., 40°; maximum, 52°. A Bewick's Wren and a Mockingbird singing on our grounds.

January 17. Temperature at 7 A.M., 34°; maximum, 43°. A Fox Sparrow sang today.

January 18. Temperature at 7 A.M., 33°, with light, grainy snow or dry sleet till 9 A.M.; maximum, 44°.

January 19. At 7 A.M., 43°; at 9 P.M., 49°; maximum (at 3 P.M.), 52°; gloomy and foggy.

January 20. At 6 A.M., 45°; at 9 P.M., 42°; still dense fog, with water dripping like rain from trees.

January 22. At 7 A.M., 22°. Some farmers plowing.

January 24. At 7.30 A.M., 47°, dropping to 35° at 9 P.M.

January 27. At 7 A.M., 52°; at 10 P.M., 53°; maximum, 61°.

January 28. At 7 A.M., 55°; at 1 P.M., 65°; 10 P.M., 52½°. A Robin on our grounds today. Killdeers clamorous in adjoining field.

January 29. Temperature at 7 A.M., 58°; at 9 A.M., 60°, threatening rain; 12 M., 57°, drizzling rain; 2 P.M., 49½°, wind from N. W., still drizzling; 10 P.M., 31°, sleeting. A Robin sang today.

January 30. Temperature at 7 A.M., 27°; maximum, 30½°; a sleety snow falling at 9 A.M. A flock of Robins visited our grounds in forenoon.

January 31. Real winter commenced today. Temperature at 8 A.M., 28°, the ground covered with snow and sleet, and still snowing; trees heavily burdened with sleet and snow, some of the large red cedars with branches broken; stopped snowing at 11.30 A.M. (temperature, 32°); maximum temperature, 35°, thawing in afternoon.

February 1. Temperature at 7 A.M., 24°; maximum (1-4 P.M.), 38°; a bright, calm, beautiful day. A Phœbe appeared on our place today.

February 8. Temperature at 7.30 A.M., 16°; maximum, 22°; clear.

February 10. Temperature at 6 A.M., 34°; overcast, later snowing, with wind from N. E., till near 11 A.M.; at 9.30 P.M., 27°. A Fox Sparrow feeding with Juncos and Cardinals near kitchen window.

February 12. Temperature at 7 A.M., 20°; at 8.30 P.M., 19°; a driving, fine snow, with wind from N. E., all day. A Western Tree Sparrow joined the birds feeding outside kitchen window. (Easily distinguished from the common eastern form, with several of which it was feeding, by its conspicuously lighter color, broader wing-bars and back stripes and longer tail.)

February 13. Temperature at 7 A.M., 20°, dropping to 16½° at 4.30 P.M.; still snowing hard from N. E.

February 14. Temperature at 7 A.M., 10½°, but bright, clear, and calm; maximum (at 1.30 P.M.), 26°. A Bronzed Grackle and a Mourning Dove feeding near house.

February 16. Temperature at 7 A.M., 8°; at 2.30 P.M., 19½°.

February 17. Temperature at 7 A.M., 24°; maximum (at 3 P.M.), 46°; a light rain all afternoon and evening.

February 18. Temperature at 7 A.M. and 1 P.M., 41°; at 6 P.M., 38°; rain all day.

February 19. Temperature at 7 A.M., 30°; a driving snow from N.E. from about 8 to 9 A.M.

February 21. Temperature at 6.45 A.M., 18°; maximum (at 2.30 P.M.), 37°. A Mockingbird singing on our place, and Killdeers crying on nearby pasture.

February 22. Temperature at 7 A.M., 38°; at 11 A.M., 42°, dropping to 25° at 4.45 P.M.; a cold wind from N. E. Six Mourning Doves, two Robins, and a Towhee near house today.

February 23. Temperature at 7 A.M., 15°, with strong wind from N.E. throughout previous night; at 12.30 P.M., 16½°, with light snow and wind less strong, more northerly.

February 24. *The coldest day*; temperature at 7 A.M., 6°; maximum (at 3.30

*The Weather Bureau record was 2°.

p.m.), 19°; day bright and calm, thawing in sun during middle of day. A Mockingbird singing on our grounds.

February 25. Temperature at 6.45 A.M., 7°; maximum (at 4 P.M.), 29°. Cardinals, Tufted Titmice, Carolina Chickadees, a Fox Sparrow, and Tree Sparrows all singing on our grounds in morning.

February 26. Temperature at 6 A.M., 14½°; at 5 P.M., 36°. Fox Sparrow again singing; many Mourning Doves now on grounds.

February 28. Temperature at 7 A.M., 36°; at 1 P.M., 43°; at 6 P.M., 41°.

flock of Bronzed Grackles arrived on our grounds.

March 6. Temperature at 7 A.M., 33½°; at 12.30 P.M., 37°, snowing slightly about noon; at 8 P.M., 34°, a fine, wet snow falling.

March 7. Temperature at 6 A.M., 33°; at 10 A.M., 35°, a fine light snow from W. all forenoon, but not "making;" 12 M., 34°, snowing hard from N. E.

March 10. Temperature at 6.30 A.M., 34°, clear and calm; 9.15 P.M., 38°, raining; maximum (12 M. to 3 P.M.), 47°. A Robin, a Bluebird, a Cardinal, and a Tufted Titmouse singing in morning.



Red Maples Persimmon (80 ft. high) Persimmon American Mulberry Pin Oak
SOME OF THE TREES ON LARCHMOUND

March 1. Temperature at 7.30 A.M., 14°; at 12 M. to 6 P.M., 10°; a strong wind from W. or N. W. all of previous night.

March 2. Temperature at 7.30 A.M., 16°; at 5 P.M., 29½°; clear and calm, thawing in sun.

March 3. Temperature at 7 A.M., 24½°, clear and calm. Three Cardinals, two Song Sparrows, Tufted Titmice, and Bluebirds singing; 8.30 A.M., 28½°. a Mockingbird singing in nearby orchard; Mourning Doves feeding on grain put out for Juncos and Cardinals; 1.45 P.M., 40°; 8.15 P.M., 34°, the ground white with snow, fallen since dark.

March 4. Temperature at 7 A.M., 26°, with dense fog; at 2.30 P.M., 40°.

March 5. Temperature at 6.30 A.M., 28°; maximum (at 4 P.M.), 44°. First

March 11. Light snow during previous night; temperature at 6.30 A.M., 30°; maximum, 33°. *Prairie Chickens* first heard "booming".

March 12. Temperature at 6 A.M., 26°; maximum (at 5 P.M.), 38°.

March 13. Temperature at 7 A.M., 32°; at 10 A.M., 42°; at 3.30 P.M., 52°. A most beautiful bright, calm day; Mourning Doves cooing, Flickers and Killdeers calling, Cardinals, a Song Sparrow, a Fox Sparrow, Meadowlarks, and Bronzed Grackles singing; flocks of Red-winged Blackbirds and Bronzed Grackles passing over from S. W., Purple Finches, Red Crossbills, and a Mockingbird on our grounds, the first warbling.

March 14. Temperature at 6.30 A.M., 38½°; maximum, 63°. Several Mourn-

ing Doves cooing; frogs (*Acris gryllus?*) piping in evening; Japanese witch hazel in bloom (*the first flower of the season*) and leaves appearing on *Clematis paniculata* and common elder. Put up fourteen nesting-boxes.

March 15. Temperature at 6 A.M., 42½°; at 10 P.M., 57°; maximum, 67°. Prairie Chickens "booming," Mourning Doves cooing, Song Sparrow, Robins, Purple Finches, Meadowlarks, Juncos, Tufted Titmice, Carolina Chickadees, and Bluebirds singing, and Killdeers clamorous. The spotted ground frog (*Rana areolata*) first head croaking. Caught a snake (*Ophibolus calligaster*) and saw another (unidentified).

March 16. Temperature at 6.15 A.M., 48°, sky overcast; maximum, 52°. One poor, solitary, wild goose flew over; he seemed bewildered, and perhaps was separated from companions—possibly the sole survivor of a flock. (The only one seen during the season!)

March 17. Temperature at 6 A.M., 40°; maximum (at noon), 47°. First thunder heard.

March 18. Temperature at 6 A.M., 25°; maximum (at 4.15 P.M.), 36½°; overcast in evening, portending snow.

March 19. Temperature at 6.30 A.M., 28°, sky overcast, a fine, light snow, from E., commencing to fall about 7 A.M., the ground white by 9 A.M., the snowfall increasing toward evening, but sky clear at 9 P.M., when temperature 25°.

March 20. Temperature at 6.15 A.M., 17°, clear and calm; maximum (at 2 P.M.), 32½°.

March 23. Temperature at 6.30 A.M., 31°; at 9.30 P.M., 41°; maximum (at 4 P.M.), 47°. Frogs (*Acris gryllus?*) again piping in evening.

March 24. Temperature at 6.30 A.M., 40½°, maximum (at 2 P.M.), 59½°. *Rana areolata* again croaking. *Euphorbia chamæcyparis* sprouting.

March 25. Temperature at 6 A.M., 50½°, overcast, with strong south wind; at 11 P.M., 56°; maximum (at 4 P.M.), 60°. Brown Thrasher arrived.

March 26. Temperature at 6 A.M.,

56½°, sky overcast; at 10 P.M., 62°; maximum (at 3 P.M.), 67°. Spring beauty in bloom. Put up twenty-nine nesting-boxes at Bird Haven.

March 27. Temperature at 6.30 A.M., 59°; at 11 P.M., 52°, cloudy and foggy; rain most of preceding night and until about 10.30 A.M. *Forsythia suspensa* commencing to bloom, many shrubs with foliage started, and grass very green.

March 28. Temperature at 6 A.M., 49°, with dense fog; at 10 P.M., 60°; maximum (4 P.M.), 64°. Robins, Bluebirds, Blue Jays, and Mourning Doves nest-building; in evening the croaking of hundreds of *Rana areolata* producing a continuous roar.

March 29. At 7.30 A.M., 60°; at 10 P.M., 62°; maximum (at noon), 65°; in evening a hard, steady rain. Field Sparrow singing.

March 30. Temperature at 6 A.M., 57°, overcast and foggy; at 9 P.M., 50°; maximum (6 to 8 A.M.), 57°. Many trees and shrubs with leaves started; red and silver maples past full bloom; elm (*Ulmus americana*) in full bloom; hyacinths in bloom. A Field Plover passed over (going northward).

April 1. At 6 A.M., 59°, overcast (a thunder storm about 2 A.M.); at 7 A.M., 52½°, still overcast. A Robin sang and a Mourning Dove cooed shortly before 5 A.M. Hepatica in bloom; forsythias in fullest bloom.

April 2. At 6 A.M., 49°, calm, overcast, but clouds somewhat broken; at 4 P.M., 59°, clear. First toad (killed by lawn-mower).

April 3. At 6 A.M., 43°, fair; at 12 P.M., 47½°; maximum (at noon), 49°. Two ducks (*Fuligula affinis?*) on nearby pond. Chipping Sparrow arrived.

April 5. Temperature at 6.30 A.M., 37°. clear; at 0.30 P.M., 45°; maximum (5 P.M.), 50°. Two Mourning Doves seen on their nests in red cedar trees; a Black-crowned Night Heron perched on red maple tree overhanging sidewalk and remained while several persons passed underneath. Apricot commencing to bloom.

April 6. At 6 A.M., 45°, cloudy, threatening rain; at 10 P.M., 50½°, with rain

since about 1 P.M.; maximum (12.30 P.M.), 60°. A Tennessee Warbler (?)* singing in the big apple tree.

April 7. At 6 A.M., 54°, after a steady rain during previous night; at 2 P.M., 41°, still raining; at 9 P.M., 39°.

April 8. At 6 A.M., 30°, overcast, with strong N. to N. E. wind; at 10 A.M., 28°; maximum (3 P.M.), 33½°.

April 9. Temperature at 5.30 A.M., 27°, beautifully clear, calm; at 9 P.M., 36°; maximum (4.30 P.M.), 42½°. European larch in full bloom. Took a pair of Screech Owls and their three eggs out of squirrel box in big pin oak.

April 10. At 6 A.M., 34°, light frost; 9 P.M., 48°, overcast; maximum (4.30 P.M.), 51°; forsythias still in full bloom. Ruby-crowned Kinglet here.

April 12. At 6 A.M., 44° at 7 A.M., 39½°; at 10 P.M., 47°; maximum (1 P.M.), 51°. A Bewick's Wren, with mouthful of chicken feathers, building in nearby barn.

April 13. At 7 A.M., 46°, a beautiful, clear, calm morning, with very heavy dew; Ruby-crowned Kinglet singing; at 9 P.M., 55°; maximum (3.30 P.M.), 62½°. First Purple Martin seen (about two weeks late).

April 15. At 7 A.M., 52°, overcast; at 9 P.M., 57°; maximum (4 P.M.), 66½°. *Acris gryllus* (?) piping at night, but *Rana areolata* silent. Bridal-wreath spirea commencing to bloom.

April 16. Temperature at 7 A.M., 52°, very heavy dew; at 9 P.M., 62½°; maximum (4.30 P.M.), 71°. *Erythronium albidum* and *E. americanum*, Dutchman's breeches and bloodroot blooming (on Bird Haven). Bachman's Sparrow singing (on Bird Haven); first Barn Swallow seen; first Purple Martin inspected box. Norway and sugar maples in bloom, also some peach, plum, and pear trees.

*If the identification is correct, the date is an exceptionally early one. The bird was not well seen, but was a small, plainly colored Warbler, and I do not know of any other species whose song at all resembles that of the Tennessee; moreover, the date would be equally unusual for any other member of the family, except, perhaps, the Black-and-white Warbler (*Mniotilta varia*) or the Red-start, and most certainly it was neither of these.

April 17. Temperature at 6 P.M., 60½°; at 10 P.M., 68°; maximum (at 2 P.M.), 77°. First Chimney Swift seen. Everything coming out, either in leaf or flower. Cherry, peach, Kieffer pear, and plum trees in full bloom.

April 18. At 9 A.M., 71°; at 7 P.M., 70½°; maximum (11 A.M. to 4 P.M.), 74°; a strong south wind all day. Western House Wren, Kingbird, and Yellow-throated Vireo arrived.

April 19. At 7 A.M., 55°, clearing after rain during night; at 6 P.M., 42½°; maximum (at noon), 57½°; a disagreeable, March-like day. White-throated Sparrows singing.

April 21. At 7 A.M., 46°; at 10 P.M., 60°; maximum (at 4.30 P.M.), 70½°. Red Crossbills and a Red-breasted Nuthatch on place.

April 24. Temperature at 5.30 A.M., 61½°, overcast; at 6 P.M., 74½°; maximum (at 4 P.M.), 75½°. Catbird, Warbling Vireo, Red-eyed Vireo, and Maryland Yellowthroat arrived. Some lilacs in bloom.

April 25. Temperature at 7 A.M., 69½°; at noon, 70°, with light rain; at 3 P.M., 67°. Crested Flycatcher and Yellow Warbler arrived. Apple trees, *Neovisia alabamensis*, double-flowered kerria, lilacs (both purple and white), *Malus riversi*, and *Lonicera saccata* in bloom.

April 26. At 8 A.M., 65°, thinly overcast, with excessively heavy dew; at 12.30 P.M., 74½°. *Lonicera grandiflora rosea* in bloom.

April 27. At 6 A.M., 66°; at 12 M., 73°, raining. Wood Pewee and Indigo Bird arrived.

April 28. Temperature at 7 A.M., 68½°, overcast; at 12 M., 74½°. Alder Flycatcher arrived. Quince trees in bloom. First morels found.

May 1. Temperature at 7 A.M., 50°, clear, very heavy dew; at 10.30 A.M., 53°; maximum (6 P.M.), 59¾°. First flower of German iris open; red-bud bloom fading and dropping—at best a week ago; paw-paw, Jack-in-the-Pulpit, *Polemonium reptans*, and *Trillium recurvatum* in bloom; trees mostly in nearly full leaf. White-throated Sparrows still here.

May 2. Temperature at 5 A.M., 46°, clear. Red-flowered horse-chestnut, flowering dogwood, may apple (*Podophyllum*), dwarf larkspur, bladder-nut (*Staphylea trifolia*), *Phlox subulata*, and narrow-leaved crab apple (*Malus lancifolia*) in bloom, the first somewhat faded.

May 3. Temperature at 1.30 P.M., 71°; at 5 P.M., 70°; at 9 P.M., 67°. First White-crowned Sparrow seen, feeding with White-throats. *Hyla versicolor* croaking. *Tradescantia brevicaulis* and *Senecio aureus* in bloom. Bechtel's double-flowered crab with buds nearly ready to open. A fine king snake (*Ophibolus getulus sayi*) seen on Bird Haven.

May 4. *Spiraea Van Houttei* in bloom. Nighthawk arrived. Three Dickcissels passed over field (feel sure I heard this species on April 25).

May 5. Yellow-billed Cuckoo, Rose-breasted Grosbeak, and Solitary Sandpiper first seen. Young Robins out of nest (seen several days ago by a neighbor). Sweet shrub (*Calycanthus floridus*), *C. laevigatus*, and *Deutzia gracilis* in bloom. Thunder storm, with hail, about 9.30 to 10 A.M.

May 7. Temperature at 9.45 A.M., 52°, with cool N. W. wind. White-crowned Sparrows numerous and tuneful; White-throats silent and few remain.

May 8. Temperature at 8.30 A.M., 53°, with cool N. W. wind; maximum (4 P.M.), 54°. A few White-throated Sparrows, but none singing. Bechtel's crab in full bloom.

May 10. Coral honeysuckle commencing to bloom.

May 12. *Rosa rugosa alba* in bloom; *Philadelphus grandiflorus* commencing to bloom. Temperature at 8 P.M., 49¾°.

May 13. A beautiful, full-plumaged adult (male?) Harris's Sparrow feeding with White-crowns and White-throats near kitchen window—the first example of the species I ever saw in life!

May 16. Bobolinks heard passing over. The Harris's Sparrow again at feeding place; a few White-throats still here, but White-crowns apparently all gone. First Carmine Pillar rose open.

May 17. Last visit from Harris's Sparrow; White-throats all gone. First fireflies ("lightning bugs") seen. Iris, "Mme. Chereau" in bloom.

May 18. Black locust (*Robinia pseudacacia*) and rose acacia (*R. hispida*) in full bloom.

May 19. *Spiraea splendens* in bloom.

May 20. First flowers of *Iris pseudacorus* open.

May 23. No rain since the 7th.

May 24. Coral lily (*Lilium tenuifolium*), old-fashioned blush rose, and deutzia, "Pride of Rochester," commencing to bloom.

May 26. *Iris hexagona* (cultivated) in bloom; also climbing rose, "Debutante."

May 28. *Iris cuprea (fulva)*, cultivated, in bloom. Maximum temperature today and yesterday, 89°.

May 29. First Spanish iris and Crimson Rambler rose in bloom. Maximum temperature 87½°, with great humidity.

May 30. Yellow day lily (*Heimerocallis flava*) and common privet in bloom. Dorothy Perkins and Tausendschon roses commencing to bloom; *Catalpa speciosa* past full bloom (flowers dropping).

May 31. *Onagra biennis grandiflora* in bloom. (Rainfall for May, 0.77 of an inch!)

June 4. *Catalpa catalpa* in full bloom.

June 5. A light drizzle from about 6.15 to 6.30 P.M., the first trace of rain since May 7. *Opuntia vulgaris* in bloom; first trumpet flower (*Tecoma radicans*) open, much later than usual.

June 6. *Itea virginica* and New Jersey tea (*Ceanothus americanus*) in bloom. One of the small Thrushes (either the Veery, Gray-checked, or Olive-backed) sang many times in our *Pinus ponderosa* tree, but I could not see it, and hence could not make identification certain. (I am not sufficiently familiar with the songs of the three species to be able to distinguish them, many years having passed since I last heard them. The bird above mentioned was not heard afterward.)

June 7. First flowers open on prairie rose (*Rosa setigera*).

June 8. *Spiraea tomentosa* and common

elder in bloom. Maximum temperature, 94½°.

June 10. First flower open of orange day lily (*Hemerocallis fulva*). Maximum temperature, 96°.

June 11. *Yucca filamentosa* and prairie rose in full bloom; Carolina or Swamp rose commencing to bloom. Maximum temperature, 95°.

June 12. A very light but steady rain.

June 13. A good soaking rain (1.38 inches).

June 15. *Hypericum aureum* in bloom (first flower open on 13th).

June 20. Golden laburnum (*Laburnum vulgare*) and blue spirea (*Caryopteris*) commencing to bloom. First cicada heard.

June 27. *Datura meteloides* in bloom. Maximum temperatures today and yesterday, 98°.

June 30. First flower of Meehan's mallow marvel open, also the first rose of Sharon (*Hibiscus syriacus*).

July 6. Maximum temperature, 92°; drought conditions now acute.

July 7. Okra (*Hibiscus abelmoschus*) in bloom.

July 9. *Lonicera heckrottii* in full bloom; *Opuntia vulgaris* blooming again.

July 11. *Hibiscus militaris* commencing to bloom. Maximum temperature, 98°.

July 12. Maximum temperature (2 P.M.), 100°.

July 13. Maximum temperature (1.30 P.M.), 99½°.

July 14. *Monarda didyma* in bloom.

July 16. Drought broken (or at least interrupted) by a rainfall of 1.33 inches.

July 18. *Ipomœa digitata* and crepe myrtle commencing to bloom.

July 24. First flowers of *Hibiscus coccineus* open.

July 25. Rain from 6.15 to 8.40 P.M., part of time heavy.

July 27. Heavy rain in afternoon and evening.

July 31. "Heavenly-blue" morning-glory (*Ipomœa rubro-carulea*), grown *in situ*, from seed, in bloom.

August 7. First flower of *Lilium speciosum rubrum* open.

August 10. First flower open of Plum-

bago, "Lady Larpent" (*Ceratostigma plumbaginoides*).

August 12. *Boltonia latisquama nana* commencing to bloom.

August 13. Heavy rain (1.73 inches) in evening (4.40 to 5.40 P.M.).

August 19. *Clematis paniculata* and *Aster novæ-angliæ* commencing to bloom. Rain in afternoon.

August 25. Heavy rain (1.81 inches) in forenoon. *Lobelia siphilitica* and blue spirea (*Caryopteris*) commencing to bloom, the latter for second time.

August 26. First flower of cypress vine (*Ipomœa quamoclit*) open.

August 28. Heavy rain.

September 5. *Physostegia virginica* and *Asclepias tuberosa* in bloom, the latter for second time (first bloom in July).

September 6. Blue lobelia (*L. siphilitica*) and cardinal flower (*L. cardinalis*) in full bloom. Very heavy rain in morning.

September 7. *Liatris scariosa* commencing to bloom.

September 9. One of the small Thrushes probably the Gray-checked, is here.

September 10. Rose-breasted Grosbeak arrived; purple turtle's head (*Chelone obliqua*) commencing to bloom.

September 19. Tawny Thrush arrived.

September 20. Bay-breasted Warbler numerous; Chestnut-sided and Black-throated Green Warblers less so, but plentiful.

September 22. A single flower open on *Cydonia maulei*; New England asters in full bloom.

September 23. Coral honeysuckle and *Lonicera heckrottii* again in full bloom.

September 24. A Blue-headed Vireo singing (softly), the same or another one feeding on elder berries, with Warbling and Red-eyed Vireos and Bay-breasted Warblers.

September 25. Brown Creeper arrived.

September 29. Black-throated Green and Pine Warblers numerous in morning.

October 2. Sapsucker (*Sphyrapicus*) arrived.

October 4. White-throated Sparrow seen (but did not appear on Larchmound

until a week or more later). A few trees commencing to show autumnal coloring, mostly sassafras (orange and scarlet), persimmon (some trees dull orange-yellow, others bronzy purple) and shellbark hickory (mellow cadmium-yellow).

October 5. Bay-breasted and Black-throated Green Warblers present in large numbers.

October 6. Winter Wren arrived. Last flowers out on crepe myrtle (has been blooming constantly since July 18).

October 7. Last flower out on rose of Sharon (*Hibiscus syriacus*); has been blooming constantly since June 30.

October 8. Pine Siskin arrived. Rain, with much lightning.

October 9. Blue-headed Vireo again singing. Rain. Last flowers of crepe myrtle still on, but somewhat faded.

October 11. A Bachman's Sparrow visited the garden.

October 14. Young Cardinals, still being fed by parents, seen by Mrs. R. in doorway in town.

October 15. Slate-colored Junco and Song Sparrow arrived.

October 18. Myrtle Warbler arrived.

October 20. Temperature at 7 A.M., 59°; maximum, 70°. A Ruby-crowned Kinglet singing in morning.

October 22. A Catbird on our grounds. Closed gentian (*Gentiana andrewsi*) in full bloom.

October 23. The woods now gloriously colored, the trees showing brightest hues being sassafras (orange and salmon), black gum (bright carmine), bitter-nut hickory (lemon-yellow), shellbark hickory (orange-yellow), persimmon (some trees orange-yellow, others dark bronzy purple), and a few sugar maples (cadmium-yellow to orange); the red maples still mostly green, with here and there a glowing scarlet branch; oaks still mostly in mid-summer green.

October 24. One flower each of Meehan's mallow marvels and scarlet hibiscus (*H. coccineus*) open—the last of each. (The former has been blooming continuously from June 30, the latter from July 24!)

October 25. Temperature at 7 A.M., 48°, overcast; at 10.45 P.M., 45½°, clear.

October 26. Temperature at 6 A.M., 44°, fair. Cannas, geraniums (*Pelargonium*), scarlet sage, tea roses, morning-glories, nasturtiums (*Tropaeolum*), and many other flowers still in full bloom. *Tradescantia brevicaulis* in full (second) bloom, also some plants of *Phlox paniculata*. A Brown Thrasher in our woods.

October 27. First frost of the season, a 'killing' one, the temperature at 7 A.M., 30°; but day bright, with very little wind. Meadowlarks singing in morning.

October 28. Temperature at 7 A.M., 35°; at 12 M., and 9 P.M., 49°.

October 29. Temperature at 7 A.M., 43°; at 1 P.M., 52°.

October 30. Temperature at 7 A.M., 38°, with 'white' frost, Meadowlarks singing. Bats flying about in evening. *Tradescantia brevicaulis* still in full bloom.

October 31. Temperature at 6 A.M. and 8.45 P.M., 44°; a glorious Indian summer day.

November 1. Temperature at 7.30 A.M., 49°.

November 2. Temperature at 6 A.M., 48°; at 10.15 P.M., 58°. White oaks now richly colored with mellow tones of copper, purple-brown, terra-cotta, and 'old-rose.' A mixed flock of several hundreds of Snow Geese and Blue Geese flew over, going southward. It was noticed that although the two species were mixed throughout the flock each was composed of a considerable number of larger or smaller companies of segregated individuals, each extended line consisting of alternating companies of the white- and dark-colored birds.

November 3. Temperature at 7 A.M., 57°; at 12 M., 68°; 4 P.M., 67°. A perfect Indian summer day. While the woods have lost the brilliant colors of earlier autumn, they are now clad in more pleasing hues; only the red and sugar maples are cadmium-yellow, with touches of orange and scarlet, the general color being subdued tones of red-brown, brown-red, and purple, the black oaks yellow-green or green-yellow, the pin oaks coppery red,

the laurel oaks and a few red maples still deep green.

November 4. Temperature at 6 A.M., 53°; at 11 P.M., 50°.

November 6. Temperature at 6.30 A.M., 48°; at 9 P.M., 60°. The coloring of the woods has dulled perceptibly during the last three days; the post oak foliage is leather brown, and many white oaks are now more brown than red; the leaves are falling fast, and the hickories, sycamores, persimmons, and ashes are mostly bare; the green of some laurel oaks is changing toward orange-russet, but the general color of the woods is now brownish red in varying tones.

November 7. Temperature at 6.45

A.M., 57°, partly cloudy, calm; at 5 P.M., 68½°; maximum, 73°. A strong wind from S. W. greater part of day, but no rain until 6 P.M., when light rains, in form of passing showers, but more continuous during night, with much thunder and lightning. A single flower open (*the first*) on Carolina jessamine (*Gelsemium sempervirens*); foliage of crepe myrtle and *Berberis thunbergii* now changing to scarlet; that of flowering dogwood to duller red. Some hybrid tea roses in bloom.

November 8. Temperature at 8.30 A.M., 41°, overcast, raining slightly, with slight wind from N. or N. E.; rain most of preceding night; at 1.30 P.M., 46°, still overcast.

During the season of 1914 thirty-one species of birds nested within the boundaries of Larchmound, these represented by not less than seventy-six pairs, the list being as follows:

1. Mourning Dove	13 pairs	16. Baltimore Oriole	1 pair
2. Screech Owl	2 pairs	17. Bronzed Grackle	3 pairs
3. Yellow-billed Cuckoo	1 pair	18. Goldfinch	1 pair
4. Red-headed Woodpecker	1 pair	19. Chipping Sparrow	1 pair
5. Flicker	2 pairs	20. Field Sparrow	1 pair
6. Chimney Swift	1 pair	21. Towhee	1 pair
7. Ruby-throated Hummingbird	1 pair	22. Cardinal	2 pairs
8. Kingbird	1 pair	23. Indigo Bird	1 pair
9. Great-crested Flycatcher	2 pairs	24. Maryland Yellow-throat	1 pair
10. Wood Pewee	2 pairs	25. Catbird	3 pairs
11. Alder Flycatcher	1 pair	26. Brown Thrasher	3 pairs
12. Blue Jay	3 pairs	27. Western House Wren	8 pairs
13. Cowbird	1 pair*	28. Tufted Titmouse	1 pair
14. Meadowlark	1 pair	29. Carolina Chickadee	1 pair
15. Orchard Oriole	2 pairs	30. Robin†	7 pairs
		31. Bluebird‡	1 pair

In addition to the above, the following would have nested on the premises but for the Red-headed Woodpeckers, House Wrens, and flying squirrels: Southern Hairy and Downy Woodpeckers, Red-bellied Woodpecker, Bewick's Wren, and Purple Martin.

The total number of pairs nesting on the place would also have been much

*A young Cowbird was seen while being fed by a Chipping Sparrow.

†A large majority of the Robins which breed here are of the very dull-colored southern form (*Planesticus migratorius achrusterus*); but occasional pairs are as bright colored as the northern form, and I have no doubt really represent that subspecies.

‡But for my energetic help this pair of Bluebirds could not have nested in the box which they occupied, on account of the persistent persecution of the 'English' Sparrows. Before the eggs were hatched something happened to the female, and although the male remained several days, calling plaintively for his mate, a pair of House Wrens took possession of the box, carried the Bluebirds' eggs out, and built their own nest.

greater—more than doubled, in fact—had it not been found necessary to vigorously discourage the Blue Jays and Bronzed Grackles. The former were so destructive to the eggs and young of other species that there would have been practically no increase, even half-grown young of the Mourning Dove being killed and partly devoured by them and the eggs destroyed in fully ninety per cent of the first nests built; the only remedy being to decrease the Blue Jay population by at least fifteen pairs. The colony of Bronzed Grackles which persisted in nest-building until finally discouraged numbered not less than fifty pairs, the numerous large red cedars and still larger pines, spruces, hemlocks, and larches affording them nesting places which they were extremely loth to abandon. Notwithstanding my constant vigilance, however, at least three pairs of each of these destructive species succeeded in concealing their nests and hatching their eggs.

The birds wintering at Larchmound numbered thirty-eight kinds, as follows:

- | | |
|-------------------------------|------------------------------|
| *1. Mourning Dove. | *20. Pine Siskin. |
| *2. Sparrow Hawk. | 21. White-throated Sparrow. |
| 3. Screech Owl. | 22. Tree Sparrow. |
| 4. Hairy Woodpecker. | *23. Western Tree Sparrow. |
| 5. Southern Hairy Woodpecker. | 24. Slate-colored Junco. |
| 6. Downy Woodpecker. | 25. Montana Junco. |
| 7. Southern Downy Woodpecker. | 26. Song Sparrow. |
| 8. Sapsucker. | *27. Fox Sparrow. |
| 9. Red-headed Woodpecker. | *28. Towhee. |
| 10. Red-bellied Woodpecker. | 29. Cardinal. |
| 11. Flicker. | *30. Bewick's Wren. |
| *12. Phoebe. | *31. Winter Wren. |
| 13. Blue Jay. | *32. Mockingbird. |
| *14. Crow. | *33. Brown Creeper. |
| *15. Meadowlark. | 34. Tufted Titmouse. |
| *16. Bronzed Grackle. | 35. Carolina Chickadee. |
| *17. Purple Finch. | *36. Golden-crowned Kinglet. |
| *18. Crossbill. | *37. Robin. |
| *19. Goldfinch. | *38. Bluebird. |

Those species distinguished by an asterisk were not constantly present but appeared from time to time, quite independent of the character of the weather. All the others were present daily.

During the winter only two trips were made into the country, so there was little opportunity for ascertaining what additional species passed the colder months in the vicinity of Olney. The following, however, were noted: Killdeer (frequently observed or heard in a meadow just across the road from Larchmound); Bob-white; Prairie Chicken; Turkey Vulture; Cooper's Hawk; Sharp-shinned Hawk; Red-tailed Hawk; Red-shouldered Hawk; Barred Owl; Great Horned Owl; Prairie Horned Lark; Rusty Blackbird; Migrant Shrike; Carolina Wren; White-breasted Nuthatch; Red-breasted Nuthatch, and Hermit

Thrush—seventeen additional species, making the total number of winter residents actually observed, fifty-five species and sub-species.

In concluding this article it may be well to mention a few of the things that have been learned from our experience on Larchmound. The most important of these is that the provision of water for bathing and drinking has far more to do with attracting birds to one's premises than anything else; for during our long, hot, and often dry summers water is relatively scarce, and birds often have to fly long distances to find it. One receptacle, or, indeed, several, is not enough, for when the birds assemble, as they do several times a day



A BIT OF LARCHMOUND

(though chiefly in the morning and evening)—and many come from afar to bathe and drink—there can hardly be too many places for their accommodation. Although Mrs. Ridgway has kept fifteen pans (shallow ones for the smaller birds, deeper ones for the larger kinds) constantly filled with fresh water there were not enough, and it was a daily occurrence to see a dozen or more birds collected about a single pan, each awaiting (not always passively, for there were many 'squabbles') its turn; and often one bird able to retain possession would take several baths in succession, with the result that when he was through there was little water left.* The water in these pans was never allowed to get heated or foul, but was renewed several times each day.

As to feeding, this has been kept up the year round, for the feeding-boxes are just as well patronized in summer as in winter, many species, among them

*Frequently one of the waiting birds would become impatient and it was most amusing to see it 'go through the motions' of bathing as it sat in the grass! Young Robins (full-grown) were especially apt to do this.

the Catbird and Brown Thrasher, even feeding their young on cracked nuts. The favorite food with them all was found to be the native nuts—black walnut, hickorynut, pecan, and butternut, in the order named—and they would eat nothing else, even English walnuts and peanuts being discarded, so long as those mentioned are provided. We have never yet succeeded in inducing any bird to eat cocoanut. The Catbirds, both old and young, were among the most frequent visitors to the feeding-boxes, though nearly all species came.* The Brown Thrasher was never seen to enter the boxes, but picked up from the ground beneath them the bits which had been dropped by the other birds. Suet also is as much relished by the birds in summer as in winter, and we have often seen the Catbird feeding its young with it.

The feeding of 'soft-billed' birds, such as the Robin, Bluebird, and Mockingbird in severe winter weather is a problem which we have not been able to solve satisfactorily. Probably the best way to provide for these is by planting sufficiently numerous shrubs, etc., which bear fruits they are fond of, as the dogwood, various cornels, red cedar, deciduous holly, pokeberry, etc.; though the failure to produce fruit certain seasons, or the circumstance that the fruits of some of these do not 'hang on' until severe weather comes,† makes this fall short of being an entirely satisfactory measure. We have not yet tried prepared Mockingbird food which, although expensive, might answer the purpose, though, like other moist goods, it would be likely to become frozen hard in severe weather.‡

The same individual birds that were first attracted to the feeding-boxes are still with us—at least some of them are, for they cannot be mistaken; for example, a one-legged Carolina Chickadee and a Tufted Titmouse with a partially disabled wing. The former has been a cripple since one day in February last, when it returned to the box with one foot extended straight out beneath the tail and immovably fixed in that position. Evidently it had been wrenched out of place in some way, possibly by catching the foot in a crotch as the bird started to fly. Some time in May the leg had quite disappeared, and ever since the little fellow has managed very well with one only; in fact it is wonderful how skillfully he manages to tuck a bit of nut under the toes of his one foot and hold it there while he pecks it into pieces small enough for him to swallow. The disabled Titmouse is one of a brood of young which, early in the season

*The most frequent and regular visitors to the nut-boxes were the Tufted Titmouse, Carolina Chickadee, Catbird, Chipping Sparrow, and (in winter) the Slate-colored Junco. Frequent but less regular were the visits of the Red-bellied Woodpecker, Downy Woodpecker, and Bewick's Wren.

†On the 21st of October, the deciduous hollies in the bottoms of the Little Wabash River had already been nearly stripped of their fruit by the thousands of Robins which had congregated there. This tree (or large shrub) is known locally as, 'turkey-berry, from the circumstance that wild turkeys were very partial to its fruit.

‡A friend, who is a devoted lover of birds and for many years has in every way encouraged them on her fine place, told us that her Robins were very fond of pot-cheese (otherwise known as cottage cheese or smear-case), and are so tame as to take it from her hand; this in summer, however. At this lady's home, where dense shrubbery and dense vine growths abound, she, this season, counted fifteen nests of the Brown Thrasher; and in a rose-arch near the house were, at the same time, nests of three species (Robin, Cardinal, and Mourning Dove), within two or three feet of one another!

the parents brought to the boxes to be fed. When they were full-grown and the parents had gone about raising a second brood, this one was found one day with his left wing hanging and all but useless. To save him from the cats I tried to catch him, but he managed to elude me by volplaning from one bush to another. By degrees the injured wing became more serviceable, and now is nearly normal, having only a slight drop, and the bird flies as well as ever.



CANADA GEESE

Photographed by Francis Harper, at Gardiner's Island, N. Y., April 5, 1912.

A Mysterious Bird of the Marsh

By VERDI BURTCH, Branchport, N. Y.

With photographs by the author

WHEN the spring days come and the snows melt, the brooks are running full and the waters rising in the lake and marsh, the 'peepers' awake and the toads and frogs begin to make music. Nearly every morning we hear a new song from a bird newly arrived from the South. These signs of spring quicken the pulse, and make us long to get out in the woods and fields to learn more of the wonders of nature.

Then one morning, about the middle of April, we hear a strange and mysterious sound issuing from the marsh—*gung gǔ um, gung gǔ um, gung gǔ um*—and our curiosity is aroused. At first we think it may be some one over across the valley driving stakes. Or perhaps it may be some one pumping water from an old-fashioned wooden pump in a deep well. However, neither of these explanations seems to be satisfactory; the sound is too sonorous and resonant. We follow it up and, as we get closer and hear it repeated, we find that we had

missed a part of this mysterious noise when we were at a distance from it. Now it begins with a series of gurglings, much like the sound made by pouring water slowly from a jug. Then, when the main noise comes, we can fairly feel the reverberations and, although we can see nothing there, we are sure that the noise comes from that bunch of cat-tails just ahead. Moving forward cautiously, we have taken but a few steps, when suddenly, with a hoarse squawk, a great bird arises and flies away across the marsh, and soon we hear him again—*gung gǔ um, gung gǔ um, gung gǔ um, gung gǔ um*.

So we have partly solved the mystery. We now know that the noise is made by a large yellowish brown bird, nearly allied to the Herons—the American Bittern, and, as

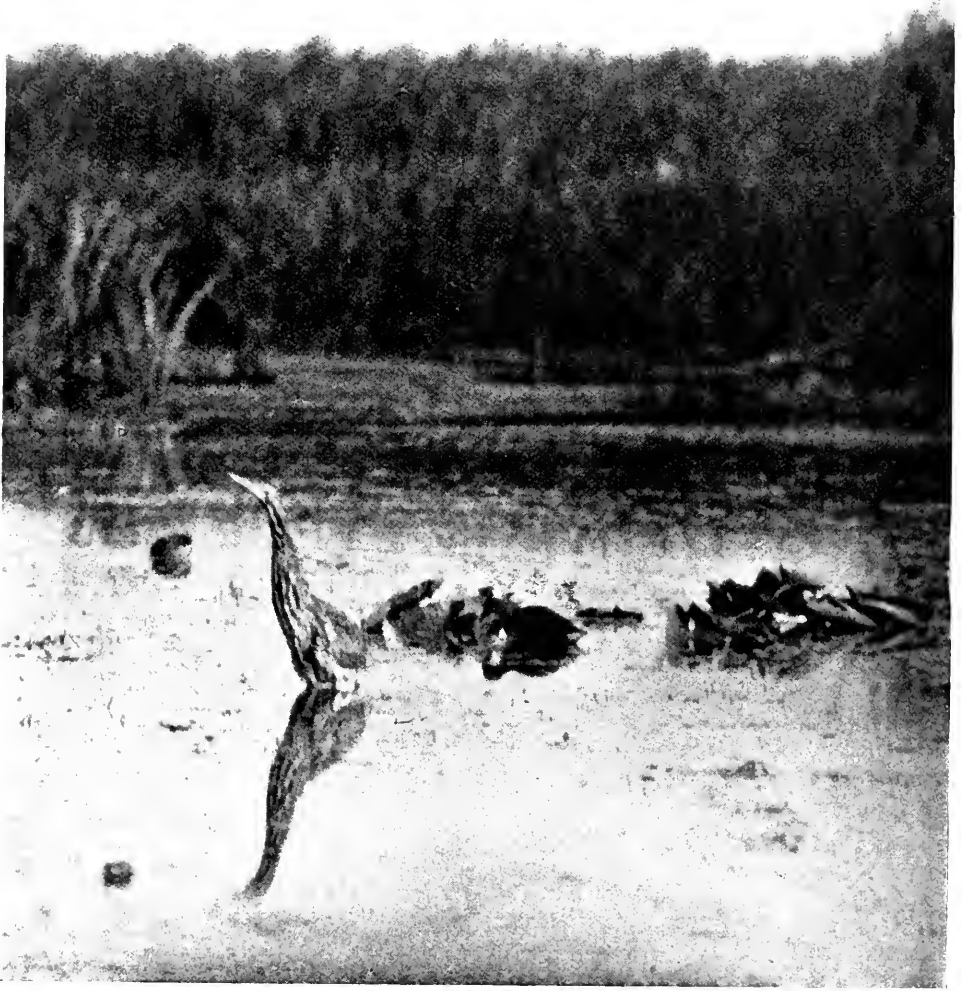


MALE AMERICAN BITTERN

The white nuptial plumes are partly drawn into the plumage and show but faintly.



"HERE I FOUND THE FEMALE, SITTING WITH HEAD AND BILL POINTING UPWARD."



"STEPPING FORWARD VERY SLOWLY"

we afterward learn, this strange sound is the love song of the male. But how does he make this noise?

Many times afterward did I stalk him, trying to catch a glimpse of him when he was in the act of 'pumping.' Finally I was successful. Early one morning, as I was crossing the bridge, I heard him 'pumping' close by, and dropped to the bridge just as he walked out of the flags into the open, less than forty feet away. He advanced leisurely, stopping now and then to pick up a frog or worm.



THE CAMERA CAUGHT IT AS IT FLEW AWAY ACROSS THE BAY

First he raised his head, until the bill was pointing upward, then slowly dropped it to a horizontal position, when the bill opened and closed five or six times, emitting the bubble-like sound each time—*glub—glub—glub-glub-glub*. After this, with a great effort, came the main noise, the *gung gī um*. The head was brought back for the first syllable, then thrown upward and forward with the middle and last syllables. The feathers on the neck hung loosely and vibrated with the effort. The *gung gī um* was repeated three times. But he was not yet through with his wonderful exhibition. As if by magic, two beautiful, fluffy white plumes arose from their concealment in the feathers on each shoulder and spread fan-shape down around the neck to the breast. After strutting around

a bit, the plumes were slowly withdrawn into the plumage, and he disappeared into the flags. Soon I heard him again from farther back in the marsh. He had given me an exceptional opportunity to see his nuptial plumes, which are shown only during the mating-season.

One day in May, as I was tramping around in the thick grass among the scattering cat-tails, my feet sinking into the ooze with each step, a female Bittern arose, uttering a gurgling squawk, and flew away. There at my feet on the ground in a nest of dead flags lay six large, olive-drab eggs. Four weeks later, all but one of the eggs had hatched into five of the most awkward, fluffy, yellow-drab-colored babies imaginable. When I approached, they would crowd to the back side of the nest, face toward me and keep their eyes on me every minute. When one week old, one was placed upon some flags, and it at once assumed the characteristic attitude of its elders, the head and bill pointing straight up. The youngest member of the family was a runt, and at two weeks old was scarcely one-half as large as its brothers and sisters. At this age, when the nest was approached, they would sneak away in the grass and flags so quickly that I could hardly keep track of them, and a few days later they had left the nest and were seen no more.

Another nest was placed in a bunch of cat-tails out in deep water, where I had to use a boat to get to it. It was made of dead flags built up just above the water. Here I found the female sitting on the nest, with head and bill pointing straight up, her plumage and attitude matching the flags so closely that she was scarcely distinguishable from the surrounding flags. Here she remained perfectly immovable until I touched her with an oar when, uttering a protesting squawk, she flew away.

The Bittern is solitary in habit, and in August and September I find them standing in the shallow water at the edge of the marsh, each one alone, a solitary fisherman among the pond-lilies and scattering bunches of flags and marsh-grass. They stand so silent and motionless that they seem to be old stump-roots sticking up out of the water. But their every sense is alert, and woe be to the luckless frog or fish that gets within striking distance of that long, sharp bill.

The Mockingbird

Gray singer, of the song-range limitless,
 Thy name but ill befits thee—is a slur
 Upon thy golden morning-heartedness;
 No mocker thou, but an interpreter.

Thou dost divine and utter forth in words
 All brooding joys, winged hopes, and soaring prayers,
 Mingling the simpler songs of other birds
 In the rich beauty of an art not theirs.—NINA BULL

Second Sectional Bird Census, 1914

Taken at Berwyn, Chester County, Pennsylvania

By FRANK L. BURNS

DURING the nesting seasons of 1899-1901, the writer undertook the pioneer work of enumerating the avian population of a 640-acre tract at Berwyn. (See 'A Sectional Bird Census,' *The Wilson Bulletin*, No. 37, Dec. 1, 1901.) The object of this census, taken in a section considered fairly representative of southeastern Pennsylvania in fauna, flora and physical features, was to determine approximately the number of individuals of each species represented. In other words, to ascertain the total number of birds inhabiting a given area, as a basis for comparison with a future bird-census over the same or similar ground. After an interval of thirteen years, I now present the results of a second census made in the nesting season of 1914. It shows, when compared with that of 1899-1901, an estimated possible error of less than five per centum. This is believed to be almost altogether in enumerating the common Sparrows.

A preliminary survey, attempted during the season of 1913, served to keep me in touch with the local bird-life; and a thorough canvass was made during the past year, in which I spent a part of every day in the field, throughout the long breeding-season.

The tract surveyed includes a narrow strip of the Great Chester Valley and a section of the south Valley hills (the watershed between the Schuylkill and Delaware Rivers). It is well watered by numerous springs flowing through deep ravines. About one hundred and seventy acres are in deciduous timber and sproutland, one hundred acres in gardens and shaded lawns. The remainder is in cleared land, much of which is not very highly cultivated, and a not inconsiderable portion is taken up in drives, highways, and railroads.

Since my first survey there has been little change in the character of the country, beyond a perfectly normal increase in buildings and inhabitants. Two small ponds of less than an acre have been formed for the propagation of trout for the market; a thirty-five-acre nursery set with shrubs, shade, and forest trees; and about one hundred acres of woodland made into a private park with numerous broad drives, and embellished with pines, dogwoods, rhododendron, etc., in which gunning is discouraged and the wild things are protected without discrimination.

Naturally, my frequent rounds led to an intimate knowledge of many individual birds and pleasant experiences without end. Of the six species not on my previous list, the Turkey Vulture was found nesting for the first time in what I had long regarded as the only suitable hollow stub in the woods. The first Starlings penetrated the hills via the ravines, long after the main host had reached the valley; and the Chestnut-sided Warbler, at an elevation of 525 feet, gave me my first, and the county its second breeding record.

Of the many species maintaining their number, several have done so against heavy odds. The owner of by far the largest estate for some years paid a substantial bounty for every Crow shot upon the place during the corn-growing season. However, five pairs of Crows, the normal number, successfully reared their broods. The male Cooper's Hawk met death as he attempted to snatch his eighteenth chicken in the presence of the owner, yet his mate hatched and reared her brood within a stone's throw of the same coops.

Of the decreasing species, the smaller numbers of scarcely one can be attributed altogether to local causes; though a scarcity of suitable nesting-sites, particularly among the least adaptive Warblers and Swallows, doubtless has more or less effect. The single pair of non-breeding, second-year Purple Martins were always house-hunting. Locally, the English or European House Sparrow has developed super-sensitiveness to our American winters; yet it has become so uniformly distributed in the United States, east of the Mississippi River, that I have no hesitancy in making an approximate estimate of 165,000,000 individuals, based on my conservative figures.

Likewise, the marked increase of certain Woodpeckers, Sparrows, and Thrushes is doubtless as much due to protection during migration as to favorable local conditions. The enumeration happened upon a year of enormous increase of the Kentucky Warbler, similar to that of 1897, which was followed by a rapid decrease the following years. I have the impression that the Wood Thrush and the Robin are super-abundant, particularly the latter in a restricted territory; the loss it occasions in early cherry and strawberry crops is not inconsiderable. It is unfortunate that the most abundant species is not beneficial; but I am happy to say that of the first twenty species in point of abundance, comprising almost six-sevenths of the total number of individuals, sixteen species are wholly beneficial.

My records show a loss of two species and a gain of thirty-six individuals, a by no means discouraging prospect. However, as several species scarcely average a pair to four or five square miles, and almost one-half of the species enumerated are represented by from one to three pairs only, it seems inevitable that a further reduction must occur. The tendency seems to be toward a less varied fauna and an increase of individuals of the more adaptive species.

CENSUS OF BREEDING BIRDS

Species	Individuals		Species	Individuals	
	1899-1901	1914		1899-1901	1914
1. American Woodcock	2		10. Screech Owl	8	6
2. Killdeer	2	2	11. Yellow-billed Cuckoo	8	4
3. Bob-white	1		12. Black-billed Cuckoo	2	
4. Mourning Dove	4	4	13. Hairy Woodpecker		2
5. Turkey Vulture		2	14. Downy Woodpecker	10	18
6. Cooper's Hawk	2	2	15. Red-headed Woodpecker	2	2
7. Broad-winged Hawk	2	2	16. Northern Flicker	8	12
8. Sparrow Hawk	2	2	17. Nighthawk	2	
9. Barn Owl		2	18. Chimney Swift	32	36

Second Sectional Bird Census, 1914

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CENSUS OF BREEDING BIRDS, continued

Species	Individuals		Species	Individuals	
	1899-1901	1914		1899-1901	1914
19. Ruby-throated mingbird	4	2	44. Scarlet Tanager	20	10
20. Kingbird	4	4	45. Purple Martin	10	2
21. Crested Flycatcher	16	16	46. Barn Swallow	20	2
22. Phoebe	8	6	47. Cedar Waxwing	8	14
23. Wood Pewee	10	8	48. Red-eyed Vireo	110	92
24. Acadian Flycatcher	10	2	49. Warbling Vireo	4	4
25. Blue Jay	8	6	50. Yellow-throated Vireo	2	
26. Crow	10	10	51. White-eyed Vireo	4	
27. Fish Crow	2	2	52. Black and White Warbler	20	6
28. Starling		4	53. Worm-eating Warbler	32	18
29. Cowbird	3	2	54. Blue-winged Warbler	22	10
30. Meadowlark	8	8	55. Yellow Warbler	2	
31. Orchard Oriole	8	4	56. Chestnut-sided Warbler		2
32. Baltimore Oriole	10	8	57. Ovenbird	82	66
33. Purple Grackle	22	32	58. Kentucky Warbler	42	60
34. European House Spar- row	212	190	59. Maryland Yellow throat	14	14
35. American Goldfinch	12	20	60. Yellow-breasted Chat	28	22
36. Vesper Sparrow	16	6	61. Catbird	64	80
37. Grasshopper Sparrow		16	62. Brown Thrasher	10	8
38. Chipping Sparrow	78	70	63. House Wren	22	26
39. Field Sparrow	118	90	64. White-breasted Nuthatch	2	
40. Song Sparrow	44	50	65. Carolina Chickadee	2	2
41. Towhee	30	38	66. Wood Thrush	40	104
42. Cardinal	4	2	67. American Robin	74	130
43. Indigo Bunting	22	56	68. Bluebird	8	4
			Total (62 sp. 1,388), 60 sp. 1,424 ind		

There can be no especial significance in the probable temporary absence of the eight species, as above noted; they are all found nesting in the immediate vicinity though without the sectional tract, with the following additions: Black Duck, Least Bittern, Green Heron, Black-crowned Night Heron, Upland Plover, Spotted Sandpiper, Long-eared Owl, Belted Kingfisher, Whip-poor-will, Red-winged Blackbird, Rough-winged Swallow, and Louisiana Water Thrush.





MEADOWLARKS AT A FEEDING-STATION IN EARLY FEBRUARY
Photographed by Francis Harper, at East Patchogue, L. I.

The Story of a Red-tailed Hawk.—In Two Parts

PART II

By MRS. A. B. MORGAN, Woodstock, Vt.

AS THE winter of Johnny's first year approached, there arose the question, "What can I do with him, or what *ought* I to do with him?" Some advised me to let him go, but he did not know how to fly. He could fly about the shed, mount his various perches that were from five to eight feet high, but of the outside world and of how to get his prey, he knew nothing. Sometimes, as I opened the doors, the focus of his eyes would change, and a look that seemed to penetrate to the far horizon would come. His body unconsciously crouched to the earth, and he waited for a lifting breeze to carry him where his wondering vision led, but it was all over in a moment. Suddenly he would look at me with an expression that plainly said—"I know *you*, what is that which surrounds you and me?"

So I decided to have a platform arranged in the cellar, where he could be kept warm and not have his liberty entirely restricted. He seemed to enjoy his new quarters and would turn and twist his head in greeting, uttering a chicken-like peep to every member of the family who visited him. My father he distrusted and feared, as he did most men. My husband, who liked him and often fed him, he seemed to understand and like in return. His wonderful intuitive faculties were shown in his recognizing traits of character. One girl who visited him said, as she descended the stairs, "If I had that bird, I'd kill him." He met her with wings outspread, his crest raised, his mouth wide open, his eyes glowing with hate. Never before had we seen such manifestations, and could only infer that it was her raucous voice that so inflamed him. Yet with other visitors he showed decided likes and dislikes, flying down to greet some, while with others he would retire to the farthest corner and refuse to do one cunning thing. My sister often talked with him and, as she changed her voice, his corresponding variations of *ee-ee-ee*, accompanied by head gestures, would set us all laughing. Sometimes in the evening we would go to him with a light, and he, blinking, would rouse himself to greet us and turn on his perch to face us. *His* going to bed meant that he turned his back on us and mounted the highest perch he had, so that his head barely cleared the floor above. Not very far from his platform was a bricked-in furnace and, when the cold days came so that he felt the change, he was found in front of the hearth examining the furnace and listening to the fire. His conclusions were such that the next morning he was *on* the hearth enjoying the heat and looking so sweet and contented when discovered. Having disappeared from his platform one day, my sister, not knowing what had become of him, began searching and calling. Not a sound—she felt sure something unfortunate had happened to him. Finally from a dim corner came a faint *ee-ee* in response to her call. "Johnny, where are you?" Going where the sound came from, she discovered him hiding. He

acted pleased, lifting his wings and talking rapidly. After that, he tried various hiding-places, always giving one a long wait before he revealed himself. The winter wore on, and all seemed to go well with him till toward spring, when he sickened and refused to eat. He sat like a ghost bird, the white films covering his soft eyes and his whole attitude suggesting a disembodied creature. Three days passed before he showed any signs of life—then, he opened his eyes, hopped down from his perch and asked for food.

In March he was taken back to his shed, and great was his delight. Having been away for a part of the winter, myself, upon my return in May I went at once to visit him. As I approached the shed, I called softly, "Johnny, Appledore Johnny, are you hungry?" On the instant, I heard the thud that indicated that he had flown to the door. That this showed genuine recognition on his part is proved by the fact that my sister, who had been feeding him in the shed for two months, said that he never flew to meet her. Without doubt, he associated my voice with his previous summer's training and responded by doing what I had taught him.

From that time I encouraged him to learn of the outside world. I opened both doors and invited him to come out, but for three weeks he never ventured to leave the shed. He watched passers-by with interest, and when he caught sight of a Hawk soaring above, his quizzical look of inquiry would after a little give way to indifference. Finally, I induced him to come out for his breakfast and to play with me. He would pick up sticks and toss them, jumping about and sometimes giving my dress a sharp pull; but, as soon as he realized that he was really out of his shelter, as soon as he looked up at the great sky, he would run as fast as he could back to the little world he knew. When the sun shone bright and it fell on his wings, he would stretch them out to their fullest spread, and then flap vigorously. In this way he learned to use them. Gradually, he would walk forth for a short distance, but always seemingly glad to be brought back. In July he began to molt, and by the middle of August he had shed his brown tail for a beautiful red one. His wings were splendid, his coat was heavy and interlined with plenty of white down. His back showed a bloom that looked in some lights violet, in others, gray.

About this time a friend of ours who was studying at Bussey Institution proposed sending me some of the choice mice they had there for experimental purposes to feed Johnny upon, the question of providing sufficient and proper food for him having become a big problem. I gladly accepted the offer, as before this his game had been dead, and this would give me an opportunity of watching a new phase of his development. The first live mouse that I gave him excited him to a degree that can hardly be described. All the pent up wildness of his nature seemed to seek an outlet. After striking it from my hand as I held it by the tail, he continued to fly about wildly up and down, over and around his quarters, gasping rather than screaming, and paying absolutely no heed to me. I left him to quiet down and to enjoy his prey. When I opened

the doors to present him with another, he lifted his crest and fairly hissed like a serpent—all his mildness had vanished. He struck the mouse with his talons, but so excited had he become that he dropped it, and it ran out of sight among the sticks. Immediately, he mounted his perch to watch, every sense alert. The fierce expression vanished—a look of wistfulness took its place. I closed the door, leaving only a crack, and watched too. Soon he flew down to examine the pile of sticks, he looked in every crevice, he plunged his foot into various places and at last frightened the mouse from its hiding-place. His dexterity in striking it was marvelous, and his triumph unmistakable.

From this time on, a gradual change was noticeable. He seemed more vigorous, more ready to try his wings in the open. Several times he went as far as the top of the hill, a distance of about five rods, flying some but walking more. His almost daily sun-bath quickened the beating of his wings, and he would utter a hoarse, throaty cry, quite unlike anything I have ever heard. One morning in September, my father came to the house with bloody hands, which he said Johnny had scratched when he caught him in a nearby field and, continued he, "That bird can fly." Secretly I was glad, but I resolved to watch him more closely to see that



RED-TAIL AND MOUSE

he did not fly away. Every day I fed him live mice, talked and played with him, and yet, as October came, the question ever present and insistent was "What *ought* I to do with Johnny?" I had about decided to offer him to some Zoo.

On October 4, the men working about the shed forgot to fasten the doors. A strong wind blowing opened them and, when I went to feed my pet, I found him gone. I went to the top of the hill where he had always taken his short excursions, and called. October stillness and the wonderful light on the bright hill was all that greeted ear or eye. I searched for some time, and all the family joined me, but there was no trace of him. Six days passed and on the after-

noon of the sixth I looked out to see my bird sitting on a dead limb of a nearby tree in a most conspicuous position. I ran to the door calling him by name. He twisted his head in adoring fashion and then squealed for food. I gave it to him, and he flew out of sight. A little later I found him hiding in the tall grasses below the house and, offering him a big piece of beefsteak, of which he was especially fond, his hunger overcame his caution and he dashed down at my feet where I held the meat. Before he had time to seize it, I grasped him by the wing near his body. To my surprise he did not struggle much but looked up at me appealingly and yet fearlessly, and submitted to being carried back to his shed without protest. Once inside, he shook himself vigorously several times, peered about inquiringly, yawned, and then mounted his perch to preen himself. The days that followed upon this taste of liberty were marked by playfulness and contentment, rather than by the restlessness which I had expected. His appetite was larger than ever, and the bodies of two Sharpshinned Hawks that I had secured were greedily devoured, one at a meal. He waxed stronger and more beautiful. His six days in the open had seemed to give a darker hue to his plumage and more sprightliness to his manner. Knowing that I must provide for his comfort for the winter, I had spoken for a place in the new aviary in the Franklin Park Zoo, Boston, but determined to keep him as long as possible. Each day he seemed a little more precious and harder to relinquish. On the morning of November 5, there was bright sunshine and a high wind. As usual I went to feed Johnny and, after doing so, opened up the doors that he might have his sunbath. Again and again he spread and flapped his wings until he was lifted off his feet, and, having satisfied himself, hopped down to play with me. He was as affectionate and playful as a kitten, and his expression was mild and sweet. Suddenly without warning he bounded to the roof and, with a hoarse, throaty croak, flew to his platform at the rear of the shed, where a window gave him a wide outlook on the great hills and the deep valley below. I divined his intention as he peered out. His eyes had in them a narrowed look—craft and cunning were mirrored there. I knew it was the wisest thing to leave him alone, so I quickly shut the doors while I went for water for his bath. Coming back some time later, I found him sitting contentedly on his perch and looking perfectly innocent, but, as I stooped down to place the water, like a bolt he whizzed past me as I jumped for the doors. I almost brought them together but saw that in doing so I should crush his beautiful wing, and forebore. I felt confident that I could get him back, so left him in the yard while I went for meat to tempt him. When he saw me coming toward him, his wings lifted, the strong wind picked him up and he flew in the direction of the woods but, as he heard my voice, alighted on a steep hillside. I had followed him quickly and was not far from him. My sister, hearing my calls, had come out to see what was happening, and was also near at hand. As he saw us he ran toward us hesitatingly, and yet as if held by a power outside himself. Then he looked, with the far-away light in

his eyes, to the sky above him. He hesitated no longer, but mounted up and flew slowly to the woods, where he lighted in a big maple. There we could see him hopping from limb to limb, as if enjoying the time of his life, and afterward preening his feathers and getting ready for the journey from which I had not the heart to turn him back. I saw him sail down the valley, and for a week, at least, I hoped that he might return of his own free will for food; but, as the days went by and there was no sight of him, I watched no longer. He had entered into the liberty that every wild thing craves and inherits as its natural right.

The most striking, and, perhaps the most pathetic part of this experience with a bird so intelligent as a Hawk, is its attempt to accommodate itself to new conditions that are in opposition to its heredity. Johnny *tried* to think and act in terms of a human being. That he succeeded to an astonishing degree, none can dispute, and, since having this experience, I cannot wonder that the ancient Egyptians worshipped the Hawk.



SAVANNAH SPARROW
Photographed by Guy A. Bailey, Geneseo, N. Y.

The Migration of North American Kinglets

Compiled by Prof. W. W. Cooke, Chiefly from Data in the Biological Survey

With a Drawing by LOUIS AGASSIZ FUERTES

(See Frontispiece)

KENNICOTT WILLOW WARBLER

Using the name of the Kennicott Willow Warbler for the bird of both the Eastern and the Western Hemispheres, the species has a wide distribution in the breeding season from Finmark to northeastern Siberia and south to Mongolia and southeastern Siberia; on the Alaska side it breeds from the Kowak River south to the Nushagak River. It deserts the Western Hemisphere entirely in winter, and ranges south at this season to China, the Indo-Chinese Provinces, Formosa, Malay Peninsula, and Borneo. It is strictly migratory, but almost nothing has been recorded concerning its times of migration. It was taken at Marcova, Siberia, May 28, 1901, and arrived at Nijni Kolymsk, near the Arctic coast of Siberia, May 30, 1912. It is probable that the spring migration on the eastern side of Bering Sea occurs at approximately the same time, but there seems to be no record in Alaska earlier than June 14, when one was seen near the mouth of the Kowak River. The latest date in Alaska is that of several specimens taken August 31, 1877, at St. Michael, and August 26, 1911, on the Kokwak River.

GOLDEN-CROWNED KINGLET

The winter home of the Golden-crowned Kinglet is in the central and southern part of the United States, but so many individuals remain, at this season, in the northern states and even in southern Canada that it is difficult to judge as to when spring migration really begins. Two forms of the Golden-crowned Kinglet have been separated—an eastern, *satrapa*, ranging west to the plains, and a western, *olivaceus*, inhabiting the Rocky Mountains and the district thence to the Pacific.

SPRING MIGRATION

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Ballston Spa., N. Y.	7	April 7	March 29, 1908
Branchport, N. Y.	8	April 15	Jan. 2, 1891
Lockport, N. Y.	6	April 14	January 9, 1891
Boonville, N. Y.	6	April 0	April 1, 1903
Alfred, N. Y.	6	April 7	March 28, 1908
Paradox, N. Y. (near)	6	April 17	April 4, 1890
Hartford, Conn.	4	April 2	January 1, 1911
Southern New Hampshire	6	April 12	February 13, 1898
St. Johnsbury, Vt.	7	April 20	March 31, 1905
Portland, Me.	8	April 10	January 15, 1896
Montreal, Canada	7	April 17	March 28, 1908

SPRING MIGRATION, continued

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Quebec City, Canada.....	7	April 21	April 12, 1890
Chicago, Ill.....	23	March 27	January 10, 1906
Bloomington, Ind.....	6	March 26	February 4, 1893
Fort Wayne, Ind.....	8	March 27	March 15, 1908
Waterloo, Ind. (near).....	11	April 4	March 28, 1907
Ann Arbor, Mich.....	11	March 17	January 24, 1909
Petersburg, Mich.....	10	March 29	March 20, 1898
Plymouth, Mich.....	7	April 4	March 19, 1894
Detroit, Mich.....	6	April 2	January 5, 1907
Bay City, Mich.....	5	April 10	April 4, 1888
Galt, Ont.....	5	March 27	March 20, 1902
Plover Mills, Ont.....	5	March 30	January 10, 1892
Guelph, Ont.....	7	April 5	March 11, 1903
Ottawa, Ont.....	16	April 7	March 24, 1909
Keokuk, Ia.....	7	March 31	March 20, 1894
Grinnell, Ia.....	4	April 5	April 2, 1887
Madison, Wis.....	15	April 1	January 16, 1906
La Crosse, Wis.....	6	April 3	March 30, 1910
Lanesboro, Minn.....	6	April 11	January 13, 1900
Redwing, Minn.....	4	March 28	March 21, 1887
Minneapolis, Minn.....	5	March 30	March 22, 1907
Southeastern South Dakota.....	3	April 7	April 4, 1909
Grand Fork, N. D. (near).....	6	April 17	April 10, 1905
Yuma, Colo.....	4	April 25	April 23, 1908
Columbia Falls, Mont.....	3	March 24	March 21, 1893
Chilcoot, Alaska.....			February 2, 1882
Athabasca Landing, Alberta. (near).....			May 17, 1903
Chippewyan, Alberta.....			May 27, 1901

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Sierre Santa Elena, Guat.....			April 13, 1906
Tallahassee, Fla.....			March 21, 1890
Savannah, Ga.....	2	April 15	April 16, 1910
Raleigh, N. C.....	6	April 2	April 19, 1907
Lynchburg, Va.....	3	April 9	April 17, 1903
French Creek, W. Va.....	4	April 14	April 18, 1893
Waverly, W. Va.....	3	April 15	May 4, 1904
Washington, D. C.....	13	April 13	April 27, 1888
Berwyn, Pa.....	8	April 17	May 2, 1904
Renovo, Pa.....	10	April 21	April 27, 1907
Philadelphia, Pa. (near).....	6	April 24	May 4, 1909
Beaver, Pa.....	4	April 20	May 5, 1909
Morristown, N. J. (near).....	4	May 5	May 7, 1885
New York City, N. Y.....	7	April 22	May 7, 1892
Hartford, Conn.....	4	May 6	May 16, 1912
Providence, R. I.....	4	April 26	May 1, 1904
Boston, Mass. (near).....	6	April 28	May 1, 1904
New Orleans, La. (near).....	2	March 13	March 19, 1904
Biloxi, Miss.....			April 5, 1906
Helena, Ark.....			April 27, 1897
Athens, Tenn.....	6	April 18	April 23, 1909
Lexington, Ky.....	4	April 17	April 26, 1903

SPRING MIGRATION, continued

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
St. Louis, Mo.	3	April 15	May 6, 1887
Richmond, Ind.	6	April 13	May 10, 1907
Waterloo, Ind. (near)	5	May 1	May 30, 1907
Oberlin, O.	16	April 30	May 11, 1909
Petersburg, Mich.	7	April 27	May 3, 1893
Plymouth, Mich.	5	May 4	May 20, 1893
Detroit, Mich.	4	May 5	May 11, 1907
Chicago, Ill.	9	April 29	May 16, 1907
Keokuk, Ia.			May 12, 1898
Grinnell, Ia.	5	April 27	May 18, 1889
Madison, Wis.	10	April 20	May 19, 1907

FALL MIGRATION

PLACE	Number of years' record	Average date of fall arrival	Earliest date of fall arrival
Boston, Mass.	10	October 1	September 23, 1911
Hartford, Conn.	10	October 3	September 23, 1910
Providence, R. I. (near)	8	October 6	September 25, 1900
New York City, N. Y.	9	October 5	September 28, 1903
Orient Point, N. Y. (near)	12	September 30	September 25, 1906
Morristown, N. J.	7	September 30	September 22, 1910
Englewood, N. J.	8	October 1	September 22, 1904
Berwyn, Pa.	10	October 3	September 24, 1898
Philadelphia, Pa. (near)	8	October 2	September 26, 1887
Beaver, Pa.	7	September 28	September 22, 1910
Renovo, Pa.	9	October 20	October 8, 1902
Washington, D. C.	11	October 6	September 29, 1914
French Creek, W. Va.	5	September 30	September 27, 1889
Raleigh, N. C.	12	October 16	October 7, 1889
Charleston, S. C.	4	October 16	October 14, 1911
Kirkwood, Ga.	4	October 17	October 10, 1901
Northern Florida.	5	November 6	October 1, 1908
Salazar, Mexico			October 27, 1892
Detroit, Mich.	3	September 26	August 30, 1906
Oberlin, O.	13	October 3	September 24, 1906
Chicago, Ill.	17	September 26	September 17, 1896
Aweme, Manitoba.	10	October 15	October 4, 1908
Lanesboro, Minn.	5	October 1	September 21, 1890
North Freedom, Wis.	3	September 25	September 19, 1902
Grinnell, Ia.	5	September 27	September 25, 1889
Keokuk, Ia.	3	October 10	September 29, 1901
Yuma, Colo.	2	September 28	September 26, 1906
Central Kentucky.	7	October 5	October 3, 1889
Athens, Tenn.	7	October 7	October 3, 1904
Central Arkansas.	5	October 26	October 19, 1911
Biloxi, Miss. (near)	6	October 21	October 14, 1901
New Orleans, La.	3	October 26	October 18, 1903
Berkeley, Calif.	5	October 10	October 3, 1912
Pasadena, Calif. (near)	3	October 19	October 18, 1903

FALL MIGRATION, continued

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Ottawa, Ont.	20	October 15	November 12, 1887
Galt, Ont.	5	November 14	November 21, 1899
Waterloo, Ind. (near)....	7	November 5	November 15, 1906
Chicago, Ill.	12	November 12	December 11, 1897
Montreal, Canada....	4	November 16	November 30, 1900
Hartford, Conn.	5	November 2	December 25, 1913
Lincoln, Nebr.			November 27, 1908
Madison, Wis.	5	November 18	November 26, 1890
Lanesboro, Minn.	4	October 20	December 26, 1910
Boulder, Colo.			November 27, 1910
Columbia Falls, Mont.			November 20, 1892
Kodiak, Alaska			December 11, 1868

RUBY-CROWNED KINGLET

The Ruby-crowned Kinglet does not winter so far north as the Golden-crowned and it is therefore easier to determine the beginning of spring migration. At least this is true in the eastern United States, but on the Pacific coast the species winters in the lowlands north to southwestern British Columbia, while it breeds in the mountains south to southern California, thus making it almost impossible to trace the migratory movements west of the Rocky Mountains. On the coast and islands from southern Alaska to southern British Columbia there nests a form which has been separated as the Sitka Kinglet, *grinnelli*, and though this form winters as far south as middle California, it is not probable that any of the records in the following tables belong to this form which was first noted at Admiralty Island, Alaska, in 1907, on April 19.

SPRING MIGRATION

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Asheville, N. C. (near)....	11	April 6	April 1, 1905
Lynchburg, Va.	2	April 9	March 15, 1904
Washington, D. C.	17	April 8	January 5, 1893
French Creek, W. Va.	5	April 13	April 9, 1893
Philadelphia, Pa. (near)....	8	April 12	March 14, 1884
Williamsport, Pa.	7	April 18	April 11, 1903
Beaver, Pa.	8	April 17	April 12, 1890
Renovo, Pa.	16	April 20	April 14, 1910
Morristown, N. J.	9	April 9	April 3, 1905
New Providence, N. J.	7	April 15	March 24, 1888
Englewood, N. J.	12	April 16	April 9, 1908
New York City, N. Y. (near)....	25	April 13	April 1, 1905
Orient Point, N. Y.	7	April 16	April 11, 1909
Ithaca, N. Y.	9	April 16	April 9, 1910
Alfred, N. Y.	15	April 21	March 23, 1907
Paradox, N. Y. (near)....	21	April 24	April 11, 1890
Hartford, Conn.	9	April 17	January 1, 1911
Providence, R. I.	8	April 20	April 11, 1909

SPRING MIGRATION, continued

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Boston, Mass.	7	April 15	April, 7, 1903
Worcester, Mass.	9	April 10	April 12, 1880
Wells River, Vt.	5	April 22	April 19, 1900
St. Johnsbury, Vt.	10	April 23	April 12, 1900
Southern New Hampshire	16	April 24	April 17, 1897
Portland, Me.	9	April 21	April 13, 1911
Phillips, Me.	7	April 24	April 18, 1905
Montreal, Canada	5	April 19	April 13, 1890
Quebec City, Canada	8	April 26	April 16, 1896
Halifax, N. S.	5	April 29	April 24, 1892
Scotch Lake, N. B.	10	April 30	April 16, 1910
Lake Mistassini, Quebec			May 11, 1883
Godbout, Quebec	2	June 4	June 3, 1882
St. Louis, Mo.	8	March 28	March 20, 1886
Lexington, Ky. (near)	5	April 6	April 1, 1901
Chicago, Ill.	21	April 9	March 21, 1907
Waterloo, Ind. (near)	11	April 11	March 21, 1907
Bloomington, Ind.	6	April 13	March 23, 1903
Oberlin, O.	10	April 12	March 25, 1905
Youngstown, O.	4	April 16	April 1, 1910
Ann Arbor, Mich.	15	April 13	April 1, 1889
Detroit, Mich.	8	April 20	April 4, 1907
Petersburg, Mich.	11	April 21	April 11, 1887
London, Ont.	7	April 16	April 8, 1910
Guelph, Ont.	9	April 25	April 2, 1903
Ottawa, Ont.	21	April 22	April 7, 1910
Keokuk, Ia.	14	April 5	March 24, 1893
Grinnell, Ia.	6	April 6	April 3, 1888
North Freedom, Wis.	4	April 10	April 2, 1903
Madison, Wis.	13	April 11	March 23, 1907
LaCrosse, Wis.	3	April 8	March 27, 1907
Lanesboro, Minn.	11	April 9	April 1, 1888
Elk River, Minn.	5	April 14	April 12, 1883
Minneapolis, Minn.	9	April 17	April 3, 1882
Onaga, Kans.	3	April 28	April 14, 1894
Grand Forks, N. D.	5	April 23	April 18, 1903
Aweme, Manitoba	10	April 24	April 21, 1903
Pilot Mound, Manitoba	6	April 21	April 15, 1903
Edmonton, Alberta (near)	3	May 4	May 3, 1901
Fort Resolution, Mackenzie (near)	4	May 11	May 2, 1904
Fort Simpson, Mackenzie			May 7, 1904
Yuma, Colo.	5	April 8	March 24, 1907
Columbia Falls, Mont.	5	April 14	April 6, 1893
Chilliwack, B. C. (near)	5	March 31	March 14, 1885
Okanagan Landing, B. C.	4	April 13	April 4, 1908
Fort Kenai, Alaska			May 9, 1869
Nulato, Alaska			May 15, 1868
Kowak River, Alaska			June 10, 1899

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Northern Florida	6	April 15	April 23, 1903
Savannah, Ga.	3	April 12	April 13, 1909
Kirkwood, Ga. (near)	4	April 15	April 24, 1904

SPRING MIGRATION, continued

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Wilmington Island, S. C.			May 1, 1907
Raleigh, N. C.	10	April 23	April 28, 1887
Asheville, N. C. (near)	7	April 24	May 7, 1905
Washington, D. C.	15	May 6	May 15, 1885
French Creek, W. Va.	5	May 4	May 8, 1891
Philadelphia, Pa. (near)	6	April 30	May 5, 1888
Beaver, Pa.	8	May 10	May 16, 1910
Renovo, Pa.	13	May 9	May 19, 1900
Morristown, N. J.	9	May 8	May 18, 1909
Englewood, N. J.	8	May 2	May 6, 1898
New York City, N. Y. (near)	18	May 7	May 13, 1910
Hartford, Conn.	6	May 9	May 15, 1912
Boston, Mass.	7	May 9	May 18, 1907
Phillips, Me.	8	May 12	May 23, 1906
New Orleans, La. (near)	5	April 3	April 25, 1903
Southern Mississippi	6	April 2	April 20, 1910
Helena, Ark.	7	April 18	April 20, 1910
Athens, Tenn.	5	April 26	May 2, 1906
Central Kentucky	6	April 30	May 7, 1903
St. Louis, Mo.	6	May 8	May 15, 1909
Chicago, Ill.	26	May 5	May 22, 1907
Waterloo, Ind. (near)	9	May 7	May 23, 1903
Oberlin, O.	14	May 12	May 24, 1910
Youngstown, O.	5	May 16	May 19, 1910
Petersburg, Mich.	10	May 6	May 15, 1888
Ann Arbor, Mich.	6	May 11	May 16, 1910
Detroit, Mich.	4	May 11	May 15, 1905
Guelph, Ont.	4	May 6	May 17, 1905
Keokuk, Ia.	8	April 30	May 15, 1898
Grinnell, Ia.	4	May 7	May 25, 1888
North Freedom, Wis.	4	May 12	May 15, 1904
Madison, Wis.	9	May 11	May 20, 1910
La Crosse, Wis.	4	May 11	May 18, 1907
Lanesboro, Minn.	6	May 12	May 18, 1890
Grand Forks, N. D.	4	May 11	May 13, 1907
Matehuala, San Luis Potosi.			April 14, 1890
Victoria, Tamaulipas.			April 30, 1888
San Pedro Mines, Nuevo Leon.			May 8, 1889
Silver City, N. M.			May 9, 1884
Carlisle, N. M.			May 17, 1890
Yuma, Colo.	4	May 10	May 15, 1905
Pasadena, Calif.			April 15, 1896
Berkeley, Calif.	5	April 13	April 18, 1888

FALL MIGRATION

PLACE	Number of years' record	Average date of fall arrival	Earliest date of fall arrival
Phillips, Me.	7	September 26	September 22, 1907
Boston, Mass.	5	October 13	October 2, 1909
New York City, N. Y. (near)	13	September 26	September 19, 1903
Orient Point, N. Y.	5	September 20	September 14, 1905
West Winfield, N. Y.	8	October 7	September 21, 1901
Englewood, N. J.	6	September 26	

FALL MIGRATION, continued

PLACE	Number of years' record	Average date of fall arrival	Earliest date of fall arrival
Morristown, N. J.	8	September 26	September 18, 1885
Renovo, Pa.	12	September 16	September 1, 1905
Beaver, Pa.	7	September 29	September 22, 1910
Philadelphia, Pa. (near)	6	September 24	September 13, 1886
French Creek, W. Va.	5	September 28	September 23, 1888
Washington, D. C.	11	October 1	September 14, 1913
Raleigh, N. C.	16	October 15	October 1, 1888
Charleston, S. C.	2	October 1	October 8, 1901
Savannah, Ga.	3	October 23	October 16, 1910
Kirkwood, Ga.	3	October 19	October 11, 1901
Northern Florida	8	October 30	October 19, 1908
Sioux Falls, S. D.	2	September 26	September 24, 1911
Lawrence, Kans.			September 23, 1905
Lanesboro, Minn.	6	September 20	September 8, 1889
Madison, Wis.	4	September 21	September 12, 1911
North Freedom, Wis.	3	September 14	September 10, 1904
Grinnell, Ia.	5	September 22	September 15, 1886
Keokuk, Ia.	5	October 4	September 25, 1893
Detroit, Mich.			September 8, 1905
Oberlin, O.	9	October 3	September 24, 1906
Chicago, Ill.	11	September 26	September 3, 1895
St. Louis, Mo.			September 16, 1887
Lexington, Ky. (near)	8	October 7	September 25, 1905
Athens, Tenn.	3	October 13	October 8, 1902
Central Arkansas	3	October 2	September 30, 1911
Southern Mississippi	5	October 16	October 6, 1897
New Orleans, La. (near)	3	October 30	October 18, 1903
Okanagan Landing, B. C.			August 31, 1905
Chilliwack, B. C. (near)	4	September 25	September 18, 1889
Gila River, N. M.			October 5, 1908
Berkeley, Calif.	9	October 8	October 2, 1904
Pasadena, Calif. (near)	3	September 28	September 24, 1896
Matchuala, San Luis Potosi			September 29, 1901
Guadalupe Canon, Sonora			October 4, 1893

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Montreal, Canada	4	October 16	November 7, 1909
Scotch Lake, N. B.			October 29, 1901
Phillips, Me.	7	October 19	October 25, 1911
Portland, Me.	4	October 12	October 21, 1910
Boston, Mass.			November 18, 1903
New York City, N. Y. (near)	14	October 31	November 10, 1904
Orient Point, N. Y.	3	November 2	December 20, 1908
Englewood, N. J.	4	November 4	November 18, 1908
Morristown, N. J.	6	November 5	November 21, 1910
Renovo, Pa.	8	October 5	November 3, 1906
Beaver, Pa.	6	October 15	November 3, 1908
Philadelphia, Pa. (near)	7	November 1	November 19, 1887
French Creek, W. Va.	4	October 28	November 4, 1890
Washington, D. C.	6	October 22	December 5, 1892
Kowak River, Alaska			August 23, 1898
Edmonton, Alberta			September 26, 1894

FALL MIGRATION, continued

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Aweme, Manitoba.....	16	October 8	November 4, 1897
Lanesboro, Minn.....	5	October 17	October 24, 1888
Madison, Wis.....	3	October 20	November 20, 1911
North Freedom, Wis.....	3	October 23	October 29, 1902
Grinnell, Ia.....	3	October 23	November 2, 1880
Ottawa, Ont.....	21	October 15	November 10, 1888
Guelph, Ont.....	3	October 21	October 28, 1904
London, Ont.....	4	October 17	October 20, 1901
Palmer, Mich. (near).....	3	October 20	October 30, 1894
Oberlin, O.....	6	October 24	November 23, 1890
Waterloo, Ind. (near).....	6	November 3	November 16, 1904
Chicago, Ill.....	0	October 22	October 29, 1910
Lexington, Ky. (near).....	4	October 22	November 4, 1890
Yuma, Colo.....	3	October 15	October 20, 1908
Denver, Colo. (near).....	6	October 15	October 23, 1910
Cheyenne, Wyo.....			October 25, 1888
Columbia Falls, Mont.....	2	October 10	October 12, 1890



YOUNG STARLING LOOKING INTO NEST-HOLE

College Point, Long Island, June 24, 1906.

Photographed by Francis Harper. Near New York City young Starlings leave the nest about May 15. They are among the earliest passerine birds to nest.

Notes on the Plumage of North American Birds

THIRTY-SECOND PAPER

By FRANK M. CHAPMAN

(See frontispiece)

Kennicott's Willow Warbler (*Acanthopneuste borealis*. Fig. 11). This, our only representative of the Old World Warblers, is found in North America only on the coast of Alaska. The sexes are alike in color, and there is practically no variation with age or season. I lack material with which to determine the character of the molt.

Ruby-Crowned Kinglet (*Regulus calendula*. Figs. 2 and 3). Wholly aside from the differences in the color of the crown, the Kinglets may be distinguished by the markings about their eyes. The Golden-crown always has a distinct whitish stripe above the eye, while the Ruby-crown has a well-marked whitish eye-ring. These characters make excellent field-marks.

In nestling plumage, the Ruby-crown is dusky olive above, grayish white below, with no trace of the red crown-patch. This mark is acquired by the male at the post-juvinal molt, after which the young resembles the adult. There is no spring molt, and summer birds differ from winter ones only in being somewhat grayer. The female resembles the male, but never has the 'ruby' crown. It follows, therefore, that (excepting nestlings) all the Ruby-crowns seen with the crown-patch are males, and all those without it are females.

The Sitkan Kinglet (*R. c. grinnelli*) breeds in the Sitkan region of Alaska, and migrates southward to California in winter. Like many other forms of this region, it is more richly colored than its eastern representative.

The Dusky Kinglet (*R. c. obscurus*) is a strongly marked race, which inhabits Guadeloupe Island, off the Pacific coast of Lower California. It is decidedly darker, less olivaceous than the other forms of this species.

Golden-crowned Kinglet (*Regulus satrapa*. Figs. 4 and 5). As the plate clearly shows, the male Golden-crown differs from the female in having the center of the crown flame-orange, instead of yellow. The nestling has no crown-patch whatever, and both above and below is duskier than the adult. The wings and tail, which are retained at the post-juvinal (first fall) molt, resemble those of the adult. At this molt the male acquires his orange, yellow and black crown, the female hers of yellow and black. This brings the birds into their first winter plumage, in which they resembles the adult.

There is no spring molt, and the summer plumage does not differ materially from that worn in winter.

The Western Golden-crowned Kinglet (*R. s. olivaceous*) of the Pacific coast region, closely resembles the eastern race, but is more brightly colored.

Notes from Field and Study

The 'Whisper' Songs of Birds

A note by Mr. J. William Lloyd, on 'The Whisper Song of the Catbird,' published in *BIRD-LORE* for December, 1914 (Vol. XVI, p. 446), has brought from our readers a number of observations on this type of singing, which we publish below. As these notes indicate, whisper singing is not confined to certain individuals or certain species, but is an expression of a physiological condition.

In the fall, song is not inspired by the ardor of the mating season, and it is exceptional to hear the full-voiced utterance of spring. In the spring the full development of a bird's song may be reached gradually. It doubtless keeps pace with the physiological development of the bird, and it is also controlled by temperature.

Writing these lines on February 27, at Ormond Beach, Florida, I have been interested to observe here the close relation between temperature and the singing of the Mockingbird. This bird began to sing a 'song' whisper the first week of the month. Since that date, the character of the songs heard is closely dependent on the temperature. With the mercury registering from 46° to 50° at 7.30 A.M., only whisper songs from the shelter of the undergrowth are heard. It is not until the thermometer reads 60° that one hears the full-voiced, musical medley of this famous songster.—F. M. C.

It was with the deepest interest that I read J. William Lloyd's account of the 'whisper song' of the Catbird, as I had a similar experience in September, 1914.

In one of the localities where I am accustomed to hunt for birds, there is a tangle of alders and vines, which is a favorite haunt of Catbirds during the summer months, and in which they nest.

On September 16, I saw some of those birds perched on the top of an alder, and on the next day, as I was passing the

thicket, my attention was arrested by hearing a Catbird singing in the way that Mr. Lloyd so clearly describes, with the exception that I heard no mewing sounds. Apparently, the bird was singing for his own entertainment, as his song continued for some moments; there was as great a variety of notes as in the louder song, but never before did I listen to a melody so soft and sweet. It was a most delightful performance and gave me great pleasure.

Two days later I heard the fluting of the bird in the same place, but the song was of briefer duration.

On both occasions the singer was very near, but was invisible, although I peered into the thick leafage in hopes to obtain a glimpse of him.—SARA CHANDLER EASTMAN, *Portland, Maine.*

In answer to Mr. Lloyd's query in *BIRD-LORE* on 'Whisper Songs,' I might give my experience. Some time ago we received from a bird fancier a Central American species of *Planesticus*. The bird had been in captivity for some two or three years. We kept him in a fair-sized cage for some four months before he died from brief exposure or draft from an open door during the winter. He sang during the day much like *P. migratorius*, but so low that one would have to be within a few feet from him to get the benefit of the song. The bird's attitude was crouched low on a perch, feathers very slightly fluffed out, bill slightly raised, neck drawn in, and eyes not wide awake. He was always aware of what was going on about him during his singing. The family said he was singing in his sleep. One person suggested that he was dreaming of his southern home. Thus the pose was characteristic of the song. I don't remember ever hearing him sing full-voiced.—ARTHUR JACOT, *Monroe, Conn.*

In the November and December *BIRD-LORE*, page 446, J. W. Lloyd asks for obser-

ventions on the whisper song of the Catbird. We can assure him that this was not a trick of his particular bird, but is more or less a characteristic of them in general, and his supposition is also correct, that other species indulge in this 'reverie song' during the autumn migrations. Our winter birds are prone to voice their joy, or perhaps sorrow, in this song. We have often heard the Cardinal, Towhee, Song and Tree Sparrows, in the early and mid-winter, especially during long-continued cold.

The 'Hallelujah chorus' that we hear in the spring comes from the top twigs of the thickets and woods; but this minor strain—and it seems to us as one of sorrow—comes from the cover of the dead weeds and brambles, and is given so softly at times that it can be heard but a few feet away.

There must be some climatic or physiological cause for this song, at which we can only make a guess.—CHAS. R. WALLACE, *Delaware, Ohio*.

It is with a great deal of interest that I note what Mr. J. Wm. Lloyd says of the 'whisper song' of the Catbird, in the December (1914) *BIRD-LORE* (p. 446).

I have observed the same performance upon one occasion, Oct. 7, 1914, when an individual was engaged in singing a typical song, but so softly as to be almost inaudible at a distance exceeding twenty-five feet. The characteristic call-note was also given in the same soft manner. The song period for the species closed July 27, and, October 7 constitutes the latest date of observation.

I have observed several other species engaged in singing the whisper song. September 19, 1913, I noted a Brown Thrasher singing a song characteristic in every way except that it was executed so softly as to be audible only at a short distance. At different times I have noted the Yellow-throated, Red-eyed and Warbling Vireos also the Song Sparrow and Cardinal indulge in the 'whisper song.'

It is possible this interesting and apparently overlooked phase of bird music is not

uncommon, but only the sharpest ears are tuned to catch the soft strain. Certainly, it is not confined to the above species.—SCOTT G. HARRY, *Wooster, Ohio*.

I should like to add to Mr. Lloyd's notes on the 'Whisper Song of the Catbird,' that I have heard this song.

My most noteworthy experience of the kind, however, was with a Brown Thrasher soon after the spring arrival. He did not perch on the highest point of the tallest tree, as he does for his wonderful sunset song, but, hiding in a shrubby growth, he poured forth in exquisite sotto voice his whole repertoire of phrases.

It was one of the nature episodes that make us forget everything but the ideal side.

Some Thrushes also sing in an undertone at times. The Robin does it, and in spring migration I have heard both the Gray-cheeked and Olive-backed Thrushes sing short songs in this manner.—LUCY V. BAXTER COFFIN, *Chicago, Illinois*.

In answer to J. William Lloyd's inquiry about the 'whisper songs' of birds, I have the following to offer: In my back yard stands an apple tree whose wide-spreading branches overhang the back doorsteps, and in which a pair of Catbirds have made their home for the past four years. Last fall I had been watching the Catbirds closely in order to know the exact day of their departure for the South. One afternoon, while seated on the doorstep watching the pair as they sat perfectly still on a limb only a few feet above me, I became suddenly aware that the male was singing. The song was so soft as to be almost inaudible, even at a distance of eight or ten feet. I have never heard sweeter music from a bird. So soft, so sweet, and so full of pathos, it seemed to be a meditation of the joys of the past summer, mingled with the sorrow he felt at leaving this home that had been filled with so much love and happiness.

I heard this whisper song almost every day following, until one morning near the middle of October, on going out into the

back yard, I found that my Catbirds were gone.—W. E. GRAY, *Hopkinsville, Ky.*

A recent number of BIRD-LORE contained an article 'The Whisper Song of the Catbird' in which the author asks if others have had similar experiences in hearing the whisper song of this species. I have not heard the Catbird deliver such a song, but the description therein given fits very well the vocal performances of the Brown Thrashers, as we hear them almost every year.

In my notes I find mention made of such singing on seventeen days within six years. The earliest date was that of August 11, the latest was September 23, which was the last day a Brown Thrasher was seen here that year (1907). For two years the latest date for this singing was September 21, after which the species was seen only a few days.

These almost inaudible songs are rendered while the bird sits in the dense foliage of a snowball bush, not more than ten or fifteen feet from the house; yet so low is the singing, it frequently would escape my defective hearing if my attention were not called to it by my sister.

Eight days out of the recorded seventeen were in August. Sometimes the singing on these August days was of the very low-voiced type, but at other times it was quite noticeably louder. In one of my notes an estimate was made that the song lasted fully five minutes.—ALTHEA R. SHERMAN, *National, Iowa.*

Mr. J. Wm. Lloyd has noticed the fall 'whisper song' of the Catbird. Perhaps he and others would be interested to know that the California Blue Jay whispers a song which I have never heard him sing aloud. Indeed, he is not famous as a singer. But twice during the past fall (September, 1914) I heard and saw him whispering a real song, one that compares favorably with those of the Black-headed Grosbeak or the California Thrasher.—MRS. AMELIA SANBORN ALLEN, *Berkeley, California.*

About thirteen years ago, I was living at a country place, near Seattle, Washington, where much of the native forest had been preserved. One afternoon, while walking along a road through the timber, I saw a Russet-backed Thrush sitting on a limb of an alder tree about ten feet from the ground, singing with full voice his enchanting song. When he saw me, he dropped his voice to a far, sweet murmur, repeating the song over and over, watching me while I stood rooted to the spot. Two young people approached, total strangers to me. I spoke rather intensely: "Stop, please, and look! listen to that Thrush!" They obligingly stood still, evidently impressed and exclaimed "How beautiful!" Perhaps thinking there were too many listeners, the bird flew away.

Again, and on this very morning, Feb. 10, 1915, 'our Woodpeckers' a pair of Red-shafted Flickers, visited us at 2838 North Broadway, in Seattle, as they have many times during the last two or three years. I was awakened very early by a resounding tattoo on the northwest corner of the roof; fortissimo it was given, alternated with a whispered vocal performance; 'Yucka! Yucka! Yucka!' They said very softly, in marked contrast to their usual ringing, ear-piercing call. Quite often they rap loudly on the tin coping on the balcony, making a tremendous racket, but always whisper their 'song'.—E. INEZ DENNY, *Seattle, Washington.*

Prothonotary Warbler in Massachusetts

Having read, in a recent issue of BIRD-LORE, of the appearance of the Prothonotary Warbler on May 24, at Hopkinton, Mass., we would report, from records kept, the appearance of this Warbler in Amherst, on May 3, 1912.

The bird spent an entire day in a small maple tree within twenty feet of the house, so that we had many good views of it, and the markings were easily distinguishable. Its song was high-pitched, and the call was a metallic *chink*.

In Clark's 'Birds of Amherst and Vicinity' we find one instance noted of the appearance of this bird in Northampton, in May, 1883.—MRS. THOS. W. SMITH, *Amherst, Mass.*

Bird Notes from Connecticut

On September 16, 1914, Mr. W. B. Wheeler wrote me that a Mockingbird was staying in the wild-plum bushes along the shore at Fairfield, and on September 27, I found the bird perched upon a barn in the same neighborhood. It was seen up to October 14, by Mr. Wheeler, and was singing from his gate-post. This is the first time I have known the Mockingbird to be in this section.

On October 31, I found a Migrant Shrike beside the road and, when flushed, he flew into the top of a tall tree and began to sing. I watched him for nearly five minutes, and when I left he was still singing. This makes seven of these Shrikes I have seen at different times, but is the first time I have heard one attempt to sing.

On November 5, an immature Black-breasted Plover was brought to me with both wings broken, doubtless by some hunter.

The next day another was shot, and on November 7, the flock was still on the same marsh. All were immature birds, and it seems to be a new and late record for these birds in Connecticut, as the latest date for them in the 'Birds of Connecticut' is given as October 21, 1903.

On November 9, an American Bittern was found along the road and brought to me. It was evidently another case of wanton killing; one wing was broken, and a shot in the neck left the bird to wander about until it died. This, too, seems a late record for the fall migration, as the latest in the 'Birds of Connecticut' is October 24, 1890, with one winter record of December 29, 1904.

There was a large flight of Warblers this fall, and they attacked and nearly ruined the grapes in places, an act due, probably, to the drought. Myrtle and Blackpoll

Warblers were the greatest offenders. A Myrtle Warbler which flew into a barn near the grape-vine was caught by a girl and held in a cage for several days, and became so tame as to sit upon her finger, and would thrust its bill into a grape and work it with all the appearance of drinking of the juices of the grape. The puncture in the grape was identical in appearance with those in the ruined grapes on the vines.—WILBUR F. SMITH, *South Norwalk, Conn.*

The Spring Migration of 1914 at Rhinebeck, Dutchess County, N. Y.

For some years I have tried to follow the Spring migration whenever possible, and by preserving my records have prepared a fair list of the earliest arrivals of the commoner species. I am always on the lookout, trying to improve these records, either for earliest arrival or latest departure, both in spring and in autumn, and I naturally expect to make a few modifications each season. But in 1914, when spring arrived nearly a month late and the snow did not disappear until after the middle of April, I was most surprised at being able to break thirty-one records for early arrival, equal eight more, establish three not recorded before in spring, and add five new species to my local list. I also noted three species which arrived only one day late.

The birds arrived in several more or less pronounced 'waves.' That of March 25 brought the various Blackbirds, and culminated on the 29th with the Migrant Shrike and Hermit Thrush. The second wave occurred on April 8, when a rainy south wind was blowing; the best birds produced by it being the Savannah Sparrow, Yellow Palm Warbler, and Louisiana Water-Thrush. April 19 and 20 marked the third wave, and brought some Swallows ahead of time.

The most remarkable wave was that of April 29, another rainy day with a south wind, when ten Warblers arrived, eight being ahead of time, and when the Least Flycatcher and Wood Thrush also came,

breaking their best previous records. The fifth wave was a smaller one, on May 2, bringing three Warblers, the Catbird, House Wren, Swift, and Veery, and on May 4, nine more species arrived. What might be called slight waves occurred on the 12th and 13th, and again on the 16th, but on the whole, May 4, marked the climax which, in other years, has not been reached until from the 11th to the 16th. After May 4, there was a distinct diminution in the number of transients present.

Although throughout the migration period the weather was cold and wet. I have been told that a number of unusually early arrivals were recorded in Washington and in other places, so that this rapid migration after a late start must have been general along the Atlantic coast.

During the eight 'waves' mentioned, which included fourteen days, 63 species arrived, or 4.5 a day; while during the entire remainder of the season, or sixty-two days (if counted from March 11 to May 26), only 45 species arrived, or .72 species a day. Twenty-two of the thirty-one records broken occurred during the waves, as well as the three new records established, and two of the three birds only one day late.

All but nine of the 108 records given below were made on a 250-acre tract about two miles east of the Hudson River. The first column shows the 1914 Spring migration, and the second gives the best previous records I have made. The Warblers were most affected by whatever caused the early movement, no less than fifteen arriving ahead of time, while many of the larger species lagged behind. Migrants that I have recorded in spring in other years, but missed during that of 1914, are: Bonaparte's Gull, Red-breasted Merganser, American Scaup, Bufflehead, Canada Goose, American Bittern, Woodcock, Pectoral Sandpiper, Killdeer, Red-headed Woodpecker, Whippoorwill, Henslow's Sparrow, White-crowned Sparrow, Purple Martin, Philadelphia Vireo, Brewster's Warbler, Mourning Warbler, Yellow-breasted Chat, Gray-checked Thrush,

	1914	Earliest previous record
Broad-winged Hawk	Mar. 11	April.
Fish Crow	" 15	Wintered, 1910-11.
Robin	" 16	Mar. 6, 1910, and occasional winters.
Bluebird (4 seen on Feb. 5)	" 17	Feb. 8, 1900, and occasional winters.
Song Sparrow	" 18	Feb. 26, 1900.
Red-shouldered Hawk	" 23	Generally winters.
American Merganser	" 24	Mar. 2, 1913, and occasional winters.
Flicker	" 24	Mar. 10, 1903, and occasional winters.
Red-winged Blackbird	" 25	Feb. 22, 1909.
Purple Grackle	" 25	Feb. 27, 1909.
Bronzed Grackle	" 25	Feb. 27, 1909.
Black Duck	" 28	Mar. 2, 1913.
Phoebe	" 28	Mar. 16, 1903.
Rusty Grackle	" 28	Mar. 16, 1912.
Hermit Thrush	" 29	Apr. 2, 1903.
Marsh Hawk	" 20	Generally winters.
Migrant Shrike	" 20	Apr. 2, 1903.
Cowbird	" 30	Mar. 18, 1903, and occasional winters.
Fox Sparrow	Apr. 3	Mar. 7, 1910.
Vesper Sparrow	" 6	Mar. 20, 1903-10.
Mallard (Wild.)	" 8	None in spring.
Wood Duck	" 8	Mar. 29, 1909.
Mourning Dove	" 8	Mar. 10, 1903.
Kingfisher	" 8	Mar. 25, 1902, and occasional winters.
Yellow-bellied Sapsucker	" 8	Mar. 26, 1903.
Savannah Sparrow	" 8	Apr. 11, 1912.
Chipping Sparrow	" 8	Apr. 3, 1903.
Field Sparrow	" 8	Mar. 25, 1903.
Yellow Palm Warbler	" 8	Apr. 7, 1909.
Louisiana Water Thrush	" 8	Apr. 15, 1909.
Winter Wren	" 8	Mar. 22, 1911.
Golden-eye	" 9	Apr. 13, 1912.
Duck Hawk	" 9	New.
Osprey	" 9	Apr. 9, 1903.
Ruby-crowned Kinglet	" 10	Apr. 9, 1903.
Lesser Scaup	" 11	New.
Great Blue Heron	" 12	Apr. 12, 1912.
Tree Swallow	" 12	Apr. 6, 1913.
Goldfinch	" 17	Always wintered before.
Barn Swallow	" 17	Apr. 19, 1909.
Purple Finch	" 19	Mar. 2, 1913, and wintered 1911-12.

	1914	Earliest previous record		1914	Earliest previous record
White-throated Sparrow	Mar. 19	Apr. 15, 1912.	Indigo Bunting	May 12	May 7, 1901.
Black and White Warbler	" 10	Apr. 10, 1910.	Bay-breasted Warbler	" 12	May 16, 1909.
Spotted Sand-piper	" 20	Apr. 10, 1903.	Green Heron	" 13	Apr. 22, 1901.
Cliff Swallow	" 20	None in spring.	Canadian Warbler	" 13	May 13, 1912.
Bank Swallow	" 20	Apr. 28, 1911.	Black Tern	" 14	New.
Blue-headed Vireo	" 20	Apr. 17, 1906.	Solitary Sand-piper	" 14	May 7, 1910.
Common Tern	" 23	Apr. 16, 1912.	Yellow-billed Cuckoo	" 14	May 8, 1901.
Black-crowned Night Heron	" 26	May 6, 1900.	Lincoln's Sparrow	" 16	May 12, 1901.
Swamp Sparrow	" 26	Apr. 15, 1912.	Wilson's Warbler	" 16	May 12, 1901-00.
Towhee	" 26	Apr. 10, 1910.	Olive-backed Thrush	" 16	May 11, 1913.
Least Flycatcher	" 29	May 4, 1913.	Pine Siskin	" 17	Generally winters.
Nashville Warbler	" 29	May 4, 1913.	Black-billed Cuckoo	" 18	May 11, 1912.
Parula Warbler	" 29	May 4, 1913.	Wood Pewee	" 18	May 7, 1901.
Black-throated Blue Warbler	" 29	May 5, 1910.	Nighthawk	" 21	May 10, 1900.
Myrtle Warbler	" 29	Apr. 20, 1910.	Yellow-bellied Flycatcher	" 22	None in spring
Chestnut-sided Warbler	" 29	May 4, 1913.	Blackpoll Warbler	" 22	May 13, 1911.
Blackburnian Warbler	" 29	May 11, 1911.	Cedar Waxwing	" 24	Mar. 3, 1900.
Black-throated Green Warbler	Apr. 20	Apr. 28, 1911.	White-eyed Vireo	" 26	May 8, 1910.
Water Thrush	" 20	May 11, 1911.			
Maryland Yellowthroat	" 20	May 4, 1913.			
Redstart	" 29	May 4, 1913.			
Wood Thrush	" 29	May 1, 1900.			
Pigeon Hawk	" 30	New.			
Kingbird	May 1	May 2, 1911.			
Warbling Vireo	" 1	May 2, 1912-13.			
Chimney Swift	" 2	Apr. 30, 1901.			
Golden-winged Warbler	" 2	May 4, 1913.			
Yellow Warbler	" 2	May 4, 1913.			
Ovenbird	" 2	May 2, 1911.			
Catbird	" 2	Apr. 28, 1900.			
House Wren	" 2	Apr. 22, 1913.			
Veery	" 2	May 3, 1910.			
Bobolink	" 4	May 2, 1902.			
Baltimore Oriole	" 4	May 4, 1911-12-13.			
Grasshopper Sparrow	" 4	May 4, 1913.			
Yellow-throated Vireo	" 4	May 2, 1911-12.			
Cape May Warbler	" 1	May 11, 1912.			
Magnolia Warbler	" 4	May 12, 1901-00-10-12.			
Pine Warbler	" 1	Apr. 19, 1910.			
Brown Thrasher	" 1	Apr. 26, 1913.			
Red-breasted Nuthatch	" 4	None in spring			
Red-eyed Vireo	" 5	May 9, 1912.			
Rose-breasted Grosbeak	" 6	May 10, 1911.			
Crested Flycatcher	" 7	May 4, 1913.			
Worm-eating Warbler	" 8	May 8, 1909.			
Hummingbird	" 10	May 6, 1909.			
Orchard Oriole	" 11	May 16, 1900.			
Scarlet Tanager	" 11	May 7, 1900.			
Greater Yellowlegs	" 12	May 14, 1911.			

The Herring Gull and Meadowlark both wintered, although they are often absent during the cold season.—MAUNSELL SCHIEFFELIN CROSBY, *Rhinbeck, N. J.*

Delayed Breeding of the Mourning Dove

The early breeding of the Mourning Dove being very well known, the following record may be of interest; namely, that of a fresh set of eggs of this species found in an old apple orchard near Verona, Oneida County, New York, by the writer, September 15, 1897. The bird was flushed from the nest.—WILLIAM R. MAXON.

Golden-crowned Kinglet in a Skyscraper

On the morning of October 23 1914, one of the porters of the City Investing Building in New York City brought me a small bird for identification. The poor little fellow had been flying over the great city the previous night, and seeing light in a window on the eighteenth floor (some 200 feet above the street) flew in to investigate, and was caught by a porter with sense enough to save its little life. Although I had never seen a specimen close by, there was no difficulty, but great delight, in immediately recognizing it as a male

Golden-crowned Kinglet in perfect feather, as I later found by comparing him with Thompson Seton's picture in 'Bird-Life.' The partly concealed crown looked like bright threads of beautiful orange-colored silk, and the head feathers had to be parted to disclose the full size and beauty of the fan-shaped crest.

In his brief sketch of this bird, Mr. Chapman says, "It is due in New York on the fall migration about September 15." Is it not likely that the mild weather in September and October enabled this smallest of our native birds to prolong its stay in the northern woods.

It may be interesting to note that, although he passed through several hands before releasing him in New Jersey, on the day following his capture, in time for a natural supper, he showed not the least fear of men, and, when he started for the nearest tree, was strong of wing and able to care for himself. What a delight it would be to hear *him* tell the story of his adventure in the Wall Street district! A Towhee, caught and released under similar circumstances, six years ago, departed minus his tail feathers, so his story would not have been so pleasant.—ALEX MILLAR, *Plainfield, N. J.*

Winter Shore Birds

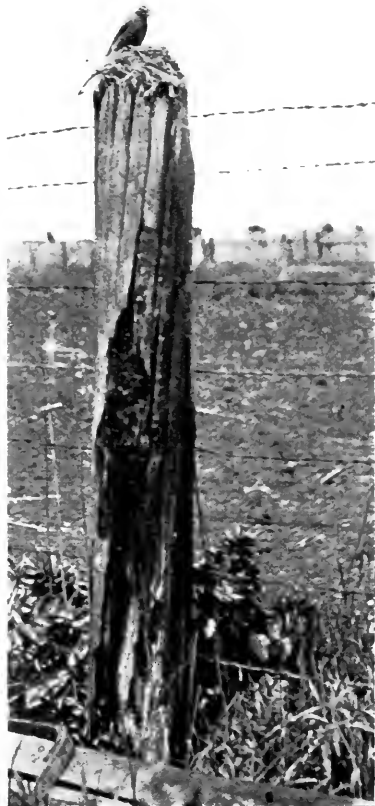
On Christmas Day, as noted in my census, I saw a Red-backed Sandpiper at Long Beach, L. I. The bird was on the beach near the eastern end of the boardwalk. I got within twenty feet of it and saw it plainly through my binoculars, noting particularly the curved bill. The bird was uninjured. Yesterday, January 3, 1915, near the eastern end of Long Beach, I saw one, or possibly two, Sanderlings, the remnant of a flock of four seen by me on November 14. I think that there were two birds, as the first noticed was running along the edge of the back apparently uninjured, and a little later, a half mile beyond, I saw a Sanderling hopping on one foot. In both cases the birds were able to fly well. I do not know what induced these Sandpipers to remain

north, as the winter has not been unusually mild, though there was but little snow.—EDWARD FLEISCHER.

A Robin's Nest on a Fence-Post

It was a typical Robin's nest, composed of coarse grass and weed stems, with mud-rimmed cup, floored with a pad of finer grasses.

The post on which it was placed is part of a railroad fence. Not more than thirty feet from the nest is the main track, where dozens of trains daily thunder past. No tree is nearer than one hundred yards. The



ROBIN AND NEST

nest is absolutely out in the open entirely unsheltered.

When I first saw it, the work of building was complete. When three eggs had been deposited, incubation began. All three hatched, and the young lived several days. But something happened to one, as only two lived to fly from the nest.

On May 5, I secured the first pictures. The mother seemed very fearless. I sat quietly for only ten minutes awaiting her return. Snapping the shutter twice at the distance of twelve feet, I then moved up just half that distance. Again I waited less than ten minutes. Back she came and I took a couple of shots without daring to look at her except in the finder. At the slightest movement of my head, away she flew.

Nine days later, May 14, I secured six other negatives. This time I wanted closer views. I used a tripod, a F. P. Kodak, 3 A. with a portrait attachment—distance from lens to nest two feet, eight inches. I released the shutter by pulling a string twenty feet long.

I am sure that both parents brought food to the nest, but they were so nearly alike in plumage I could not be sure which sex was under observation.

The growth of the young was remarkably rapid. Hatched on May 5, they were fully feathered on the 11th and before the 18th had flown.—CLAUDE E. TILTON, *Fairmount, Ills.*

Juncos Feeding on the Wing

At Hicksville, Long Island, N. Y., at noon on November 8, 1914, it was sunny and warm with a light breeze. Many beetles (*Aphodius inquinatus* and other species) and small Diptera were flying about over a newly tilled field where a flock of Juncos was feeding. Every few moments a Junco from some part of the flock would leap with a flutter into the air in pursuit of a passing fly or beetle. The birds seemed to be successful at their fly-catching tactics, which they repeated at such frequent intervals that the insects so

captured must have made up a considerable fraction of their food.—R. C. MURPHY and J. T. NICHOLS, *New York City.*

Evening Grosbeak at Glenview, Illinois

On January 12, 1915, I observed a single male Evening Grosbeak here. I saw him several times during the morning of that day, heard his call-note frequently, and identified him closely. On February 3, I saw him again. I merely report the presence of the species in this region, for such interest or value as the record may possess.—W. B. CALDWELL, *Glenview, Ill.*

The Magpie in Iowa

One of the most interesting records in Iowa for some time past is the occurrence of the Magpie in the neighborhood of Sioux City.

On the morning of Oct. 31, 1914, while just within the city limits, I noted one of these birds flying with difficulty against a rather strong wind, necessitating frequent rests. As I went along the road, he followed for almost a mile parallel to my course, his many rests giving me several good views of him. Again, a few hours later, another bird flew overhead, allowing just enough of a glimpse to tell that it was a Magpie, while in another piece of open woodland I suddenly came upon five of them feeding on the ground in a herd of cattle. They flew up into the lower branches of neighboring trees, from where they vigorously protested my presence as only a member of the Crow family can, soon flying away to a distant woodland.

This seems to be an unusual record for this state. A careful survey of authoritative works on the subject reveals no published records of this bird in Iowa for over twenty years, and seems to substantiate the following statement of Anderson in his 'Birds of Iowa' (p. 204): "There have been no records of the occurrence of the Magpie in Iowa during recent years, and if any are taken they must be considered as accidental stragglers from the north-

west. In early days, the occurrence of the Magpie in the state was not uncommon—."

Just why the Magpie is appearing again in the neighborhood of Sioux City is not known, for the sudden occurrence of so many birds at one time, and the statement of a neighboring farmer that they spent the previous winter in the same vicinity, would tend to show that the birds were not merely stragglers, but possibly a part of a more extended migration.—WALTER W. BENNETT, *Sioux City, Iowa.*

A Correction

In the published record of our Christmas Census (BIRD-LORE, xvii, p. 25) from Wyoming to West Medford, Mass., for "Mourning Dove" read Meadowlark.—EDMUND and LIDIAN E. BRIDGE.

Winter Records of the Slate-Colored Junco in Southeastern Nebraska

In the migration data on the Slate-colored Junco, published in BIRD-LORD for December, 1914, occurs this statement: "Southeastern Nebraska—Rare in winter." This certainly does not correctly reflect the status of the Junco in this locality, as is indicated by the accompanying field-notes from the writer's notebook. Winter bird-lists have been made at Lincoln, Nebraska, on the following dates: 1908, *Dec. 12, Dec. 14, Dec. 22; 1909, Feb. 6, Feb. 21, Feb. 28; 1910, Dec. 18, Dec. 31; 1911, Jan. 29, Feb. 12, Dec. 3, Dec. 17; 1912, Dec. 1, Dec. 15, Dec. 24, Dec. 29; 1913, Jan. 26, Feb. 9,*

Feb. 18, Dec. 14, Dec. 28; 1914, Jan. 11, Jan. 18, Feb. 1, Feb. 17, Feb. 28, Dec. 6; 1915, Jan. 10. Juncos were definitely recorded on all the dates given in italics, and not seen on the others. This shows 21 records from 28 field-trips, which would seem to indicate that the chances of seeing the Junco on a winter bird-trip in this locality are about three out of four.—R. W. DAWSON, *Department of Entomology, U. of N.*

A Familiar Winter Wren

During a recent week of high wind at freezing temperature that caused evident discomfort to our bird population, I found a Winter Wren one evening chumming with my Canary in my den—a small sun-room. This bird had lost his tail, but seemed not to be inconvenienced by the accident, nor to be at all alarmed at finding himself inside of a house. He remained over night, and during the next forenoon explored the house, running up and down the window-curtains, searching all the nooks and corners as he would have done in a woodpile. I finally opened the door for him, through which he hopped. Next day I was surprised to find him again on the Canary's cage. This time I let him stay, to see if he would find the way out by which he had come in. He would alight on my head or shoulder, or fly so close that his wings fanned my face. I finally found that he was coming through a small hole in a basement window-pane. He came the third day, but after that the cold subsided and I did not again see him.—MILTON O. NELSON, *Troutville, Ore.*



Book News and Reviews

PRELIMINARY CENSUS OF BIRDS OF THE UNITED STATES. By WELLS W. COOKE, Assistant Biologist. Bull. No. 187, U. S. Dept. of Agriculture.

This Bulletin is a most encouraging report of progress. It proves conclusively that it is possible to make an approximately accurate count of not only the number of species, but also of the number of individual birds nesting in a given area. This, in effect, shows that in time we may expect to know, more or less accurately, the number of birds which in the summer inhabit the United States.

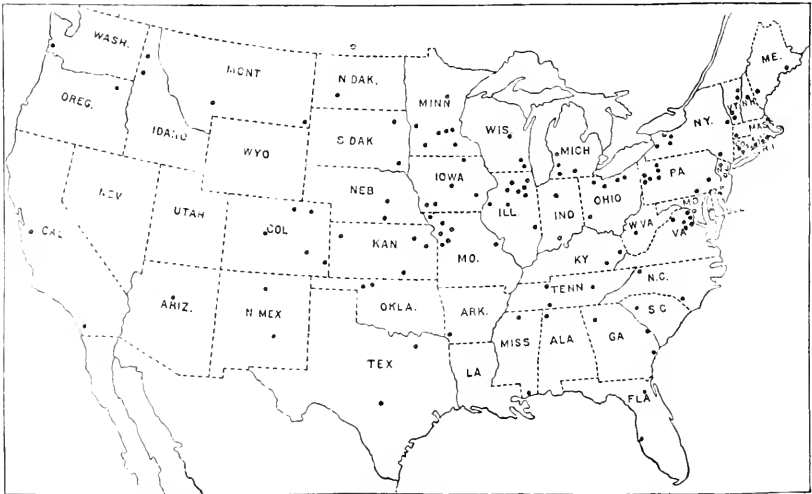
Once possessed of data of this kind, and we shall for the first time be in a position to determine whether a given species of bird, or bird-life in general, is decreasing or increasing. Hitherto there have been but few and limited areas in this country where observations have been made which would permit of a satisfactory comparison of present with past conditions.

As Mr. Abbott H. Thayer showed in BIRD-LORE for August, 1914, statements based on the memory of early experiences

are worthless. What we need are *facts* such, for example, as are presented by Mr. F. L. Burns in his comparative censuses made at Berwyn, Pa., in 1899-1901 and 1914, and published in this number of BIRD-LORE. In reports of this kind, we have not 'opinions' or 'impressions,' but authentic and reliable statistics gathered by experts.

It is information of this nature which the Biological Survey proposes to gather in its census of the birds of the United States. The undertaking is an enormous one, and it can succeed only through the coöperation of every bird student who has the experience and opportunity to take part in it.

Professor Cooke's summary of the work accomplished during the season of 1914 contains some exceedingly interesting and suggestive material. Mr. Burns' observations show 588 pairs of native birds breeding on 640 acres; while the returns from the Survey census of 1914 give an average of 583 pairs for a similar area. These essentially similar results



PLACES FROM WHICH BIRD CENSUS REPORTS WERE RECEIVED IN 1914
Courtesy of the Biological Survey

argue well for the accuracy of the observations on which they are based.

One of the deductions drawn from the data thus far obtained is "that the present bird population is much less than it ought to be, and much less than it would be if birds were given proper protection and encouragement. . . ." The close agreement between Mr. Burns' census of 1899-1901 and that of 1914 indicate that, under normal conditions, or where birds are neither especially encouraged nor molested, the average summer population is less than one pair to the acre. But in the Bulletin under review we learn that, where efforts are made to attract birds by supplying them with nesting-places and baths, their numbers may be increased sevenfold.

Thus at Chevy Chase, Md., no less than 148 pairs of 34 species of native birds were found nesting on 23 acres.

It is obvious, in the face of definite statistics of this kind, how comparatively useless are the vague terms by which we have previously expressed the relative abundance of species. But even these terms of "common," "tolerably common," etc., are far more dependable than statements based on casual observations compared with hazy recollections.

From an economic point of view, it is of the first importance for us to have some conception of the numbers of birds inhabiting this country. We may study the food-habits of a limited number of individuals, but the economic relations of a species at large can be estimated only when we know approximately by how many individuals the species in question is represented.

From a purely biologic aspect, it is also of fundamental importance for us to have some knowledge of our avian population, as a basis on which to study the relations existing between the bird and its environments.

Here, then, is an admirable opportunity for the field student to cooperate with the government, and, in closing this notice, we take pleasure in appending a letter from Mr. E. W. Nelson, Assistant Chief

of the Biological Survey, in which he calls for volunteer observers among BIRD-LORE's readers. We trust that they will respond as cordially as they do to the call for a Christmas Census.—
F. M. C.

Mr. Nelson's Letter

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Biology Survey
Washington, D. C.

February, 16, 1915.

DR. FRANK M. CHAPMAN, Editor "Bird-Lore:"

Dear Mr. Chapman: A preliminary census of the birds of the United States was undertaken by the Bureau of Biological Survey during the spring of 1914. The results were so encouraging that the work is to be repeated in the spring of 1915, on a larger scale. Observers are particularly desired in the West and South and, as BIRD-LORE has a wide circulation in these sections, it is hoped that its readers will be able to render valuable assistance in the season's campaign. Anyone familiar with the birds nesting in his neighborhood can help, more particularly as only about the equivalent of one day's work is needed.

The general plan is to select an area containing not less than 40 nor more than 80 acres that fairly represents the average conditions of the district with reference to the proportions of plowed-land, meadow-land, and woods, and go over this selected area early in the morning, during the height of the nesting season, and count the singing males, each male being considered to represent a nesting pair. In the latitude of Washington, D. C., the best time is the last week in May; in the South the counting should be done earlier; while in New England and the northern part of the Mississippi Valley, about June 10 is the proper time. The morning count should be supplemented by visits on other days, to make sure that all the birds previously noted are actually nesting within the prescribed area and that no species has been overlooked.

Readers of BIRD-LORE and others who are willing to volunteer for this work are requested to send their names and addresses to the Biological Survey, Wash-

ington, D. C. Full directions for making the census and blank forms for the report will be forwarded in time to permit well-considered plans to be formulated before the time for actual field work. As the Bureau has no funds available for the purpose, it must depend on the services of voluntary observers.

Very truly yours,
(Signed) E. W. NELSON,
Assistant Chief, Biological Survey.

FIRST REPORT OF THE BRUSH HILL BIRD CLUB. 1914. Milton, Mass. [address Readville, Mass.] 8vo. 123 pages, 1 map, 6 plates.

This report is, in effect, a manual of what might be termed civic ornithology. It contains more information on how to realize on what Joseph Grinnell has well called "bird-life as a community asset" than any publication with which we are familiar.

With an evident appreciation of the fact that to be properly effective bird-protection must be accompanied by bird-attraction, detailed instructions, with lists of dealers, etc., are given in regard to bird-houses, bird-baths, feeding-devices, methods of feeding, lists of food, and of trees and shrubs which bear food. There are also lists of publications, particularly those which relate to bird-protection and attraction, as reprints of game laws, a map showing the game preserves of Massachusetts, a list of the birds of Milton, and the constitution of the Meriden Bird Club, after which the Brush Hill Club is modeled.

The most important part of this report, however, is an account of the activities of the Brush Hill Club, and how it succeeded in arousing a general community interest in the value and beauty of an asset concerning which most of its members had been largely or wholly ignorant. The lesson to be gained from the Club's success is well put in this paragraph from its president's (Dr. Joel E. Goldthwait) 'Message:'

"The work of the Club should be a great encouragement to similar work in

other communities and it should be remembered that the work was started and has been carried on very largely by those having previously had little knowledge of birds or their habits. The problems are so simple that very little scientific knowledge is required while the benefits to a community in material and esthetic form are so great that it is the feeling of our Club such work should be a part of every suburban or rural community."—F. M. C.

BIRDS OF THE INDIAN HILLS. By DOUGLAS DEWAR. John Lane Co., London and New York. 12mo. 264 pages.

The three 'parts' of this book treat of the 'Birds of the Himalayas' (pp. 9-180); 'The Common Birds of the Nilgiris' (pp. 181-232); 'The Common Birds of the Palni Hills' (pp. 233-248).

The reader is assured that he "will be confronted with comparatively few birds, and should experience little difficulty in recognizing them when he meets them in the flesh." In order to avoid being too technical, however, descriptions of plumage and of habits are so combined, and the former are often so inadequate, that the book is far from being a satisfactory guide to the identity of the birds it includes. A good 'Field Key' would have occupied less space and have been eminently more serviceable.

For those who have some knowledge of birds, the book should be more useful. In any event, we should be grateful for this small, inexpensive manual on the bird-life of a region where local demand for bird books cannot offer a publisher much inducement to cater to its wants.—F. M. C.

The Ornithological Magazines

THE WILSON BULLETIN.—The most important contribution to the December, 1914 (Vol. XXVI, No. 4) of this quarterly is Lynds Jones' 'Nineteen Years of Bird-Migration at Oberlin, Ohio.' The migrant species are arranged chronologically, beginning with those that come in February

and the data given include the number of records, "median first seen," "earliest record," "median last seen," and "latest laggard."

Additional lists are given of the rarer species. These are arranged alphabetically, a method which brings Mocking-birds next to Murre and Knot after Hawk. A chronological order is to our mind properly employed in the main list, but where the names alone are given why not follow the accepted standard of arrangement? In a paper on 'Field Notes from Cambridge, Ohio,' by Mrs. Robert T. Scott, it is difficult to say what method of arrangement has been adopted. It begins with Song Sparrow and ends with Bobolink and Stilt Sandpiper. Confusing inconsistencies of this kind can be avoided by a rigid adherence to the order of arrangement which for thirty years has been the standard in this country.

Arthur R. Abel writes of Summer Robin Roosts, James S. Compton of 'The Birds of the Douglas Lake Region,' Cordelia J. Stanwood contributes studies of the Hermit Thrush and Black-throated Green Warbler; John P. Young describes

'A Flight of Shore birds near Youngstown, Ohio;' and W. F. Heninger calls attention to some forty-two cases in which the 'Ranges' given in the A. O. U. Check-Lists do not fully show recorded information concerning Ohio birds.

In an article on 'Discouraging the English Sparrow,' Thomas H. Whitney gives the results of his efforts to rid his home-grounds of these pests. Of 216 Sparrows destroyed, 137 were captured in the nest-box trap, which he considers the most effective means for capturing this wary bird. This trap is described in the Farmers' Bulletin No. 493 of the Department of Agriculture, 'The English Sparrow as a Pest,' copies of which may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C.

We are glad to see through a letter from P. A. Taverner, that he has been studying the birds of Bonaventure Island, off Percé on the Gaspé Peninsula. The reviewer passed a few hours on this island in 1898 and recalls few places which offered better opportunities for ornithological work.—F. M. C.



VIRGINIA RAIL APPROACHING NEST
Photographed by A. A. Allen at Ithaca, N. Y.

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

Contributing Editor, MABEL OSGOOD WRIGHT

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Bird-Lore's Motto:

A Bird in the Bush Is Worth Two in the Hand

WE particularly call the attention of our readers to the review on a preceding page of the 'Preliminary Census of Birds of the United States' and to the call of the Biological Survey for volunteer observers to carry on this important work.

BIRD-LORE for June will publish an especially interesting and valuable article by Miss E. L. Turner on 'Bird Photography for Women.' As the leading woman bird-photographer in England—indeed we may say in the world—Miss Turner is in a position to write with authority. That she practises what she preaches will be fully proven by the photographs accompanying her article.

THE contents of 'A Photographer's Game Bag,' as it is pictorially displayed in 'Country Life in America,' for February, 1915, is a faunal phenomenon of the first magnitude. It contains, for example, a "flash-light" of a Barn Owl which we are led to believe was made in the Everglades of Florida. The author, however, fails to tell us how he accomplished the unprecedented feat of photographing porcupines in the Everglades, animals, which, so far as we are aware, are unknown in nature nearer Florida than the mountains of Pennsylvania or West Virginia.

It is true that no claim is made of the occurrence of these animals in the Everglades, but, as the 'Game Bag' also contained a photograph of a pair of porcu-

pinas which are evidently sitting on the identical limb on which the Barn Owl of the 'Everglades' was perched and before essentially the same background (including a palm leaf!) shown in the Barn Owl photograph, we can only infer that both pictures were made in the same place. The case is further complicated by the photograph of an iguana posing if not on the same limb, at least before the same background as that used in the Barn Owl and porcupine pictures. No locality is given for this choice bit of photographic 'game' but we are told that the species "in the photograph is called the Chinese dragon iguana to distinguish it from the ordinary variety found in the island [*sic*] of Nassau and throughout Mexico and Central America!"

Comment is unnecessary, but we must express our surprise that a magazine which includes a 'Nature' Department and which has already had several similarly humiliating experiences, can be so easily imposed on.

In the same issue of 'Country Life' photographs by Finley and Job are published, and we feel that these eminently reputable naturalist-photographers should protest at an association so well designed to bring discredit on their profession.

'BIRD LIFE as a Community Asset' is the suggestive title of a contribution which Mr. Joseph Grinnell makes to the first issue (October, 1914) of the quarterly publication of the California Fish and Game Commission. Mr. Grinnell maintains that "Our bird life is a valuable public asset and deserving sane consideration as such," and it is the sane consideration with which he treats his subject that carries conviction of the truth of his arguments. House cats and English Sparrows he considers the most serious enemies with which our birds are confronted. Following these in the order named he ranks reclamation and cultivation of wild lands, gunners, nest-robbing "by the uninstructed small boy," and killing for commercial purposes, whether for food or plumage.

The Audubon Societies

SCHOOL DEPARTMENT

Edited by ALICE HALL WALTER

Address all communications relative to the work of this department to the editor, 67 Oriole Avenue, Providence, R. I.

A COURSE IN BIRD-STUDY FOR TEACHERS

A very large and really difficult problem presents itself to any would-be pedagogical savior of nature-study in our secondary schools. It is a problem that is engaging the attention of educators in different parts of the country, whose efforts to solve it wisely bid fair to open up many new and delightful methods to teachers, and equally new and delightful methods to pupils. That these methods should level and bridge over the ordinary chasm between learner and instructor is the ultimate test of their success, and the best criterion by which they can be judged.

In order to discuss this somewhat abstract subject of method as related to teachers and pupils, it may not be out of place, in this Bird and Arbor Day number of BIRD-LORE, to describe in detail the work of a school which has *felt out* its own method of teaching and learning bird- and nature-study, not in the regular school year or by any regular method, but during the six hottest weeks of summer, in ways that have seemed best suited to the time and season.

To begin with, the school is not an ordinary summer school with respect either to its location, management, or purpose. Located at Cold Spring Harbor, about thirty odd miles east of New York City, on the north shore of Long Island Sound, and separated from the village bearing that name by a sheltered harbor of some size, that is nearly cut off from the main harbor to the north by a peculiar spit of sand, and which connects to the south through a transition marsh (i.e. a marsh where salt and fresh water meet), with four fresh-water lakes and ponds in the heart of beautiful woodland, the situation of this school is unusual, both as regards a varied environment and exceptional opportunities for study. Originally founded and still continuing under the auspices of the Brooklyn Institute of Arts and Sciences, it has now formed a connection with the National Association of Audubon Societies in relation to the bird- and nature-study courses which it offers.

Its management is unique, for several reasons: First, because its director is a scientific investigator of international reputation, who is most widely known as the head of the Carnegie Institution of Experimental Evolution, and also of the Eugenics Record Office, open to students of heredity, both of which foundations are located at Cold Spring Harbor, on the same plot with the summer school; and, second, because it is quite isolated from the village, and is maintained as a large home with respect to its social and domestic relations. Aside from the fact that the school is surrounded by large estates, some of

which belong to its founders, who contribute in various ways to its welfare and enjoyment, the outside world is but a name for six weeks to those who come to the school seeking rest and change.

The purpose of this school is notably to study plant and animal life in the open, to become familiar with the denizens of wood and shore, and to touch Nature with ungloved hands—in short, to *learn to observe*.

Bird-study is given a place of equal rank in the curriculum with plant and animal ecology, cryptogamic botany, comparative anatomy, etc. For this reason, it has been possible to undertake somewhat more than the usual field and lecture work one is accustomed to consider sufficient for a practical knowledge of birds. The aim of the school is to maintain as high a standard as possible in all of its work, and, therefore, the requirements for entrance have been laid down in conformity with this aim.

Two general courses in bird-study are given to suit the needs of those who desire to devote all, or only part of their time, to this branch. Briefly, the major course is made up of twenty or more lectures, daily class and individual field-trips, chart and record-work, reading, symposia, and special excursions. The shorter or minor course includes lectures, class field-trips, reading and special excursions, if desired. The major course is by far the more desirable, it goes without saying, but an earnest student can get a good deal from the abridged course. Both courses are correlated with economic botany and entomology.

The aim of bird-study at Cold Spring Harbor is threefold: first, to acquaint one as intimately as possible with the birds and daily bird activities observed in a limited area; second, to obtain and record by various practical methods as much data as possible regarding bird-life in this area, and to compare it with data obtained in neighboring areas of different ecological status; and, third, to outline and discuss methods of teaching bird-study with particular reference to secondary schools.

The lectures given cover a wide variety of subjects, each presenting some phase of bird-study suited to the needs of a well-trained student or prospective teacher. Classification, structure, plumage and molt, song, nesting, feeding, and other habits, general and local distribution, facts and theories of migration, economic value, protection, fossil history and methods of study are some of the topics discussed. Reading is assigned to suit the individual needs and tastes of the student, and is required in the major course.

A feature of the field-work is locating and identifying nests. Over three hundred nests are found each summer, the largest number thus far discovered in any single season being four hundred and eighty-five. Each nest is described with reference to its location, height, occupancy, date when found, and special data, on cards prepared for rapid record-taking in the field. Later, these cards are sorted, classified and the data which they contain are transferred to a large chart, that is put on file at the close of the session with similar charts prepared

in preceding seasons. Thus data of value are put into permanent form, open to the inspection of visitors, or available for the use of bird-students in any part of the world.

Individual work consists in special problems of varying degrees of difficulty, fitted to the ability of the student, as, for example, a daily record of the order of morning and evening song with reference to decline and molt, observation of the home-life of birds in the nest, feeding-movements of different species frequenting the inner harbor, distribution of a single family such as the Fly-catchers or Vireos, in the study plot, and study of feeding habits either of a single species or a comparative study of several species. These problems are not stereotyped, but are thought out to meet the occasion, with a view to encouraging original research and developing initiative on the part of the student. Record-taking and record-making are required, but again, the student is given much liberty in the choice of the method employed. Weekly symposia, at which each student presents a résumé of work done and methods used, with criticisms from other students and the instructors, serve to correlate individual work with the general work of the class, and to unify the course as a whole.



Result of a bird-house contest in Lisbon, Ohio. Prizes were awarded on Arbor Day to each of the grades for houses designed and made by any boy or girl. Each pupil who entered the contest received credit according to the merit of the design and workmanship of the bird-house presented. (Courtesy of the Rollins Studio.)

Illustrated evening lectures by visiting ornithologists add much to the attractiveness of the general lecture-work, while special excursions to such places as Gardiner's Island, the chief breeding-resort of the Fish Hawk on the Atlantic coast; the South Shore of Long Island, Lake Ronkonkoma and Spectacle Pond, the American Museum of Natural History, the Brooklyn Museum and Bronx Park, etc., offer unusual advantages to students for becoming acquainted with a wide variety of environments, as well as for coming into touch with some of the most valuable collections of natural history in the world.

At the request of certain educators, this hasty and rather inadequate description of the Cold Spring Harbor bird-study course has been given, in the hope that students, and especially teachers of nature, would consider more seriously the possibilities of this branch and the importance of thorough training along broad lines.

To be able to identify a few birds by sight, and a still smaller number by ear, is scarcely a sufficient foundation for one who must meet the eager inquiries of sharp-eyed pupils. This scanty equipment need not, however, discourage the sincere teacher who is willing to admit ignorance to pupils and to become a learner with them. Nevertheless, the best training is none too good for our



Wellesley School (Toronto, Ont.) Junior Audubon Society. Showing a few of the bird-houses which were constructed in the manual-training shop. A large number of these houses were donated to the Park Commissioners and placed in city parks. Others were erected about private homes and on the school grounds.

schools, and teachers are urged to combine a summer's change with outdoor nature-work in some school of the grade of that conducted at Cold Spring Harbor, Cornell University, the University of Illinois, and University of Michigan. A complete catalogue of our best summer schools would be very useful to the readers of BIRD-LORE, and information concerning any of them will be gladly received.—A. H. W.

JUNIOR AUDUBON WORK

For Teachers and Pupils

Exercise XX: Correlated with Reading and English Literature

SUGGESTIONS FOR BIRD AND ARBOR DAY

In the March-April issue of BIRD-LORE for 1911 (see Vol. XIII, No. 2), a special programme for Bird and Arbor Day was given, to which some teachers may be glad to refer. Suggestions were also given there as to planting school gardens and shrubs attractive to birds, suiting the conditions of rural and city schools.

Since not every teacher has the time or opportunity to arrange elaborate exercises for Bird and Arbor Day, a simpler exercise is given here, which it is hoped may serve the double purpose of acquainting pupils with some untried paths of English, and opening the way to a fuller enjoyment of Nature through the eyes of the poet.

HYMN OF NATURE

(To be recited by seven pupils, a stanza, by each)

God of the earth's extended plains!
 The dark green fields contented lie;
 The mountains rise like holy towers,
 Where man might commune with the sky;
 The tall cliff challenges the storm
 That lowers upon the vale below,
 Where shaded fountains send their streams,
 With joyous music in their glow.

God of the dark and heavy deep!
 The waves lie sleeping on the sands,
 Till the fierce trumpet of the storm
 Hath summoned up their thundering bands;
 Then the white sails are dashed like foam,
 Or, hurry, trembling, o'er the seas,
 Till, calmed by thee, the sinking gale
 Serenely breathes, "Depart in peace."

Bird - Lore

God of the forest's solemn shade!
 The grandeur of the lonely tree,
 That wrestles singly with the gale,
 Lifts up admiring eyes to thee;
 But more majestic far they stand,
 When, side by side, their ranks they form,
 To wave on high their plumes of green,
 And fight their battles with the storm.

God of the light and viewless air!
 Where summers breezes sweetly flow,
 Or, gathering in their angry might,
 The fierce and wintry tempests blow;
 All—from the evening's plaintive sigh,
 That hardly lifts the drooping flower,
 To the wild whirlwind's midnight cry—
 Breathe forth the language of thy power.

God of the fair and open sky!
 How gloriously above us springs
 The tented dome, of heavenly blue,
 Suspended on the rainbow's rings.
 Each brilliant star that sparkles through,
 Each gilded cloud that wanders free
 In evening's purple radiance, gives
 The beauty of its praise to Thee.

God of the rolling orbs above!
 Thy name is written clearly bright
 In the warm day's unvarying blaze,
 Or evening's golden shower of light.
 For every fire that fronts the sun,
 And every spark that walks alone
 Around the utmost verge of heaven,
 Were kindled at thy burning throne.

God of the world! the hour must come,
 And nature's self to dust return!
 Her crumbling altars must decay,
 Her incense fires shall cease to burn.
 But still her grand and lovely scenes
 Have made man's warmest praises flow;
 For hearts grow holier as they trace
 The beauty of the world below.

—By W. B. O. PEABODY, U. S. A. 1799-1848.

SPRING IN CAROLINA

(A recitation for two pupils, each giving a stanza alternately)

Spring, with that nameless pathos in the air
 Which dwells with all things fair,
 Spring with her golden suns and silver rain,
 Is with us once again.

Out in the lonely woods the jasmine burns
Its fragrant lamps, and turns
Into a royal court with green festoons
The bank of dark lagoons.

In the deep heart of every forest tree
The blood is all aglee,
And there's a look about the leafless bowers
As if they dreamed of flowers.

Yet still on every side we trace the hand
Of Winter in the land,
Save where the maple reddens on the lawn,
Flushed by the season's dawn;

Or where, like those strange semblances we find
That age to childhood bind,
The elm puts on, as if in Nature's scorn,
The brown of autumn corn.

As yet the turf is dark, although you know
That, not a span below,
A thousand germs are groping through the gloom,
And soon will burst their tomb.

In gardens you may note, amid the dearth,
The crocus breaking earth?
And near the snowdrop's tender white and green,
The violet in its screen.

But many gleams and shadows needs must pass
Along the budding grass,
And weeks go by, before the enamored South
Shall kiss the rose's mouth.

Still there's a sense of blossoms yet unborn
In the sweet air of morn;
One almost looks to see the very street
Grow purple at his feet.

At times a fragrant breeze comes floating by,
And brings, you know not why,
A feeling as when eager crowds await
Before a palace gate

Some wondrous pageant; and you scarce would start
If from a beech's heart,
A blue-eyed Dryad, stepping forth, should say,
"Behold me! I am May!"

—By HENRY TIMROD. U. S. A. 1829-1867.

EXCERPT FROM "IN JUNE" (For a child)

So sweet, so sweet the calling of the thrushes,
 The calling, cooing, wooing, everywhere;
 So sweet the water's song through reeds and rushes,
 The plover's piping note, now here, now there.

—By NORA PERRY. U. S. A.

"THE YELLOW VIOLET" and "THE GLADNESS OF NATURE" (Recitations)

By WILLIAM CULLEN BRYANT. U. S. A. 1794-1878.

"MAY" and "TO SENECA LAKE" (Recitations)

By JAMES G. PERCIVAL. U. S. A. 1795-1856.

(See Songs of Three Centuries, edited by J. G. Whittier.)

"THE WAY TO SING" (Recitation)

The birds must know. Who wisely sings	By snatches through his weary brain
Will sing as they;	To help him rest;
The common air has generous wings,	When next he goes that road again,
Songs make their way.	An empty nest
No messenger to run before,	On leafless bough will make him sigh,
Devising plan;	"Ah me! last spring
No mention of the place or hour	Just here I heard, in passing by.
To any man;	That rare bird sing!"
No waiting till some sound betrays	But while he sighs, remembering
A listening ear;	How sweet the song,
No different voice, no new delays,	The little bird, on tireless wing,
If steps draw near.	Is borne along
"What bird is that? Its song is good."	In other air, and other men
And eager eyes	With weary feet,
Go peering through the dusky wood,	On other roads, the simple strain
In glad surprise;	Are finding sweet.
Then late at night, when by his fire	The birds must know. Who wisely sings
The traveler sits,	Will sing as they;
Watching the flame grow brighter, higher,	The common air has generous wings,
The sweet song flits	Songs make their way.

By HELEN HUNT. U. S. A. 1831-1885.

It would add much to the recitation of some or all of these poems by American writers, if a brief biography were given after each recitation, telling the writer's birthplace and a few facts of interest concerning his or her life and contributions to literature. Time is never better spent than in making the acquaintance of good literature, especially poetry of merit. One poem true to the spirit of Nature is better than a book of jingles or effusive descriptions about natural beauties. The poems given above have been selected first, for their inspiration, second, for their truth, and third, for their merit. They are suitable not only for a Bird and Arbor Day programme but also, for a delightful exercise in English. A novel addition to such a programme, would be a large map of North and South America, showing in colors the principal routes of migration of our birds,

with a careful explanation of the same. (See BIRD-LORE, Vol. XIV, No. 2, p. 123).—A. H. W.

FOR AND FROM YOUNG OBSERVERS

A METHOD OF OBSERVING BIRDS

BY DR. G. CLYDE FISHER

[NOTE.—In the spring of 1912, Dr. Fisher, while inspecting woodland near Demarest, Georgia, became interested in the work of the Yellow-bellied Sapsucker. The accompanying picture shows an apple tree which the Sapsucker had quite thoroughly riddled. Dr. Fisher says: "I thought that very little damage had been done to that particular tree, but the vitality of the tree may have been more seriously affected by this work than I thought. Anyhow, the tree was quite old and nearly dead."



AN APPLE TREE SHOWING THE WORK OF THE YELLOW-BELLIED SAPSUCKER
Photographed by G. Clyde Fisher, Demarest, Georgia

Since the question is often discussed as to how much damage the Sapsucker actually does, Dr. Fisher compiled the following excerpts and abstracts from the works of well-known observers. These give both sides of the question impartially. A recent bulletin on Woodpeckers in Relation to Trees and Wood Products by W. A. McAtee (Bull. No. 39, Biological Survey, U. S. Dept. of Agric.) states with more exactness the observations of our national foresters, who agree that the punctures made by Sapsuckers injure trees for the lumber trade greatly. In the study of birds, trees and insects, it is a valuable method to follow, to correlate the relations of one to the other, and the injury or benefit each sustains through the habits of the others. It is probably true that the Sapsucker does not do a great amount of harm to trees through the sapsucking habit, but how this peculiar habit first arose, and to exactly what extent it may be carried by *different* individuals, is of great interest.

Alexander Wilson thought that the principal food of the Yellow-bellied Woodpecker or Sapsucker was insects. He wrote: "They seem particularly fond of frequenting orchards, boring the trunks of the apple trees in their eager search after them."

An extremely interesting study may be made by comparing the observations of the various writers cited: first, with reference to the sapsucking habits of Woodpeckers, notably of the so-called 'Sapsuckers' for Woodpeckers have this habit to a very slight extent so far as known; and second, with reference to the effect of punctures or borings in the wood in connection with the uses to which it is put in the form of dressed lumber. That so beneficial a family as the Woodpeckers should have one 'black sheep' in its number is certainly a misfortune so far as man's relations to birds are concerned. However, in the study of birds we should strive always to clearly distinguish between the work of birds in nature *with* and *without* reference to man, if we wish to get a true point of view.—A. H. W.]

MERRIAM, C. HART. Remarks on Some of the Birds of Lewis County, Northern New York. Bull. Nutt. Ornith. Club, 4:1-6, Jan., 1879.

Dr. Merriam says that the Yellow-bellied Sapsuckers really do considerable mischief by drilling holes in the bark of apple, thorn-apple, and mountain-ash trees; occasionally he has observed them drilling holes in a young elm. They make girdles of punctures, sometimes two feet or more in breadth (up and down), about the trunks and branches. The fact of their destroying some of these trees, notably the apple, especially in the West, has often been recorded. The holes, which are sometimes merely single punctures, and sometimes squarish spaces (multiple punctures) nearly half an inch across, are placed so near together that not infrequently, they cover more of the tree than the remaining bark. Hence, more than half of the bark is sometimes removed from the girdled portions, and the balance often dries up and comes off. Therefore it is not surprising that trees which have been extensively girdled generally die. Mountain-ash are much more prone to do so than either apple or thorn-apple trees, due, very likely, to their more slender stems.

The only part of Dr. Merriam's interesting article that is abstracted here is the part treating of the *injury done to trees* by the Sapsucker.—G. C. F.

BOLLES, FRANK. Yellow-bellied Woodpeckers and Their Uninvited Guests. The Auk, 8: 256-270, July, 1891.

Summary.—From these observations I draw the following conclusions: that the Yellow-bellied Woodpecker is in the habit for successive years of

drilling the canoe birch, red maple, red oak, white ash, and probably other trees for the purpose of taking from them the elaborated sap and in some cases parts of the cambium layer; that the birds consume the sap in large quantities for its own sake, and not for insect matter which such sap may chance occasionally to contain; that the sap attracts many insects of various species a few of which form a considerable part of the food of this bird, but whose capture does not occupy its time to anything like the extent to which sap-drinking occupies it; that different families of these Woodpeckers occupy different "orchards," such families consisting of a male, female, and from one to four or five young birds; that the "orchards" consist of several trees usually only a few rods apart and that these trees are regularly and constantly visited from sunrise until long after sunset, not only by the Woodpeckers themselves, but by numerous parasitical Hummingbirds which are sometimes unmolested, but probably quite as often repelled; *that the forest trees attacked by them generally die*, possibly in the second or third year of use; that the total damage done by them is too insignificant to justify their persecution in well-wooded regions."

(This summary, which I copied verbatim, is a brief résumé of a very interesting paper.—G. C. F.)

BOLLES, FRANK. Young Sapsuckers in Captivity. *Auk*, 9 : 109-119. April, 1892.

"*Summary:* From these experiments I draw the following conclusions: (1) That the Yellow-bellied Woodpecker may be successfully kept in captivity for a period corresponding to that during which, as a resident bird, he taps trees for their sap, sustained during this time upon a diet of which from 90 to 100 per cent is diluted maple syrup; (2) that this fact affords evidence of an extremely strong character, in confirmation and support of the theory that when the Yellow-bellied Woodpecker taps trees for their sap he uses the sap as his principal article of food, and not primarily as a bait to attract insects."—G. C. F.

BREWSTER, WILLIAM. The Yellow-bellied Woodpecker (*Sphyrapicus varius*). *Bull. Nutt. Ornith. Club*, 1 : 63-70. Sept., 1876.

In this most interesting article on the nesting-habits, including feeding the young, etc., nothing is said of the habit of puncturing the bark of trees for the sap.—G. C. F.

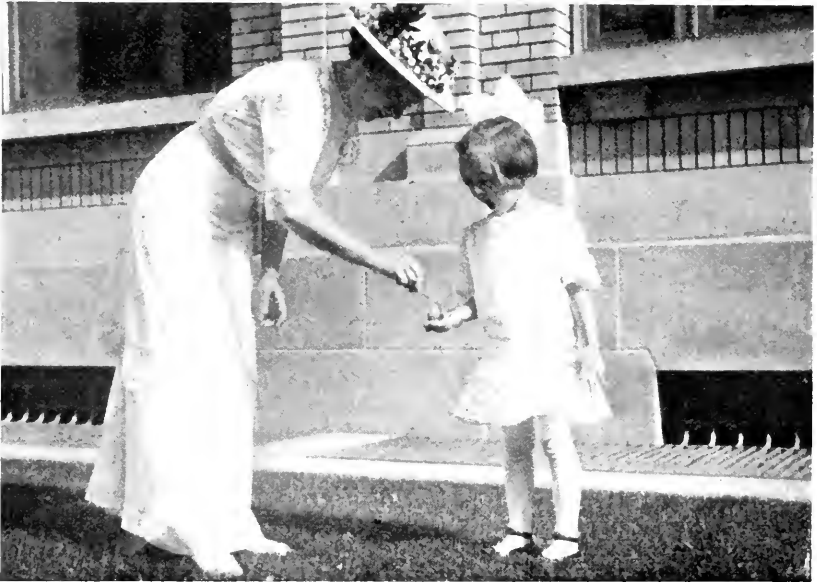
[In a later issue, the nesting-habits of the Sapsucker will be more fully discussed and illustrated, showing another method of study which our teachers and pupils can follow if opportunity permits.—A. H. W.]

THE STORY OF A YOUNG SWALLOW

On August 6, 1914, I found baby Violet-green Swallow in the marigold bed. She had fallen a good thirty feet from the Flicker hole under the eaves, where her parents had made their nest. For many winters this hole has been

occupied by Red-shafted Flickers, but every summer "Mr. Flicker renth hith houth to the thwallowth," as my little friend says.

The baby was only a few days old, all down, pin feathers and mouth, and too tiny to be afraid. The parents paid absolutely no attention to Violet Marigold Green, as she was named, and for ten days a family of five grown people and neighbors' children were kept busy swatting flies to feed her. A fly campaign had just been waged in town, and flies were scarce. In despair sometimes when flies gave out, I fed her tiny worms, grasshoppers, and sometimes tiny bits of raw beefsteak. The last she did not like, although the meat



A TRYING SITUATION

never seemed to hurt her. The way she grew and thrived was astonishing. In a few days we could keep her in her box only by covering her. She would flutter around over the floor after us, flutter up to our knees, and sit contentedly on our hands. In a week she could fly several feet, and would turn her little head to watch a fly or insect flying near, and if they were very near her mouth would fly open and she would reach for them.

When we had had her just a week, we placed her on the clothes-line one afternoon, and one of the old birds came down and sat by her, the first time the parents had taken any notice of her. We felt confident she would be able to fly and feed herself when it was time for the Swallows to go south, but to our great regret that time never came for her. After ten days she could fly nearly across a room, while her brothers and sisters were still in the nest. Then a neighbor's boy tossed her up, unknown to us at the time,

to see her fly, and we think she fell against the house, and that a bone was broken in her foot. She began to droop and died the next evening.

Notice in the picture how my little friend would open her mouth whenever the Swallow opened hers to be fed. I flattened the ends of a hairpin and used it to feed the flies to her.—L. G. HUNGATE, *Walla Walla, Washington*.

[This experience with a baby Swallow is quite typical of young passerine birds in captivity. Whether the fledgling would have survived, had it been successfully freed, without first accustoming it to life in the open, even had it not been injured, is extremely doubtful. In *The Wilson Bulletin*, Vol. XXVI, Dec., 1914, No. 4, there is a very instructive study of Hermit Thrushes which were kept in captivity and afterward freed.

The little girl in the picture illustrates most aptly and charmingly the intense interest that a child usually shows in intimate contact with Nature. Not only her mouth but her left hand express the almost breathless sympathy with which she is following every movement of the baby Swallow.—A. H. W.]

WINTER PENSIONERS

Dear Bird-Lore The ground is covered with snow and we have been putting crumbs on a stump in the yard and on the window-sills to feed the birds.

The Juncos have been around all winter.

There has been a White-breasted Nuthatch around all to-day, and he would fly down on the window-sill and get a crumb, and then go to a tree and eat it, and come down and get another crumb and go to another tree and eat it, and come and get another for five times.

There has been a Cardinal around eating some grain a man threw out by the chicken-yard. The Cardinal and a Tom Tit and some Juncos and some Tree Sparrows were eating the grain together.—GEORGE F. TOWNE, JR., age 8 (3rd grade), *Baltimore, Md.*

[Winter pensioners are bound for the north now, and their places are being taken by eager migrants, who will pay little if any heed to the most inviting lunch-counters. It is very instructive to compare the feeding-habits of winter visitors or residents and spring migrants.—A. H. W.]

THE CHICKADEE

The Chickadee sang when I was near	Looking around I saw a nest
And all the notes that I could hear	In which her babies were at rest
Were Chick-a-dee-dee-dee.	Peeping Chick-a-dee-dee-dee.

As I was wandering around nearby	The nest was cozy and lined with
I suddenly saw her mount toward	gray
the sky	And I could hear the baby birds say
Saying Chick-a-dee-dee-dee.	Chick-a-dee-dee-dee.

—ELIZABETH ARNOLD (age 9 years), *Providence, R. I.*

THE TOWHEE

By T. GILBERT PEARSON

The National Association of Audubon Societies

EDUCATIONAL LEAFLET No. 79

Not all birds possess strong personalities. Just as among persons there are many who are neither particularly good nor bad, handsome nor homely, brilliant nor stupid. They play an important part in life, to be sure, but they do not attract any great attention nor arouse, on the part of the observer, any special interest or enthusiasm. We all know such people, and I dare say most of us have made the acquaintance of such birds now and then.

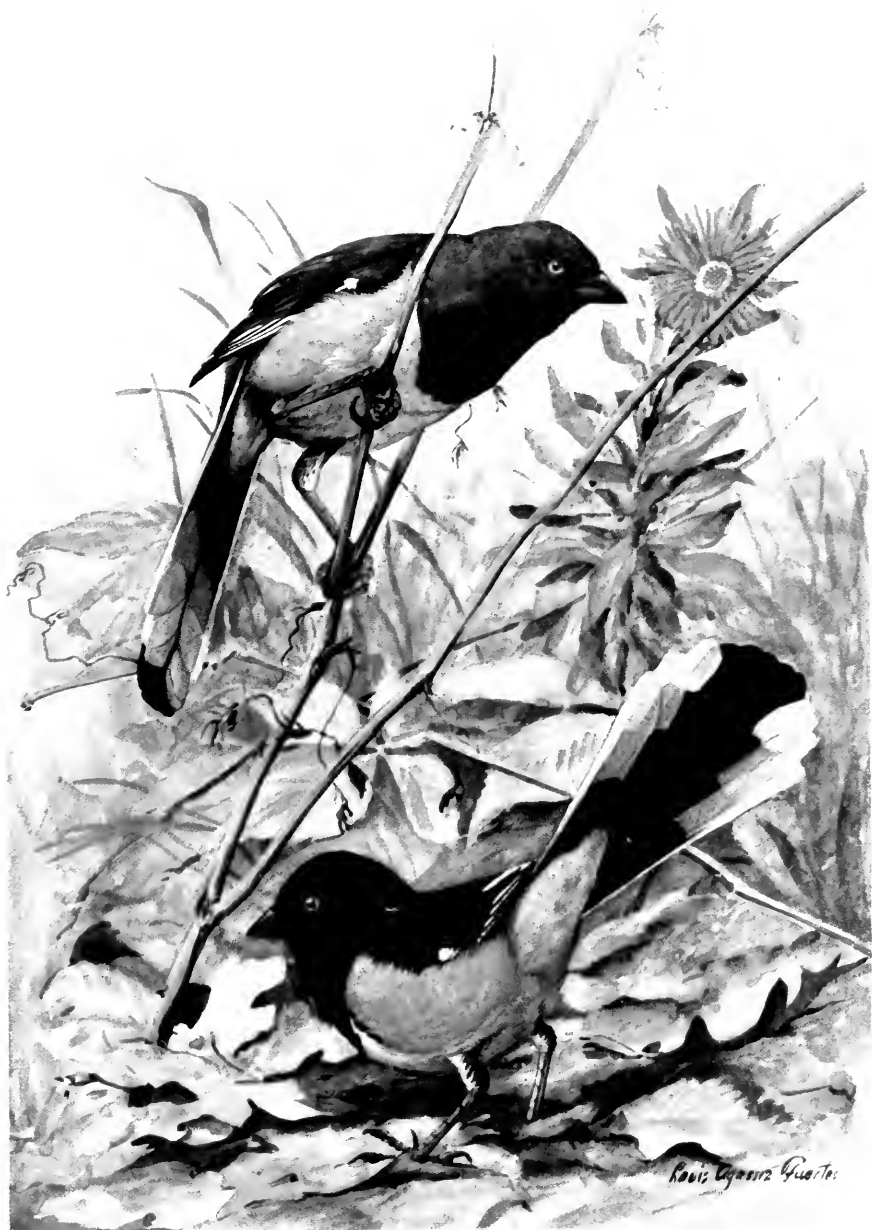
The above statement, however, does not serve to describe the Towhee, except in a negative manner, by calling attention to the fact that it does not belong to the mediocre class, for it is a bird of distinct personality, being endowed, in a very large way, with what we may call "character." The male is especially striking in appearance, and both he and his mate are filled at all times with an energy and bounding activity that challenge the attention and admiration of everyone who is so fortunate as to meet them.

One cannot watch the Towhee long without imbibing some of the purposeful energy which the bird imparts in its every movement. The ambitious and slothful alike may receive inspiration and wisdom by considering its ways. I am particularly fond of the Towhee, and have long counted his friendship among my most cherished possessions.

It is about the tenth of April when this bird is usually first seen in the latitude of New York. In rare instances it has been recorded in the winter as far north as Massachusetts, but such cases are very exceptional. Virginia is usually the extreme northern limit of its winter sojourn.

As a rule it is not quite so trustful of mankind as are some of our better-known lawn and garden species, as, for example, the Robin and House Wren; nor is it one of those shy denizens of forests and open fields that rarely venture into a city. In fact it occupies a somewhat middle ground, and to a more or less extent flits between these two groups, and seems fairly well at home in either situation, as might be expected of so well-bred a bird-of-the-world.

Its occurrence in town, however, would appear to be more common in the autumn than the spring. It seems to prefer to investigate the abodes of man during the period when it has no pressing domestic duties and responsibilities. When nesting-time arrives, therefore, it is best to seek for it along hedgerows or beside old fences half concealed by shrubbery, from the depths of which often it will announce its presence by its sharp, clear cry *chewink*.



TOWHEE

(Upper figure, female; lower figure, male)

Order—PASSERES
Genus—PIPILO

Family—FRINGILLIDÆ
Species—ERYTHROPHthalmus

National Association of Audubon Societies

Abandoned fields, wherein briars and bushes have sprung up, are also favorite abiding places for the Towhee.

One summer day, as a member of a Harvard botany class, I journeyed some miles out of Cambridge, and afoot began a rather laborious climb up the somewhat steeply sloping side of Blue Hill. As we advanced, the trees decreased steadily in size until, perhaps three-fourths of the way to the top, they became so scraggy that in many places they had much the aspect of bushes. This change in the condition of the vegetation must have been due largely to the poor quality of the soil, as the altitude was not great. We studied many plants that day, many of which I have forgotten, but I do remember with great distinctness the songs of Towhees, which with marvelous clearness rang from the topmost bough of many a stunted tree. This is the kind of situation it invariably occupies when singing. The Nightingale may sing from the depths of its myrtle-bush, the Veery from the bough of its favorite oak, and the Gnatcatcher from its nest, but, like the Winter Wren and the Nonpareil, the Towhee must occupy the highest twig of its chosen sapling or bush before it flings to the summer winds the melody of its notes. Its song is not a remarkable performance when compared with the singing of many birds, but it is vigorous and appealing. The song of the Towhee is the passionate cry of a love-sick bird, who will not take "no" for an answer. Ernest Thompson Seton has told us what it says. He asserts the bird plainly shouts, *chuck-burr, pill-a-will-a-will-a*. Its Song

The Towhee's nest is often situated on the ground, though sometimes we may find it in shrubs or low bushes. Even when built in a bush it is always near the earth. In fact I have never found one at more than a foot elevation. It is usually made of a collection of dead leaves, strips of grape-vine or other bark, and occasionally a few twigs. The lining appears always to be made of fine, dead grasses. It is not covered over like the nest of the Bob-white, Meadowlark, Oven-bird, and some other ground-nesting species, and is protected from the rays of the sun and the eyes of the curious only by the twigs and leaves of the bush in which it is hidden. Although fairly ample in size, it is in reality rather a frailly built cradle, and usually goes to pieces during the rains of autumn or the winter storms. The Nest

As may be noticed from the accompanying colored illustration, the female is less highly colored than her mate. This is the case with a great many kinds of birds, and it would appear that when kind Nature made them she had in mind the fact that the mother-bird would do most of the brooding; and that while on the nest her somewhat duller coat would not be so noticeable to enemies, which, with claw and beak and tooth, are ever afield on the hunt for little birds. She seems to know how well her coloring protects her, and sometimes one may approach to a point where the hand may almost be laid on her before she takes wing. Four or five white eggs, finely and evenly spotted with dark red, are laid, usually in May. When one approaches the

nest, especially after the eggs have hatched, the parents will immediately appear and, flitting about on the ground or from bush to bush, will anxiously voice their alarm. This will be kept up without intermission until the intruder has departed.

The Towhee has one unfortunate weakness—it allows itself to be imposed upon by the Cowbird. The happiness and prosperity of many a Towhee home is ruined by this dark destroyer of wild-bird domestic life. The Cowbird, which makes no nest of its own, often lays one or more of its eggs in the Towhee's nest, where they are allowed to remain. The young Cowbird grows rapidly, and often crowds some of the young Towhees from the nest. Later, when the young leave the nest together, we may sometimes see a mother-Towhee engaged in the care of a



TOWHEE FEEDING TWO YOUNG COWBIRDS

young Cowbird-imposter while giving attention to her own young, as may be seen in the picture on this page, which was made from a photograph.

Some birds in the world seem to feed entirely on fish. In winter, spring or summer, it matters not, they must have fish. Should the ice form over their usual fishing-places they fly away to where the water is open and fish may be obtained. There are other birds that eat only insects. Often they are not choice in the kind of insects they have, but almost any kind that has wings and can fly these air-feeding birds seize and devour. Our Towhee, however is nearly omnivorous. Edward Forbush, who has spent a great deal of time finding out just what birds eat, tells us that Towhees are fond of ants and of a great variety of beetles. They also eat hairy caterpillars in great numbers. Those found in the neighborhood of gardens, or of fields under cultivation, frequently flit along the ground among the vegetables or grain in search of cabbage-worms, potato-bugs, and such other small creatures, many of which are destructive to crops.

It will thus be seen that the Towhee is a very useful bird to mankind, and should receive the most careful protection by everyone. In fact, in most

states where this bird is found, it is protected by law, and anyone found killing a Towhee is liable to fine or imprisonment, and it is right that this should be so. They eat also such things as grasshoppers, cockroaches and flies, and perfectly adore the long juicy bodies of earthworms. Down South, where they go to pass the winter months, they have another habit of eating which would appear to be a very unusual one for so ground-loving a bird. Here, when early spring comes, they mount into the higher branches of trees, where they feed on the swelling buds. In the mountains of North Carolina some persons declare that Towhees ("Jorees" or "Joreekers," they call them) go into the fields in early spring and pull up the planted corn, just about the time it is sprouting and beginning to show above the ground. The bill of the bird is strong enough to crack a grain of corn, and it is probable that the habit has been developed locally, as there would appear to be no very widespread custom of this character. As a usual thing, however, we find the Towhee on the ground in a thicket, where we may hear him scratching among the fallen leaves and throwing them about with an energy and vigor surprising in a bird which measures only about eight and a half inches in length.

John James Audubon, the great naturalist and artist, who was such a close observer of birds, in writing of the Towhee said: "The young leave the nest long before they are able to fly, and follow the mother about on the ground for several days. Some of the nests of this species are so well concealed that in order to discover them one requires to stand quite still on the first appearance of the mother. I have myself several times had to regret not taking this precaution. The favorite haunts of the Towhee Buntings are dry barren tracts, but not, as others have said, low and swampy grounds, at least during the season of incubation. In the Barrens of Kentucky they are found in the greatest abundance.

What
Audubon Said

"Their migrations are performed by day, from bush to bush, and they seem to be much at a loss when a large extent of forest is to be traversed by them. They perform these journeys almost singly. The females set out before the males in autumn, and the males before the females in spring, the latter not appearing in the Middle Districts until the end of April, a fortnight after the males have arrived. Many of them pass the confines of the United States in their migrations southward and northward.

"Although these birds are abundant in all parts of the Union, they never associate in flocks, but mingle during the winter with several species of Sparrow. They generally rest on the ground at night, when many are caught by weasels and other small quadrupeds."

Besides the common Towhee there are about fourteen other kinds of Towhees in North America, as, for example, the Oregon Towhee, Cañon Towhee, and Green-tailed Towhee. The one which most closely resembles that of the Eastern States is the White-eyed Towhee, found in summer from the coastal country of North Carolina southward through Florida.

The Audubon Societies

EXECUTIVE DEPARTMENT

Edited by T. GILBERT PEARSON, *Secretary*

Address all correspondence, and send all remittances for dues and contributions, to the National Association of Audubon Societies, 1974 Broadway, New York City

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Any person, club, school or company in sympathy with the objects of this Association may become a member of it, and all are welcome.

Classes of Membership in the National Association of Audubon Societies for the Protection of Wild Birds and Animals:

\$5 annually pays for a **Sustaining Membership**
\$100 paid at one time constitutes a **Life Membership**
\$1,000 constitutes a person a **Patron**
\$5,000 constitutes a person a **Founder**
\$25,000 constitutes a person a **Benefactor**

AN ANNOUNCEMENT—SUMMER SCHOOLS

The National Association, which, during the past few years, has been rapidly developing the educational phases of its work, announces that it has completed arrangements whereby a summer school of bird-study will be offered under its auspices at Cold Spring Harbor, situated on Long Island Sound about thirty miles from New York City. This is an extension and enlargement of the courses so successfully given at that place heretofore by Mrs. Alice Hall Walter, in connection with the Brooklyn Museum of Arts and Sciences. Hereafter the two institutions will cooperate in the management of the school-work. Mrs. Walter, with a corps of assistants sufficiently large to give careful personal attention to each student, will conduct intensive courses, which will be of the utmost value to those who desire to obtain most accurate and painstaking instruction in this important field of natural history. Lectures, laboratory-work and field-investigations will be of a most complete character. For the present, the number of students will be restricted to twenty-five, and will be confined to those who are college graduates, or who have already acquired some working knowledge of wild bird-life. The cost of attending the summer school is moderate, and the opportunities for splendid work

are unsurpassed. The session will be held from June 30 to August 10. Students will be accepted upon nomination of the National Association of Audubon Societies, and requests for admission, or for further information, may be addressed to T. Gilbert Pearson, Secretary, 1974 Broadway, New York City.

Other Summer Schools

The Association has also offered to cooperate financially and otherwise in giving more general and elementary courses in bird-study at several state summer schools throughout the United States. We are not yet, however, prepared to give a list of those which will be open to teachers, and all others desiring to take instruction of this character, in connection with other studies. A full announcement may perhaps be made in the May-June issue of *BIRD-LORE*. In the meantime, however, those desiring information on the subject should address the Secretary of the National Association.

We are hoping by means of the foregoing plan to furnish opportunities for many of the ten thousand Junior Audubon Class secretaries to engage in systematic bird-study during the coming summer.

WITH THE ARIZONA ROAD-RUNNERS

By WILLIAM L. and IRENE FINLEY

Photographs by the authors



HE hissing sand curled away from the wheels as we plowed through the wide wash of the Rillito. For hours we had jogged stolidly across

the palpitating desert around the town of Tucson. Nothing had stirred, until suddenly across the white road, scuttling from one gnarly cactus to another, slid a slim, dark bird, with long tail and head lowered as if dodging the scrutiny of strange eyes. He became invisible in the silence that reached out over the shimmering mesa; but I knew we had seen a Road-runner.

We had not journeyed to Arizona just to discover this bird, but we should have felt the trip was a failure had we not been

lucky enough to see and study *Geococcyx californianus*, Ground-Cuckoo, Road-runner, Mexican Paisano, Snake-killer, Chaparral-cock, or, better, Cock o' the Desert!

The slim shadow came out again, skulking from one cover to another, and making for the west end of the Catalina Mountains, which lifted their heights directly out of the flat plain in front of us. How he slid along when alarmed, a brown streak low along the ground, then paused, with his tail moving rhythmically up and down, and his crest pointed!

There was not a breath or motion save the dancing of the heat-devils. We were simmering in the sun, but we kept an eye on our bird, and he on us, as he glided among the bushes a little way ahead.

"We'll see what kind of a game he's playing," I said, and throwing the reins to my wife I started in a straight-away dash to overtake this teaser with a yellow



"THE REAL MASTER OF THE THORNY DESERT"

eye. He ran, of course, but I at once gained on him, and intended to use my head as well as my heels. Therefore I kept on the harder soil above, while he ran along the bottom of a sandy wash, which clearly showed that I had the better of it. I did not then know that he was a half-grown, inexperienced bird.

It was a long, heart-breaking chase. Once I got very near and slipped behind an intervening bush. From my ambush I lunged forward to grab him in my hands,

Road-runner. If I had caught mine, the accomplishment would have raised a hue and cry when the word came back to town.

In our few weeks' stay in the desert, the charm, the wonder of the big, open earth and sky, the wide-stretching bleached plains, the every-glowing, changing mountains, the quiet of it all, had carried us with it as daily we had threaded the thorny cactus over the hot sands, finding bird-homes—scores of them—



"SHE STOOD WITH CREST RAISED"

but captured instead a joint of cactus. My finger were stuck full of spines. I stopped then, for I had had enough. It is a trick of the Road-runner to play his enemies against the cholla cactus. It is a cruel trick, but all the desert is cruel. Everything grows thorns, whether it be plant or animal. The mesquit, the cat's-claw, and the cactus, are all guarded by thorns.

We learned later that my experience with the Road-runner was not an unusual one. In fact, it is the custom to lose your

hundreds of them—in this land of little rain, where life is supposed to be scant and hard.

From the first day we had been eager to go out; we could not lose a day—not a minute! Over the blinding plains, with their bare, rattling creosote-bushes, and bristling thorn-plants, flitted back and forth Cactus Wrens, Bendire's and Palmer's Thrashers, Verdins, and desert-loving Sparrows, Warblers and Flycatchers, Gambel's Partridges scurried under the brush. In the dry creek-beds by the stunted



A ROAD-RUNNER WITH FOOD FOR THE YOUNG
A lizard is always swallowed head first

cotton-woods flashed Tanagers, Pyrrhuloxias, Phainopeplas, Crissal Thrashers, Mockingbirds, Abert's Towhees, White-winged Doves, and Road-runners—always Road-runners—and more—and more—coming, going, an undertone of bird-life, teeming, humming in the heart of the landscape. And they said the desert was desolate, dead!

The Road-runner is the shyest and wariest bird in the desert. Each day, as we went out, we wanted to find a Road-

bird lolling off yonder under his cactus would lead me to his home.

My eye became fixed on a darker spot in the heart of a cholla cactus ahead. Something moved. Gradually I made out a rough hulk of a nest, about a foot across, with a Road-runner sitting on it as still as death. Her tail was pushed straight up in the air by an obstructing cactus. It was a great find for us, and in the days that followed we became well acquainted with her and her family. Gradually she



"HER MOVEMENTS WERE SMOOTH AND CAT-LIKE"

runner at home; always we were hunting for one. Plenty of Road-runners' nests we found, but none with eggs or young. For days we had hunted through the cactus on all sides of the town, driving in and out among the prickly brush, and off across the mesa, far from any road.

Frequently we caught glimpses of the fleeting shadows. One day, as we ambled along, something under a bunch of cactus caught our eye. A Road-runner was standing stiff and straight, watching us, thinking he could not possibly be seen if he froze. We were Argus-eyed for a Road-runner's nest as usual. Perhaps the

became accustomed to the umbrella-blind, which we erected near the nest.

In this nest was one fresh egg, one egg just ready to hatch, two featherless, greasy, black young, and two young ones about grown and ready to leave home. This certainly verified the statement of Elliott Coues: "Perfectly fresh eggs and newly hatched young may be found together, and by the time the last young are breaking the shell, the others may be graded up to half the size of the adult."

One day we were sitting, cramped and sweltering, in the blind, waiting for the mother to come and feed. Her returns



"THE NEST WAS IN THE HEART OF A CHOLLA CACTUS"

were always accompanied by long waits and vigils somewhere near the nest. We knew when she was coming by the soft rattling noise she made, and the snapping

of her bill at the end. After satisfying herself that all was well, she ran quickly to the foot of the next tree, paused a minute, and then we heard her feet scratch



"WE BECAME ACQUAINTED WITH HER FAMILY"



“THEN SCRATCHED HER HEAD”

on the rough bark as she climbed to the nest. Her movements were smooth and cat-like. Her brooding was brief; it was not needed. She slid down the bark and coming close up to the blind stood with raised crest, and tail moving rhythmically up and down, uttering her low *kr-r-r-rt*, not unlike an old hen calling softly for her chicks after a hawk has gone over. We were looking at a bird about a foot and a half long, half the length of which was tail.

The whole plumage was harsh, especially the bristle-tipped crest, which the bird always raised when excited. On such occasions the feathers on the side of her head would part, showing a bare spot just back of the eye which was bright orange, and another just back of this which was brilliant blue. Mr. Bendire says that the food of this species consists chiefly of “insects, particularly grasshoppers, but embraces occasionally a lizard or a field-mouse.” Yes, more than occasionally does this bird eat lizards, as good Major Bendire would have learned could he have watched at this nest with us.

While we were crouching at the peep-

hole of the blind the mother-bird came, carrying a big lizard, grasped firmly in her bill. Up the bark she scratched and thrust the lizard, head down, into the mouth of a youngster. The tail hung out of its bill for a long time, but something had hold of it down below, and finally it all disappeared. Soon she came with another lizard, and presently another youngster was sitting propped stiffly, with a tail hanging out of his mouth. Again came a lizard—and—again—and again—there was no use counting. The larder was full of lizards and nothing else!

Twice during one morning, as we watched from the hot blind, she stepped on cactus-spines. Each time she had a lizard in her mouth. She hopped on one foot, mumbling the lizard and dabbing at her toe for a time. Finally she started on, and showed no signs of cactus-thorns.

How easy it was for her to sit immovable under a cactus! How hard it was for us to sit cramped and roasting under the old umbrella-blind, immovable for fear of frightening her away! But a few days had made a great change in her attitude toward us. At first, when she saw us

coming, she disappeared like a streak, and did not show herself again, although we were sure she watched us from some safe blind of her own. But in time she became accustomed to us and would not leave when we worked openly in front of the nest. While thus engaged she would run from from one clump of bushes to another till she resembled a crouching cat. Sometimes she stopped in an open spot when she knew our eyes were upon her, and tried to wallow herself into the very sand, at

the same time making a fine whining sound, much like a young baby. The young responded with the same crying noise, and by snapping their bills when she was feeding them.

She was a wary creature! Many times from the blind we looked into her yellow eyes, but ever her crest went up and her bill would snap, and we knew we were discovered. By kindness you can make friends with a Road-runner; but where is the man who can outwit one? Not I!

FACTS ABOUT CATS

By EDWARD H. FORBUSH

In preparation for a bulletin on the economic status of the cat I have had forty-three towns and villages in seven counties of Massachusetts canvassed to get information from owners and lovers of cats. In this work 271 persons were found who were willing to give information, of whom 51 had no cats at the time, although most of them formerly had cats. The others kept 559 cats, of which 43 would not kill rats, and 227 killed birds.

Frequently cat-owners denied that their own cats killed birds, but accused those of their neighbors. If we were to

many such cats are kept among farmers, where our investigations chiefly were made. Most of these cats were allowed to roam at will, and 405 of them were allowed to *roam at night*. It is well known that these nocturnal wanderers are very destructive to bird-life, as it is at night, mainly, that they catch the mother-birds on their nests, and their best chances for bird-catching come early in the morning, when birds are most active and when they come to the ground for food, drink, and nesting-materials.

No one knows how many birds his cat eats at night, although some cats bring more or less of their game to the house. When the investigation was completed, a series of questions was prepared and sent out to 1,500 persons. About 400 returned the blank well filled, and these replies showed that 125 species of birds killed by cats have been identified by the writers, but many were unidentified. The Robin heads the list, as it is reported by 272 observers. The various Sparrows, Warblers and Thrushes come next; 75 report the Bluebird, 72 the English Sparrow, 52 the Catbird, 46 the Song Sparrow, 42 the Barn Swallow, and 34 the Slate-colored Junco. Most of the birds noted as killed by cats are of the most common and useful species, but 44 report the Bob-white, 46 the Ruffed Grouse, 11 the Woodcock, and 11 the Ring-necked Pheasant.

It is interesting to note the number of



A Ruffed Grouse killed by a cat on February 9, 1915, at East Milton, Mass. Its throat was torn open. The bird was still alive when the cat was frightened away.—E. H. Forbush.

accept these statements the number of cats killing birds, as given above, would be increased. In fact, no one knows how many birds his own cat kills, to say nothing of those of his neighbors, except in the few cases where cats are kept confined, or where they are overfed and are too indolent to chase or kill anything. Not



SOMEBODY'S PET CAT
From a drawing by Walter M. Dunk

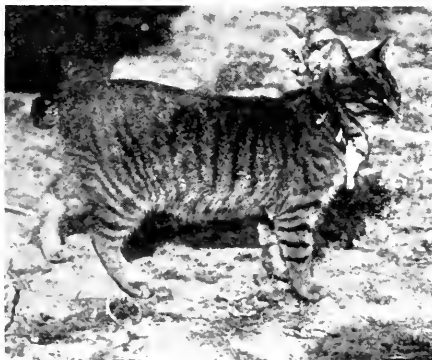
birds killed in a day by one cat. This runs from one to twelve. Many of the reporters live in towns and cities where fewer cats are kept per family than in the country. Out of 427 reporting, only 99 keep cats personally, and their observations are based on their former experiences with their own cats, or on observing neighbors' cats or strays; the 99 keep 132, or an average of 1.3 to each family. The number of cats kept by families in the neighborhood are reported by 272 people.

These statements show 1.4 cats per family. There are 331 who say that cats are allowed to roam at night. Reports of one day's kill of 226 cats sum up 624 birds; reports of one week's kill of 32 cats, 239 birds; one month's kill of 15 cats, 307 birds; and one year's kill of 47 cats, 534 birds. This means an average of 2.7 birds per day, 7.9 per week, 20.4 per month and 11.3 per year. The yearly average is brought down because only a few persons have tried to keep account of the birds killed by destructive cats for a year, while others, whose cats have been "taught not to kill birds," report that their cats have killed only one, two, or three, in a year. On the other hand, in several cases, cats have been known to kill "nearly fifty," or more than fifty, in a year.

A GOOD MISSIONARY

If you could only see and know how many little folk in Belmont School are full of love for the birds you would be pleased, I am sure. Although, as far as money goes, the children are poor, they are rich in love; and it is a great pleasure to teach them to love the beautiful, or rather to make them conscious of the fact, for I am sure the love was already in their hearts waiting to be awakened. I talk to them every day, now, about the birds, and show them nests that I have brought from my home in the country, and pictures, and I believe every little soul in my grade—there are sixty-seven pupils—will be ready to welcome the birds in the

The killing of many chickens is reported, and seventeen observers assert that full-grown domestic fowls have been killed. Much interesting information is given about the destruction of mice, rats, moles, shrews, bats, frogs, toads, and other



A cat on the farm of Mr. Forbush, carefully taught from kittenhood not to kill birds. Later it was found killing them on the sly. The picture shows a dead Warbler tied to the cat's neck to break her of the habit, but she clawed it off and ate it.

animals. Any notes on any subject connected with the cat will be gratefully appreciated if sent to the writer of this article at Room 136, State House, Boston, Massachusetts.

springtime, and try to protect them. Sometimes I go into other rooms and talk for a while about the birds, and the children are so much interested. Often they come into my room after school to ask questions, and to see the nests we have there. We have a thousand and ten children in our school, and I'd just love to have them everyone join our Audubon Society. They come from homes where the parents find it hard to supply the necessities of life, so I do not urge them to bring ten cents for membership, but I do try, and shall continue to do so, to teach them to care for the birds.—SALLIE J. EWING, *Roanoke, Virginia.*

GENERAL NOTES

Information Desired

In order that the National Association may be in better position to serve its members, and the general public, on all phases connected with artificial propagation of game-birds, and also in attracting birds about the home, we request BIRD-LORE readers to coöperate with it by sending information on the following subjects:

1. Data of experiments with nesting-boxes, and lists of birds known to occupy them.

2. Photographs of birds actually using boxes, feeding-stations or bird-baths.

3. Information as to good opportunities to take still or moving pictures of such subjects. Address Herbert K. Job, Department of Applied Ornithology, 291 Main Street, West Haven, Connecticut.

Egret Protection

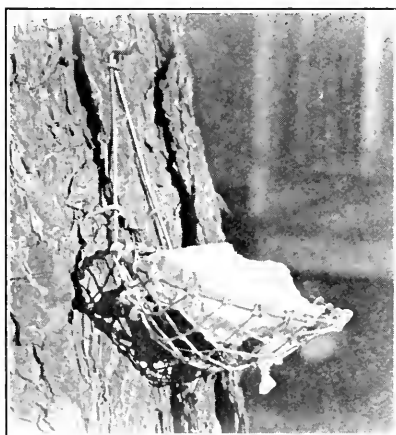
Tourists are pouring into Florida this season as never before, and the demand for locally collected "aigrettes" is correspondingly great. Many persons, who, under ordinary conditions, would have gone to the Mediterranean, have gone this year, on account of political disturbances abroad, to Palm Beach, Miami, and other

Florida resorts. This means a stronger watch than ever is needed at the Egret rookeries in that state. The only way men can be induced to take their lives in their hands by going into the swamps as Audubon wardens is to pay them men's wages. The sum of \$2,000, in addition to the amount already collected, is needed by the Association at once for this important work, which has already brought back the persecuted Egrets in many localities.

On a subsequent page will be found a list of the recent contributors to this fund.

A New Suet-holder

A simple, compact suet-holder for birds is now offered by the Simplex Bird Apparatus Company of Demarest, New Jersey, for thirty-five cents or three for one dollar. We are informed that these holders have been thoroughly tested at the home of the Secretary of the New Jersey Audubon Society and have proved most successful in attracting Hairy and Downy Woodpeckers, Nuthatches, Chickadees, Tufted Titmice, Cardinals, Blue Jays, Brown Creepers, Myrtle Warblers and other birds. The accompanying illustrations show one of these baskets attached to a tree.



Open



Closed

THE SIMPLEX SUET-HOLDER

IMPENDING LEGISLATION

This a heavy legislative year. Every other year more than forty states have sessions of their legislatures. As usual, a large number of bills have been introduced in various parts of the country with a view of modifying the bird-laws and game-laws in the interest of the destroyers of the country's natural assets. The home-office of the Association, as well as its field-agents, has been having much to do in combating these detrimental bills. Here are a few—a very few—of those with which we have been busy.

New York.—(a) A bill to extend the shooting season on Long Island from January 1 to February 1.

(b) Bill to permit the killing of female deer.

(c) Bill to permit the sale of wild Ducks and Geese in the country where they are killed.

(d) Bill to allow Bob-whites to be shot. (At the present time the birds are not allowed to be killed.)

(e) Bill providing that one-half the shooting-license fees shall be paid to the treasurer of the county wherein they were collected; and that the sum be used locally.

None of these bills should be allowed to become a law.

Massachusetts.—Among the many good and bad bills introduced in this state we may mention particularly one of each class:

(a) A bill to prohibit unnaturalized, foreign-born residents to kill birds or game, or to own or possess a shotgun or rifle. This should become a law.

(b) A bill to permit the killing of Coots, Geese, and Brant on Sunday. This should not be allowed to pass the legislature.

(c) A bill to license cats has already been considered and rejected as usual.

California.—The most important bill pending here is one to prohibit the sale of native game-birds. Mrs. Harriet W. Myers, of the California Audubon

Society, is heading the fight for the passage of this measure.

Maine.—Moose are becoming very rare in Maine, hence there is need for the adoption of the Gallagher Bill to protect bull-moose at all times. The resident-hunter's license bill should be made a law.

Texas.—The bills pending in Austin, to extend the season for killing Doves, and to take protection off of Pelicans, should be killed—and killed quickly. A resident-hunter's-license bill is also pending in this State.

Arkansas.—After many years of labor, and innumerable disappointments, a modern up-to-date bird-and-game law has been adopted by the legislature. The greatest credit for this splendid piece of legislation in a hitherto benighted state is due to E. V. Visart, of Little Rock, who for some time served in that territory as a field-agent for this Association.

South Dakota.—We were much interested in opposing a movement of the legislature to lengthen the season for the shooting of Prairie Chickens. The friends of this backward movement, however, were unable to bring their plans to maturity.

North Carolina.—The legislature has again, by a very narrow margin, declined to enact a modern game-law, to be enforced by an adequately supported game-warden system.

He Subscribed

In your circular letter you ask for contributions or a word of encouragement. My personal experience is, that I have already answered both requests. The New Jersey State Audubon Society is very active, especially in Salem County, and I was prevented from being *jailed* only by paying a fine of \$24.54.

For further particulars apply to

Very truly yours,

M. S. BLACK, M.D.,

(or, New Jersey State Audubon Society),

Elmer, New Jersey.



ROBIN AND BLUE JAY FEATHERS, THE WORK OF AN ITALIAN

AN ITALIAN BIRD-EATER

Wilbur F. Smith, of South Norwalk, Connecticut, one of the most active game-wardens in the country, tells the story of the photograph reproduced here:

"A complaint recently came to me that a certain Italian was shooting song-birds. After watching five days I finally caught him shooting a Robin. He worked about his house, and had nine children, all watching for birds; and his gun was always ready. The moment a bird dropped, one of the children ran with it to the house. This happened when I

saw him shoot the Robin at 7 o'clock in the morning; and when we reached the house the bird was plucked and we could not find the body, but the floor and table were covered with Robins' feathers. He denied everything, saying someone else had brought the feathers there, but I found hidden in the woodpile more than a peck of feathers, most of them Robins', which I later photographed. On the way to town the man told me he knew it was against the law to shoot Robins, but in court he pleaded guilty and was punished.

LETTERS FROM CORRESPONDENTS

Preserve the Cat

I will send you an article, "Should Cats be Licensed." I also send you a quoted article about cats by J. E. Stubbs, M.D. The popular impression that cats do a service in killing mice and rats is absolutely true, the statement of noted authorities to the contrary notwithstanding. Every rat destroys, on the average, property to the value of \$5 every year of its life. There are at least 5,000,000 rats in the United States. Figure out the danger for yourself. Every mouse destroys at least \$2 worth of property every year of its life. There are at least as many mice as rats in the United States. Figure out that. Now every cat kills at least two rats and mice each year. How much do they save the country? There are probably 1,000,000 cats in the United States, and if a cat kills one rat and two mice that is \$9 to the credit of each cat; so that cats save the country at large \$9,000,000. Is the much-maligned cat worth anything?—KATHARINE PARSON, *Cambridge, Massachusetts*.

A Martyred Robin

I inclose a check for three dollars for 30 new membership-buttons and leaflets.

A Robin was found dead on the school-house steps, shot by one of our pupils, with an air-rifle. I carried his limp body through the school, and told the pupils of all the grades of his trust in men, and his assistance to them, and of how wicked it is to betray that trust and forget that assistance. The thirty new memberships are the result of that incident, so that Robin, at any rate, did not die in vain. The principal reported the boy to the Juvenile Court, and so there is a badly scared boy here, who has been admitted into the Audubon Society, upon his earnest promise never to harm another bird. His and several *other* air-rifles have been voluntarily destroyed as a result of the Robin's death.

Mr. Voorhes, our principal, has pre-

pared for me a petition to our senators (as per the request in your favor of the 16th) and I am getting the signatures of voters to it through our Junior Audubon Society. I will send it to you when we have a creditable showing of names.—(Mrs.) GRACE I. SCHIELE, *Cincinnati, Ohio*.

English Sparrows on Trial

We have had a most interesting trial in our city. The case was "The Commonwealth vs. E. Sparrow." Many prominent winter visitors and residents either served as officers, jurymen, or witnesses. The case seemed to have attracted no end of attention, and the papers have made much of it. The finding of the jury was as follows: "We, your jury, solemnly and with premeditation aforethought, find the defendant, E. Sparrow, guilty of being a menace to the worthier bird-life of Florida and all America, including Porto Rico, the Philippines, Alaska and Hawaii: (1) Because all the witnesses testified persistently against him; (2) Because no witness could be produced to speak in his favor—even his own attorney; and (3) because Mrs. Tippetts made the best speech."—(Mrs.) K. B. TIPPETTS, *St. Petersburg, Florida*.

A Junior Class

In our Junior Audubon Class of Greenville School we have studied so far seven birds, colored the plates, and mounted one of each in our room. We described the appearance of the bird and its nest, and emphasized the destructiveness of the insect most often destroyed by that bird.

Several of the children fed the birds during the winter, and already have bird-boxes at home ready to put up this spring. The children like the work, and are growing more keen in recognizing the various birds as they return in the spring. The boys say they will not harm birds' nests this summer. I read BIRD-LORE, then give it to the pupils in turn.—LILLIE LEUALLEN, *Merchantville, New Jersey*.

NEW MEMBERS AND CONTRIBUTORS

Enrolled from January 1 to March 1, 1915

Life Members.

Duer, Mrs. Denning
 Griswold, Mrs. Wm. E. S.
 Hemenway, Augustus
 Hubbard, Joshua C., Jr.
 Hubbard, Richard
 King, Miss Ellen
 Seabury, Miss Sarah E.
 Sears, William R.

Sustaining Members.

Adams, Mrs. A. L.
 Aldrich, Mrs. William B.
 Ames, Mrs. J. B.
 Anderson, Mrs. Bruce
 Anthony, Miss Emily J.
 Astor, Vincent
 Ayer, Frederick, Jr.
 Badger, Lester R.
 Barclay, Miss Emily
 Barnum, Miss Helen A.
 Bartol, Mrs. J. W.
 Benjamin, Mrs. John
 Berry, Miss L. D.
 Boggs, Miss Marion A.
 Bole, Benjamin P.
 Bole, Mrs. Roberta B.
 Brooks, W.
 Burroughs-Audubon Nature Club
 Burroughs, Miss Laura C.
 Burroughs Nature Study Club
 Chapman, Mrs. S. Hartwell
 Clarke, Miss Lilian F.
 Collins, E. S.
 Collins, Mrs. Louis D.
 Cooley, Miss Elizabeth S.
 Cooper, Mrs. J. Crossan
 Cornwall, H. C.
 Crehore, Miss Sybil
 Curie, Charles
 Cutter, Ralph Ladd
 Day, Miss Carrie E.
 Dempsey, James H.
 Douglas, Mrs. James
 Dreyer, Charles
 Eagleton, Mrs. Wells P.
 Edwards, Mrs. A. D.
 Eliot, Mrs. Ellsworth
 Ellsworth, James W.
 Ewing, Spencer
 Folsom, Miss M. G.
 Frank, Mrs. Fritz J.
 Fullerton, Master David
 George, Mrs. W. W.
 Glazier, Henry S.
 Glens Falls Local Bird Club
 Gray, Mrs. Philip H.
 Guthrie, Mrs. Tracy W.
 Harry, Mrs. Joseph
 Hastings, Mrs. Charles

Sustaining Members, continued.

Hazen, Miss Emily H.
 Hendry, Miss Estelle Whiting
 Henshaw, F. W.
 Hibben, Mrs. Thomas
 Hill, Dr. Wm. P.
 Holcombe, Mrs. John M.
 Holt, Miss Celia
 Hoot, Wm. B.
 Hortsman, Miss Ida E.
 Hurd, Miss Elizabeth
 Ireland, Miss Catharine I.
 Ives, H. G.
 Jennings, Mrs. F. C.
 Landers, Mrs. Charles S.
 Lee, Mrs. Arthur
 Lippitt, Mrs. C.
 Livingston, Miss A. P.
 McBurney, Mrs. C.
 McCormick, Mrs. H. Hall
 McNeil, Mrs. Archibald
 Mead, Mrs. Charles M.
 Mills, Miss Adelaide
 Minot, William
 Mitchell, Mrs. J. M.
 Morgan, Miss C. L.
 Murphy, Miss Annie D.
 Newcomb, Dr. William W.
 Osborne, Arthur A.
 Pabst, Mrs. Frederick
 Parker, Mrs. J. J.
 Peck, Edgar B.
 Perry, Mrs. John G.
 Peterson, Edward
 Platt, Mrs. Orville H.
 Powell, Mrs. Stephen A.
 Pratt, Mrs. Frederick L.
 Richmond, F. E.
 Robison, A. R.
 Shultz, Charles S.
 Slosson, Mrs. Henry L.
 Smith, Guilford
 Stearns, Mrs. F. K.
 Stevenson, A. L.
 Stillman, Miss Liska
 Talcott, G. S.
 Taylor, Samuel Law
 Thorne, W. V. S.
 Todd, George W.
 Traut, George W.
 Ulmann, Mrs. Carl J.
 Vermont Bird Club
 Weed, Mrs. Samuel R.
 Welch, Miss Mary C.
 Wilson, Mrs. Frank
 Wilton, H. Leonard
 Wood, Miss Juliana
 Wood, Mrs. Richard L.

New Contributors.

Anonymous
 Atkinson, Miss Margaretta
 Bartlett, Master Wm. T.
 Choate School, The
 Frothingham, Dr. L.
 Gilbert, Mrs. Edward H.
 Harris, Miss Amy E.
 Judd, Mrs. M. E.
 Mann, F. W.
 Morewood, Sarah L. H.
 Pitman, Miss Elizabeth H.
 Pitman, Miss Mary A.
 Stevens, Miss Fannie H.
 Woodbury, Miss Edith L.
 Yates, Master Jack

Egret Protection

Balance unexpended October 20,
 1914 \$447 57
 Previously acknowledged 264 00
 Busk, Frederick T. 4 00
 Abbott, Mrs. T. J. 5 00
 Adams, Miss Emily Belle 1 00
 Adams, Wm. C. 1 00
 Althouse, H. W. 5 00
 Ames, Mrs. J. B. 5 00
 Auchincloss, Mrs. E. S. 5 00
 Barnes, R. Magoon 10 00
 Barri, Mrs. John A. 5 00
 Baxter, Miss Lucy W. 5 00
 Beebe, Mrs. Wm. H. H. 2 00
 Bernheimer, Mrs. J. S. 10 00
 Best, Mrs. Clermont L. 5 00
 Bignell, Mrs. Effie 1 00
 Blackwelder, Eliot 1 00
 Bliss, Miss Lucy B. 10 00
 Bonham, Miss Elizabeth S. 5 00
 Bonham, Mrs. Horace 10 00
 Bonnett, Charles P. 2 00
 Boynton, Mrs. C. H. 1 00
 Braman, Mrs. Dwight 5 00
 Brent, Mrs. Duncan K. 2 00
 Brooker, Mrs. Charles F. 5 00
 Brooks, Mrs. Peter C. 25 00
 Brooks, Mrs. Shepherd 10 00
 Brown, D. J. 2 00
 Brown, T. Hassall 10 00
 Burgess, E. Phillips 3 00
 Burt, Miss Edith 2 00
 Button, Conyers 25 00
 Cady, Walter G. 1 00
 Carse, Miss Harriet 2 00
 L. C. L. 10 00
 Chapman, Miss M. 2 00
 Christian, Miss Elizabeth 1 00
 Christian, Susan 6 00
 Clarke, Mrs. E. A. S. 5 00
 Sphinx 5 00
 Clerk, Mrs. A. G. 1 00
 Cleveland, Mrs. Clement 1 00
 Cobb, Miss Annie W. 2 00
 Cristy, Mrs. H. W. 1 00

Amount carried forward \$930 57

Egret Protection, continued

Amount brought forward \$930 57
 Crosby, Maunsell S. 5 00
 Cummings, Mrs. H. K. 1 00
 Curie, Charles 5 00
 Davis, Miss Lucy B. 3 00
 Davis, William T. 5 00
 Dawes, Miss Elizabeth B. 10 00
 Day, Miss Carrie E. 2 00
 Delafield, Mrs. John Ross. 2 00
 Doering, O. C. 10 00
 Dryden, Mrs. John F. 25 00
 Duer, Mrs. Denning 10 00
 Dwight, Mrs. M. E. 2 00
 Early, Charles H. 2 00
 Eastman, George 50 00
 Ellis, Wm. D. 10 00
 Ellsworth, Mrs. J. Lewis 2 00
 Evans, William B. 4 00
 Fergusson, Alex. C. 2 00
 Folsom, Miss M. G. 10 00
 Foot, James D. 2 00
 Franklin, Mrs. M. L. 10 00
 French, Daniel C. 2 00
 Friedman, Mrs. Max 2 00
 Fries, Miss Emilie 1 00
 Frothingham, John W. 35 00
 Fuguet, Stephen 5 00
 Bird-Lover 5 00
 Garst, Julius 2 00
 Gault, B. T. 2 00
 Gladding, John R. 15 00
 Godeffroy, Mrs. E. H. 10 00
 Goodwin, George R. 5 00
 Greene, Miss Caroline S. 1 00
 Haskell, Miss Helen P. 2 00
 Hathaway, Harry S. 2 00
 Hergers, Henry 2 00
 Higginson, Mrs. J. J. 10 00
 Hodgman, Miss Edith M. 5 00
 Hoe, Richard M. 5 00
 Hooker, Miss Sarah H. 1 00
 Hopkins, Miss Augusta D. 3 00
 Horr, Miss Elizabeth 5 00
 Hoyt, Miss G. L. 5 00
 Hunter, Mrs. W. H. 2 00
 Ireland, Miss Catharine I. 5 00
 Jackson, P. T., Jr. 6 00
 Jennings, Dr. George H. 3 00
 Johnson, Mrs. Eldridge R. 10 00
 Jopson, Dr. and Mrs. John H. 1 00
 Jordan, A. H. B. 20 00
 Joslin, Miss Ada L. 2 00
 Jube, Albert B. 3 00
 Kennedy, Mrs. John S. 5 00
 Kerr, Mrs. T. B. 1 00
 Laughlin, Mrs. H. M. 2 00
 Lewis, Mrs. August 10 00
 Linnæan Society 50 00
 Lippitt, Mrs. C. 5 00
 Livingston, Miss A. P. 15 00
 Lovering, Mrs. Helen E. 1 00
 McConnell, Mrs. Annie B. 5 00

Amount carried forward \$1,373 57

Egret Protection, continued

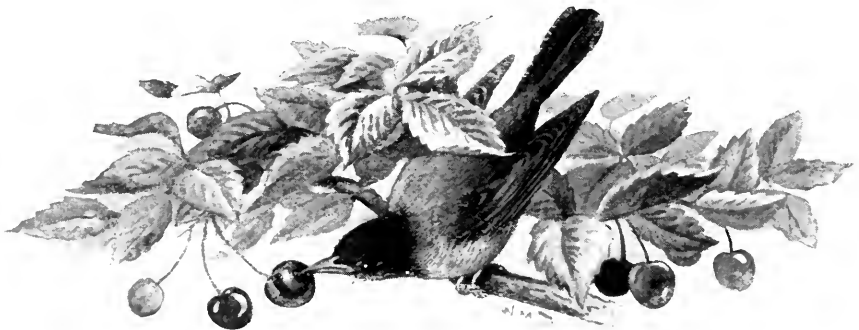
Amount brought forward . . .	\$1,373 57
McCormick, Mrs. R. Hall . . .	15 00
Mager, Augustus	1 00
Mann, J. R.	1 00
Marsh, Spencer S	1 00
Mason, G. A.	5 00
Mason, Mrs. George G	10 00
Mason, H. L., Jr	5 00
May, Miss Eleanora G.	2 00
Mellns, J. T.	2 00
Merritt, Mrs. James H.	1 00
Minot, William	2 00
Montell, Mr. and Mrs. F. M. . .	2 50
Moore, Alfred	5 00
Morgan, Miss C. L.	5 00
Morgenthau, Mrs. M. L. . . .	1 00
Mott, Miss Marian	5 00
Murray, J. Irwin, Jr.	1 00
Nesmith, Miss Mary	5 00
Nice, Mrs. Margaret M	3 00
Nicholson, J. C.	1 00
Noyes, Raymond	3 00
Oliver, Dr. Henry K	10 00
Osterholt, E.	5 00
Parker, Mrs. W. R.	3 00
Patton, Mrs. Margaret S. . . .	10 00
Peck, Dr. Elizabeth L	1 00
Petty, E. R.	2 00
Phelps, Mrs. Frances von R. . .	10 00
Phinney, C. G.	3 00
Pott, Miss Emma	1 00
Proctor, William Ross	25 00
Pusey, Mrs. Howard	2 00
Raht, Charles	5 00
Raymond, Charles H	10 00
Reed, Mrs. Wm. Howell	10 00

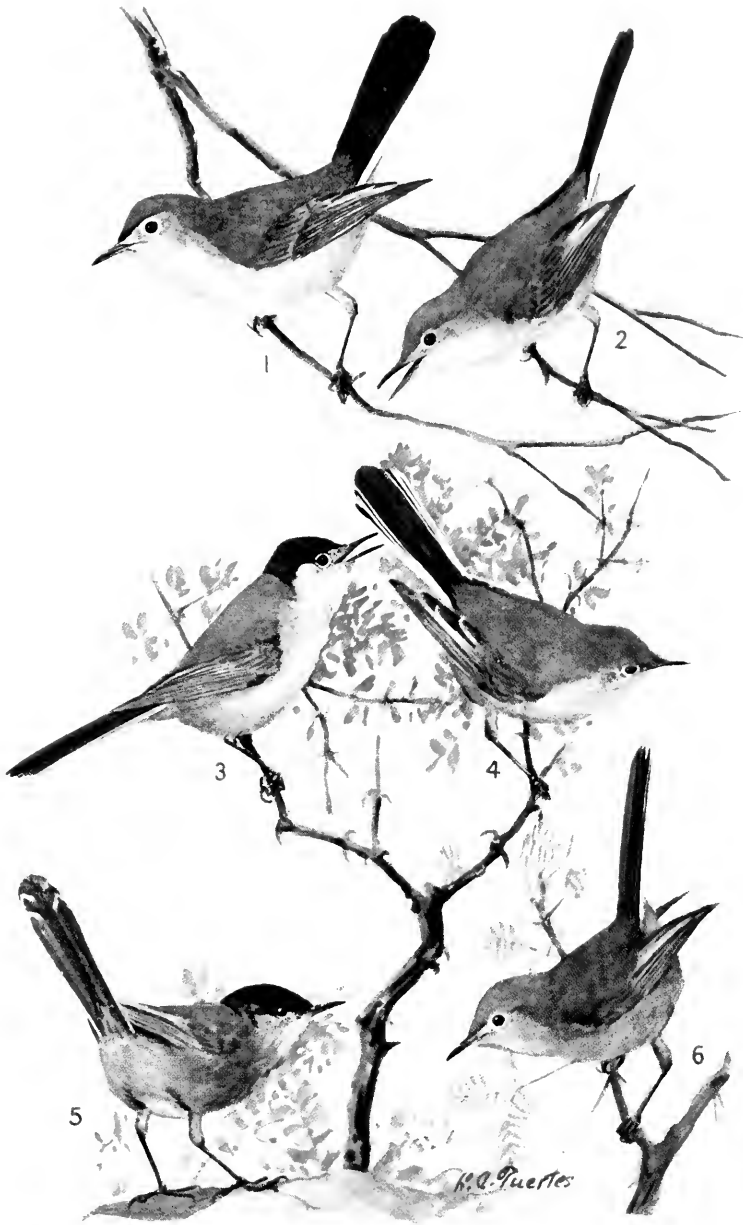
Amount carried forward . . . \$1,547 07

Egret Protection, continued

Amount brought forward . . .	\$1,547 07
Rhoads, S. N.	1 00
Robbins, Miss N. P. H.	2 00
Robbins, Mr. and Mrs. R. E. . .	20 00
Sampson, Miss Lucy S.	1 00
Sanger, Mrs. C. R.	3 00
Saunders, Charles G.	1 00
Schweppe, Mrs. H. M.	1 00
Scofield, Miss Marion	10 00
Severance, Mrs. P. C.	3 00
Simpkins, Miss M. W.	10 00
Small, Miss A. M.	2 00
Spachman, Miss Emily S. . . .	1 00
Spalter, Mrs. F. B.	1 00
Stanton, Mrs. T. G.	2 00
Stevens, F. E.	2 00
Stimson, William B.	3 00
Struthers, Miss Mary S.	5 00
Thorndike, Mrs. Augustus . . .	1 00
Timmerman, Miss Edith E. . . .	1 50
Topliff, Miss Anna E.	5 00
Tower, Mrs. Kate D.	1 00
Troescher, A. F.	10 00
Vaillant, Mrs. G. H.	3 00
Vermilye, Miss J. T.	2 00
Von Zedlitz, Mrs. Anna	2 00
Walker, Miss Mary A.	2 00
Westover, M. F.	2 00
Wilkins, Laura	1 00
Willcox, Prof. M. A.	10 00
Williams, Geo. F.	5 00
Williams, Mrs. Sydney M. . . .	2 00
Winslow, Miss Maria L. C. . . .	6 00
Woodward, Dr. S. B.	5 00
Wright, Miss Mary A.	2 00
Zimmerman, Dr. M. W.	5 00

Total \$1,680 57





1. BLUE-GRAY GNATCATCHER, Male
 2. BLUE-GRAY GNATCATCHER, Female
 3. PLUMBEOUS GNATCATCHER, Male

4. PLUMBEOUS GNATCATCHER, Female
 5. BLACK-TAILED GNATCATCHER, Male
 6. BLACK-TAILED GNATCATCHER, Female

(Three-fifths Natural Size)

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. XVII

MAY—JUNE, 1915

No. 3

Bird-Photography for Women

By MISS E. L. TURNER, F. Z. S., Cambridge, England

With photographs by the author

PATIENCE and a thick skin are the two essential qualifications for successful bird-photography. The first is inherent in most women, the second can easily be acquired. In my case, however, both virtues are a matter of training. I always cut string, and want everything before I can get it. Consequently, possessing an average feminine conscience, my feelings are terribly harrowed when—"The lecturer's marvelous patience" is held up before my audiences as worthy of all imitation. My thick skin is never referred to, I suppose it would not be polite to do so. Nevertheless I took up bird-watching and photography some sixteen years ago simply because I possessed a very thin skin, and some outdoor occupation was deemed necessary. Since then I have become hardened to every kind of exposure, and never take cold out-of-doors. This immunity is largely a matter of suitable clothes and, as I am writing for women, a word or two concerning dress is not out of place. Sixteen years ago it was not easy to get a really serviceable sporting outfit except at considerable expense. There is now a wide range of waterproof fabrics which are both useful and presentable. Personally, as



STONE CHAT

most of my work has been done in marsh lands, I always avoid tweeds, because they soak up the moisture like a sponge. My working clothes are made

throughout of the same material. They consist of a coat to my knees, well furnished with large outside pockets, wide enough to take at least two quarter-plate double dark slides, and a watch-pocket for trifles; a short skirt which, if necessary, can be discarded, hence the length of coat; a thick woollen shirt to match, and a second and longer skirt. A light shirt is often seen through the peep-hole of one's tent, by a wary bird, and it is often too hot for a coat. The principal use of the second skirt is for calling on the powers-that-be, when permission is wanted to hunt in private grounds. Besides which, in time the short skirt shrinks in length to a mere kilt, and every economical woman knows that a coat will outlast two skirts. I am not writing for millionaires, but for working-women of limited means, whose special outfit will have to last several years. If well-cut to start with, and not made in the latest evanescent fashion, although it may have "taken on color from the atmosphere,"* such a suit as I am describing will always look well and workmanlike. The older and shabbier one's "birding" clothes get, the more one loves them. When they are put away till the next season, it is sometimes just lovely to take them down and examine them. That brown stain was acquired in a peat bog in Ultima Thule; the little three-cornered slit is where you caught on a barbed wire, when creeping on hands and knees one moonlit night, to where the Night Jars (*Caprimulgus europæus europæus*) were dancing in the heather while their mates brooded. The long scratch across one wading-boot is where you stumbled amongst the saw-edged sedges.

"On a marsh that was old ere kings begun," your mind goes out to the mystic silence of the fen-country, and the dim dawn where light mists roll up from the reed-beds and waterways—fantastic shapes chasing each other across the wide spaces; ghosts of Viking and Saxon renewing ancient combats in a land where their fair-haired descendants still call the birds by their old Norse names. So much for one's old cloths

Of course when really on the warpath, it is not easy for the bird-photographer to look respectable, and one must be prepared to sacrifice appearance. I well remember one blustering May day on the marshes, when my tent refused to stand up, and ultimately was supported entirely by myself inside it. Finally, when I emerged from the wreck of canvas and steel supports, minus every hairpin, dirty and disheveled, I found myself face to face with three exceedingly well-groomed male naturalists, whom the keeper had brought up to introduce to me. It was not the moment I should have chosen, but I laughed, and they all joined in the search for the missing hairpins!

Modern bird-photography has attained a pitch of luxurious ease undreamt of by the earlier workers. One used to lie for hours beneath a heap of rubbish till every muscle became numb. The light portable tent which any woman can make for herself (assisted by the village blacksmith), the tilting-table, lens-

* This illuminating description of an old coat is Thoreau's or Richard Jeffries'—I forget which.



NIGHT JAR



BLACK-THROATED LOON ON NEST

hood, and modern combination lenses—all these accessories have reduced the difficulties and discomforts to a minimum. But, at the same time, one loses the old intimacy which frequently existed between the photographer and various stray birds. Many a time, when lying on the ground, lightly covered with litter, all kinds of birds have mistaken me for a heap of rubbish. Once two Cuckoos sat on my head; a Sedge Warbler, on another occasion, sat there and sang to me. One day a Snipe alighted on my shoulder and uttered



BLACK-THROATED LOON APPROACHING NEST

his creaking call-note, which was a curious and weird experience; because the bird seemed to vibrate inside, like unoiled machinery. He also prodded my face with his long, sensitive bill. The hiding tent has done away with all this. One now sits in comparative ease, notebook in hand, with thermos flask and sandwiches, and sometimes a novel.

But, in spite of many improvements, the necessary kit, even if only a quarter-plate outfit, is heavy for a woman to carry (unless she is very muscular) without assistance. Transport is often a difficulty in out-of-the-way places,

and one is frequently obliged to hire a man to carry things. If two women can hunt in couples, one of whom should *not* be a photographer, then difficulties are lessened. But, though there are drawbacks to this pursuit where women are concerned, there are compensations. The age of chivalry is far from past, and women will often gain admittance to protected areas from



OYSTER-CATCHER COURTING
 "She led her admirer a long walk"

which men are excluded, because every man is a possible collector. I had to interview a shaggy-browed Gaelic legal light on one occasion, in order to get information, and permission for myself and my two companions to photograph in a rigorously protected area. I trembled before this stern dignitary, who knew everything that was worth knowing about the district. Moreover, I had, in sheer ignorance of Scotch legal terms, grossly insulted him. However, he treated the misunderstanding as a huge joke, asked for pen and paper, and wrote out permits and gave away localities with a liberal hand. Then, drawing himself up to his full height, he said: "You're three women; had you been men, you wouldn't have got a thing out of me; if you want any more help, let me know."

The greater part of my work has been done on the Norfolk Broads, amongst

the marsh birds, where I have a tiny house-boat and do my own cooking. I owe much of my success to the ungrudging and faithful service of one man—James Vincent, the head-keeper.

Three years ago, he was bringing me back to my boat on a warm June day. The journey meant an hour's strenuous punting each way. We were discussing my work and recalling old times, suddenly I sat up and exclaimed: "Jimmy, if only I'd been a man, I'd have made things hum a bit." He stopped punting and looked at me in a startled manner, then said: "Law Miss, do you think I'd have slaved away night and day as I did in the old days, if you'd bin a man—not me." I next remarked—"Well, then I wish I was four inches taller." To this he cheerfully made answer: "Oh but just think how much more rubbish it would have taken to cover you up!" an aspect of the question entirely new to me, and the justice of which I admitted.

The greater part of one's photographic work is necessarily done during the short period of the breeding-season. Photographs of birds on their nests, however, do not exhaust the possibilities of this branch of nature work. At all times of the year birds have their regular rendezvous, where they congregate, either to feed, bathe, or amuse themselves generally. A hiding-tent left standing near one of these avian recreation-grounds may produce unexpected and



OYSTER-CATCHER COURTING
"He in turn assumed indifference"

charming results. It is a branch of photography which calls for more time and patience than any other, but one which would amply repay any person who had means and leisure to pursue it.

Of course, if you plant your tent in one chosen spot, the birds will probably move just out of range; but then, again, they may not. There is a glorious uncertainty about this form of sport which makes it particularly engrossing. I have tried it only a few times, but hope to follow it up some day when I have nothing else to do.

The Oyster-catcher (*Hæmatopus ostralegus ostralegus*) courting is an illustration of this kind of chance photography. These two birds were evidently enamored of each other, but it is not correct in the best avian society for the female to take any notice of her wooer, therefore my lady is pretending that she has no follower. She led her admirer a long walk alongside the river Tay, holding her head high and stepping daintily. He followed in her wake humbly, adoringly, wooing her with the most beautifully subdued but clear flute-like whistles. His dulcet tones were enough to cajole the heart out of any Oyster-catcher, however proud. But she tripped unconcernedly to and fro by the water's edge, now and again stopping so suddenly and unexpectedly that her pursuer nearly cannoned into her, and both himself and his whistling were brought up short. When this occurred, he in turn assumed indifference and, receding a few steps, stood looking down stream until she elected to move on. This, I conclude, was all part of the science of flirtation as understood by the Oyster-catcher, at any rate it was a beautiful game to watch in the brilliant sunshine of a May morning.

After all, it is not so much the mere obtaining of a photograph, as the joy of watching, that compensates for the long hours of waiting. To me, the pleasure of securing a good photograph is not to be compared with the delight of getting into close touch with these beautiful shy wild things, whose emotions and actions are so akin to our own. I am often accused of attributing human emotions to my birds, and of crediting them with intelligence far beyond their capacity. Who is to judge the intellectual capacity of any wild thing? Baalam's ass saw further than his master. Individual birds of the same species vary temperamentally and in mental capacity as widely as do dogs, horses, children, or any other wild beasts. My great namesake, William Turner, in his translation of Aristotle on Birds, published in 1544, says of the Tree Creeper (*Certhia familiaris britannica*):* "The Certhia is a very little bird of bold habits; its home is upon trees, its food is grubs; it shows wise instinct for the needs of life."

Anyone who lives with birds knows that they all show this same wisdom in varying degree. Birds live by their wits, and their little lives, which on the surface appear so full of beauty and romance, are just one short fitful fever. In the desperate struggle for existence, they need show "wise instincts," and

*Turner on Birds, edited by A. H. Evans, Cambridge, 1903, p. 52.



BEARDED TIT AND YOUNG

they do, though in varying degree. I will mention only one or two instances, out of many which have come under my own notice, illustrating this individuality.

I once planted myself and my camera close to a Stone Chat's nest (*Savi-cola torquata hibernans*), without any pretense at hiding, either. The young



MALE RED-BACKED SHRIKE

were nearly full-grown and the parents actively engaged in feeding them. Naturally my presence was resented, and in strong language. Finding me hard to move by mere words, the old birds resorted to strategy. For ten minutes they pretended to feed imaginary young, thirty or forty yards away. They took a deal of trouble to deceive me, catching insects and grubs and dropping down to this spot time after time, depositing the food there, every now and

again flying over their real nest and uttering warning cries to the young. But, as nothing disturbed me, they finally took me for a harmless person, and quietly settled down to feed the now clamorous young.

While photographing Red-backed Shrikes (*Lanius collurio collurio*) from a rough shelter, I saw one of the most amusing episodes I have ever witnessed



FEMALE RED-BACKED SHRIKE

in bird domestic life. I was hidden within three feet of a nest which contained four young. The parents either visited the nest together, or followed each other in quick succession; but the male usually fed the brood from the right side, and the female from the left. On one occasion, while the female lingered, watching her family with an admiring eye, the male arrived with the head of a nestling bird, which he proceeded to push down the throat of one little Shrike,

with the result that it was nearly choked. He then tried all four in turn, waxing more and more persistent at each failure. Meanwhile the hen carried on a gentle conversation with him, the gist of which was quite obvious to the onlooker. After having patiently watched while each of her babies in turn was left gasping by her mate's well-meant, but misdirected efforts, she gently edged round to where he stood looking helpless and very foolish, holding the rejected food in his bill. She quietly took the mangled head from him, tore



WATER RAIL REMOVING YOUNG FROM NEST

it into four bits and gave one to each of her brood in turn. Then the old birds looked at one another, interchanged a few remarks in the intimate language even such harsh-voiced birds as the Shrikes are capable of using during the breeding-season, and, having discussed the right and wrong way of administering infantile diet, they flew amicably away together. I could not photograph this episode without disturbing both it and the birds, and I wanted to see the end of the comedy.

Incidents such as these are full of charm, not only to the bird-lover, but also to the student of animal psychology; and long watching within the hiding-



WATER RAIL REMOVING UNHATCHED YOUNG BY THE SHOULDER

tent reveals the hidden secrets of a wild bird's domestic life as nothing else can do. Therefore for women who want an outdoor recreation, and who love wide spaces and waste places, or the quiet corners of the earth, there is nothing that, in the end, becomes so absolutely absorbing as bird-watching with a camera.

It is the highest form of sport, having for its object not death, but life and a fuller knowledge of the life history of nature's elusive, and perhaps most beautiful children. "Wild as the waves, and free as heaven's dome." Means and leisure are not a *sine qua non* of this particular form of sport, though the



BOHEMIAN WAXWING
The first photograph ever taken of this species

more one possesses of both, the better the work one ought to do. Until the last two years, most of my photographic work has been crammed into one crowded three weeks annually, and I have had to make it pay.

There are three things to be aimed at: First, the bird and its ways; then, the scientific record; and last, a technically good picture. Many bird-photographers reverse this order. I am the last person to despise a technically perfect picture, but, if useful work is to be done, technicalities and rules must sometimes be discarded for the sake of a sporting chance. If one wishes to portray some emotion or gesture, it is of no use waiting light-meter in hand for good light and correct exposure. Plate after plate must be blazed away sometimes on the mere chance of getting what you want. It is not at all correct photography, but I have always found it worth while, for my really

interesting records have all been obtained in this way. Take, for instance, the Water Rail (*Rallus aquaticus aquaticus*) removing her young. This bird had a bad attack of nerves and suddenly removed everything out of the nest—newly hatched young, eggs, and unfortunate young just chipping the shell. The



NIGHTINGALE

“He hovered for an instant over the nest, rapidly quivering his wings and fanning his tail”

photographs had to be taken at high speed, to counteract the curious nervous energy of the bird, as she was what old women call “all of a tremble.”

The Waxwings also (*Ampelis garrulus*) were the result of sheer love of adventure. They were feeding in a species of cotoneaster near the window of a house in Cambridge for several consecutive days last February. There

was very little light, and the wind blew a gale. I had to use a hand-camera at double extension working at $f/14$, and no exposure under 1-100 of a second was possible. Yet the results were worth while, seeing that no photograph of this species had ever been secured previously.

The Nightingale (*Lucinia megarhyncha megarhyncha*) hovering over his mate is another case in point. I wanted this particular expression of emotion on the part of the male bird. During the first two days after the young were hatched he did all the feeding, and whenever he brought food he hovered for an instant over the nest, rapidly quivering his wings and fanning his tail, meanwhile uttering notes so soft and sweet that they seemed a mere long-drawn sigh, expressive of absolute and utter content. The nest was placed amidst dense foliage in a dark corner, and something above half a second's exposure was necessary in order to secure an image of any kind on a flash-light plate. Out of twenty-four plates exposed on this one attitude, only one succeeded in reproducing it.

Because the bird itself is more to me than any photograph, I seldom use long-distance tubing, and never electric releases. Sit near your subject if you wish to experience real joy, you will at least learn something, and if a picture is unattainable one day fortune may favor you the next.

I have said nothing about apparatus in this article, as the scientific outfit is the same for either sex, and information with regard to that is easily obtained from any bird photographer. I am now reduced to two cameras; a quarter-plate 'Birdland' Reflex, and a half-plate camera which was made to order. The use of the one or the other depends largely on the distance to be traversed and the kind of picture I wish to secure. Where the focus of my subject is more or less stationary, I use the half-plate stand camera. If movement is the thing I am aiming at, the reflex is of course ideal; but, if I were beginning all over again, I should most certainly work with autochromes.



Bird-Life in Southern Illinois

IV. Changes Which Have Taken Place in Half a Century

By ROBERT RIDGWAY

THE unprejudiced inquirer will no doubt find it difficult to reconcile the opposite statements and conclusions of two writers in the July-August (1914) number of BIRD-LORE,* concerning the question of whether our native birds are decreasing or not.

Mr. Thayer maintains that there has been no material decrease, and believes that those who think otherwise are deceived by "illusions of perception, of memory," etc. (to quote from Professor Münsterberg's letter), while Mr. Kinsey declares that they have decreased, and gives several reasons (very real ones, too) therefor. Mr. Thayer's observations were made at Keene, New Hampshire, a manufacturing town founded in 1735; while Mr. Kinsey's were made at Lathrop, Missouri, in an agricultural region, settled very many years later. The essential difference in local conditions of the two places of observation will, in my opinion, account for these opposite conclusions. In New Hampshire, the major changes were doubtless made and a readjustment of the 'balance of nature' established long before Mr. Thayer was born; while in Missouri, as in any more recently settled agricultural country, these changes are continually going on, through steadily progressing deforestation, drainage, and extension of cultivated areas. In other words, in the purely agricultural districts, the area of woodland, swamp, and all uncultivated ground, is steadily and rapidly growing less from year to year; and hence, in like ratio, there is a constantly progressing restriction of areas suitable for shelter and nesting-places for birds. The conditions in the older, mainly manufacturing or pastoral, states, especially in New England, are quite different, inasmuch as such changes in the country as have more recently taken place are rather favorable to bird-life than otherwise, many fields having grown up to brushwood or young forests, while long stretches of bare roadsides and denuded fence-lines are the exception rather than the rule. Indeed the conspicuous difference between the two sections of the country in this respect can hardly be realized except by those who are familiar with both.

It has not been my good fortune, as it has Mr. Thayer's, to visit annually the scenes of my earlier observations. My visits have, however, been frequent and it has recently been my privilege to spend eighteen consecutive months in one of the two localities where the earlier observations were made;† and altogether, these visits have enabled me to make a reasonably exact state-

*Comparative Abundance of Birds: A letter from Abbott H. Thayer and Professor Münsterberg's Letter (pp. 263, 264).—Why Birds are Decreasing. By Rolla Warren Kinsey (pp. 265, 266).

†The last winter, previous to that of 1913-'14, spent by me in Southern Illinois was in 1866-'67; the last entire summer, that of 1866.

ment as to the character and extent of the more marked changes which have taken place in the bird-life there during the past fifty years.

In recording these changes, care is taken to exclude any statements that might in the least degree be influenced by any of the "well-known illusions which are familiar to the psychologist"* and to cite only the most obvious facts. For example: There can be no illusion of perception or memory involved in the statement that very much less than fifty years ago it was hardly possible, in the region of which I am writing, for one to go even a short distance from the towns without seeing one or more flocks of Wild Turkeys; and that in October or November Wild Pigeons were to be seen by thousands or even millions, while now both species are absolutely gone; that each spring or fall, less than fifty years ago, countless flocks of Wild Geese or Ducks passed over in their migrations, and the loud trumpeting of Whooping and Sandhill Cranes was a familiar sound; while now all these birds are but a memory, except for a few, probably less than ten per cent (possibly not more than one per cent) of the Ducks and Geese; that Blue Jays and Bronzed Grackles are at least as numerous as they were fifty years ago; that the introduction, less than forty years ago, and extraordinary increase of the European House Sparrow have resulted in practical banishment from their former close association with human abodes of the Bluebird, Purple Martin, Barn Swallow, and Cliff Swallow; or that the spontaneous advent (not earlier than the year 1869) of the House Wren has caused a great diminution in numbers and an irregular distribution of the once abundant and ubiquitous Bewick's Wren.

There are many other more or less marked changes in the bird-life of Southern Illinois, which, though not so conspicuous as those just mentioned, are nevertheless equally certain.

The principal factors responsible for the marked disturbance of the 'Balance of Nature,' so far as bird-life is involved, are evidently the following:

(1) *Shooting*.—The game laws of Illinois (as in many other States), are not only defective but poorly administered, as must necessarily be the case so long as either the framing of the laws or their enforcement is connected with politics. It is very doubtful, however, whether any law, even if rigidly enforced, short of absolute prohibition of shooting for a term of years, can save the remaining game birds from extermination for any considerable time. The number of gunners is out of all proportion to the number of birds that remain, and the yearly increase of the latter is more than balanced by the annual slaughter.

Game birds which have been completely exterminated within the past fifty years are the Passenger Pigeon, Wild Turkey, and Ruffed Grouse; possibly also the Whooping and Sandhill Cranes, and Trumpeter Swan. Those which are near the verge of extermination are the Bob-White, Prairie Chicken, Upland Plover, and the various Ducks and Geese.

*See Professor Münsterberg's letter, previously cited.

(2) *Decrease in number and extent of shelter and nesting areas.*—Continued clearing of woodlands, drainage of swamps and marshes, and removal of trees, shrubbery and weedy growths from roadsides and fence-lines, have destroyed just so much of the area required by birds for nesting-places, shelter, and food.

(3) *Introduction and naturalization of the European House Sparrow.*—The amazing increase of the so-called English Sparrow has profoundly disturbed the 'balance' of bird-life. Although introduced less than forty years ago, this species is now, without question, by far the most numerous bird in the region of which I write, even if it does not exceed in numbers *all* the native small passerine birds combined, not only in the towns but on the farms as well. The effect on native birds is exceedingly well marked, for the foreign pest has literally crowded out, or by its aggressive meddlesomeness driven away, from the abodes of man, those charming and useful native birds, the Bluebird, Purple Martin, Barn Swallow, and Cliff Swallow. None of the native species like its company, and, in winter, when one wishes to feed the Cardinals, Juncos, and other native birds, it is necessary to feed many times as many of those pernicious pests, thus vastly increasing both the trouble and the expense.

(4) *Destruction by feral house cats and self-hunting bird-dogs.*—The long-established practice of getting rid of surplus cats by carrying them, in bag, basket or box, outside the towns, and turning them loose to shift for themselves, has resulted in stocking practically every piece of woodland with these arch-enemies of bird-life, which, hiding in the thickets by day, roam everywhere at night, and destroy countless numbers of birds. As an example of the extent to which the country is infested with these creatures, it may be stated that the owner of a sixty-acre tract of woodland adjoining Bird Haven informed me that his boys never ran the dogs at night in these woods for 'possums and coons,' without treeing half a dozen to a dozen or more cats. This piece of woodland is about two miles from town, and its feline population is the gradual accretion of town cats "dumped" by their owners outside the corporation, together with their progeny. It is of course difficult to estimate the extent to which these practically wild cats are responsible for the present relative scarcity of birds, but it must, from the very nature of the case, be a most important factor.

Less destructive, only because less general, are the raids of "self-hunting" bird-dogs (pointers and setters), which, during the breeding-season, beat back and forth across the fields, covering every square rod of ground, and locating, by sense of smell, every nest of Bob-white, Meadowlark, or other ground-nesting species, and forthwith devouring the eggs or young. Many times have I seen them thus engaged, and a pair of them (a pointer and a setter) used to pass my house daily on their way to the fields outside of town.

Preservation of our game and other birds certainly cannot be effected unless

both these conditions are removed. The dropping or turning loose of cats or kittens not wanted in the home should be prohibited by law, and the prohibition enforced with severe penalties; and bird-dogs should be restrained from running at large during the breeding-season.

(5) *Wanton killing of birds by boys.*—The very common* practice of boys, especially town boys, of killing birds as an amusement or pastime is a more serious factor in the diminution of bird-life than many persons suppose, or are willing to admit. It is usually the tamer or more attractive birds that suffer from this cause, such as the Cardinal, Bluebird, Catbird, Robin, and Baltimore Oriole, though no bird is exempt. I have even heard (on good authority) of *men* shooting birds for fish-bait, and of one young man who daily visited a grove in the edge of the town to shoot birds for his cat!

(6) *Spraying of Orchards.*—To what extent the spraying of orchards has to do with decreasing bird-life I have no positive information. I only know that during my boyhood days orchards were the most prolific, and therefore my favorite, bird-nesting places. A majority of the trees in any orchard, no matter its extent, would contain at least one bird's nest, occasionally four or five. Of late years, I have repeatedly gone carefully through similar orchards without finding a nest on more than one tree in fifty, sometimes none at all. Furthermore, in former years the orchards fairly swarmed in blossoming-time with migrant Warblers, busily engaged in catching insects among the flowers; while of late years few, sometimes none, of these birds are to be found there.

(7) *Temporary Causes.*—(See note below on the Turkey Buzzard.)

(8) *Unknown Causes.*—(See note on the Dickcissel and Baltimore Oriole.)

In conclusion, the following observations on a few particular species which have changed their status during the past fifty years may be of interest.

(a) Species which have become quite exterminated.

WILD TURKEY (*Meleagris gallopavo silvestris*).

RUFFED GROUSE (*Bonasa umbellus*).

PASSENGER PIGEON (*Ectopistes migratorius*).

Besides these, two other species had become extinct earlier than fifty years ago: the Louisiana Paroquet† (*Conurus carolinensis ludovicianus*), of which the last were seen at Mt. Carmel, on the Wabash, in 1861 or 1862, when a flock flew over the common near the river, and the Ivory-billed Woodpecker (*Campophilus principalis*), which disappeared nearly ten years earlier.

*The adjective is used after due consideration, for I have never yet been so fortunate as to be in a community where the practice in question was not a more or less common one. In the town from which this is written (a place of more than 5,000 inhabitants), boys may be seen daily along the principal residence streets killing birds with air-rifle, 'cat'-rifle, or bean-shooter, or destroying their nests, even invading private grounds against the useless protests of the owners. The conditions here are probably exceptional only to the extent that no effort whatever is made by "the authorities" to enforce the laws against killing song or insectivorous birds, or the shooting of firearms within the corporate limits.

†A race of the Carolina Paroquet which formerly inhabited the Mississippi Valley.

(b) Species verging toward extermination.

PRAIRIE CHICKEN (*Tympanuchus americanus*).—Although the present time is well within the second consecutive five-year term of alleged or ostensible absolute protection by law, this bird is not even common. I was unable to see a single one during many trips to the most likely places during all of my eighteen months sojourn in Richland County, though told that the species was plentiful in certain localities. During the mating season of 1914, the 'booming' of two or three males could be heard each morning at Larchmound, the meadows which they frequented being about a mile to a mile and a half distant. Most certainly, this species does not increase as it should if adequately protected, owing, probably, to surreptitious shooting and destruction of eggs and young by self-hunting dogs.

BOB-WHITE (*Colinus virginianus*).—This species is constantly decreasing in numbers, the multitude of gunners afield during the open season being alone sufficient to account for the decrease.

UPLAND PLOVER (*Bartramia longicauda*).—Once an abundant bird in all the open country, but now very scarce; and its liquid warbling whistle, as it floated or circled overhead—one of the most thrilling of bird-songs—is now rarely heard.

DUCKS, GEESE, and other WATER BIRDS.—These have all become far less numerous than formerly. During the spring migration of 1913, a solitary Canada Goose (seen flying over on March 16) and less than a dozen Ducks were the sum total of all that were observed; and in the fall of the same year a single flock, composed of approximately equal numbers of the Snow Goose and Blue Goose, were all that were seen. Sandbill and Whooping Cranes and Swans have not been seen for many years.

SWALLOW-TAILED and MISSISSIPPI KITES (*Elanoides forficatus* and *Ictinia mississippiensis*).—The last individuals of the Mississippi Kite seen by me were a pair observed, during the summer of 1910, soaring over Bird Haven; but it has been so long since a Swallow-tail was seen that I cannot remember the year. As late as 1871 both species were common summer residents, and I have seen more than a hundred of the former and dozens of the latter *at one time*, as they soared about overhead, watching for and devouring the large cicadas, grasshoppers, and small snakes which (except the last) abounded on the open prairie*. At that time the prairie was wholly uncultivated, while now every acre of it is farmland.

PILEATED WOODPECKER (*Phewotomus pileatus*).—This conspicuous bird seems to have quite disappeared from all wooded tracts visited by me in Richland County; but, during two visits to a remnant of forest along the Little Wabash River, in the northeastern corner of Wayne County, I heard its familiar yelping notes.

*See 'The Prairie Birds of Southern Illinois,' in *American Naturalist*, VII, 1873, pp. 195-203.

(c) Species ousted by the English Sparrow.

CLIFF SWALLOW (*Petrochelidon lunifrons*).—Formerly abundant, large colonies attaching their retort-shaped nests underneath overhanging eaves of barns, warehouses, and other large buildings, but apparently has wholly disappeared.

BARN SWALLOW (*Hirundo erythrogastra*).—Almost totally expelled by the Sparrow, great numbers of which have appropriated every nesting-site in the barns and other outbuildings.

PURPLE MARTIN (*Progne subis*).—Mostly driven from towns and farms by the Sparrow, the large trees containing cavities that are left being too few in number to accommodate more than a small percentage of the number that formerly occurred.

BLUEBIRD (*Sialia sialis*).—This also has been mainly displaced by the Sparrow, which has appropriated nearly all cavities suitable for nesting-places.

(d) Expelled by the House Wren.

BEWICK'S WREN (*Thryomanes bewicki*).—The first House Wren ever seen or heard by me in southeastern Illinois was noted in the vicinity of Olney, some time near the year 1870, but I have no record of the exact date. It had not appeared at Mt. Carmel as late as 1878, when Mr. Brewster and I collected there. Bewick's Wren was the 'house Wren' of the entire region, and was so abundant that practically every home where there were out-buildings (especially if more or less dilapidated ones) possessed its pair of these charming birds. To what extent the House Wren has displaced Bewick's at Mt. Carmel I do not know, my last visit there being in 1890, at which time I do not remember having seen it. In the vicinity of Olney, the House Wren is now by far the more numerous of the two, especially in the town itself; and, wherever it has chosen a home, Bewick's Wren is forced out, for Troglodytes will not brook the presence of any other species—Wren, Chickadee, Titmouse or Nuthatch—which requires similar nesting-sites. Thryomanes, on the other hand, is exceedingly tolerant of other species, and therefore is far the more desirable bird, especially since it is equally tame and a far better songster, its song recalling that of the Song Sparrow, though at its best, even finer.

(e) Decrease from unknown causes.

DICKCISSEL (*Spiza americana*).—A marked decrease in this species was first noted by me during the summer of 1885, when it was so scarce that I could not find in the entire county as many specimens as were present the previous summer in almost any large meadow. Since that date, the species has varied in relative abundance from year to year, but has never reached more than one-fourth, and usually barely more than one-tenth, its normal numbers; and during the summers of 1913 and 1914 could only be found sparingly and

locally. The only thing that I am able to suggest as possibly having some relation to the great decrease in this species is the fact that the date when this decrease was first noticed was that during which the English Sparrow first became really abundant; but the circumstance may, of course, be merely a coincidence.

BALTIMORE ORIOLE (*Icterus galbula*).—During 'the sixties,' this was one of our common summer residents, but for many years has been one of the rarest. At the present time, there is only one pair to a dozen or more pairs of the Orchard Oriole, though formerly they were about equally numerous.

WOOD THRUSH (*Hylocichla mustelina*).—Formerly a common summer resident in all damp woods, but now scarce and very local. The circumstance that the bottom-land forests are now mostly cleared will, of course, partially account for its scarcity; but I have visited considerable tracts of woodland in every way suited to its requirements, and in most of them found it absolutely wanting.

YELLOW WARBLER (*Dendroica aestiva*).—Formerly abundant and found in every orchard and in the shade trees along the streets, as well as other suitable places, but now so rare that I have not seen nor heard it at all within the past two years.

WARBLING VIREO (*Vireosylva gilva*).—The same remarks apply to this as to the last, so far as its great decrease is concerned, though one or two individuals are seen each year.

WHITE-EYED VIREO (*Vireo griseus*) and YELLOW-BREASTED CHAT (*Icteria virens*).—Not many years ago, both these birds were abundant, and to be found in all blackberry and hazel thickets, old grown-up clearings, and similar places, but now are very scarce and local. The clearing of such localities will not wholly account for their scarcity, for such suitable places as remain (sometimes of considerable extent) have been found either to lack entirely any of either species or to harbor exceedingly few. Probably roaming house cats have much to do with this case, since both birds live near the ground, and therefore are within easy reach of four-footed enemies.

CAROLINA WREN (*Thryothorus ludovicianus*).—This species also is far less numerous than formerly.

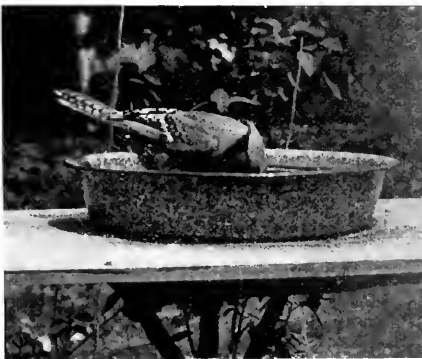
(f) Decrease from special causes.

TURKEY BUZZARD (*Cathartes aura septentrionalis*).—Formerly so abundant as to be almost constantly in sight, and found throughout the year. Its relative scarcity of late years, when at times weeks would pass without one being seen, was a great puzzle to me until I learned, after inquiry, of the probable, if not obvious, causes. These are, the state law compelling the burial of dead animals, and the shooting of large numbers of buzzards on account of the wholly erroneous supposition that they are active agents in dissemination of hog-cholera,

(g) Species of recent advent as breeding birds.

HOUSE WREN (*Troglodytes aedon*).—The case of this species has already been mentioned, under Bewick's Wren.

SONG SPARROW (*Melospiza melodia*).—Up to 1890, at least, the Song Sparrow was unknown as a summer resident in the Lower Wabash Valley; it was a common winter resident, coming with the White-throats and Juncos about the middle of October, and departing with them late in April or early in May. I first learned of its advent as a breeding bird at Mt. Carmel, on the Wabash, in 1902, when Dr. Jacob Schneck, of that place, informed me that it had been a summer resident there for the past two or three years. I was then in Johnson County, in the extreme southern part of the state, and therefore could not verify Dr. Schneck's statement, which I strongly doubted, believing his identification erroneous. Late in June, however, of that year, we proceeded from Johnson County to Richland County, and when reaching Grayville, on the Wabash, eighteen miles below Mt. Carmel, had to change routes; and, having two or three hours between trains, my wife and I employed the time strolling about the outskirts of the town. One of our walks led us along the river bank for perhaps a mile, and it was during this walk that we were surprised and delighted to hear the song of *Melospiza*; thus not only confirming my friend's statement, but showing that it had even advanced southward much beyond Mt. Carmel. This southward extension of the breeding-range of the Song Sparrow in the Lower Wabash Valley must, however, be confined to the flood-plain of the river (averaging about ten miles in width) and, perhaps, its immediate vicinity, for it is not yet found in summer in any part of Richland County where it still occurs only as a winter resident.



Before



After

A BLUE JAY'S BATH

Photographed by Miss C. R. Scriven, Webster City, Iowa

The Migration of North American Birds

Compiled by Prof. W. W. Cooke, Chiefly from Data in the Biological Survey

With a Drawing by LOUIS AGASSIZ FUERTES
(See Frontispiece)

BROWN CREEPER*

The Brown Creeper winters throughout so large a part of its breeding-range that the migratory movements are difficult to trace. In the Rocky Mountains, and especially on the Pacific Coast, the problem becomes still more complicated, for here some individuals remain locally through the winter almost to the northern limit of the breeding-range.

The Brown Creeper has been separated into several forms. The eastern bird (*americana*), extending west to the Plains, is strictly migratory—there is probably no individual that spends the winter at the nesting-site.

The Mexican Creeper (*albescens*) occurs in southern Arizona, southwestern New Mexico, and northern Mexico.

The Rocky Mountain Creeper (*montana*), as its name implies, ranges in the Rocky Mountains from central Alaska to New Mexico.

The California Creeper (*occidentalis*) is found on the Pacific coast from Sitka, Alaska, to the Santa Cruz Mountains, California.

*This species was figured in the April number of BIRD-LORE

SPRING MIGRATION

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Montreal, Canada.....	5	March 31	February 6, 1857
Neilsonville, Quebec.....			April 23, 1887
Chatham, N. B.....	5	May 15	May 10, 1895
Chicago, Ill.....	17	March 24	February 10, 1907
Waterloo, Ind. (near).....	11	April 6	January 19, 1890
Sandusky, Ohio.....	11	April 2	March 18, 1905
Petersburg, Mich.....	10	March 27	March 12, 1886
Bay City, Mich.....	6	April 6	March 27, 1894
Houghton, Mich.....			April 18, 1908
Galt, Ontario.....	6	March 12	March 2, 1901
Ottawa, Ontario.....	8	April 13	February 18, 1885
Keokuk, Iowa.....	8	April 11	February 14, 1899
Fairfield, Iowa.....	9	April 5	March 29, 1893
Grinnell, Iowa.....	6	March 27	March 18, 1890
National, Iowa.....	4	April 6	March 27, 1908
Madison, Wis.....	6	March 31	March 3, 1909
North Freedom, Wis.....	4	April 2	March 18, 1903
Meridian, Wis.....			March 28, 1897
Lanesboro, Minn.....	11	April 7	January 2, 1892
Minneapolis, Minn.....	7	April 7	January 5, 1889
Elk River, Minn.....	6	April 7	March 28, 1884
White Earth, Minn.....			April 20, 1881
Grand Forks, N. D. (near).....	6	April 17	April 11, 1903
Southern Manitoba.....	4	April 16	April 3, 1910

SPRING MIGRATION, continued

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Kirkwood, Ga.....			April 3, 1902
Raleigh, N. C.....	10	April 7	April 18, 1907
Lynchburg, Va.....	4	April 22	April 28, 1902
Waverly, W. Va. (near).....	4	April 24	April 30, 1904
Washington, D. C.....	8	April 27	May 1, 1907
Morristown, N. J.....	4	April 26	April 30, 1907
New York City, N. Y.....	11	May 1	May 5, 1907
Hartford, Conn.....	8	May 11	May 18, 1913
Southern Mississippi.....	3	March 23	March 26, 1900
Clinton, Ark.....			April 9, 1880
Athens, Tenn.....	3	April 20	April 24, 1905
Lexington, Ky.....	5	April 16	April 19, 1906
St. Louis, Mo.....	6	April 15	May 19, 1907
Chicago, Ill.....	15	May 3	May 13, 1906
Waterloo, Ind. (near).....	5	May 7	May 17, 1905
Oberlin, Ohio.....	11	April 27	May 13, 1907
San Antonio, Tex.....	3	March 21	March 25, 1890
Gainesville, Tex.....			April 6, 1885

FALL MIGRATION

PLACE	Number of years' record	Average date of fall arrival	Earliest date of fall arrival
Hartford, Conn.....	6	October 1	September 26, 1887
New York City, N. Y.....	10	October 2	September 22, 1904
Morristown, N. J.....	8	October 1	September 25, 1906
Washington, D. C.....	6	September 29	September 11, 1911
French Creek, W. Va.....	4	October 1	September 29, 1892
Lynchburg, Va.....			October 9, 1899
Weaverville, N. C.....			September 14, 1902
Raleigh, N. C.....	9	October 10	October 3, 1888
Charleston, S. C.....	2	October 26	October 17, 1900
Kirkwood, Ga.....	5	October 21	October 18, 1901
Tallahassee, Fla.....			October 28, 1904
Lawrence, Kans.....			October 1, 1906
Lanesboro, Minn.....	4	October 4	September 24, 1891
North Freedom, Wis.....	4	September 21	September 13, 1902
Madison, Wis.....	3	September 26	September 20, 1911
National, Iowa.....			September 21, 1911
Oberlin, Ohio.....	7	October 2	September 24, 1906
Richmond, Ind.....			September 4, 1908
Chicago, Ill.....	11	September 20	September 13, 1895
Lexington, Ky. (near).....	4	October 4	October 1, 1911
Athens, Tenn.....	2	October 18	October 15, 1903
Delight, Ark.....			October 10, 1911
Southern Mississippi.....	5	October 15	October 11, 1906

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Athabasca Landing, Alberta.....			September 22, 1903
Aweme, Manitoba.....	3	October 6	October 13, 1910
Madison, Wis.....	3	November 13	December 27, 1901

FALL MIGRATION, continued

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Galt, Ontario.....	6	December 2	December 15, 1899
Ottawa, Ontario.....			December 8, 1883
Palmer, Mich.....	2	November 3	November 5, 1893
Waterloo, Ind.....	3	November 4	November 7, 1906
Chicago, Ill.....	10	November 4	November 19, 1910
St. John, N. B.....	2	October 6	October 8, 1895
Montreal, Canada.....	4	October 17	November 20, 1910

BLUE-GRAY GNATCATCHER

Wintering in the Gulf States, Cuba, and Mexico, the movements of the Blue-gray Gnatcatcher cannot be traced until after it has passed beyond the northern limit of the winter range.

The birds from the western United States, from western Texas and the Rocky Mountains to the Pacific, have been separated under the name of the Western Gnatcatcher (*obscura*). A few of the notes in the following tables apply to this form.

SPRING MIGRATION

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Northern Florida.....	5	March 16	February 6, 1903
Savannah, Ga.....	8	March 11	March 6, 1910
Kirkwood, Ga.....	12	March 22	March 12, 1896
Central Alabama.....	5	March 20	March 10, 1908
Frogmore, S. C.....	4	March 15	March 5, 1889
Raleigh, N. C.....	25	March 26	March 16, 1894
Weaverville, N. C.....	3	March 28	March 27, 1894
Andrews, N. C.....	4	March 27	March 23, 1904
Variety Mills, Va.....	18	April 2	March 24, 1904
French Creek, W. Va.....	5	April 6	March 31, 1889
Washington, D. C.....	22	April 7	March 30, 1907
Waynesburg, Pa.....	6	April 13	April 6, 1893
Beaver, Pa.....	9	April 20	April 16, 1908
Philadelphia, Pa. (near).....	5	April 20	April 15, 1791
Cape May, N. J.....	3	April 14	April 11, 1903
New York City, N. Y.....	2	April 21	April 7, 1910
Sea View, Mass.....			April 30, 1911
Cape Elizabeth, Maine.....			April 18, 1896
New Orleans, La. (near).....	16	March 23	Rare, winter
Biloxi, Miss. (near).....	6	March 22	February 28, 1909
Helena, Ark.....	16	March 31	March 15, 1907
Chattanooga, Tenn. (near).....	14	March 27	March 18, 1908
Eubank, Ky.....	11	April 4	March 22, 1894
St. Louis, Mo.....	5	April 6	March 25, 1907
Chicago, Ill.....	15	April 23	April 15, 1906
Bloomington, Ind.....	8	April 11	April 5, 1885
Brookville, Ind.....	10	April 14	April 8, 1893
Waterloo, Ind.....	11	April 23	April 14, 1888
Oberlin, Ohio.....	20	April 20	March 29, 1907
Youngstown, Ohio.....	3	April 22	April 21, 1908

SPRING MIGRATION, continued

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Wauseon, Ohio.....	8	April 26	April 20, 1887
Plymouth, Mich.....	9	April 23	April 15, 1896
Petersburg, Mich.....	13	April 24	April 15, 1898
Battle Creek, Mich.....	5	April 25	April 18, 1887
Ann Arbor, Mich.....	15	April 26	April 15, 1896
London, Ont.....	6	May 2	April 21, 1900
Plover Mills, Ont.....	6	May 7	April 29, 1885
Toronto, Ont.....	3	May 8	May 5, 1891
Hillsboro, Iowa.....	4	April 18	April 13, 1896
Keokuk, Iowa.....	13	April 24	April 12, 1903
Grinnell, Iowa.....	5	April 24	April 19, 1889
Madison, Wis.....	10	April 28	April 25, 1906
Minneapolis, Minn.....			May 19, 1877
Kerrville, Tex.....	9	March 18	March 13, 1900
Gainesville, Tex.....	7	March 20	March 17, 1887
Manhattan, Kans.....	4	April 18	April 12, 1882
Independence, Kans.....			March 31, 1905
Neligh, Nebr.....			April 29, 1899
Apache, N. M.....			April 1, 1886
Silver City, N. M.....			April 22, 1884
Pueblo, Colo.....			April 27, 1894
Boulder, Colo.....			May 12, 1905
Grand Junction, Colo.....			May 17, 1906
Stockton, Calif.....			March 23, 1878
Murphys, Calif.....			April 5, 1877

FALL MIGRATION

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Orient Point, L. I., N. Y.....	4	September 2	September 23, 1896
Beaver, Pa.....	3	September 5	September 24, 1888
Fort Hamilton, N. Y.....			October 11, 1879
Falmouth, Mass.....			December 18, 1877
Washington, D. C.....			November 23, 1890
French Creek, W. Va.....			October 3, 1889
Raleigh, N. C.....	9	September 18	October 2, 1886
Charleston, S. C.....			January 2, 1893
Eubank, Ky.....	5	September 23	September 24, 1886
Athens, Tenn.....	5	October 2	October 7, 1905
Monteer, Mo.....	3	October 8	October 12, 1905
Waterloo, Ind.....			October 4, 1903
Plymouth, Mich.....	3	September 7	September 15, 1892
Grand Rapids, Mich.....			October 5, 1895
Grinnell, Iowa.....	4	September 22	September 26, 1885
Laguna, N. M. (near).....			September 18, 1905
Tucson, Ariz.....			December 28, 1884

PLUMBEOUS GNATCATCHER

The southern part of the western United States, from western to southern Nevada and southeastern California and south into northern Mexico, is the

range of the Plumbeous Gnatcatcher, and here it is so nearly non-migratory that its slight movements, if there are any, cannot be traced.

BLACK-TAILED GNATCATCHER

The Black-tailed Gnatcatcher is a non-migratory species in southern California and to the central part of Lower California.

Notes on the Plumage of North American Birds

THIRTY-THIRD PAPER

By FRANK M. CHAPMAN

(See Frontispiece)

Blue-gray Gnatcatcher (*Polioptila cærulea*. Figs. 1, 2).—In nestling plumage both sexes of this species are alike. They closely resemble the adult female, but have a brownish tint on the upper parts. At the first fall (post-juvenal) molt, as Dwight has shown, the body plumage and wing-coverts are shed, but the wing-quills and tail-feathers are retained. Both male and female now resemble the adult female (Fig. 2).

There is a partial spring (prenuptial) molt when the young male acquires the black frontal band of the adult male, from which it cannot thereafter be distinguished.

The Western Gnatcatcher (*Polioptila cærulea obscura*) is somewhat duller above than the eastern race, and has the white tip of next to the outer tail-feather *less* than one inch in length. It is found west of the Rocky Mountains and north to northern California.

Plumbeous Gnatcatcher (*Polioptila plumbea*. Figs. 3, 4).—The adult male of the Plumbeous Gnatcatcher differs conspicuously from the Blue-gray Gnatcatcher in having a black cap. The females and males in nestling plumage, in which the cap is wanting, may be known by the smaller amount of white in the tail, the inner webs of the outer feathers having only a narrow white tip. Young males in first winter plumage have more or less black in the crown, usually over and behind the eye, and not on the forehead, as in the adult Blue-gray Gnatcatcher. The full black cap appears to be acquired before the first nesting season.

Black-tail Gnatcatcher (*Polioptila californica*, Figs. 5, 6).—The name 'plumbeous' might better be applied to this species than to the preceding one, since, as the plate shows, it is more plumbeous both above and below than either of our other Gnatcatchers. The brownish wash of the flanks, and, in winter specimens, on the back, also distinguishes it, while it has even less white on the tail than the preceding species.

Notes from Field and Study

The Poetic Melancholy of the Birds

I should like to express, through the pages of BIRD-LORE, my gratitude and appreciation of the unexpectedly warm and kind response so many have made to my query concerning the whisper-songs of birds. Besides the word of the editor and the nine letters given in March-April BIRD-LORE, several letters have come to me personally.

My first letter was from Mrs. Jessie Braman Daggett, a bird-impersonator of La Grange, Ill., who most eloquently confirmed my observations as matched by her own, and added that she had autumn records of the whisper-songs of the following birds: White-throated and White-crowned Sparrows, Towhee, Rose-breasted Grosbeak, Blue Jay, and Cardinal.

Mrs. May S. Danner, of Canton, Ohio, had heard, in the latter part of September, 1913, a Catbird sing in a bush near her, in her city yard, a song that seemed the counterpart of the one I described, except no *meows*, sung, she writes, with "partly closed bill."

On September 11, 1914, Mrs. W. H. Peek, of Kalamazoo, Mich., while standing waiting outside of her automobile, in a gentle rain, near a roadside thicket, heard a Catbird's song, "very sweet and subdued," within the thicket. The bird came out to the edge to investigate, but made no protest, did not sing there, but went back out of sight and softly sang over all his notes. She also reports having heard Catbirds sing in much the same tone and manner their whole repertoire on moonlight nights in town, at midnight, or sometimes all night, during the nesting-season.

Paul Dean, of Clarkesville, Texas, while driving his cows to pasture one morning in September, 1913, heard the 'wee song' of a Mockingbird, in a nearby haw bush, "where he was huddled up

like he was cold. There was a slight quivering in his throat, otherwise there was no visible movement. . . . The song resembled that usually sung by the Mockingbird, differing only in volume, which made it all the sweeter."

Rufus Stanley, director of the Omega Boys Club, of Elmira, N. Y., has heard the Catbird's 'ghost song' several times *in the spring*, the first time in 1900. Being a little doubtful about this, I wrote to Mr. Stanley and received the following reply: "The song I heard in the spring was audible only about five or six feet, and seemed the same as one I heard last summer from about the same distance. Both of them, and others that I have heard, were like the 'whispered reverie' you mention."

It appears, in summing up this interesting evidence, that almost any bird may indulge in a whisper-song, but that Catbirds, Thrashers and Mockers, are the most prone to the habit, the Catbird in the lead; and that September is the month of most probable occurrence, though whisper-songs may be heard in summer, spring, or winter.

Mr. Chapman's explanation of the effect of low temperature in checking song-expression throws a flood of light on the matter; yet I think those who feel that sorrow may be a psychological cause can say much for their theory also.

September is not a very cold month anywhere, and here, in New Jersey, is often quite hot in daytimes. In the typical cases I cited, I am certain the birds were not cold. The time was early afternoon and the days warm. Besides, it is very significant to me that the birds usually hide away to sing their whisper-songs in deep and shaded thickets. They would not do this if they were cold. Those who have witnessed the whisper-song of autumn will, I am sure, agree that the expression of the bird is not that of chill, but of reverie or tender melancholy, as

Mr. Jacot puts it, "singing in his sleep." In the few instances of spring, I think it is very likely that chill subdues the song, but the autumn whisper, I feel sure, is the voice of poetic melancholy. If the joy of spring, of mating and nesting, makes the bird burst into irrepressible and glorious melody, why should not the memories of these departed joys, in the fall, produce a subdued song of pensive reminiscence?

For myself, I have no doubt of it. Animals certainly have memories and good ones—that is scientific, and I do not consider it unscientific to assert that the bird has the spirit and feeling of a poet. I believe that Arthur Jacot's *Planesticus* really was "dreaming of his southern home."

Doubtless other emotions or troubles beside memories of departed summer joys may make individual birds sing low or sadly. Many birds, when singing, if they find themselves observed, check and soften their songs; but this is embarrassment or caution, and very different from the true reverie-whisper, which is not merely a low song, but clearly the performance of a lonely bird for his own secret comforting, or to express a mood of tender melancholy.—J. WILLIAM LLOYD, *Westfield, N. J.*

[We venture to believe that Mr. Lloyd attributes to birds emotions which are more human than bird-like. Song is primarily a secondary sexual character, and its full manifestation is closely associated with and, in a large measure dependent on, certain physiological developments incident to the nesting-season.

With one-brooded birds song wanes, as, with the advance of the season, the mating period is succeeded by family cares, which arouse new activities on the part of the parents. With two- or three-brooded birds a renewal of song accompanies the preparations for a second family, and the song season is correspondingly prolonged.

That full-voiced singing should be resumed in the fall, when the true function of song does not exist and the con-

ditions which stimulate it are wanting, is, of course, not to be expected; but that the faint songs sometimes heard at this season voice a poetic melancholy on the part of the singer is, we fear, a poetic conception.—ED.]

A Few Interesting Records from Chicago, Ill., and Vicinity

Although not all of the birds here noted are rare, they are not of usual occurrence here. They were all seen during the spring and fall migrations of 1914, in Jackson Park, Chicago, and in the Calumet River Region, which is hardly more than a mile from the city limits.

RUDDY DUCK.—April 15. Jackson Park. A rather rare migrant. One male seen in the waters of the Yacht Harbor. It was observed very closely, and was extremely tame. At the distance of twenty-five feet, the bird paid no attention to us whatsoever. It seemed to be feeding on minnows, which were very abundant in the Harbor. It was seen again on April 18.

SANDHILL CRANE.—May 2. Calumet Region. An exceedingly rare migrant at the present time. Four birds seen in the morning. They flew directly overhead, close enough to the ground to distinguish the coloring readily. They were positively identified, not only by their markings, but by their manner of flight. The four flew in perfect order. At about five-thirty in the afternoon of the same day, Mr. Walter Goldy observed one Crane standing on the ground in the middle of a marshy prairie about an eighth of a mile from the place where we had been standing when the birds flew over us. It flew when he approached within about two hundred yards of it.

BARRED OWL.—November 27. Calumet Region. A rare permanent resident. One bird flushed from a bare branch of a tree in the thickest part of the marsh. It circled about over us, and alighted some distance off. Following it, we found and started it four times, each time getting a fine view of it.

PHILADELPHIA VIREO.—May 25. Jackson Park. An uncommon migrant. Only one bird noted. It was very tame, and we had plenty of time to make its identification certain.

ORANGE-CROWNED WARBLER.—May 15. Jackson Park. A Warbler little seen here. One was seen in the middle of the afternoon in a small bush-like tree, where it remained until dark. The orange on the head was seen when the bird turned its head downward.

PRAIRIE WARBLER.—May 5. Jackson Park. A rare migrant in Chicago, first seen in a hard storm. On slightly later dates, it was seen and heard to sing. It remained until May 12.

KENTUCKY WARBLER.—May 16. Calumet Region. An extralimital bird here. It is rarely seen during the late spring and summer months. One seen, and surely identified in the swampy woods. It was larger and more brightly colored than the Maryland Yellowthroat, which it much resembles.—L. L. MACKENZIE and W. W. LYON, *Chicago, Ill.*



A HOUSE WREN'S NEST IN A MAIL-BOX. THE DOOR OPENED TO SHOW CONTENTS. Photographed by T. L. Hankinson, Charleston, Ill.

A Prophecy from 'Punch'

The enclosed poem, copied from 'Punch' of December 23, 1871, is of interest both as referring to an introduction of English

Sparrows into Canada at an early date, and of the way in which they were currently regarded by a number of English people.

The 'Sparrow Club' alluded to in the last verse is a club for the extermination of vermin. Every member who does not bring in a certain number of Sparrows' heads, and tails of rats and mice, is fined.

The first two stanzas have been omitted, as being of little interest, though necessary for the construction of the poem.—HEYWARD SCUDDER, *New York City.*

Sparrows for Canada

(A ballad for British farmers)

[The first two stanzas are about making a scare crow.]

But no sart o' scarecrows, in Canada there,
They wants, anyhow little birds for to
scare;
They've had English sparrers sent out at
their call,
To Quebec in the fust place, and now
Montreal.

Ho, ho! Loramy! What fellers! My eye!
They've hundreds o' cock and hen sparrers
let fly.
O' purpus they means 'em to nestle and
breed,
Wherein not a doubt, very soon they'll
succeed.

What next? If so be as they'll take my
advice,
They'll ha' out a cargo o' rats, mun, and
mice.
Some moles we could send 'em too, case
they've got none,
And wants to be under, likewise overrun.

We'll ship 'em out plenty o' tomtits and
chinks,
Supposin' their gardens too fruitful they
thinks;
And, if sitch a dearth of all varmunt
prevails,
In kits we'll supply 'em wi' slugs and wi'
snails.

Yaa! What they believes is, as sciencers
states,
That the good sparrers does, by the
palmers they ates,
Is ten thousand times wuth all their
damage to grain,
Of which to convince me 'tis labor in vain.

I wun't never, not I, credut no sitch a
thing,
Nor that twoads don't spet pizon, nor
slow-worms doan't sting.
And the moor I be argy'd that sparricide's
wrong,
Shall stick to my Sparrer Club all the
moor strong.

—From *Punch*, December 23, 1871

Terns at Orient, L. I., After Twenty-five Years' Absence, and Notes on the Piping Plover

Thirty years ago, Terns bred in abundance at Long Beach, Orient, L. I. They added life and beauty to the surrounding waters. Gradually, under the relentless pressure of eggers, they were forced to abandon this site, so perfectly adapted to their needs.

Aged residents of Orient relate to us how they gathered and carried from this narrow strip of beach a bushel-basket full of Gulls' eggs. The eggs were used as food. They nested not only on the narrow sandy strands, but long flats of mud and gravel, back in the salt meadows, have been pointed out to me where they nested in hundreds; undoubtedly, too, the little Least Tern and the Laughing Gull were their neighbors, for the Killdeers then nested in the corn-fields of Orient.

For twenty-five years no Terns nested at Orient. Although they were frequently observed fishing along our shores or resting on the fishing-ponds, they all came from the Islands to the east.

On June 14, 1914, I found two pairs of Common Terns nesting near the western end of the bar, and six others surf-fishing near. This was a wonderful find to me, as I had practically given up hopes of

ever seeing them return to their old breeding-grounds at Orient.

A visit to the Terns' breeding-range at Gardiner's Island, in 1914, showed a pleasing increase over six seasons previous.

The season's occurrence of young fish was unusual in the Sound, most of these being fingerling mackerel, and never before have I recorded the Terns in such vast numbers. There were days when the stragglng flocks covered miles in area. This unusual abundance of Terns, probably due to the numerous fish, occurred between mid-June and August first. Companies of twenty-five to a hundred or more daily passed over the land between the Sound and Bay, a distance of one and a half miles; this is something that has not happened before since these birds deserted the local breeding-strands.

A steady increase and a permanent breeding-site, re-established, is looked for.

Two pairs of sad-voiced Piping Plovers still inhabit this beach. Although I have given hours to the search for their nest, only once have I been successful. The notes of these dainty Plovers are actually touching as they strive to lead one from the vicinity of their nest. Fluttering along close before you, wings outspread and breast brushing the sands they seem to moan. They also feign disability with skill that is interesting and worthy of note.—ROY LATHAM, *Orient, L. I.*

Egret at Bernardsville, New Jersey

On August 5 of the past year, I observed two Egrets (*Herodias egretta*) at Ravine Lake near Bernardsville, New Jersey. From a reliable source, I was informed that they had been seen there for almost a week. They were exceedingly wary, taking to flight on the slightest occasion. Although this is the first time that I have personally seen an Egret at Bernardsville, yet they have been reported to me nearly every season. Although I have each time hunted up every report, yet this is the first summer in which I have been rewarded for my search.

The birds were seen under such cir-

cumstances that there was no doubt that they were neither the Little Blue Heron nor the Snowy Egret.

On August 7, 1911, I observed a single individual of this species near Sussex, New Jersey (Auk, Jan., 1912).—JOHN DRYDEN KUSER, *Bernardsville, N. J.*

Wilson's Snipe Wintering in Nova Scotia

Within a mile of Wolfville (Kings Co.), there is a small spring swamp covering perhaps half an acre, and sheltered by steep banks on the east and west and by a few trees generally. This swamp, or bog-hole as it might more properly be called, never wholly freezes, and is never entirely submerged with snow. Even with 30 to 40 degrees of frost and a heavy fall of snow, there are always to be found small avenues where the tender grass shows green and the water trickles unfrozen. In such weather one can walk practically all over this area, by avoiding these open places; but in the summer it is a quaking bog and is very treacherous. On January 11, 1915, while passing along the margin of the small stream which flows from this swamp, I was startled by the sudden and wholly unexpected rising of a Wilson's Snipe under my very feet. The ground was covered with snow and it was very cold. He flew but a few yards. I flushed him again, and this time he rose in the air and flew above my head in great circles for some moments, finally dropping within thirty yards of me. I have visited the swamp once or twice weekly since then, and each time have had little difficulty in starting my long-billed-friend. One evening about dusk while waiting there for Ducks, the silence was broken by a sudden whir, and the Snipe dropped within fifteen feet of where I was hiding, and immediately commenced to feed. It was a novel sight. He would probe the soft mud and ooze with great rapidity, seeming to know instantly whether or not he had found what he was after, in the shape of small worms or grubs an inch or two below the surface.

Sometimes he would stand erect and motionless, his black form silhouetted against the white background of snow, as though the presence of an intruder were suspected. Then, reassured that all was well, he would begin probing again. On several occasions, when flushed more than once, he would clear out altogether, but, next time I came, he was always there to rejoice me with his guttural *scaip, scaip*, as he rose.

I recall that my brother discovered a pair wintering in this same swamp some twelve or fifteen years ago. These are the only records which have come to my notice of Wilson's Snipe seen in Nova Scotia in midwinter.—R. W. TUFTS, *Wolfville, Nova Scotia.*

Notes on the Red-headed Woodpecker at Rhinebeck, N. Y.

In the November-December, 1914, number of BIRD-LORE, Mr. George T. Griswold speaks of the unusual number of Red-headed Woodpeckers seen last autumn.

The Red-head at Rhinebeck, N. Y., has, during the past fifteen years, been an uncommon transient from May 15 to 16 and from September 7 to 21. In October, 1914, however, two immature specimens settled down near my house and at the date of writing are still here. During the whole of October they were very busy storing acorns, and one bird particularly attracted my attention because he selected the open end of a pipe support of my tennis-court back-stop for a storehouse. He would fly to it with an acorn, jam it past a wire that passes diametrically through the end of the pipe, and then turn his head sideways either to hear or to see it drop down to the bottom. It will be interesting to see if he will make any attempt to recover them!

When the Woodpeckers and Blue Jays had disposed of most of the acorns, the former turned their attention to the locust borers and other insect pests with which my trees are unfortunately infested. Dur-

ing November, traces of red began to appear about the base of the Red-heads' throats and the bluish black wing coverts of maturity commenced to show. The birds are still slowly but surely assuming their adult plumage. I have only once seen them together, and for this reason for some time thought that there was only one, until one day I heard them answering each other. They usually work on opposite sides of the lawn, about two hundred yards apart, but whether they ever exchange territory I do not know. Neither do I know if they keep apart through inherited custom or because one is a bully and will not tolerate the close proximity of his partner. I have put suet in a number of trees that the Redheads frequent, but have yet to see them touch it. It will be interesting to find out if they can be persuaded to winter here.—MAUNSELL SCHIEFFELIN CROSBY, *Rhinebeck, N. Y.*, December 9, 1914.

Red-headed Woodpecker Wintering in Connecticut

The Red-headed Woodpecker, so long a rarity here in western Connecticut, has again visited us. For two years now he has been seen by a faithful few, and this year one has stayed all winter thus far, being seen first in November. He seems to be spending his time in a small piece of woods, with many big trees, quite near the city and many houses. He is most accommodating, for every person whom we have sent to see him has not failed to find him either carefully investigating the top of some dead tree, or quietly watching the traffic below. He seems very stolid this time of year.—BESSIE L. CRANE, *Waterbury, Conn.*, Feb. 10, 1915.

Notes on the Starling at Hartford, Conn.

Although a bird student for many years, the first Starling seen was not recognized. This was on February 13, 1911, at which time there were only a few of these birds in this vicinity, and, in fact, the daily newspapers commented at considerable

length on the appearance here of the English Starling. Since the above date, many have learned with regret that the Starling is here, and very much here at that, as race suicide seems not to have pervaded his code of living. He is even more prolific than the English Sparrow, seems to have as good a hold on life, and is possessed of more ingenuity in getting a living, in that he will travel far to get his meals when it is necessary. In the winter of 1912 the Starlings sought shelter in many of the towers and spires of the city, and seemed especially impressed with the lofty twin towers of St. Joseph's Cathedral. At that time there was ample space for the two or three hundred birds roosting there, and their chatter could always be heard well into the night. Their kind has multiplied almost beyond belief, and last winter the number roosting in these towers alone was conservatively estimated at ten thousand. They would come in just before nightfall and rest in a grove of trees opposite the cathedral, filling many of the trees in such numbers that no tree tops could be seen—only Starlings by the hundreds. So many Starlings in the towers soon became a problem, not only to the priests but also to the worshipers at the cathedral, and what was to be done no one seemed to know. There were no bells in the towers, nobody ever went up into them, and none seemed to have the heart to screen the latticed openings, and so the birds held full sway. This past winter the Starling menace has assumed greater proportions than ever before, but so far as St. Joseph's is concerned the birds are the ones to worry and not the people. In the early fall I watched, on several occasions just at dusk, flocks composed of Starlings, Red-winged Blackbirds, Grackles, and Cowbirds—numbering probably more than twenty-five thousand birds—as they circled time and again before dropping for the night into a pine grove some two acres in extent. This took place regularly every day, until finally only the Starlings remained, because of the migration of the other birds.

Then the Starlings came back to the cathedral towers, where they remained until about December 20. The following week, a set of chimes was installed in one of the towers, and necessarily all openings had to be screened, and, to make the work more effective and satisfactory to everybody, both towers were treated alike, thus depriving the Starlings of their usual winter home. The daily papers have taken considerable interest in the new chimes, and also in the Starlings made homeless by them. One paper remarked that the spiritual welfare of the Starlings was being neglected at St. Joseph's, and that they were likely to become Episcopalians, although that church was not opening a mission for them. Whereas the bells are in and the Starlings are out, they seem quite reluctant to frequent a church without a bishop, because only now and then one out of the thousands there goes over to the spire of the Congregational Church a short distance away. Many of the birds may be seen at dusk clinging vainly to any projection on the cathedral towers which offers a foothold, but most of them have decided that a change was imperative, have acted accordingly, and may now be found in small flocks wherever a spire or tower of any sort offers protection.—*GEO. T. GRISWOLD, Hartford, Conn.*

A Belated Parula

On November 27, 1914, we were in our garden when a small bird came into our quince tree. We expected that it would prove to be a Golden-crowned Kinglet; but it was a Blue Yellow-backed or Parula Warbler! It paid no attention to us, but searched intently for food, coming into the branches nearest to us, where we could almost have put our hands on it. Our glasses were in the house, but the bird was so near that we did not need them.

We could see all the characteristic markings—the slaty blue back, with its dull yellow patch, the sharply defined, white wing-bars, the yellow throat and

breast with its brick-red bar. There was no possibility of mistake.

It has almost the interest of a discovery to find a bird lingering here a full month after the records show he should have left the neighborhood of New York City.—*GRACE H. L. DEWITT, New London, Conn.*

A Massachusetts Mockingbird

Watertown, Mass., received a winter visit from a Mockingbird. He was first discovered on November 29, 1914. The writer and a friend out for a bird-walk, had stopped to look at a Yellow Palm Warbler. The finding of the one disclosed the presence of the other, sitting calmly by, low in a tree.

Not then, however, were we certain as to his identity. To my companion he resembled an immature Shrike, and I found that no less an authority than Ralph Hoffman said, "An observer must guard carefully against taking a Shrike for a Mockingbird." But on December 3, I again found him in the same yard, almost in the same tree. He showed his resentment at my intrusion by a loud, very harsh alarm-note, yet, seemingly unafraid, he allowed me to look him over at my leisure, and with my powerful glass I saw clearly every distinguishing mark.

Convinced that I had found a Mockingbird, I spread the news to other students, and on December 4, he was identified by one who had become familiar with him through observations taken the previous spring, in the same neighborhood.

On December 28, 1914, and on January 2, 1915, he was again seen. Between December 4 and December 28 some accident befell his tail. When he was seen on the latter date, all the long feathers were gone except the white ones, on the right side, and those were in a disheveled condition. But if he had been attacked, he still showed the same friendly spirit. Those watching him, saw him eat cedar berries then fly to the gutter of a nearby house, where he quenched his thirst by repeated drinks. Several English Spar-

rows flying about perched in the same tree with him, a fact which stands out as another proof that our bird was not a Shrike.

When favored by such an uncommon visitor, especially in winter, it is interesting to look into the possible cause of his visit. His fondness and need for berries is doubtless the chief reason which brings him to our midst. The lawns about here are rich in varieties of winter food for birds, of which the buckthorn berry is the most abundant. On the east side of the town, a hill gradually rises facing southwest, the pleasant slopes of which in early times were open pasture land. Where once the quiet cattle grazed, and wild fruit ripened in the sunshine, are homes and shaded yards—typical bird-lovers' yards, where shrubs and hedges abound; where the wild cedar still fruits, and the thick spruces make dense cover.

As far as I can learn, the only record made of the Mockingbird in this town, other than those I have given, was in the spring of 1912. Although I have not been able to watch him personally for several weeks, reports reach me of his having been seen from time to time. One lady saw him upon her porch railing. That he will spend the winter with us seems probable. We are looking forward to hearing his song.—MARY GIBBS HINDS, *Watertown, Mass.*

The Arrival of the Martins

I had lived in my new home but a few months when, one April morning, I answered a gentle tap at the side door and found there an elderly man with a handful of pussy willows, which he gave me with a smile I have never forgotten, and said, "The Martins arrived today." He had seen me, he said, with bird-glasses and camera, and knew he brought glad news to my door.

Time went on and I grew to know him better, saw him at his work, cheerful and happy, and in his own home singing with his daughter the sweet old songs of long ago. He made no pretence of being a

naturalist, but knew and loved God's great open with his whole soul, and very modestly told me many interesting and wonderful things, learned from years of careful observation, and never an April but what he repeated his first welcome message to me, "The Martins arrived today."

He had kept carefully his Martin dates for several years, and one day gave them to me neatly copied from his notebooks.

Four years ago his work called him to a distant city, and I have faithfully watched for the Martins, and added my dates to his, making a list extending over a period of sixteen years as follows:

April 22, 1899; April 21, 1900; April 15, 1901; April 17, 1902; April 21, 1903; April 26, 1904; April 22, 1905; April 17, 1906; April 27, 1907; April 23, 1908; April 18, 1909; April 22, 1910; April 27, 1911; April 26, 1912, April 23, 1913; April 16, 1914.—CORABELLE CUMMINGS, *Norway, Maine.*

The House Wren and Dry Sticks

While not much of a naturalist, I love birds and, having a large ship glass that magnifies fifty diameters, I take great pleasure in watching, at very close range, such birds as will sit still long enough to get a focus on them.

I had not seen a House Wren for several years around my premises until the spring of 1914. Then, when one came, I said to him, "I will put up a box for you." Within a half hour he was carrying in his nest material. As this faced the west so it was well illuminated, I set my glass so I could look squarely into the nest. Under the box I made a shelf. I watched him (or her) carry in the dry sticks. Finally one was longer than the box, and she tried a long time to get it in; then she would go out on to the little shelf I fixed in front and try to break it off. Then she would fly off and get another, and again go through the same operation. I saw it was troubling her, so when she flew away I broke it in two and laid both pieces on the

shelf. I did not think she would touch them, and it was amusing to see the puzzled look she gave them. After bringing three or four more of her own selection, she finally took the two inside.

This encouraged me to help her more, so I broke off twelve pieces from a peach tree and laid on the shelf. Without seeming suspicious, she took them all in but one, which she dropped accidentally. It seemed strange that she should want dry, hard, stiff sticks. So, to test her still further, I got three pieces off the same tree, that were partly green. It seemed to me they would be softer and could be better fitted into the nest. I realized that she could not get them for herself, and wondered if she wouldn't be pleased to find them on the shelf where the others had been placed, but I was wrong. At the first return, she eyed them carefully, but went away and left them. On her next return, she deposited her dry stick, and when she came out, she picked up one of my choice green ones and flew away with it. Coming back with another dry one, she carried away the second, and the next time the last, and went on with her dry building.

I came to the conclusion that she knew what she wanted better than I did.—A. H. GODARD, *Mayville, N. Y.*

Winter Robins

In this section, at least, of Nova Scotia, Robins are rarely seen in midwinter. In the fall they linger on through November, and are not infrequently seen during the first week in December, but during the latter part of that month or January and February their appearance invariably arouses our special interest and causes us to comment upon the fact.

On the morning of February 4, 1915, I discovered one solemn-looking fellow perched on a fence-rail, forlorn and disconsolate, apparently just putting in time till spring comes. At my nearer approach he flitted off to a spruce thicket, uttering never a note. In the immediate vicinity I found there were numerous hawthorn

bushes, and these were laden with frozen berries. The Robin was doubtless dependent upon these berries for food, as the ground was thickly covered with snow and the winter is a severe one. With this food and shelter, such as it is, I trust he will survive to rejoice with us when the April showers come to dispel the frost and snow.

In a small fishing village in Annapolis County, on the shore of the Bay of Fundy, during the late fall of 1910, Robins began to gather in large numbers. This section abounds in mountain ash or rowan trees, many of which are to be found growing in front yards throughout the village. The birds flocked to these trees to feed upon the berries which clustered with great profusion that season. These berries do not fall when touched with frost, and, as the season advanced toward winter, the birds showed no disposition to leave. They remained in the village and immediate vicinity throughout the entire winter, seeking shelter in the heavy spruce woods at night and during the severe storms which harass the coast. When a thaw would occur, and the fields become temporarily bared of snow, a hundred or more would flock there daily. The number that wintered there was estimated to range between one hundred and fifty and two hundred birds, and they remained till spring came, when the berries tempted them no longer.—ROBIE W. TUFTS, *Wolfville, Kings Co., N. S.*

Plaster for the Robin's Nest

Father Robin appeared one bright Sunday afternoon, March 27. He hung about rather sheepishly. The season was very backward, and mother Robin lingered, arriving on the sixth day of his wifeless existence.

To encourage their nest-building, small twigs, fragments of grape-vine bark, and clay of various degrees of consistency were placed about their feeding-grounds.

After three weeks of resting and scouting, they selected a crotch thirty feet up on a white oak and began to carry the

twigs for keel-plates and the bark for binding purposes; but of the prepared mud they used none.

A heavy rain of fourteen hours' duration came just at plastering-time. Mud was abundant. Then I observed what was new to me—the Robins passed by all kinds of mud except the castings of earthworms, which they gathered and used for nest-building.

Why the birds should prefer worm-castings for plaster is a matter of speculation. The plaster is certainly of fine grain and free from grit. Perhaps the process of refinement sterilizes the plaster to some extent, or adds to its durability. If any of the readers of BIRD-LORE can shed light on the matter, it would be a favor to many bird-lovers.—J. H. ROHRBACH, *Richmond Hill, New York.*

Chronology of a Robin Family

I enclose what seems to me an interesting history of one pair of Robins.

It was rainy weather for about a week which I think induced these Robins to chose a sheltered spot for their nest.

The nest was about six feet from the floor of the porch. In front of the porch were a large spruce tree and many available sites everywhere, where Robins have built in other years.

The Robins both would come within a foot or so of people sitting on the lawn, in search of food.

A record of our observations follows:

May 17, 1914. Two Robins built a nest on a rolled-up porch curtain of a second-story porch. This porch was then, and has been ever since, occupied by several persons, all day. The first of three eggs was laid that day.

May 31. The first Robin hatched.

June 1. The second Robin hatched.

June 2. The third Robin hatched.

June 12. The mother bird started to build a second nest adjoining the first,

June 13. The first egg laid.

June 14. The three birds of the first brood left the nest.

June 14. The second egg laid.

June 15. The third egg laid.

June 28. The first Robin hatched. One egg did not hatch; one bird died and was carried away by the male bird. The one that lived seemed very weak, always, while in the nest.

July 10. The mother bird turned her young Robin into the first nest and began to reline the second nest.

July 11. The young bird flew from the nest.

July 14. The first egg of the third clutch laid.

July 15. The second egg laid.

July 16. The third egg laid.

July 27. The first Robin hatched. The other two eggs did not hatch. This bird was also a weakling and badly infested with lice. The mother bird hardly came near the nest the last few days before the last bird left the nest.

August 10. Robin flew from the nest. It had been given water with a medicine-dropper on this very hot day, and he was hanging over the nest and seemed to enjoy it.—FRANCIS A. JUDSON, *Castile, N. Y.*



THREE OF A KIND

Photographed by Annie M. Richards, who writes that, during the season of 1914, about fifty young Wrens were raised in the dozen or more bird-boxes around her home at Plymouth, Pa.

Book News and Reviews

Recent Publications of the Biological Survey

To the long list of invaluable publications for which we are indebted to the Biological Survey of the Department of Agriculture we have now to add the following:

Department Bulletin No. 185, 'Bird Migration,' is by W. W. Cooke, the leading authority on this subject in America. It contains 47 pages, 4 plates, and 20 maps showing migration routes, and is, in the main, based on Professor Cooke's recent papers in the National Geographic Magazine and Bulletins of the Survey. The information, in large part original, which they contained, is now brought together in what, in effect, is a manual of bird migration. It should be in the possession of every student of birds, and can be purchased from the Superintendent of Documents at Washington for ten cents.

Farmers' Bulletin No. 621, 'How to Attract Birds in Northeastern United States,' by W. L. McAtee, contains exactly the information for which there is now a widespread demand. There are sections on 'Protection,' 'Breeding-Places,' 'Water-Supply,' and 'Food,' with a table giving the 'Seasons of fruits attractive to birds.' This Bulletin is fully illustrated and should have a wide circulation.

Farmers' Bulletin, No. 630, 'Some Common Birds Useful to the Farmer,' by F. E. L. Beal, is practically a revised edition of that very useful Bulletin No. 54, 'Some Common Birds in their Relation to Agriculture,' by the same author. It treats of the food-habits of some fifty species, contains 27 pages and 23 figures, and forms an authoritative summary of the economic relations of our more common birds.

Department Bulletin No. 171, 'Food of the Robins and Bluebirds of the United States' is by F. E. L. Beal. After discuss-

ing at length the food of the Robin and its well-known habit of eating cultivated fruits, Professor Beal states: "Briefly, the conditions are: Too many birds of a single species and too little of their natural food. Under such circumstances, there is no doubt that a law allowing the fruit-grower to protect his crop when attacked by birds would be proper."

Of the Bluebird it is said: "Examination and analysis of the food of the Eastern Bluebird fully justifies the high esteem in which the bird is held . . . During spring and early summer, when strawberries, cherries, and other small fruits are at their best, the bird subsists upon insects to the extent of five-sixths of its food. . . ."—F. M. C.

The Ornithological Magazines

THE AUK.—The articles in the April issue are varied, and cover a wide range of subjects. Largely anatomical is Dr. H. von Ihering's 'The Classification of the Family Dendrocolaptidae.' He states that "our classifications are more or less a question of our ability to accurately judge the importance of morphological characters for systematic use," and concludes that no reason is apparent for the subdivision of this "uniform and natural family."

Along similar lines, on the other hand, Mr. W. DeW. Miller, under title '*Corthylio*—A Valid Genus for the Ruby-crowned Kinglet' urges a subdivision of the genus *Regulus*. He finds a toe-pad, which might more properly be called a foot-pad, if it robs this bird of a name long familiar.

These two contributions are contrasted mainly to show how large a part individual opinion plays in classifying facts concerning which there can be no dispute.

In lighter vein is Mr. F. H. Kennard's 'The Okaloacoochee Slough,' which takes us into southern Florida among the rookeries and out in the savannas. Some

fine photographs of the country are shown. The seventh and final installment of H. H. Kopman's 'List of the Birds of Louisiana,' and the fourth of A. H. Wright's 'Early Records of the Wild Turkey,' fill a number of pages.

Among the shorter articles are 'Cabot's Types of Yucatan Birds,' by O. Bangs; 'The Atlantic Range of Leach's Petrel,' by R. C. Murphy; and '*Phaethon catesbyi* Brandt,' by G. M. Mathews.

Dr. W. M. Tyler, writing on the 'Simultaneous Action of Birds,' suggests an explanation of why it is that all members of a flock take wing practically at the same moment, or show other "unanimity of behavior." He considers the underlying cause as psychical. Mr. A. A. Saunders presents 'Some Suggestions for Better Methods of Recording and Studying Bird Songs.' His graphic method is ingenious.

Mr. J. C. Phillips discusses 'The Old New England Bob-white,' and happily concludes that such variation as may be apparent is not worthy of recognition by name. It is years since pure-blooded New England birds have been obtainable, owing to the importation of birds from the West and South, which are supposed to be considerably smaller and darker.

Among the numerous reviews, attention may be called especially to a new ten-year 'Index to the Auk.'—J. D., Jr.

Book News

In an 'Outlook' article on 'The Conservation of Wild Life,' Colonel Roosevelt writes of the booklet on 'Alaskan Bird-Life,' recently issued by the National Association of Audubon Societies, as follows:

"It is a book of really exceptional merit; no bird-lover in the United States or Canada—not to speak of Alaska—can afford not to have it in his or her library. It is all excellent; but best of all are the portions contributed by Mr. E. W. Nelson. Mr. Nelson is one of our best field ornithologists, and also one of our best closet scientific systematists; and to

extraordinary powers of observation, and intense love of the wilderness and of wild creatures, he adds the ability to write with singular power and charm. Nothing better of its kind has ever been done than his account in this little volume of the bird life, at all seasons of the year, in the Yukon Valley and on the islands and along the seacoast."

MR. E. H. FORBUSH'S Seventh Annual report as Ornithologist of Massachusetts, contains, like its predecessors, an encouraging account of work accomplished, and many helpful suggestions in regard to ways and means of protecting and attracting birds and developing a community interest in their welfare. It may be procured through the Massachusetts State Board of Agriculture, and should be read by every one interested in civic ornithology.

THE Nebraska Blue Book for 1915 contains (pp. 836-851) a briefly annotated list, by Myrok H. Swenk, of the 418 species and subspecies of birds which have been recorded from Nebraska.

THE Fish and Game Department of Alabama, under the efficient direction of its Commissioner, John H. Wallace, Jr., issues, as usual, an attractive and useful 'Bird Day Book.' It contains 96 pages and several illustrations, and its distribution to most of the schools of the state must exercise a wide influence in arousing in the children of Alabama a realization of the beauty and value of birds.

THE Florida Audubon Society has prepared a leaflet entitled 'Shall We Outlaw the Buzzard,' in which Katherine B. Tippets and Oscar E. Baynard voice the sentiment of the society in protesting against the proposed destruction of the Turkey Buzzard and Black Vulture for their alleged dissemination of hog cholera. These writers very properly claim that the case against the birds is not proven, and that they should be given a trial before they are condemned.

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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

THE history of our relations to birds during the past thirty-odd years has been marked by several more or less well-defined stages of development.

The first, and beyond question the most important and far-reaching of these stages, was the formation, in 1883, of the American Ornithologists' Union. Springing from the Nuttall Ornithological Club of Cambridge the Union, with its wider field of membership and activities, inaugurated a number of movements, each one of which has had and continues to have a profound influence on bird students and birds in America.

Its Committee on Classification and Nomenclature gave us the 'Check-List' of North American Birds which, since its appearance in 1886, has been our standard; its Committee on Bird Protection was the originating force and backbone of the Audubon Society movement, and its Committee on Distribution and Migration became, a short time after its formation, that Division of the United States Department of Agriculture which we now know as the Biological Survey.

The studies, first of the A. O. U. Committee and later of the Biological Survey, of the migration of North American Birds, required the cooperation of observers throughout the country; and the call for assistance, which was issued through the press and in other ways, doubtless did more to advance the science of ornithology in America than any other

act of the Union. Through it, many isolated workers were brought into communication with the leading ornithologists of the day. This was the beginning of the Epoch of Popular Bird Study. A demand arose for textbooks, and, in supplying them, publishers widely advertised the subject with which they dealt.

The practical difficulty of identifying the bird in the bush being now in a large measure simplified, interest in birds increased with corresponding rapidity. In 1896 it led to the inauguration of the second Audubon movement through the formation of state societies, the first one being organized in Massachusetts. This, in turn, resulted in the establishment of the National Association of Audubon Societies, which has now become the most powerful existing body in protecting birds and spreading a knowledge of their value to man.

All these factors, American Ornithologists' Union, popular bird-books and lectures, State and National Audubon Societies, have worked together to make bird students. At first scattered here and there, it was unusual to find more than one or two in the same neighborhood; but now, in certain favored sections, they are becoming more numerous. Community of interest draws them together, and shortly we have a Bird Club!

What the individual could not do the club can. If it is the natural, logical outcome of a slowly growing local interest in birds, its formation should mean the introduction of Citizen Bird into town or village life. Already we have had several notable illustrations of what such an introduction implies. The cases in mind were by no means exceptional. The means employed may be repeated anywhere. They are, in fact, too successful not to be repeated by other and perhaps as yet unorganized bird-clubs; and, as we hear of the birth of club after club and realize what part they may play in community life, we feel that this movement will in due time take its place among the most important factors in developing proper relations between bird and man.

The Audubon Societies

SCHOOL DEPARTMENT

Edited by ALICE HALL WALTER

Address all communications relative to the work of this department to the Editor, at 67 Oriole Avenue, Providence, R. I.

LENDING A HAND

From two widely separated states come definite plans for enlarging the field of nature-study by means of coöperation between schools, libraries, and various organizations. Mr. William G. Vinal, Instructor in nature-study in the Rhode Island Normal School, together with Mr. E. K. Thomas, State Leader in Club Work, of the State College of Rhode Island, have prepared a typewritten directory, describing briefly the different forces at work throughout the state that in one way or another contribute or may be made to contribute to the nature-study movement. Among these are mentioned exhibitions of ten agricultural, horticultural, poultry, and fanciers' associations, the Audubon and Junior Audubon Societies, BIRD-LORE and its school department, the Corn Clubs of the school boys of Rhode Island, the State Board of Agriculture and its particularly effective entomological department, Brown University, which through its botanical department coöperates with teachers and pupils of private and public schools, Camp-Fire Girls, field naturalist societies, the Commission of Education and Commission of Forestry, the League of Improvement Societies, botanical societies, the Federal Office of Plant Pathology, the Public Park Association, Boy Scouts, Fish and Shellfish Commissions, entomological and horticultural societies, Institute of Instruction, various humane societies, museums, State College extension department, farmers' institutes, Sigma Xi, "an honorary fraternity to encourage scientific investigation," which gives free lectures occasionally, and lastly, the public schools of the state. Evidently through an oversight, public libraries are omitted from this list.

Emphasis has been placed upon the relation of these various agencies to the teacher. Additions and corrections are solicited, and all to whom this directory is sent are invited to take part in a nature-study exhibit, to be held next fall during the week that the Rhode Island Institute of Instruction is in session. At this time, all of the public school teachers of the state meet for a general conference. Societies are asked to contribute reports and illustrations of their work; publishers to send their latest nature-study literature; schools to "*begin now*" to prepare charts, exhibits of special work, such as nature photography, maps of breeding-places of flies and mosquitos, mounted life histories of insects, collections of leaves and buds, drawings, reports of bird-observations, manual-training work, etc.; while demonstrations on a larger

scale will be prepared, to show the best methods of presenting nature-study, including domestic science and handicrafts.

This notice of an organized movement in nature-study in the smallest state in the Union ought to be an incentive to larger states to follow these enthusiastic suggestions. A report of the proposed exhibit next fall will be welcomed in these pages.

From the public library in Saint Paul, Minnesota, comes the following compilation of the resources of the library with reference to birds in legend and story. This list was put together by the associate librarian, who has charge of the children's clubs department, and, through the courtesy and interest of the head librarian, Mr. W. D. Johnston, it has been sent to the School Department in the hope that it may prove of use to its readers.

The list suggests two important phases of public-library work: first, the opportunity to organize and encourage course reading along particular lines; and, second, the public library's relation of usefulness, not only to the individual patron, but also to particular classes of patrons, such as school-children of all grades. It has long been a hope of the School Department that our libraries should develop, as rapidly as is practical with the funds at their disposal, their nature-study resources (see BIRD-LORE, Vol. XIV, No. 6, p. 363, also Vol. XIII, No. 3, p. 158).

Reports of work done along these lines by other libraries will be most gladly received.—A. H. W.

BIRDS IN LEGEND AND STORY

Compiled in the St. Paul Public Library

Bird-lore.

Celtic.

Gregory, I. A., Lady—Kiltartan Wonder-book. pp. 79-84.

Grierson, E.—Children's Book of Celtic Stories. pp. 33-69.

Tregarthere, Enys—North Cornwall Fairies and Legends. pp. 71-98.

Chinese.

Davis, M. H.—Chinese Fables and Folklore. pp. 79-82, 98-102, 147-154.

Gask, L.—Legends of Our Little Brothers. pp. 243-248.

Southern.

Young, Martha—Plantation Bird Legends.

Migration.

Poulsion, E.—In the Child's World. pp. 14-16.

Roberts, C. G. D.—Feet of the Furtive. pp. 29-51.

Wiltse, S. E.—Morning Talk. p. 8.

Music.

Lyman, Edna—Story-telling. pp. 123, 124.

Origin.

Walker, M. C.—Our Birds and Their Nestlings. pp. 191-192.

Bluebird.

Brown, A. F.—Curious Book of Birds. pp. 45-48.

Olcott, F. J.—Good Stories for Great Holidays. pp. 416-420.

Blue Jay.

Miller, O. T.—True Bird Stories. pp. 15-21.

Olcott, F. J.—Good Stories for Great Holidays. pp. 411-416.

Bob-white.

Grinnell, Morton—Neighbors of Field, Wood and Stream. pp. 130-139.

Hawkes, Clarence—Field and Forest Friends. pp. 117-140.

Pearson, T. G.—Stories of Bird Life. pp. 135-152.

Chickadee.

Seton, E. T.—Lives of the Hunted. pp. 353-360.

Crow.

Æsop's Fables. pp. 6, 17, 187.

Brown, A. F.—Curious Book of Birds. pp. 49-68.

Seton, E. T.—Wild Animals I Have Known. pp. 57-88.

Eagle.

Æsop's Fables.

Brown, A. F.—Curious Book of Birds. pp. 69-80.

Davis, M. H.—Chinese Fables and Folk Stories. pp. 147-154.

Pearson, T. J.—Stories of Bird Life. pp. 71-80.

Roberts, C. G. D.—Lord of the Air.

Gulls.

Bryant, S. C.—Stories to Tell to Children. pp. 129-133.

Heron.

Roberts, C. G. D.—Neighbors Unknown. pp. 69-84.

Hummingbird.

Holbrook, F.—Book of Nature Myths. pp. 1-9.

Kingfisher.

Brown, A. F.—Curious Book of Birds. pp. 33-38.

Kupfer, G. H.—Stories of Long Ago. pp. 130-134.

Loon.

Roberts, C. G. D.—Neighbors Unknown. pp. 151-171.

Magpie.

Brown, A. F.—Curious Book of Birds. pp. 6-13.

Holbrook, F.—Book of Nature Myths. pp. 31-34.

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JUNIOR AUDUBON WORK

For Teachers and Pupils

Exercise XXI: Correlated Studies, Drawing and Spelling

In these months, of all months, the most exuberant in the year, it is hard to stay indoors learning lessons out of books. The air is full of restless creatures, some winged and some without wings. One has only to glance in any direction to see a variety of movement and, wherever one goes, there is a medley of sounds. There are months when the woods are silent and Nature seems frozen into quiescence, but not in May or June. These are months of haste and thrilling energy; there is so much for birds and trees and insects to do before midsummer sets in.

The first few days of May, to be sure, more especially in the northern part of our country, may appear to lag and falter if cool, backward weather prevails, but it is sure to be May when the great "waves" of migration roll up from the South. This spring, for example, in northern Vermont, May opened gloomy with clouds and occasional showers, after a dry, mild April. No apparent influx of bird-life could be seen at any one place; still the far-carrying voice of the Hermit Thrush came from the evergreen woodland, the Vesper, Chipping, and Song Sparrows were common, the Robin and Bluebird, as well as the Yellow-bellied Sapsucker and Phœbe, were conspicuous—for even dull-colored Phœbe is radiantly fresh at this season. Myrtle Warblers here and there brightened the budding wayside bushes, an occasional Goldfinch in new black-and-yellow garb could be seen, while, joy of joys! the Ruby-crowned Kinglet had arrived, singing its contagious melody of gladness. How such a volume of rippling notes can bubble forth from so tiny a throat must ever remain a mystery. The Siskins had not left, nor the Juncos, and both added

their welcome to the springtime harmony. With the familiar Crow and Red-winged Blackbird, the Blue Jay and possibly a Rusty Grackle, one might well be content, had not the unexpected presence of two Prairie Horned Larks, the drumming of the Ruffed Grouse, the flute-like refrain of the first White-throated Sparrows, and the swift stealth of a Cooper's Hawk quickened expectation. Was it a Veery that slipped so unobtrusively out of sight by the shrub-encircled fence along the path, and was that a Purple Finch well up on



Pictures framed and bird-boxes made by the pupils of Room Five, Grade Five, of the Central School Building of Athens, Ohio. There are thirty-nine pupils in the room, thirty-four of whom made bird-boxes. These pupils are all members of the Audubon Society. Miss Blanche Robinson is the teacher.

the branch of a tree singing in rippling snatches! The Savannah Sparrow might here and there be heard, although as yet the tamarack trees, hoary with lichens, were veiled in a mist of pale green leafage, and the cowslips were hardly opened along wet meadow-places. Snowy bloodroot and the graceful squirrel corn, with here and there a budding trillium among the thickly blooming spring-beauty, entranced the eye; while the smooth plain lilylike leaves of the rarer clintonia were conspicuous after the abundance of spotted adder's tongue, ever familiar to the lover of spring flowers.

It hardly seemed true that a film of snow rested on the upper slopes of nearby mountains, or that early morning saw a thin hoar-frost on the hill farms. As yet the chill of late winter was not broken, but the birds knew, and the trees and the shrubs knew, as well as the blithe chipmunks and frogs, that May had come.—A. H. W.

THE PLAN OF A BIRD. PART II

In the January-February issue of this year, we began a study of structure and adaptation. After defining in simple terms what a vertebrate is and what a bird is, we took up a few points about flight in general, applying some of the principles of flight to the flying mechanism found in birds. We discovered that some birds cannot fly, that some swim better than they fly, and that most birds do not depend entirely upon the power of flight to find food. Comparing the fore-limbs or wings of a bird with the hind-limbs or legs, we saw, also, that the former have almost without exception been specialized for the purpose of flight.

In this exercise, let us try to find out some of the uses to which the hind-limbs are put, and, in order to do this most successfully, we will forget for the moment that birds can fly.

Do any of you recall a game of birds called "avelude," in which birds are divided into scratchers, runners, climbers, perchers, waders, swimmers, birds of prey, and so on? This game in reality illustrates a once popular scheme of classification, based largely upon the uses of the legs and feet of birds. From the above category, it will be seen that these uses are numerous.

If we stop to think where birds find their food and where they nest—the two principal occupations of their lives—we can more readily understand the variety of uses to which their hind-limbs are put. All parts of trees and shrubs, all kinds of moist and dry ground vegetation, the smooth beach, pebbly shore, and inland waterways, even the air and sea, offer feeding-places to birds, while they find nesting-sites in precarious positions from barren rock-cliffs to semi-floating water-weeds and rushes. Watch the birds about you, and discover for yourselves the great variety of uses to which their legs and feet are put.

The Woodpecker seeks its food along the bark of tree trunks, and must be able to hold itself in such a position that it can get this food, and so we find it with curiously *yoke-toed* feet (two toes bending forward and two backward) clinging safely and securely against the trunk, while it delivers blows of much force on the stubborn bark. Most Sandpipers confine themselves to shore-lines, as Herons do to low-tide areas and marshes, so we may look for long legs and toes fitted to bear the weight of the bird most successfully in these places. Perching birds must have a strongly *clasp*ing foot, but not so strong as the *grasp*ing foot of birds of prey. Water and air loving species do not need long

legs; indeed, such legs would be a hindrance to them; but water-birds do need feet that will serve as oars or paddles, and consequently, we find a variety of *web-footed* birds. Species that live much on the wing, whether finding their food in the air or the water, have less need of strong legs and feet; so we are not surprised to find that in such species as the Gulls, Terns, Swifts, and Frigate-birds, these parts are comparatively small and weak.

It would take much time and space to catalogue all the uses of a bird's legs and feet, but it will be wise to learn first their general plan and later to observe the perfection of their adaptation to special uses. A bird's hind-limb is made up of a thigh-bone, a knee-joint, two fore-leg bones, a double row of ankle-bones, an ankle-joint, foot and toe bones, claws and scales. The ankle-bones, however, appear only in the embryo. In the adult bird, they become fused into the fore-leg and foot bones. If we should spread out a set of these bones arranged correctly with reference to their jointing, and spread out beside them a similar set made up from the hind-limb of reptile like a lizard, we should be greatly surprised to see how nearly the plan of one resembles that of the other. A flying bird in full plumage does not show much relation to a crawling, scaly reptile; but, stripped of its covering of feathers, its bony framework, or *skeleton*, tells the secret of its ancestry.

In birds, the thigh-bone is short, as compared with the greatly varying length of the fore-leg. The knee-joint is hidden by the feathers in a rather confusing way, while the ankle-joint is apparently where the knee seems to be. Take chicken or turkey-bones, again, as a familiar example by which to learn parts of a bird's hind-limb.

The short "second-joint," or thigh-bone, is next to the long "drum-stick," or fore-leg, while the feet and toe bones which are covered with scales and tipped with claws are never sent to the table. If you can learn to tell where the knee and ankle-joint of a living bird are, you will be able to observe and understand more correctly the uses of the hind-limb.

QUESTIONS

1. Are all *web-footed* birds water-birds?
2. Are there different kinds of webbed feet?
3. Can birds without webbed feet swim?
4. What birds have *lobed* toes? Can they swim?
5. Of what use are long legs to some birds?
6. Do the claws of birds grow as our finger-nails do? How can birds keep their claws trimmed?
7. What birds have *combs* on their claws?
8. How do some birds walk on snow?
9. Which birds run? hop? walk? walk and hop?
10. How does a Parrot use its feet?
11. What birds use the feet to help in nest-building?
12. How many toes have birds? How are they arranged?
13. Which toe is the longest?

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DRAWING AND SPELLING EXERCISE

Draw the foot of a swimming bird, a wading bird, a scratching bird, a climbing bird, and a perching bird, also, of a bird of prey, a Kingfisher and Swift. Learn to spell the following words:

exuberant	migration	Siskin
medley	adaptation	Veery
energy	skeleton	Savannah Sparrow
influx	lobed	tamarack
conspicuous	embryo	lichens
mystery	structure	Phœbe

A. H. W.

FOR AND FROM YOUNG OBSERVERS

A METHOD OF TABULATING NOTES

ARTHUR JACOT, Ithaca, N. Y.

As one studies the birds of the various states, one is struck by the difference in avifauna, not only in summer but in winter, when it is easier to study our bird neighbors. This change is especially noticeable according to locality, and here we must abandon artificial boundaries and use geographical divisions or, for more concentrative work, habitats; for one will find a different fauna along a river than where streams are small and many, along a ravine or gorge than on a marsh, in a pasture than in a wood, in a piece of large open wood than in a piece of sprout wood with undergrowth. This difference is just as striking in winter as in summer, and easier to observe. There is, moreover, an interesting correlation between bird and environment. This concentrative studying of a limited area is a work fit for the young lay bird-student. Each student should take an area four or five miles each side of his home or base, divide it into its geographical regions (as river-valley, ravine or gorge, stream-flat, mountainside, seashore, etc.), and then divide these into habitats (as marsh, wood, field, undergrowth, etc.), and proceed to study each for its characteristic birds and their peculiarities. Anyone having mastered such an area would be considered a "local authority."

To illustrate my meaning, let me use an area of Connecticut with which I am familiar. The locality is some twelve miles north of Bridgeport, in the town of Monroe. I will leave out the country immediately bordering on the Housatonic River, to simplify matters, as it brings in another fauna,—the inland waterway fauna.

COMMON

Group	Species	No. and association	Habitat
1	Crow	Varies	Omnipresent.
2	Jay	One to few	Omnipresent except high, bare ridges.
3	Downy Nuthatch	Generally two One to three	Woodland, orchards, tree clusters, etc.
4	Chickadee Junco	Several Several to many; occasionally with 3	

FAIRLY COMMON

5	Starling	Large flocks; occasionally with 1	Fields.
6	English Sparrow	Small flocks	Towns, farm-buildings, etc.
7	Tree Sparrow	One to small flocks	About brush-fringes, fields, etc.
8	Hairy	Generally singly	On wood over 2 in. in diameter*
9	Grouse	Seldom singly	In woods over 7 years old†.

OCCASIONAL

10	Meadowlark	Two to seven	On wet fields and marshy flats.
11	Kinglet	Generally in twos; occasionally with 3	Close to ground in shrubby woods.
12	Goldfinch	Varies	Most often heard overhead in flight‡
13	Creepers	Generally one; occasionally with 3	More confined to woods than 3.
14	Song Sparrow	Generally one or two	In brush about stone-walls §

Any other bird rare, irregular, or accidental.

*Whatever wood is too small for Hairy is good for Downy.

†Grouse often perch well up in trees, from which they can get a good start when danger is still some distance off.

‡If stationary, they are found in tops of tulip trees, black or yellow birches, feeding on their seeds; only feeding on ground in later winter.

§The winter Song Sparrow is more of a shy skulker than the summer bird, and therefore hard to find and evasive. I find that when I am careful and vigilant I can find one, often two, in each thicket of any extent, especially if dense and connected with a stone wall.

This summary consists of the elementary work which should always be done first. Further, it includes but one geographical division, each such division occupying a separate sheet. The more difficult work, which will take some years of careful observation, consists of the tabulation of birds rare, irregular, and accidental, following the same plan. Having thus tabulated one's observations on the region, the student is in a position to notice any deviation from the normal. A precise knowledge such as is to be gained from tabulated work, is much superior to a general idea gained from a mass of notes and general impressions, for it is more accurate, more convenient for comparison with another region or with another person's work, and provides a ready outline on which to base a talk or conversation on the birds of one's region, while it shows tangible results on which another person can work.

[The method described by this observer is the so called *ecological* method, by means of which each species of birds is related to its preferred feeding- and nesting-areas. It might also be called a *natural* method, since the observer studies the bird "at home," instead of in books; or, in the desultory manner of the average observer. Merely identifying birds in the spring migration is not a sufficient background for intimate knowledge of their habits and daily movements. It is, in reality, far more satisfactory to know a few species intimately than a much larger number merely by names. The method given above is therefore recommended as a most desirable one to follow.—A. H. W.]

THE PHŒBE BIRDS

Last spring, when we went up to our farm, we found that a pair of Phœbe birds had built in the corner of our piazza.

They had two little ones.

Pretty soon they were old enough to fly.

The father and mother coaxed and made queer sounds until the young ones flew away.

Later the mother Phœbe laid three more eggs.

The 22nd day of July the eggs hatched.

I saw one of the birds catch a moth for the little birds.

The birds fed their babies twenty-four times an hour.

July 28th, my father poisoned the squash bugs with lead arsenate.

The parents brought the squash bugs to their little ones.

July 30th, they died.

My father took the nest down, and it was lined with squash bugs' wings covered white with lead.

Then we took the nest and buried it with the little birds.—ROBERT PILLSBURY MERRILL (age 8), *Northwood Narrows, N. H.*

[The observations given above were made and recorded without aid, which adds much to their value. If a lad only eight years old can see and tell so many facts about one pair of birds, it is quite certain that he will learn rapidly from Nature herself, whether taught at home or in school to see what is going on around him. Let us all remember that our eyes were given us to see with, our ears to hear with, and our hands to feel with. It is sad to think we see and hear so little in the world about us.—A. H. W.]

A THRIFTY LITTLE FAMILY

This year my hanging nest was inhabited by a jolly little family of Wrens. The eggs were hatched by the 10th day of June, and after this time the busy parents kept their babies well fed. First the male would come with an insect and announce his coming by his song, and at once the little ones would begin to chatter, all trying to get the food first. When the male had finished, the female would warn her mate, and he would come out to let her in. Then he would go off after another worm. They kept up this manner of feeding until the birds were ready to fly.—CARTER R. LEIDY (age 12), *Penlllyn, Pa.*

[It is an interesting point to observe which species of birds are most secretive and silent when feeding the young in the nest, and which are the boldest and most uncon-

cerned. Compare, for example, a Crested Flycatcher with a Phœbe or Red-eyed Vireo, a Crow with a Robin, a Wood Thrush with a Wren or Catbird.—A. H. W.]

BIRDS AROUND A COUNTRY HOME

Water Birds—

Herring Gull
Mallard Duck
Black Duck
Least Sandpiper
Great Blue Heron
Green Heron
Black-crowned Night Heron
Yellow-legs
(Woodcock)

Game Birds—

Bob-white

Birds of Prey—

Osprey
Screech Owl
Barn Owl

Land Birds—

Black-billed Cuckoo
*Belted Kingfisher
*Downy Woodpecker
*Flicker
Chimney Swift
Ruby-throated Hummingbird
Kingbird
Phœbe (heard not seen)
Wood Pewee
*Blue Jay
*Crow
Fish Crow
Cowbird
Red-winged Blackbird

Land Birds, continued—

*Meadowlark
*Baltimore Oriole
Purple or Bronzed Grackle
Goldfinch
*English Sparrow
*Chipping Sparrow
*Song Sparrow
Swamp Sparrow
Towhee
Indigo Bunting
*Scarlet Tanager
**Barn Swallow
Tree Swallow
*Bank Swallow
*Red-eyed Vireo
*White-eyed Vireo
Black-and-White Warbler
Blue-winged Warbler
*Yellow Warbler
Chestnut-sided Warbler
Redstart
Maryland Yellow-throat
**Ovenbird
**Catbird
**Brown Thrasher
*House Wren
Chickadee
*Wood Thrush
**Robin

44 Land Birds.

JOY FLINSCH (10 years). *Lloyd Neck, Long Island, N. Y.*

[The list given above covers observations made during several summer seasons and compiled during 1913-14. A winter list would include more species. Species marked with a single star were observed nesting. A double star indicates that both eggs and nest were seen. The observer adds two notes of interest as follows: "There are some other kinds of Gulls here, but I have not yet found out what they are." (Possibly the Laughing Gull, which has been seen in the vicinity of Lloyd Neck during the summers of 1913-14). "The Fish Crow stays in winter on the shore." There has been some question about the Fish Crow's movements in winter, especially along the north shore of Long Island. This species is somewhat difficult to distinguish, but it is well worth careful study, since its movements and habits are not identical with those of the common Crow. The Purple and Bronzed Grackles are also difficult to distinguish, and deserve particular attention. The list of birds given above suggests the abundance of bird friends about a country estate. The Sandpiper, Herons, Yellow-legs, and Woodcock

might better be classified as Shore and Marsh Birds, but the list as a whole reflects great credit on the little girl who made it. Many older observers might very profitably follow the hints she has given indirectly about home bird-study.—A. H. W.]

THE DEATH OF A FLYCATCHER

One day last summer, as I was walking through the City Park, I stopped to look at the Duck-pond. In the pond were a lot of Ducks, one Goose, one Swan, and one Heron. While I was watching them, a Flycatcher appeared upon the scene and began flying down over the water. It did this a good many times until, all of a sudden, a Duck chased it, and, to my surprise, caught it. Then came the excitement. They all chased that Duck around the pond until he was obliged to give it up, then they would chase the next one that got it. They kept this up for a while, and then the Heron began to take notice. He pranced around the pond, finally making a run at the Duck and succeeding in capturing the bloody remains of the Flycatcher. He then went off in a corner and swallowed it, which was a very interesting performance, as you could see it go all the way down his neck.—TOM McCAMANT (age 13 years), *Portland, Oregon.*

[A city park is one of the best possible places to observe birds, more particularly during winter and spring. Only a limited number of species can nest congenially and find food for their young in the ordinary park, but it is often the case that one may see a larger number of species within a given time in a city park than in the country. It



THREE BUILDERS AND BIRD PROTECTORS AT THE NEW YORK STATE SCHOOL OF AGRICULTURE, MORRISVILLE, N. Y.

Photographed by Hugh Findlay

seems rather doubtful whether the tragedy described above would ever have happened in the country. Who can tell why?—A. H. W.]

BIRDS SEEN FEBRUARY 20 WITHIN FIVE MILES OF A CITY

Bluebird	Tufted Titmouse
Robin	English Sparrow
*Crow	Cardinal
*Blue Jay	Slate-colored Junco
Prairie Horned Lark	Downy Woodpecker
Song Sparrow	Purple Grackle

Birds marked with a star wintered in this locality. This is but a partial list, and can by no means be considered as a complete one of the birds here on that date. The weather had recently turned warmer, and this seemed to be the sign of the first wave of migration.

The first Robin that I saw was on Feb. 14; the first Bluebird, Feb. 13, and the first Turkey Buzzard, Feb. 14. I saw several Herring Gulls on Feb. 5, and several Flickers on Feb. 13. On Feb. 20 I found the last year's nest of a Red-eyed Vireo, and, as it was in good condition and I lacked one in my small collection (I keep all old nests that are in good condition), I climbed up and soon brought it down. In it I found the skeletons of three young birds, that, judging from their size, were of birds not more than one or two days old. I wonder just what was the cause of this tragedy? Was it disease, a cat, a bird of prey or an insidious Cowbird, that directly or indirectly was the cause? Who can say! Perhaps it was none of these, but some other great catastrophe that entered the lives of the parent birds.—KENDRICK A. HATT, *Lafayette, Indiana*.

[Compare this list and method of observation with the foregoing.—A. H. W.]



CHIPPING SPARROW

Order—PASSERES
Genus—SPIZELLA

Family—FRINGILLIDÆ
Species—PASSERINA

THE CHIPPING SPARROW

By T. GILBERT PEARSON

The National Association of Audubon Societies

EDUCATIONAL LEAFLET No. 80

In the United States are about forty kinds of useful, interesting birds called Sparrows. Besides the English Sparrow, which is not included in the foregoing statement, the one known to more persons than any other is the little confiding Chipping Sparrow. It is the bird that more than any other, perhaps, shows its absolute trust in mankind. It seems not to care for the deep forest, the windy beaches, the vast marshes, or the impenetrable swamps where so many of the feathered denizens of the land are wont to live.

If you look for the Chipping Sparrow, particularly in spring, go to the garden, for you can find it there, hopping along the rows of sprouting vegetables. It does not injure any of these tender plants—in fact you may consider yourself fortunate if one or more pairs make their home in your garden, for they will be familiar and delightful friends.

Where to
Find It

You will find it in the apple-orchard, by the roadside, and on the lawn. It will fly up in front of you as you pass along the gravel walk, and will alight on the veranda-railing and look inquiringly at you as you emerge from the door. It is an unobtrusive bird, and really has no human interest, so far as I am aware. One may love or may ignore the Chipping Sparrow, but where is the person who dislikes this friendly bird? It does not get in the way; it does not fill your gutters with dry leaves and trash; and its simple, chipping notes are so low that they would never awaken one of a morning.

I have always liked the Chipping Sparrow, it is so like a good woman I once knew, who, though very plain and somewhat unimaginative, was nevertheless considerate, thoughtful, and very gentle. Many persons did not notice her, but those who did always spoke kindly of her.

This is one of the birds that has greatly increased since white men settled the country, for the cultivation of fields and gardens has furnished it just the proper amount of protection, and an abundance of the right kind of food.

On the
Increase

The trees and bushes that men plant in orchards and on their lawns provide splendid places for the Chipping Sparrow to build its nest.

The cradle for the babies is a very dainty structure. It is made of dry grasses, with a few small twigs to strengthen and support it. In the center of this one will find a smooth cup lined deeply with horsehair, where four or five pale blue or greenish eggs are laid. Scattered about over the surface of the shell, but particularly numerous around the larger end, is a sprinkling of black or brownish spots. A variety of situations is chosen, so that we may

find a nest near the end of a swaying bough or saddled among the twigs of a lower branch of a shade tree by the street. Often, the birds choose cedar bushes or other thick shrubs, and in such cases the nest may be only three or four feet from the ground.

I recall one pair that built their home in a clematis vine, which grew on the veranda-trellis. Here, day by day, we used to watch the parent-birds bring food to their little ones, and it is astonishing how much labor it requires to keep four baby Chipping Sparrows supplied with all the food they will eat. Every two or three minutes one of the parents would flit into the clematis vine with food for the young. So far as we could tell, it appeared that the male attended to the duties of caring for the young fully as much as did his mate. This, truly, is the correct way to do; but not all father-birds follow this custom.

One of the little Chipping Sparrows seemed to be stronger than the others, and usually raised his head a little higher than his brothers and sisters, and opened his mouth a little wider in an attempt to get all the good things which his parents brought to eat. I fear much of the time he received more than his share. When a little later, however, the young had left the nest, and were learning to fly, this selfish youngster received no more than the others—in fact, on more than one occasion we saw the mother pass him by to give food to a brother or sister that sat farther along on the same limb.

It would be pleasant to say that all four of these young Chipping Sparrows grew up and lived happy ever after, but this, alas, would not be telling the truth. Our neighbor had a cat, and the cat knew of the nest in the clematis vine, and no doubt would have torn it down some dark night had we not arranged some boards and a piece of tin in such a way that it could not climb up the vine. But as soon as the young scattered about the lawn, and before they were able to fly more than a few yards at a time, the cat was ready for them, and before noon of the day they left the nest one of the baby birds had disappeared. It was just after luncheon when I heard the angry chipping of our friends, the Sparrows, and, dashing out on the veranda, I saw the cat marching away with a bird child in its mouth. That cat was well fed and well cared for, and had all the good food that any reasonable cat could mew for, yet its love for hunting was so strong, that, like almost every other cat that you or I have ever seen, it would catch birds if it had the chance.

Some of us like cats, but we *love* birds. Do you wonder that I had dark thoughts when I saw the cat stealing away with one of the innocent little baby birds? For a little while I think I wished that I were a lion so that I could show the cat how it is to be grabbed up in a big mouth and carried off. The next day only one of the youthful Chipping Sparrows was to be found, and I am not quite sure that it ever grew up to fly away to the South when cold weather came.

In the
Clematis Vine

Beware
the Cat!

Chipping Sparrows are very useful birds, for they destroy 'worms' (the caterpillars, or larvæ, of moths and butterflies) which eat holes in the vegetables in the garden, and consume grass-blades and the leaves of trees.

Over large areas of the New England States, the gipsy-moth has become a great scourge, for its caterpillars attack nearly all the trees in the country, except pines and cedars. They destroy the leaves; and, as trees really breathe through their leaves, the gipsy-moth of course is responsible for killing the trees. Some states have tried many experiments in order to learn how they may rid themselves of these pests.

Foe of the
Gipsy-Moth

To learn more about the life-history of the gipsy-moth, the men in charge of the experiments in Massachusetts not long ago built a large inclosure out-



THE SPARROW WHOSE HOME WAS IN THE CLEMATIS VINE
Photographed by Joseph W. Lippincott, Bethayres, Pa.

of-doors. This was covered and surrounded by a thin netting, inside of which a great many gipsy-moths were placed, where their various habits could be closely watched. Then a curious thing happened, the Chipping Sparrows began to arrive, and would continually break through the frail netting to get inside the frame where they could catch the moths. The men in charge did not think a moment of killing the Sparrows. No, indeed! So useful a bird should not be destroyed! They did a much wiser thing, for they kept a man on guard to frighten the Sparrows away when they came too close to the netting. The actions of the birds plainly showed that they much preferred to

eat this noxious insect, instead of contenting themselves with other kinds of food that might be found in the neighborhood.

These birds are very fond also of beet-worms, currant-worms, and caterpillars of many kinds. Edward H. Forbush, who has spent a great deal of time in finding out especially what birds eat, says: "In all, **A Good Testimony** thirty-eight per cent of the food of the Chipping Sparrow consists of animal matter, three-fourths of which is made up of noxious insects. In June, ninety-three per cent of the food consists of insects, of which thirty-six per cent is grasshoppers; caterpillars, twenty-five per cent; and leaf-eating beetles, six per cent. I have been much impressed with the value of this bird in the garden during the spring and summer months. It destroys at least three species of caterpillar on the cabbage. It is the most destructive of all birds to the injurious pea-louse, which caused a loss of three million dollars to the pea-crop of a single state in one year. It is a persistent destroyer of the grubs that mine the leaves of beets. I watched one bird secure eleven of these grubs in a few minutes."

The song of the Chipping Sparrow is little more than a continued, monotonous repetition of *chippy, chippy, chippy*. This call is given in a high, wiry voice, and the notes are run together until the sound suggests the trilling of some insect. Few of the Sparrows have ever attained a very high place as singing birds.

Late in the summer, Chippy changes his dress. He loses the ruddy brown cap which he has worn all summer, and in appearance now much resembles his mate. He then goes to the fields, where you may find him associating with Snowbirds, and with other kinds of Sparrows. **When Autumn Comes** As insect-food becomes scarce, and cold weather approaches, he changes his diet also, and begins to eat seeds of grasses and weeds. Then there comes a morning when Chippies cannot be found; over large areas of the northern part of their range they have disappeared. During the night they have taken up their long flight toward the South. This journey does not go on continuously, but the birds stop to feed and associate with their friends here and there on the way.

In the Southern States you may find this bird in winter enjoying the company of friends and neighbors; but wherever found, or under whatever conditions you see it, the Chipping Sparrow shows a gentleness in disposition which insures for it the friendship of all who study its ways and spy upon its coming and going.

The Audubon Societies

EXECUTIVE DEPARTMENT

Edited by T. GILBERT PEARSON, Secretary

Address all correspondence, and send all remittances for dues and contributions, to the National Association of Audubon Societies, 1974 Broadway, New York City.

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Any person, club, school or company in sympathy with the objects of this Association may become a member, of it and all are welcome.

Classes of Membership in the National Association of Audubon Societies for the Protection of Wild Birds and Animals:

\$5 annually pays for a Sustaining Membership
\$100 paid at one time constitutes a Life Membership
\$1,000 constitutes a person a Patron
\$5,000 constitutes a person a Founder
\$25,000 constitutes a person a Benefactor

SUMMER COURSES IN BIRD-STUDY

In the last issue of BIRD-LORE an announcement was made that the National Association of Audubon Societies would, this year, cooperate with various educational institutions in providing courses of bird-study for teachers and others who may be interested in receiving instruction in this useful and pleasing branch of natural history. This announcement has brought forth a surprising number of requests for permission to study under these courses, and many letters of inquiry for further information have been received.

As BIRD-LORE goes to press, we have made the following definite arrangements for bird-courses to be given during the present summer under the auspices of this Association. Still others may possibly be arranged:

New York.—The Cold Spring Harbor Summer School, Long Island: courses to be given by Mrs. Alice Hall Walter, Professor Ehringer, and others. Class limited to twenty-five. Session, June 30 to August 10.

Vermont.—Summer School at the State University, Burlington. A six-weeks course in bird-study to be given by Dr. H. F. Perkins from July 5 to August 13.

Virginia.—Summer School at the University of Virginia. A six-weeks course

to be given by Prof. Ludlow Griscom, of Cornell University. Session, June 22 to August 5.

Georgia.—Summer School at the State University, Athens. Two short courses—one by Prof. C. F. Hodge, from July 12 to July 24; the other by Prof. R. J. H. DeLoach, from July 26 to July 31.

South Carolina.—One week's lecture-course, to be given, in July, by Dr. Eugene Swope, of Cincinnati, at the State Summer School, Winthrop Normal College. For full data, inquire of Dr. D. B. Johnson, Rock Hill.

Florida.—Summer School at State University, Gainesville. A four-weeks course during July, to be given by Dr. G. Clyde Fisher, of the American Museum of Natural History, New York City.

Montana.—A six-weeks course to be given at the University of Montana's Biological Station, by A. A. Saunders, of West Haven, Connecticut. Session, June 17 to July 30.

California.—Four illustrated lectures on the life of American wild birds and animals, to be given by Dr. C. Hart Merriam, of Washington, D. C., at the State University Summer School, at Berkeley.

Teachers and others who may have an

opportunity to attend any of these summer schools will find the bird-work of an exceedingly high order. It will consist of lectures and laboratory work in the identification of species; also of field-work for learning at first hand the birds of the surrounding country. Students will receive instruction on the economic value of birds, and on the migration, feeding-habits, nesting-habits, and general activities of the common birds. An opportunity will also be afforded for

acquiring information regarding the best sources of supply of bird-pictures, bird-books, and other helpful materials.

If further information is wanted regarding any of these summer schools, it may be obtained by writing to the Directors of the various schools, or to the office of the National Association. All those desiring to take the special advanced work at Cold Spring Harbor, should address their applications to T. Gilbert Pearson, Secretary, 1974 Broadway, New York.

LEGISLATING BACKWARD

One of the states in which we have been particularly active in legislative matters of late is Rhode Island. The need of it is explained in an article which appeared on April 18 in the *Providence Journal*. The writer says:

"Yesterday two bills passed the Senate, and are now on their way to the House, one of which nullifies important provisions in the bill passed a year ago to conform our State law to the Federal law with regard to migratory birds, and the other will deprive the song-birds of this state of the protection of the law. I refer to Senate bills No. 61 and No. 60.

"Our present hunters'-license law provides that the license money shall be used to enforce the bird and game laws. The sponsor for Senate bill No. 60 makes the plea that the money should be used to protect the game-birds only, and to ensure this bill abolishes the present Bird Commission, and provides for the appointment of a new commission to be called the Game Commission, and to be composed entirely of hunters! He said from the floor of the Senate, 'let the Audubon Society take care of the song-birds.'

"A more mischievous bill than this is hard to conceive of, and yet it is in a fair way to go through and become law unless something is done by the friends of the birds, and done quickly.

"About a year ago the terms of the Bird Commissioners expired. The Governor was asked by the Audubon Society for a

representative on the new board, which he was about to appoint. An Audubon man was appointed. The author of Senate bill No. 60 was not reappointed. He is now 'getting back' at the Audubon Society for their temerity. What a motive to inspire important legislation!"

The State of Ohio has taken a backward step in the protection of its birds, by the enacting of the following bounty-law on hawks. The Legislature has, of course, taken this action in response to a demand, either real or imaginary, of the farming element. Some Hawks, particularly the Cooper's Hawk and Sharp-shinned Hawk, are more or less destructive to poultry and birds; but what of the Fish Hawk, the Sparrow Hawk, or the Red-shouldered Hawk, which may well be killed and a bounty claimed for them under such loose statutory terminology as "Chicken Hawk" and "Blue Hawk!" The new Ohio law is, in part, in the following language:

"Section 1. That a bounty of one dollar shall be allowed and paid, in the manner hereinafter provided, for each Chicken Hawk, American Goshawk, Blue Hawk, Cooper's Hawk, Sharp-shinned Hawk, or Duck Hawk, killed in this state by an inhabitant thereof.

Section 2. Any person applying for such bounty shall take each Hawk to the clerk of the township in which such Hawk was killed. . . but such certificate shall not be issued unless there is a fund in the township treasury out of which such bounty may be paid."

With the Field-Agents

BIRD-FRIENDS IN ARIZONA

By WILLIAM L. and IRENE FINLEY

Illustrated from photographs made by the author



AMONG the birds about Tucson, Arizona, the last of March and the beginning of April is the love-season; and the amount of bird-life around this charming town would astonish many a bird-lover unacquainted with the wild life of the desert. The most abundant bird here, perhaps, is the Red-headed Linnet, or House Finch, and we never tire of seeing it. We used to watch a pair daily, as we sat looking through the Virginia creeper that shaded our veranda.

One morning, early, we saw them looking critically at an old nest near the window. He of the red head turned around and around on the remains of last year's habitation, as if saying, "Come on, we can fix it up a little and have a modern house." But this did not suit the lady, for she flew away in disgust, and he, forsooth, must follow; yet in a little while both were back again, discussing the same question. In the end, however, they built a new nest about six feet away. Occasionally, when weary, perhaps, of hunting straws and strings, they pulled some of the material out of the old nest. Only when the last straw was used did they cease to do this.

The University campus at the edge of town is an oasis in the desert, for here are plenty of trees and flowers and water.



THE DESERT SPARROW AT HOME ON MR. FINLEY'S CAMERA

Beyond is nothing but cactus and creosote. A place of this kind encourages the birds to take readily to civilizing influences.

What a thrill when one catches his first glimpse of a new bird he has never known before! We had many such experiences, for some of the Thrashers were new to us; but we had seen and heard about the Sage Thrasher in eastern Oregon, and so we felt somewhat acquainted with this singer of the desert. The Inca Dove was new, yet his cooing notes made him seem like an old friend in a new dress. But the Vermilion Flycatcher, that flaming bird of the desert, was something totally different. He was built like a Flycatcher, and as he jumped from a dry twig and swept low over the ground we heard the snap of his bill. Among the gray, dust-colored Thrashers and Doves, this bird of scarlet looked as if he might have wandered up from the tropics, and was out of place.

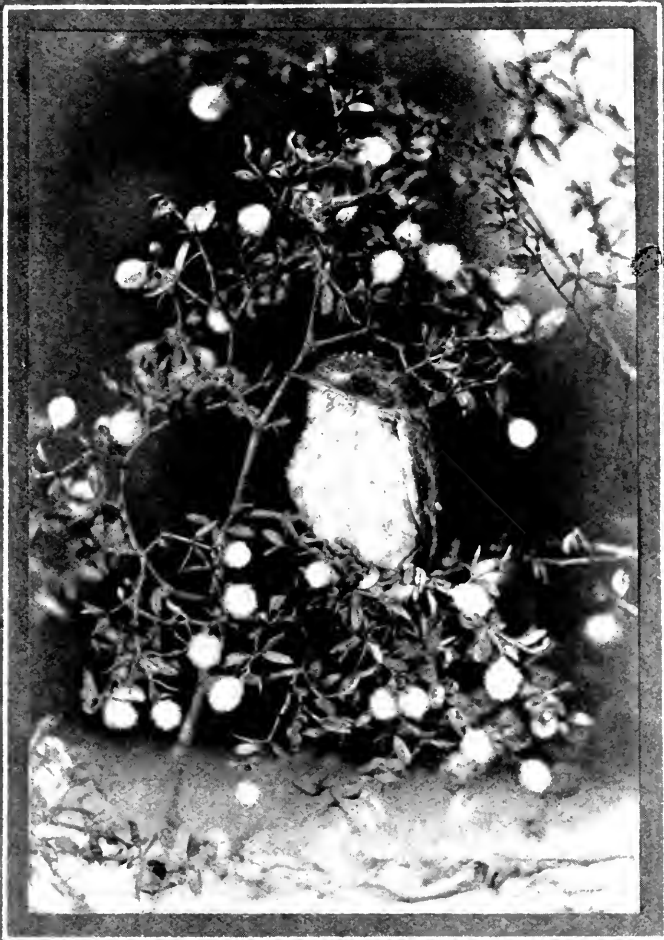
In the pepper trees, near where we saw the Vermilion Flycatcher, there came another Flycatcher of similar size but

very different in dress. The coat was brownish gray above and yellowish underneath—such a contrast to the bird of brilliant colors! We wondered what it could be. Then, as we watched, it swept to the ground and seized a straw. This it carried to the limb of a hackberry tree, and we watched the bird weave it into the walls of a newly started home. Then, to our astonishment, it flew out to the top of an old fence, where it was joined by the scarlet bird. The gaily dressed gentleman and the modest lady were mates. Nature is so lavish in the one case, and so covetous of color in the other!

The Desert Sparrow, like the Inca Dove, has learned the advantages of nesting near the dooryard. Even though there are cats in the city, there are more dangers out on the desert. A pair built in the Virginia creeper near our porch. They were so confiding and tame that, when we set up the camera at the nest, they seemed to regard us as obliging in furnishing so convenient a place to alight. The



THE PYRRHULOXIA PANTING IN THE HEAT



YOUNG VERMILION FLYCATCHER IN CAT'S-CLAW BUSH



THE GILA WOODPECKER

rubber tube operating its shutter made an admirable swinging perch.

Early in the morning, the two Desert Sparrows fed their young every few minutes, but I noticed that when the sun grew hotter, they liked to seek shelter, as we did. The thermometer read 115° in the shade. There were plenty of grasshoppers. They were the only creatures that seemed to enjoy the heat.

Once I saw the mother Sparrow hustle over into the next yard and catch a big grasshopper. She had her hands full trying to kill the creature, when one of the Arkansas Kingbirds that were nesting in a near-by tree darted down and hovered over her. The frightened Sparrow seized her prey and darted away, with the Kingbird at her tail. Quickly she slid under the fence, where she was protected by the bottom rail. She finished the killing and tore off the wings and legs.



MEXICAN GROUND DOVE NEST IN MESQUITE

The Kingbird watched the performance, and seemed to be more inquisitive than vicious. Perhaps he wanted to show the Sparrow how to do the trick, for he is an expert at butchering grasshoppers.

We were interested in seeing how Woodpeckers adapted themselves to circumstances in Arizona. In this country they find few trees in which to peck nesting-places. As a substitute, they take to the

Arizona is a land of extremes. We expect to find gray and brown birds to match the colors of the desert: we also find birds of most brilliant hue. There are also extremes in size. Here in the desert lives the dwarf of all Owls, the little Elf Owl. When we made his acquaintance, we found he was not larger than an English Sparrow. What a baby in comparison to the Great Horned Owl!



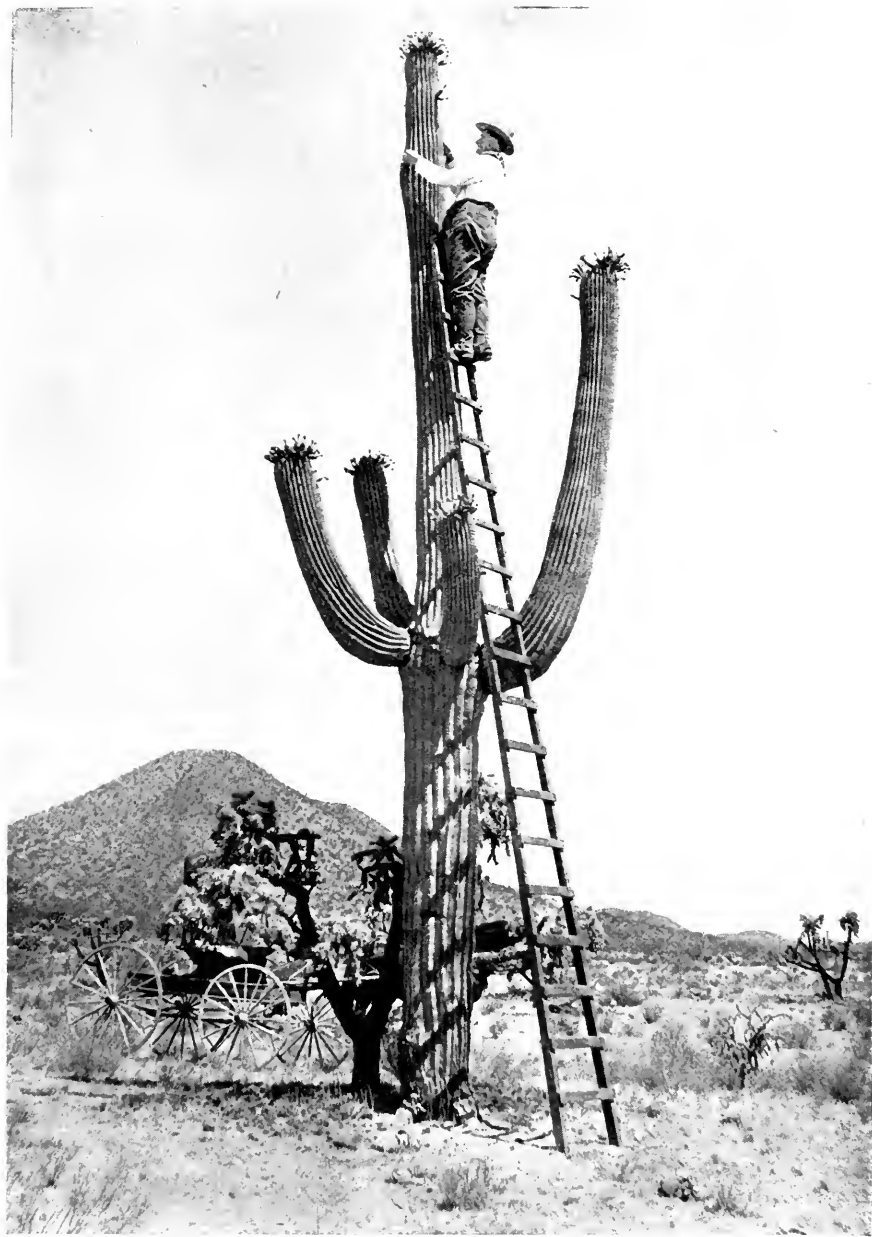
ELF OWL AND THE LATE HERBERT BROWN OF TUCSON

giant cactus, and catching their toes in the creases between the rows of thorns proceed to dig into the spongy pulp. Almost every giant cactus is punctured with one or more Woodpecker's holes. After the hole is made, the sap oozes and hardens, making a hard-shelled house that is even more permanent than the cactus-trunk itself. Oftentimes, when a giant cactus falls to decay, one may pick up one of these gourd-shaped homes that was made by a Woodpecker many years ago.

When the late Herbert Brown, who was a splendid naturalist and outdoor man, asked us to go Owl hunting, we accepted. The next morning, he came early with a team and light wagon. In the back he had three short ladders, which I discovered later had been built so they fitted together and made a ladder long enough to reach well up the tallest cactus. No matter how expert one is at climbing, one would have some difficulty in getting up to the Elf Owls nest, for they prefer



THE ELF OWL AT HOME IN A GIANT CACTUS



LOOKING INTO AN ELF OWL'S NEST



THE GROUND DOVE STRIKING WITH HER WINGS

the highest Woodpecker's hole in the top of the giant cactus. These tiny Owls are quite abundant about Tucson. They flit over the desert at night, catching great numbers of insects; and they are especially fond of grasshoppers.

Around Tucson, there are four kinds of Doves, the White-winged, sometimes called the Sonora Pigeon, the Mourning Dove, the Inca, and the Mexican Ground Dove. As a rule, our experience with Doves in Arizona taught us that they were very shy, doubtless because they have long been unprotected from gunners, even in the nesting-season.

One finds a great deal of difference in the individuality of birds. Two pairs of Ground Doves, whose nests we found, were very shy; but at a third nest we discovered that we were able to move the camera up within ten or twelve feet without frightening away the brooding parent.

After it had stood there a little while, we slowly moved it to within four or five feet. Instead of leaving her home, the Dove raised her wings and spread her tail in anger. She gave a fine, intense, whining note, as she struck at us with her soft bill. We annoyed her to the extreme by putting a finger up to the edge of the nest, and finally stroked her feathers. Then she seemed to realize that we had no intention of harming her, and let us take as many pictures as we wished.

We had a somewhat similar experience in photographing the home of a Pyr-rhuloxia, or Gray Cardinal. This striking bird has a heavy, parrot-like, yellow beak and a high crest. The male is colored light rose-red around the bill and under his wings. A patch of red also extends from the throat down over the breast. One intensely warm day we photographed the mother as she sat most of the time

with her mouth open, panting like a dog on a hot day.

We got pictures of this bird by setting the camera within a few feet of the nest, and covering it with a green cloth. It was soon regarded without suspicion.

There was a marked difference in the attitude of this bird and that of a pair of Phainopeplas whose pictures we coveted. Although we spent nearly five whole days in an umbrella-blind near a nest of these birds, during all that time we secured just one picture of the black male. He looked like an Indian chief with a long crest of feathers standing straight up.

The Phainopeplas sally forth for

insects and catch them on the wing, like a Kingbird; but they are also very fond of berries, as we noted while we sat in the blind and watched the charming mother come often with food for her dainty offspring.

She took entire charge of the household. If the children had been compelled to depend upon the father they would have gone hungry. As a rule, the female did not carry the berries in her bill, but she lit on the edge of the nest and coughed up a berry, then another and another, until I often counted five or six. She was at the time feeding the young on the berries of what is commonly called "quail bush."



"THE PHAINOPEPLA LOOKED LIKE AN INDIAN CHIEF"

TWO CIVILIZED SANDHILL CRANES

By MINNA MOORE WILLSON



"THEY WILL EAT READILY FROM THE HAND"

Betty and Dixie are two pet Sandhill Cranes that have lived happily on the large lawn of our home at Kissimmee, Florida, even since they were downy youngsters fresh from the Everglades.

Economically they have few rivals, for, with their never-ending appetites and great capacity for food, they dig from the first streak of dawn to the falling of the evening shadows. Worms, bugs, larvæ, and grasshoppers, all disappear rapidly down their long necks. They will eat readily from the hand.

Our pets, now being advanced somewhat in the scale of civilization, have learned to intersperse their natural food with wheat, corn, and scraps from the table. How much insect-food they would consume if left entirely to their own devices it is difficult to say. When the wheat-can hanging from a wire on the back veranda is empty, a message is quickly telephoned to the housekeeper, by a petulant ringing of the can, which unmistakably means 'empty dinner-pail.'

During the tourist-season, Betty and Dixie are much in the limelight. They have developed a certain amount of vanity, and seem to understand the exclamations of praise and admiration given by visitors, who frequently stop at the fence to admire them.

The use of kodaks they look upon as quite proper, and stand with a dignity that is very gratifying to the photographer. They have learned, at the behest of their master, to carol a greeting, as many times as it is requested; and their dancing is no longer the hesitation nor the turkey-trot, but the real, rioting, Kissimmee prairie-dance, bowing and running with widely outstretched wings, circling, jumping, and then darting back to their master for new orders and a piece of moss. This they throw into the air and catch, and then dance about again with great animation.

When these performances begin, Efan, the ambitious collie, hurries for his ball and bat, and the scene becomes most

interesting, with the two Cranes dancing and jumping, apparently vying with the dog for honors and applause. There is a gray squirrel that takes great pleasure in teasing the Cranes. He chatters to them in mischievous delight, and runs down the trunk of the tree, where Betty and Dixie stand playing hide-and-seek. He taunts them by leaving the tree and darting across the ground to a palm, where he makes the fronds rattle and shake, then back again to his quarters in the hickory.

Last winter we had as Christmas guests six Seminole Indians from the Everglades. In the party were Martha Tiger, a very old squaw, and her two grandchildren, youngest descendants of the heroic old chieftan, Tallahassee. Wilson Tiger and Lewis Tucker were also here, escorted by Chief Billie Bowlegs, who acted as friendly guide and interpreter.

The Cranes insisted upon being with this forest group, and, on several occasions, when the library was full of visitors who had come to see and meet the Seminoles, Betty and Dixie showed a determination to be in the room also. As quickly as they were driven out, back they would come. Did they recognize in these wilderness people a comradeship for their native haunts? Did they long to be back in the Everglade country?

The march of civilization has made sad havoc with the large numbers of Sandhill Cranes that once belonged to the Florida prairies. They have been systematically shot for food and for so-called sport, and only occasionally are these beautiful and sensible birds seen now in the more thickly settled districts; and unless better protection is given these Cranes are doomed to speedy extermination in Florida.



"BETTY AND DIXIE ARE MUCH IN THE LIME-LIGHT"



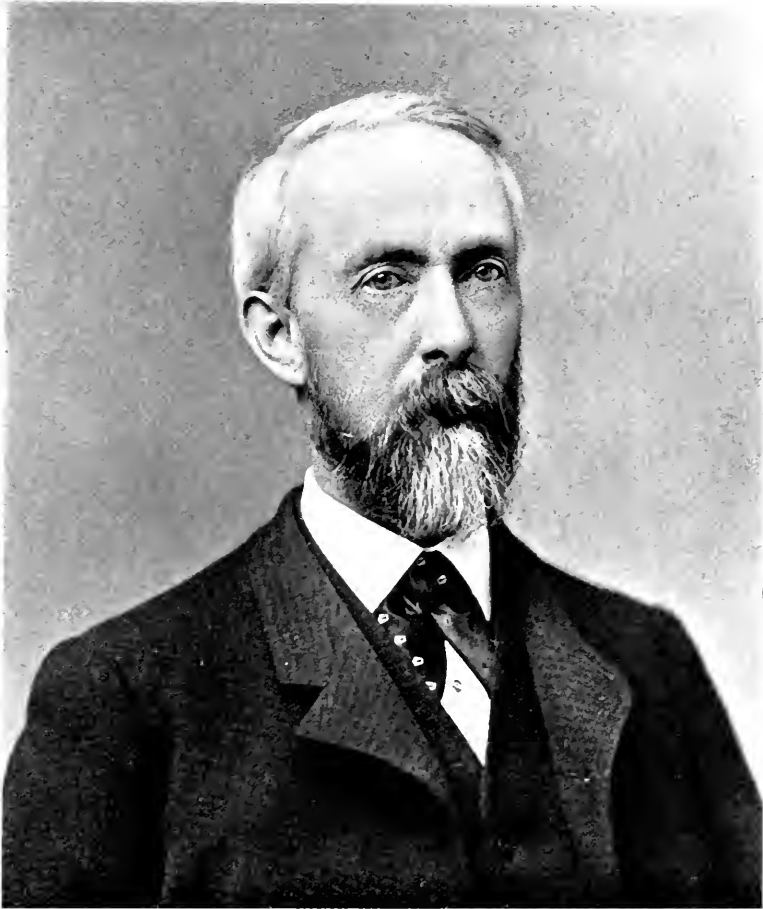
EPHRAIM BENJAMIN REPP

Among those lovers of birds who have died, and by whose wills the National Association of Audubon Societies has become a beneficiary, is the late Ephraim Benjamin Repp of Maryland. He was born at New Windsor, Maryland, in 1846, and died in the same village on November 9, 1911. Although reared on a farm, he early learned the carpenter's trade, became a skilled mechanic, and worked in many places in the Eastern and Central States. He was never married.

Mr. Repp became greatly interested in

bird-protection, and did much to interest the citizens of New Windsor in the subject. As one of his friends writes: "At times his zeal was greater than his discretion, and in consequence he suffered the fate of most reformers—he acquired the dislike of a number of people." However, he kept up his propaganda in the county papers, and accomplished much in stimulating interest for bird protection.

The Association received \$284.50 by a provision of his will, which was a liberal bequest, considering his limited means.



JAMES WILLIAM BARTLETT

James William Bartlett was born in Dover, New Hampshire. During a long series of years the Bartlett family has attained distinction in various ways, one member having been President of Dartmouth College.

James William Bartlett was a man of quiet and studious habits, very conscientious, and devoted to his sister Hannah, who never married. In her memory, and because of her interest in ornithology, he left a legacy to the National Association of Audubon Societies, which yielded about \$475. About 1900 he was made a Trustee of the Dover Hospital, in which he was

greatly interested, and to which he devoted much of his leisure. He was also a director of the Strafford National Bank.

Some years after the death of his sister, he married Mary, daughter of Thomas Neil, of Portsmouth, New Hampshire, who survives him. He followed no business or profession, his means enabling him to spend his life in travel and study. He died in Portsmouth on October 6, 1906, leaving no children. He was greatly beloved and respected by all who knew him, and was always ready to give substantial aid to any cause that he deemed a worthy one.



WHICH WOULD YOU CHOOSE ?

By T. GILBERT PEARSON.

Of all the nymphs that dwell in the world,
With dimpled cheek and tresses curled,
Who hark to the songs of the sea and land,
And gather each joy with an eager hand,
Which would you choose for life's short whirl—
The maid with the gun or the camera girl?



Down in the dell
That she loves so well,
Where the long moss waves
To the nonpareil,
Or anon on the hill
When the night is still,
And the mockingbird calls
To the whip-poor-will;
One dreams of the light
And the lens set right,
And the flash of wings
As the birds alight,
And the picture
The plate will fill.

In the autumn days when the purple haze
Softens and blends with the sunset rays,
Cheery and bright in the fading light
Comes the ringing note of the plump Bob-white.
There is one who's tanned on cheek and hand,
Who will listen and smile, and can understand,
If the pointers are working right.

Now which would you choose for life's short whirl,
The maid who can shoot or the camera girl?

WALTER M. DUNK

GENERAL NOTES

The Heath Hen Reservation

On April 15, 1915, I visited the Massachusetts Heath Hen Reservation, on Martha's Vineyard. The state owns 1,700 acres here of waste, scrubby land, which has become the center of the last stand of the Heath Hen. Originally, this bird was found on the Atlantic plain from Maine to Virginia, but in all that region it

birds remained on the island. He now believes the number to be about a thousand, as a result of their being carefully guarded.

In April, they come to open places in the preserve, to strut, fight, dance, and make love. I stood with Dr. Field, that April afternoon, in a blind a few hundred feet from the warden's house, and watched these birds go through their



BIRD-POOL AT THE HOME OF GEORGE H. MELLON, NEWTON HIGHLANDS, MASS.

has been exterminated by the shotguns of hunters, except on this one little island off the Massachusetts coast.

The credit for preserving the remnant of this eastern form of the Prairie Chicken is due to Dr. George W. Field, President of the State Game Commission of Massachusetts, who induced the Legislature to provide for establishing this reservation about ten years ago. At that time, Dr. Field estimated that about fifty

wonderful performances at a distance of only a few yards. When we were leaving the blind at five o'clock, I counted 94 of these birds rising from the open field, of not more than twenty acres, which surrounded our hiding-place.

Massachusetts has done a noble work in preserving this species for the pleasure, and doubtless for the future profit, of mankind.—T. G. P.



ANNUAL MEETING OF FLORIDA AUDUBON SOCIETY, MAITLAND, MARCH 11, 1915

Cross indicates Dr. William F. Blackman, President

The Minneapolis Bird-Club

The Audubon Bird-Club of Minneapolis recently held a bird-protective exhibit in that City, which created a great amount of interest. It was originally planned to hold this four days, but so many visitors came that it was decided to keep open double that length of time. About 3,000 visitors were registered, but many others came that were not counted. Audubon literature, books, and supplies were displayed, and a great deal of missionary work was done.

The entire success of the exhibition is but another indication that the Minneapolis Audubon Bird Club is in good hands, and it has been a pleasure to welcome the organization as a member of the National Association.

On the Cat Question

The Superintendent of the Board of Commissioners of Rockford Park District, Rockford, Illinois, writes as follows:

"In your March-April issue of *BIRD-LORE*, Katherine Parson, of Cambridge, Massachusetts, defends the cat on the ground that each cat destroys enough mice and rats to save \$9 annually. The Government places the value of the seed-eating birds to the farmer at \$1 each per year. Surely, every bird, insectivorous or otherwise, is worth as much. Cats on an average eat fifty birds each, annually; doing therefore \$50 worth of harm, while, according to her figures, doing \$9 worth of good.

"Personal experience has taught me to keep in check mice and rats at a small cost in my own home, and the many buildings under my management, by ever-changing methods—traps and baits. Cats which prowl around these buildings at night do so entirely to take toll among the fledglings and older birds that abound on the premises, thus following the line of least resistance in securing their food. It matters not whether the food be mouse or bird, just so it is food. Cats have done so for ages, and will continue doing so. Per-

sonal observation also convinces me that generally those houses provided with cats are also provided with mice. This is a reflection on the tenant, who instead of putting his brain against the brain of a dumb animal, to get rid of it, turns the job over to another dumb animal; one which unfortunately is indiscriminating in its choice of fare.

"If a manufacturer or corporation found its machinery making prohibitive waste, they would discard the machinery and install something that filled the demand. The cat apparently has been a failure in keeping down rodents, besides doing much harm by eating many useful birds, and, therefore, should be discarded for a bona-fide, modern, sure-kill-mice-and-rats-only substitute."

An Appreciative Word

From Prince of Wales Island, Alaska, comes this pleasant note from a bird-lover, Mrs. Ulysses S. Rush:

"I wish to thank you for the copy of 'Alaskan Bird-Life' recently sent to this mine from some Seattle address, which was entirely obliterated when it reached us. As I have hitherto been the only one here who put out food for the birds, and soft, cut-up yarns and cotton for their nests, the book was given to me as 'the one who would get most good from it.'

"It is the most practical book of birds I have ever seen, in that it describes birds that are in our vicinity. I also wish to express my thanks to the member of your Association who stood the expense of publishing this excellent book for free distribution. That member has really done valuable missionary work, to say nothing of brightening many an otherwise lonely hour to one who is up here among the hills, with no neighbors near, and just our reading-matter and the birds to cheer us. It took me nearly three years to learn the name of the bird that gives the fine, flute-like notes in the depth of the woods, particularly at evening. I now believe it is the Alaska Hermit Thrush, but I have never been able to

get a glimpse of the bird to identify it with its beautiful notes.

"Please tell your generous member that if she (it must be a woman or else a man who had a remarkably good mother) will send me her address, she need not give her name, I will send her a few views of our mine and vicinity as a small token of my appreciation."

Aigrettes Seized

We have been untiring in our efforts to assist the Conservation Commission in New York to bring violators to justice.

had their attention called to the illicit sale of aigrettes six weeks ago. They assigned Protectors Benson, Ward, Gallagher, Wacker and Allen to find the lawbreakers, but this group made no progress until they called in the help of woman detectives.

"By this means forbidden goods were located, according to the raiders, in the shops of Thomas Reilly, No. 9 West Thirty-third street; L. Yarmus, No. 63 Clinton Street; Goldstein and Metz, No. 73 West One Hundred and Sixteenth Street; R. Harris, No. 17 Clinton Street, and M. Finklestein, No. 137 Delancey Street. These stocks were seized."

The Thomas Reilly mentioned above is the man recently placed under bonds in



A BALD EAGLE KILLED "FOR THE FUN OF IT." THESE MEN NEED EDUCATION

It is with much pride therefore that we quote the following from the *New York World*, April 20, 1915.

"Five dealers in millinery supplies were raided yesterday, and the city office of the State Game Conservation Commission captured \$10,000 worth of aigrettes. The dealers not only permanently lost these ornaments, but became liable to a general fine of \$60 each, and an additional penalty of \$25 for each bird. The State law makes possession of aigrettes for purposes of sale a misdemeanor.

"Chief Game Protector Llewellyn Legge, and Division Chief John T. McCormick,

in connection with the seizure of a large illegal importation of wild-birds' feathers by Captain T. J. Ashe, an agent of this Association.

Two New Federal Reservations

The United States Government has set apart as refuges for breeding birds two projections of the south coast of the Straits of San Juan de Fuca, Washington. One forms the outer barrier of the harbor of Port Angeles, and is known as Ediz Hook Reservation; and the other is

Dungeness Spit, a similar barrier protecting Dungeness Harbor. Both are favorably situated for protecting migrating and breeding water-fowl. Thus it will be seen that the good work of establishing Federal bird-reservations, first started and long fostered by the National Association of Audubon Societies, continues to go forward.

A Useful Teacher

Literally hundreds of charming letters are received from teachers who have

Value of Our Birds.' 'The Winter Birds and Their Food,' and 'Protective Coloring of Birds.' Once we had a debate on 'The Crow,—should it be protected,' when we decided that Crows should be protected.

Mrs. Wood, the mother of the president, very kindly gave us the use of an extra room in her house for a club-room. We decorated it with nests and leaflet-pictures, and a chart was bought to use at the meetings.

"The dues yearly are five cents, and the money is spent for Audubon leaflets,



THE BIRDS ON PELICAN ISLAND, FLORIDA, HAVE HAD A GOOD SEASON

formed Audubon classes. Here is a sample one from Miss Ruth M. Wood, of Merrimac, Massachusetts:

"When our Junior Audubon Class was organized in Merrimac, we had ten girls as members, with Miss Myra Worster for Local Secretary. The class was named 'Girls' Audubon Class.' We had only one meeting when Miss Worster left her school in Merrimac to teach in Boston. The class chose Ruth Wood to act as leader. The class meets every two weeks, and we have walks about once a month. At the meetings we usually have talks on some subject, such as 'The Economic

etc. A few weeks ago, the class made a chart which is to be placed in all the grades of the elementary schools for one week at a time. Pictures of the Robin, Bluebird, Oriole, Hummingbird, Song Sparrow, Catbird, Whip-poor-will, and Blue Jay were pasted on a large sheet of cardboard, and 'Protect the Birds' was written in large letters at the bottom. A poem and two clippings were placed on the cardboard to call attention to the value of birds. The leaflets given with each picture are taken to the teachers with the chart. At present the class has sixteen members."

From Philadelphia

"The members of my Junior Audubon Class are very enthusiastic, and are anxious to go on with the work. Each Monday morning they have many interesting things to tell. There are several restless boys belonging to it, who formerly had gained unenviable reputations. These boys are among the most active members of the class, and are anxious to finish

the birds is a great work. From boyhood I have studied the birds. The names of new ones, after I had exhausted my parents' knowledge, I learned from the pictures in Webster's big dictionary. Of course I learned only the more common ones from such a meager source. Leaflets and pictures such as yours would have been a boon to me. Last summer an unusually large number of birds nested within a hundred yards of our house; a



JUNIOR AUDUBON CLASS, JOSEPH WOOD SCHOOL, TRENTON, N. J.

work and obey rules in order that they may have more time to spend in Fairmount Park watching birds. I want to thank you for BIRD-LORE. It is a very great help in the work. Yours truly,

BESSIE M. MARKLEY."

From West Virginia

"Two boys of my Junior Audubon Class report a colony of Martins nesting in their boxes; another a Bluebird; a third a House Wren nesting on the porch; and a fourth has been watching a Phoebe build her nest in the mouth of an old mine.

"This teaching of the children to know

pair each of Bluebirds, Robins, Orchard Orioles, Baltimore Orioles, Blue Jays, Chipping Sparrows; Yellow Warblers, and two pairs each of Flickers, Song Sparrows, Catbirds, and Least Flycatchers. Some of these come every year.

D. W. PARSONS.

The Audubon Movement

A brief account of the origin and progress of the Audubon movement has been prepared; and a copy with an excellent portrait of Mr. Dutcher, will be given to anyone requesting it from the Secretary of the National Association.

NEW MEMBERS AND CONTRIBUTORS

Enrolled from March 1 to May 1, 1915.

Life Members:

Ahl, Mrs. Leonard
 District of Columbia Audubon Society
 Field, Cortlandt de P.
 Marshall, Thomas K.
 Nichols, Mrs. Wm. G.

Sustaining Members:

Abbott, Mrs. F. V.
 Allen, Atkinson
 Allen, Miss Edith H.
 Ams, Charles M.
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 Clark, Mrs. F. Lewis
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 Danziger, J. M.
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 Ely, Miss Anna W.
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 Farrish, Dr. Robert C.
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 Winters, J. H.
 Wister, John C.
 Wray, Delos H.
 Wright, A. B.
 Young, Miss Annette

New Contributors:

"A Friend"
 Anonymous
 Arnold, W. D. I.
 Burnett, Mrs. Florence
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 Day, Miss Harriet E.



JUNIOR AUDUBON CLUB OF ERASMUS HALL HIGH SCHOOL, FLATBUSH,
BROOKLYN, NEW YORK



A NEW YORK CITY JUNIOR AUDUBON CLASS. FEEDING BIRDS IN CENTRAL PARK

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A Bird-bath of Sharonware

Constructed in two pieces, of porous, frost-proof, gray cement, at the trade-school for cardiac convalescents at Sharon, Connecticut, and to be seen and bought at the Sharon Workshop, 42 Lexington Avenue, New York City.

FOUR-WEEKS SUMMER SCHOOL AT THE MASSACHUSETTS AGRICULTURAL COLLEGE

Bird-lovers and nature-study enthusiasts will undoubtedly be interested in several of the courses offered in the four-weeks Summer School of the Massachusetts Agricultural College, at Amherst. Among the forty courses listed appear the following: Bird Life, five exercises a week for four weeks; Insect Life, five exercises a week for four weeks; Methods of Collecting in Entomology, four two-hour periods a week for four weeks; Plant Experiments, five exercises a week for two weeks; General Botany, five exercises a week for two weeks; Cryptogamic Botany, three two-hour exercises for two weeks. Other courses in Agriculture and Horticulture, Home Economics, Elementary Sciences, Organized Play and Recreation, Home and School Garden Work, Agricultural Economics, and Rural Sociology, offer opportunity to round out an attractive schedule.

The fact that whenever possible classes are held out-of-doors, and that as much field work as is consistent is scheduled,

lends interest and attractiveness to the school. No tuition is charged, and living expenses are moderate. Various courses are offered for the particular benefit of school-teachers. A request directed to the Supervisor of Short Course, M. A. C., Amherst, Mass., will bring information regarding the four-weeks Summer School, the Agricultural Boys' Camps, the School for Rural Social Service, the Conference on Rural Organization, and the Poultry Convention. Amherst is a delightful town, and the region round about is noted both for its beauty and its traditions.

Special attention is given, during the school, to organized play and recreation; plays and pageantry and the demonstrations by the students themselves constitute one of the most enjoyable features of the school. The afternoon mid-week excursions and the all-day Saturday excursions to points of natural scenic beauty and historic interest form another attractive feature.



LAZULI BUNTING AT FEEDING-COUNTER, COLORADO SPRINGS
Photographed by E. R. Warren



A VIEW IN BIRDCRAFT SANCTUARY

The Warden's Lodge and Workshop are shown in the background at the right, the Museum at the left

Photographed by Wilbur F. Smith

Bird-Lore

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OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

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The Making of Birdcraft Sanctuary

By MABEL OSGOOD WRIGHT

With photographs by the author and Wilbur F. Smith



WHILE there is nothing new in the idea of song-bird protection by individuals, the setting apart of spaces of land wherein they may find *Sanctuary*, in the medieval sense of the word, is distinctly novel. The Game Preserve is a place where the birds are protected, that they may increase for the ultimate pleasure of the sportsman in shooting them, or, in the broadest sense, for their food value; so that no more sentiment can be attached to the process than in the breeding and keeping of farm poultry. The Song Bird Sanctuary, however, is an oasis in a desert of material things. In it the bird may lead its own life for that life's sake, and the joy of many of such lives overflows all arbitrary boundaries in its ethical benefit to the community and state.

There have always been places where a certain amount of protection was accorded to song birds; for, as a small child, I can remember that my father, on more than one occasion, delayed the mowing of a certain hay-field long beyond the usual time because he valued its crop of Bobolinks even more than the hay. Also, since the firm establishment of the present Audubon Movement by William Dutcher (who must always be regarded as its patron saint, because it was the vital spark of his practical enthusiasm that kept the smoldering fire from extinguishment until it was

fairly swept into its present flame), more than one cooperative isle of bird safety has been established, notably that under charge of the Meriden (New Hampshire) Bird Club.

This Sanctuary, founded by the interest and initiative of Ernest H. Baynes, was brought into prominence by the masque *Sanctuary*, by Percy Mackaye, acted for the first time within the grove that was its inspiration and, later, in New York, where its allegory of the evil ways of Stark, the Plume Hunter, and his redemption through the awakening in him of the sense of beauty, gave birth to *Birdcraft Sanctuary* now under consideration. This, in its turn, has the distinction of being the first owned and governed by a State Audubon Society; placed by endowment beyond the vagaries of public caprice, and therefore, from its birth, in a position to work for the highest aims.



THE ENTRANCE GATE.

The Warden's Lodge is shown at the left, a part of the Museum at the right. The inscription on the left-hand gate-post is shown in the cut on the opening page. The 'Cat-Warden' is on guard in the foreground.

"Connecticut must have a Sanctuary and you must make it," said *The Donor* (this being the only name by which the public may know the self-effacing giver), at the close of an evening where a group of Connecticut bird-lovers had enjoyed Mackaye's masque together.

It was a charming thought, but seemed to me rather a part of the evening's illusion than a reality. Yet the next morning, mail and telephone took a hand, and before a month had past the dream had a firm footing upon earth.

"Have you thought out the land?" asked the first letter. Two tracts came to mind at the call: One, a hundred-acre strip, with a river frontage, four miles back in the hill-country, where rocks, woods, and tangle combined to

make what is considered to be a birds' paradise. The other, a ten-acre bit of old pasture, where calves and colts had held sway for years. Not many trees had it but those few were great oaks, pepperidge, cedars, maples, and black cherries. The rolling ground had a hill covered with trailing wild berries and a low swale broken by spring holes and hedged with the alders that Song Sparrows love, while the variety of wild fruits told that the birds had therein been making a sanctuary for themselves these many years. Moreover, the land was but a ten minutes' walk from trolley, village, and railway station, and so near my own home that daily supervision would be possible.

"Buy the ten-acre lot," called the telephone, "and make the plan of what you think Birdcraft Sanctuary (thus The Donor named it) should be. The birds and their comfort should be the first consideration; it must be a place where they can nest in peace, or rest in their travels. *People must be considered only as they fit in with this scheme.*"

In June, 1914, the legal technicalities having been duly safeguarded, the property was deeded to the Society, the control



A ROUGH STONE BATHING-Pool AND OBSERVATION SHELTER

being vested in a Board of Governors, chosen in the first place from its Executive Committee, but thereafter to be self-perpetuating. Five members of the Board were women, and four men; these nine being divided for convenience into three committees—finance, house and grounds, and general conservation.

The list of requirements, considered from both the practical and the ethical sides, read thus: A cat-proof fence to surround the entire place. That it may not look aggressive, it should be set well inside the picturesque old

wall. Stone gate-posts and a rustic gate at the entrance on the highway. A bungalow for the caretaker, wherein there shall be a room for the meetings of the Society's Executive Committee and Board. A tool- and workshop of corresponding style. Several rustic shelves and many seats.

The assembling of the various springs into a pond, so designed as to make an island of a place where the Redwings nest.

Trails to be cut through the brush and the turf grass, in a charming bit of old orchard on the hill-top, to be restored for the benefit of worm-pulling Robins.

Several stone basins to be constructed for bird-baths, houses to be put up of all sorts, from Wren boxes, von Berlepsch model, Flicker and Owl boxes, to a Martin hotel; and, lastly, the supplementing of the natural growth by planting pines, spruce, and hemlocks for windbreaks, and mountain ash, mulberries, sweet cherries, flowering shrubs and vines for berries and Hummingbird honey.

The various estimates for the proper doing of the work accompanied the list, which was promptly returned with "O. K., begin at once" written across it. Immediately the work began with the cat-proof fence.

As the scheme became known, there were many queries as to the suitability of the spot for bird homes. The casual observer, for some occult reason, associates the deep woods with bird life, when, in reality, aside from birds of prey and perhaps a dozen species beside, the great bulk of song birds prefer open or partly brushed fields edged by tall trees, with water close at hand, and not too far from human habitations; for, in spite of everything, they seem instinctively to trust to man rather than to their wild enemies. Such a spot was Birdcraft, even before the protecting fence of wire-netting, capped by spreading arms with barbed claws, was built about it.

The bird-sown trees, shrubs, and plants listed during the summer of preparation were as follows: Red, white and pin oaks, red cedar, mulberry, several hundred bird cherry trees, ungrafted sweet cherries, high and low bush blackberries, dewberries, thimble berries, strawberries, huckleberries and blueberries, black and red chokeberries; staghorn and glabrous sumachs, Virginia creeper, wild grapes of three species, bayberry, wild plum, shad bush, wild smilax of two species (Mowhawk briar), elderberries, prickly pear, three species of wild roses, sweetbrier, great clumps of the alder bushes haunted by Song Sparrows in late winter and early spring for their sweet cone seeds, and, last, meshing everything with its half-evergreen vines, were masses of Japanese honeysuckle, seeming to thrive even upon the thin soil between the rock ledges.

Trail-making was the first actual work done on the land itself. This required skill in knowing what not to do, and in keeping the lay of the land in mind, so that the paths would have meaning, and not simply intersect the place at regular intervals like the plotting out of city lots. Cow-paths are usually safe guides,—they always lead either to or from something and never turn abruptly. So, keeping this in mind, The Commuter, who knew the old pasture well, and our County Game Warden, evolved a sort of game of "fol-

low the leader." One tramped through the brush carrying a large ball of thin cord, while the other followed, knotting the slack of the string to the bushes as he passed. The natural swing of the body in taking the hills kept the curves true, and made the cutting of the trails a matter of patience, a brush hook, stub scythe, pruning-knife and shears—that is, patience, plus the intelligence that knew just how much of fringed edge to spare. It was in the exercise of



THE POND AND AN OBSERVATION SHELTER

Photographed by Wilbur F. Smith

this intelligence on the part of a man who had come merely as a day worker, owing to the closing down of a shop in a nearby town, that ended in the enlarging and altering our whole plan of work for Birdcraft Sanctuary. Having once set his foot on the trail, we found not only that he understood what we wished to accomplish, but that he was a bird-man and sportsman of field experience, and a taxidermist also. How this suggested new work will be told later; sufficient to say that, instead of the caretaker of our first plan, we have a

warden who keeps a day-book of all happenings, and records migrants and nesting residents, is a sure shot of cats, and looks out in all ways for bird welfare.

The bungalow, begun in July, 1914, was ready for occupancy by the middle of September.

Stones were gathered about the grounds to build a great fireplace in the committee-room, and also for the gate-posts. The latter were adapted by The Commuter from the design of a cathedral tower; the rose-windows in the original being replaced by nesting-holes in the taller post, while the font-like cap of the shorter post made a shallow bathing-place for small birds, that was immediately appropriated by Wrens and Song Sparrows. The gate, as well as the pergola porch of the bungalow, was made of rough-hewn chestnut, the better to hold the fingers of the vines with which in time the porch will be covered.

Even before the cat-proof (is there such a thing?) fence was begun, it seemed to us that here, as everywhere, the cat would be the chief problem; for, in spite of the presence of large bodies of workmen, the place seemed the hunting ground for all the cats of the township.

The devastation was so great, in spite of all the watching, that I formed the habit of taking my little hound 'Lark' (for ten years the Society's cat-warden) through the Sanctuary morning and night to clear the place. He has the habit of trailing cats as if they were coons and, when he trees his quarry, will sit at a reachable distance, should the cat try to jump, and bay until a 22-caliber rifle comes to "do the rest."

August was given to pond-making. After the survey was made, 500 square yards of rich black muck were removed, to be used in grading and filling, and the flow of water regulated by a small dam and spillway at the south end, to insure a constant flow. It seemed at first as if much natural beauty would be destroyed by the scars of necessary labor; but, I think, because every worker was given a clear explanation of the meaning and uses of the place, he took a pride in its accomplishment, and felt himself as an important part in the making, so there was little or no damage and all the carting was accomplished over a six-foot-wide track, with no going cross-lots or cutting of corners. By the first of October, it was hard to believe that the pond had been "made" in any way—so natural did it seem,—and one of its early records is that of a visit from a Black-bellied Plover.

On October 16, Birdcraft Sanctuary was opened to the public, by holding there the afternoon session of the Annual Meeting of the Connecticut Audubon Society; the lecture of the morning session having been given by Mr. Baynes on the Meriden Sanctuary, by way of preparation. Thereafter it was proposed to throw Birdcraft open to the public four times a week, on the afternoons of Tuesday, Thursday, Saturday and Sunday.

We had thought, aside from making it a haunt for birds, of the Sanctuary ultimately as a place for the holding of bird classes, a haunt for bird

photographers, and a general gathering ground for nature-loving children. One month, a mid-autumn month at that, caused us to change our whole plan of action.

When guests were numerous, even the migrants vanished. People rushing about in squads (as they do in the bird classes of those who are not yet initiated) are demoralizing even to bird-flocks. Many children wished to see birds, probably, when they came, but did not like the watching-and-waiting process, and found a game of hide-and-seek in and out of the feeding-shelters, one of which is like a tepee, much more interesting. Inside of a month, the visitors lacked but a few of being one thousand. What would happen under such conditions in the spring, when the outing fever lays hold upon the world?

Bird photographers should rove from place to place. To photograph day after day all in one ten-acre lot would be very like pasturing cows always in the same place,—the result would be utter barrenness.

The Governors met in depressed conclave and decided that admission to the *Sanctuary* must be by card, at least in the nesting-season, and probably



THE WINTER BIRD-LIFE GROUP IN THE MUSEUM
Background painted by Lottie Alvord Lacey

altogether, and that the requirements for the holders of cards must be some sort of qualification other than the desire to go on an excursion. Also an official photographer, Wilbur F. Smith, was appointed from our own number to keep the picture record of all happenings of importance. The experience of that first month taught us a valuable lesson, which it will be well for all overzealous bird protectionists to consider.

In order that people, children especially, should take interest and be able to know birds in the bush, they must be able first to see the bird, either by means of good pictures or mounted species, near at hand. And the most radical of protectionists should not deny the necessity of legally conducted public museums, however much the capricious work of the purely selfish, casual private collector is to be condemned.

All through the autumn, people, old and young, brought us birds that they had picked up dead, having been killed by electric wires, being blown against windows, etc., and begged to know their names and something about

them. This is only a partial list of the species brought in during less than a month: Prairie Warbler, Olive-backed and Hermit Thrushes, Northern Water-Thrush, White-throated, Chipping, and Savannah Sparrows, Myrtle Warblers in numbers, Golden-crowned Kinglets, Acadian Owl, Screech Owls in the red, gray, and intermediate phases, Woodcock, Purple Finch, Flickers, Bay-breasted Warbler, Black-poll and, on the first of January, a



A FLICKER'S NESTING STUB

Great Blue Heron, that was so weak from cold and hunger that, in spite of being housed and fed upon smelts, it died on January 4.

We began at once to keep a list of the birds and their names of those who found them. The Warden mounted all the specimens that were in good condition, and we decided to form a small collection of local birds for study and exhibition, and to keep them in bookcases in our committee-room. The Warden already possessed a fair collection of game-birds and birds of prey.

A few weeks' experience of this limited exhibit, and the eagerness with which it was sought, showed us that we had found the right solution of how to instruct people, and especially children, in the first steps of bird-identification, and to gain the opportunity of coming into touch with them in a way to show them how to appreciate the Sanctuary and, what is of yet greater moment, the whole of wild-bird life.

In spite of the willingness of certain collectors to exhibit their bird skins and some formally mounted birds, I know of no public museum in Connecticut where even the birds of the state are exhibited with their natural backgrounds.

Why not have a little museum of our own, we asked, where the birds that are picked up may be augmented by those to be obtained by exchange or gift? for we would not have anything "collected" specially for our use.

We planned a single-room building similar to the bungalow, 25 x 16 feet, open rafters to be of stained wood, the room lined with cases wherein the smaller birds might be grouped against seasonal backgrounds, while the larger Ducks, birds of prey, etc., could be shown upon the rafters or case-tops.

The accessories and foregrounds could be largely gleaned from wood, shore, and fields; the chief difficulty would be in securing proper painted backgrounds and the blending of the whole.

Again *The Donor* said "Go on," and the Museum building, begun in late November of last year, was opened to the public the Monday after Easter. Between that time and July 1, the date on which I am writing, 1,300 people,



HOUSE WREN IN A VON BERLEPSCH BOX
Photographed by Wilbur F. Smith

not few of them professionals in bird study, have come and have expressed themselves as more than satisfied. Two hundred school children visited Birdcraft Museum on Arbor and Bird Day alone.

The work of making this little museum was so absorbing that the three months spent upon it passed as only one (at first it seemed that many seasons must pass before we could make a showing), but having obtained from the State Fish and Game Commission the necessary permit to maintain a Museum, we begged absolutely without shame, and received such generous response from Dr. Jonathan Dwight, Jr., Mr. William Brewster, and The



A WINTER FEEDING STATION

Museum of Comparative Zoölogy, Cambridge, that there was no need for delay.

Of course there were some difficulties. Having arranged for five picture cases—Winter, Early Spring blending into Summer, Summer, Autumn on the Shore, and Autumn in the Uplands,—the greatest difficulty was to have the painting done according to the scenes as we knew them, and that shone so plainly in the mind's eye. Also, it was not easy to make foreground meet the pictured background in shallow cases of only two feet in depth.

A mural decorator of some experience painted the shore view with spirit and depth, but failed entirely to grasp the colors of New England summer fields, rendering them in the Paris green hues, used by certain impressionists as a background for pink sheep. Then, like true New Englanders, we fell back upon our resources, and one of the Governors with the instinct of color, came to our rescue, and accomplished Winter, Summer, and Autumn in the Uplands. So competent a critic as Mr. Chapman has selected Winter for reproduction here, as he feels that it is truly representative of the desired con-

ditions; though, of course, due allowance must be made in the reproduction for the difficulty of photographing it under rather confusing electric light inside the case.

The vexed question of placing name-cards on the birds in the pictures has been settled in the negative. The Warden is in the Museum on the days when it is open, and not only answers questions, but gives all the information possible about habits, housing, feeding, etc., while, to supplement this, a substantial screen filling the middle of the room, holds the framed pictures from *The Birds of New York* done by Fuertes, so that children can play a sort of game by choosing a bird in the case and finding its mate in the picture.

This is the brief record of the year of Birdcraft's beginning. We never expect to find startling discoveries in its day-book, or to harbor within its gates anything but the normal, but we hope that the output of its nests (fifty-two located and others not found this season) will overflow into the garden homes round about, and that its object lessons in the ways of housing, feeding, etc., may have a state-wide influence for the cause of song-bird Sanctuaries and the happiness that their construction will bring to both birds and people.

As I write, the Warden phones to say that a Great Blue Heron is standing immovable by the pond's edge. Did it know that, three days ago, a pail of fish was donated to us by the Director of the New York Aquarium? Or did it make the visit merely on general principles?

Birdcraft is only ten acres large, and yet the vista through it is both wide and long; we have as yet only opened its gate to the beyond, and it is for us to make good in traveling a path where the stepping-stones all take the form of question marks.



Chronicles of the Nest-Builders

By W. B. MALLORY, Lennox, South Dakota

DURING the Summer of 1914 the writer carefully observed all birds which built or started to build nests on his residence grounds in Lennox, a small town in southeastern South Dakota, of which observations the results are recorded in this article. The area under observation consists of about one acre, about one hundred feet north of which lies a railroad. On the east side is a self-sown hedge of young box elder and ash trees growing closely together. Scattered over the place, with the exception of the open front yard, are fairly large box elder, ash, and elm trees and also a small plum thicket. Back of the dwelling lies a flower-garden, and farther back is a vegetable-garden.

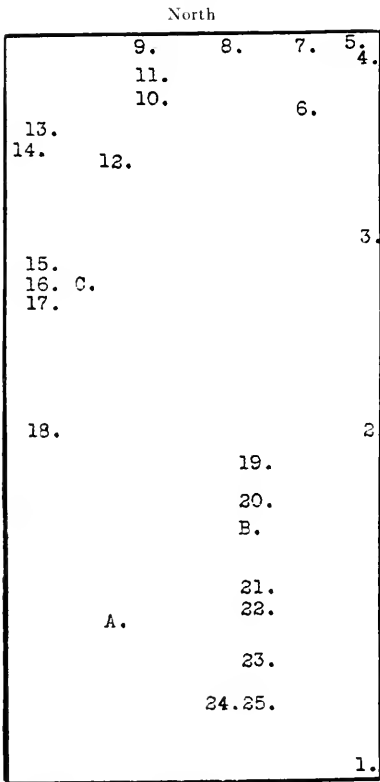


DIAGRAM SHOWING LOCATION
OF NESTS
Scale—One inch=75 feet

The following diagram shows the location of nests by numbers, which are explained beyond. It also shows by letters, the position of the dwelling, children's playhouse and children's sand-pile.

- A. DWELLING-HOUSE.
- B. CHILDREN'S PLAYHOUSE.
- C. CHILDREN'S SAND-PILE.

1. **YELLOW WARBLER.** Eighteen inches from ground; in a red raspberry bush. This nest was not located till the leaves fell in the fall, although diligent search was made against the vigorous protests of the pair. It is very doubtful if any birds were raised from this nest, as no young Warblers were seen about.

2. **GOLDFINCH.** Seven feet from the ground; in a young ash tree. This nest also escaped detection till fall, although the writer must have been directly beneath it many times vainly searching for it. Two families of Goldfinches appeared at the proper time, and without doubt one family of five came from this nest.

3. **TRAIL FLYCATCHER** (Identification of species not positive). Five feet from ground, in a young box elder. This is the third year this pair has nested at this spot or within ten feet of it. Therefore a careful watch was kept to see when the first start of the nest was made. The first materials for the nest were

placed on the evening of June 15, and the nest was fully completed and contained four eggs on June 21; one egg disappeared in a few days, probably taken by a Blue Jay. On July 2 one egg was hatched, and on July 3 a second. The remaining egg was left in the nest until July 7, when it disappeared, probably having been removed by the parent birds. The two young left the nest about July 14, and were seen for some time after in company with the parent birds, doubtless maturing without mishap.

4. KINGBIRD. Twelve feet high, in a box elder. The nest when found, June 16, contained four eggs. Later all eggs were hatched, and four young birds left the nest safely.

5. ROBIN. Twelve feet high, in the same box elder as the Kingbird's nest at No. 4. This nest was found June 15, and was so situated that the interior could not be observed. Later, however, the old birds were observed feeding young birds in the nest.

6. BROWN THRASHER. Two feet from ground, in a brush pile especially prepared for these birds. As in the case of the Flycatchers, careful watch was instituted, to see when the first start was made in the nest, as they had nested in a brush pile in this yard for four years previously. When first noted, however, on the evening of May 9, the nest was well under way, and on May 15, the first egg was laid. On the 17th three eggs were in the nest; but on the morning of the 19th, all eggs were gone and the nest abandoned. However, I believe that the pair nested nearby a second time, as later a male and female brought four young to the same brush pile and plum thicket, when the young were as yet scarcely able to fly.

7. BLUEBIRD. A pair of Bluebirds attempted to nest in a porch-pillar nest-box about ten feet high, but they were driven away by a pair of Red-headed Woodpeckers that nested at No. 12. A young man living the next door west became interested, and put up a box about thirty feet west of the No. 18, of which they took immediate possession and raised a brood of four.

8. MOURNING DOVE. Seven feet high, in a box elder. The nest was found in August, and then contained one egg. A few days after the discovery, the nest was abandoned and the egg found on the ground.

9. MOURNING DOVE. Fifteen feet high, in a box elder. The nest was discovered August 18, and then contained two young. A few days later the nest was abandoned and, as no sign of dead birds was about, it is presumed that they left the nest safely.

10. FLICKER. Eighteen feet high, in a von Berlepsch-style nest-box in an ash tree. The birds began preparing the box for the nesting on April 16, and on June 4, when the box was first opened, it contained six young partly fledged. On June 15, the last nestling left the box, but all stayed about in the trees for some time.

11. HOUSE WREN. Ten feet high, in another branch of the tree where No. 10 was located, in a von Berlepsch-style nest-box. When first discovered, the

nest contained six eggs, this being July 21. Five eggs hatched, and on August 5 the five young left the nest.

12. REDHEADED WOODPECKER. Ten feet high, in a von Berlepsch-style bluebird-size nest-box, the opening to which they enlarged to gain entrance. They started work on the box on May 28, against the vain protests of the Flickers nesting at No. 10. On June 28 the nest contained two eggs, and two young just hatched. On July 19 the two young left the nest, the other eggs not having hatched.

13. MOURNING DOVE. Ten feet high, in a box elder. The nest was found on June 5 and on June 22 the two young left the nest in safety.

14. ROBIN. Fourteen feet high, in a box elder. The nest was first seen on May 10, and then contained four eggs, all of which hatched, and the four young were successfully raised.

15. CATBIRD. Twelve feet high, in a box elder. This I believe to be a second nesting of the pair of Catbirds which nested earlier at No. 19. The nest was found July 10, when it contained four eggs. A storm on July 12 blew out two of these. The other two hatched safely, and the young were successfully raised.

16. ROBIN. Twelve feet high, in the same box elder as No. 15 and No. 17. This tree, it is interesting to note, that contained these three nests stood in the middle of the children's sand-pile, where from two to four children played many hours of the day. I believe that this nest was never occupied, but was abandoned when fully completed; but of this I am not sure, as it was among dense foliage, and was not discovered until the wind blew it down on July 12.

17. MOURNING DOVE. Seven feet high, in a box elder. On June 5, the nest contained two young. On that evening the wind blew out one of the fledglings and it was drowned in the rain. A few days later the other shared a like fate.

18. HOUSE WREN. Ten feet high, in a home-made porch pillar nest-box, in an ash tree. The box was opened on July 21, and then contained five eggs. Later five young, fully fledged, left the nest.

19. CATBIRD. Twenty feet high, in a box elder. The nest was found May 21, when just started, but it was so high that it was impossible to observe its contents at any time. Later, however, the old birds were seen feeding their young and, when the nest was abandoned on June 20, four young Catbirds were observed in the plum thicket, about fifty feet away, and it is probable that they came from this nest.

20. ROBIN. In a box elder close to children's playhouse, 10 feet high. The nest was only begun and then abandoned, the pair going from this place to the site of No. 24 and No. 25, and then to No. 14.

21. HOUSE WREN. Ten feet high, in a von Berlepsch-style nest-box, in a box elder. The first material for this nest was carried in on May 21. By June 16 six eggs were in the nest, and on June 28 there were six young. On July

9 the female was found dead in a nest-box at my neighbor's, but the male successfully raised the family, which left the nest on July 12. A few days later the male returned and, until August 6, spent almost his entire time in this tree, singing from morning till night, presumably for a mate that never came.

22. ROBIN. Ten feet high, in a box elder. Discovered July 2, when a Robin was on the nest. When examined, the next day, there was nothing in the nest, and no birds were thereafter seen about it.

23. ARKANSAS KINGBIRD.* Fifteen feet high, in a box elder. The nest was only a few feet from where what I presume was the same pair built in 1913. They first investigated the site on May 15. On May 26 the nest was apparently complete. On June 7 it contained four eggs, and on July 9, four healthy young left the nest.

24 and 25. At this point about ten feet high, in the crotch of an ash tree, a Robin started to build and abandoned the place. Later, the pair of Arkansas Kingbirds that built at No. 23 carried a few strings to this same spot, but soon abandoned it and went to No. 23.

Louis Agassiz Fuertes—Painter of Bird Portraits[‡]

By FRANK M. CHAPMAN

LOVE of birds as "the most eloquent expression of nature's beauty, joy, and freedom" is the rightful heritage of everyone who in one way or another hears the call of the outdoor world. But that inexplicable fascination for birds which awakens an instinctive, uncontrollable response to the sight of their forms or the sound of their voices, which arouses a passionate desire to become familiar with them in their haunts and obtain an intimate insight into their ways, and which overcomes every obstacle until, at least in a measure, this desire is gratified, is the gift of the gods which marks the true ornithologist. In him the universal, if not always developed, love of birds is supplemented by the naturalist's longing to discover the secrets of nature. Your true bird student, therefore, is a curious, and sometimes contradictory, combination of poet and scientist.

Men in whom this taste and ambition combine to make birds the most significant forms of the animal world, are not numerous; but a great painter of birds must be primarily a man of this type. When therefore one considers how small is the chance that the essential attributes which make on the one hand an ornithologist, on the other an artist, will be found in one individual, it is small wonder that the world has known so few real bird-portrait painters.

Artists who introduce into their canvases birds as impossibly feathered as conventional angels, artists who paint birds with more or less accuracy of color and form and, more rarely, pose, have not been few in number; but the



CANVASBACKS

This painting shows a group of Canvasback Ducks wintering on Cayuga Lake. With the two following subjects, it is from the series of twenty-four decorative panels in oil owned by Mr. Frederick F. Brewster, of New Haven

Property of F. F. Brewster

artists who paint bird portraits based on an intimate, sympathetic, loving study of their subject in nature, and who have the ability to express what they see and feel, can be counted on one's fingers, and the name of Louis Agassiz Fuertes would be included before the second hand was reached.

Fuertes, in possession of a freshly captured specimen of some bird which was before unknown to him, is, for the time, wholly beyond the reach of all sensations other than those occasioned by the specimen before him. His concentration annihilates his surroundings. Color, pattern, form, contour, minute details of structure, all are absorbed and assimilated so completely that they become part of himself, and they can be reproduced at any future time with amazing accuracy. Less consciously, but no less thoroughly and effectively, does he store impressions of the bird's appearance in life, its pose, mannerisms, characteristic gestures of wings, tail or crest, its facial expression—all are recorded with surprising fidelity.

This indeed is the keynote of Fuertes' genius—for genius it is. His mind appears to be a delicately sensitized plate designed especially to catch and fix images of bird life; and of such images he has filed, and has at his finger tips for use, a countless number; for his opportunities for field study have been greater than those of any other painter of birds. It has been my good fortune to be with Fuertes on many occasions when for the first time we met with some particularly interesting bird in nature. At such times there was perhaps no very marked difference in the extent of our enthusiasm or the manner in which it was expressed; but all the time, subconsciously, Fuertes' mental photographic process were making record after record. At the moment not a line would be drawn or a note written, but so indelibly and distinctly was what he had seen etched on his memory that it could later be visualized as clearly and faithfully as though the original were before him.

Fuertes' bird portraits, like those of a great portrait painter of men, depict not only those externals which can be seen by any observant person, but they reveal character. His pictures are instinct with life, and differ from the work of the inexperienced or unsympathic artist as a living bird differs from a stuffed one.

Fuertes was born at Ithaca, where he now lives, in 1874. In 1897 he was graduated from Cornell, of which his father was director of the College of Civil Engineering. Drawing birds was with him as natural an outward evidence of an inward condition as with most children spinning tops is an expression of an inherent love of play. Before his graduation, he had made the illustrations for Florence Merriam Bailey's *Birding on a Bronco*, and Mabel Osgood Wright's and Elliot Coues' *Citizen Bird*.

It was the encouragement he received from Coues that led him definitely to decide to become a painter of birds, and the immediate recognition his work received permitted him to give rein to the naturalist's longing to see the birds of other lands.



OLD SQUAWS

Property of F. F. Brewster



SNOWY OWL

Property of F. F. Brewster

In 1898 therefore he went with Abbott H. Thayer, under whom he was studying, Gerald Thayer and Charles R. Knight, to Florida. The following year, as a member of the Harriman Expedition to Bering Sea, he had exceptional opportunities to meet in life many boreal birds which had been studied by few, if any, bird artists. The reports of this expedition contain some of the studies made on this trip. In 1901 he accompanied a party of the Biological Survey into western Texas. In 1903 he studied in California and Nevada; in 1904 in Jamaica; and in 1909 in the Gulf of St. Lawrence.

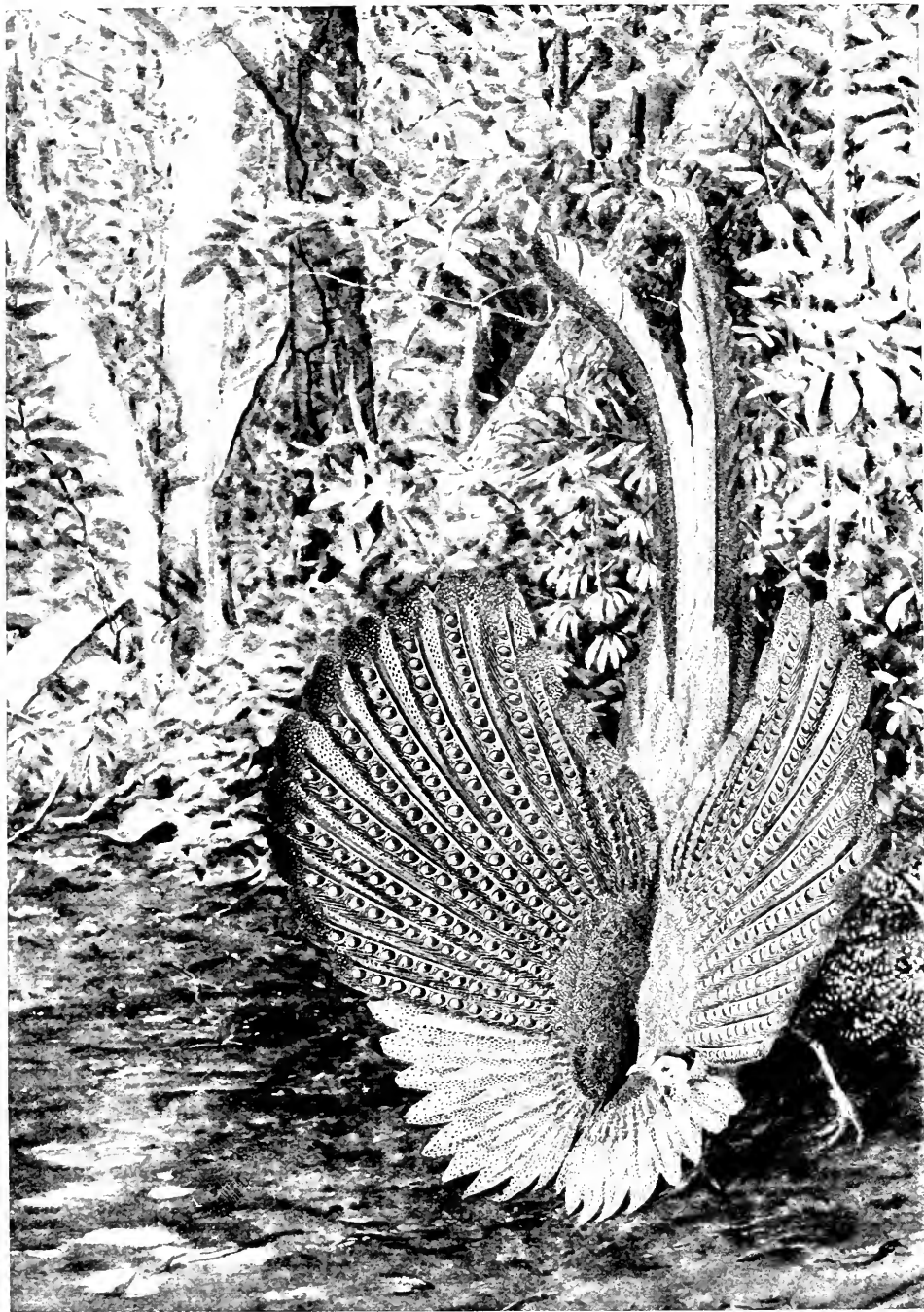
In 1902, 1907, 1908-11 and 1913, Fuertes acted as artist to the American Museum's expeditions, which during these years made field studies and gathered material for habitat groups in the Museum from the Bahamas, Florida, Saskatchewan and Alberta, Yucatan, Mexico and Colombia.

On these expeditions he has collected about thirty-five hundred specimens, which are beautifully prepared and fully labeled with data of special value to the artist, when necessary. These data are in the shape of color sketches of bill, feet, eyes, or other unfeathered areas, the colors of which disappear after death. Such studies can be obtained only from the living or freshly captured bird, and Fuertes' collection of them is unique.

As the artist of American Museum expeditions, Fuertes has not only made sketches of the birds secured, but oil studies of the landscape selected as the panoramic background for the habitat group in which the birds were later to appear. In each instance these are accompanied by detailed color sketches of leaves and blossoms for the guidance of the preparator of the vegetation modeled for the group. Where birds appear in the background of the completed group, they are painted there by Fuertes himself; and the landscapist who realizes his limitations gladly avails himself of this expert coöperation. Thus we have in these groups (notably the Famingo group) paintings by this artist which to bird-lovers of later generations will have all the interest a panoramic painting by Audubon of, for example, a flight of Wild Pigeons would have for us today.

Because of the accuracy of his work, Fuertes is ever in demand as the illustrator of technical and popular books and articles on ornithology. His contributions to publications of this nature amount to thousands of drawings; many of them have been adequately produced in color and, through their wide circulation, they have exercised an educational influence of the highest importance. Such for example are the illustrations in Eaton's great work on the *Birds of New York*, published by the State, those in the *National Geographic Magazine*, and the series appearing in *Bird-Lore*.

In all of these illustrations everything is made subservient to the bird itself, which usually claims as large a share of the picture as it does of Fuertes' attention. But in a series of twenty-four large panels in oils, done for the library of Mr. Frederick F. Brewster of New Haven, the birds, chiefly water-fowl and shore birds, take their proper place in a series of strongly handled landscapes which reveal Fuertes' art in a new aspect. With no sacrifice of his skill and



ARGUS PHEASANT, DISPLAYING

Owned by the Artist

insight as a painter of bird portraits, he has here placed his subjects in a setting which adds immeasurably to their beauty and to the appeal they make to the imagination. These pictures, in the writer's opinion, are Fuertes' greatest achievement and point the way for the development of his exceptional gifts.

THE HERMIT THRUSH

By WINIFRED HOLWAY PALMER

I stood tonight, at twilight's holy hour,
 And heard the thrushes sing!
 As from some far, secluded convent tower
 The Angelus might ring.

Dropping its silver tones, like summer rain,
 Those thirsty souls to bless
 Whose lives are spent in endless toil and pain,
 Or illness and distress.

So falls the song! Each liquid cadence rare
 In time and rhythm true!
 Cool, tranquil, calm; unhurried as a prayer,
 And crystal clear as dew!

Deep, deep! Sounding the very depths of life
 In reverential mood;
 Then higher rising, throbs with meaning rife,
 Far through the dark'ning wood!

Higher and yet again, the strain is heard,
 Until the heart is thrilled
 With mysteries unsolved, and hopes deferred,
 And longings unfulfilled!

Now that deep, opening strain is heard once more,
 Bringing its blessed peace!
 The sunset light is fading; day is o'er,
 And soon the song will cease!

Yet in my heart, those tones so wondrous sweet,—
 That song of beauty rare,—
 The night shall echo; and my dreams repeat
 That softly uttered prayer!

Our Tree Swallows

By M. LOUISE BROWN, Edgewood, Rhode Island

With photographs by the author

WE ALWAYS speak of these birds as "our" Tree Swallows, because they came back to us a second season after nesting near our porch, and the delight at being recognized by them was a great pleasure.

The birds were annoyed considerably, when they first nested here, by House Sparrows, and they took and kept possession of a bird-house only with our assistance in clapping our hands to frighten the Sparrows away. They soon learned that we were at war with the Sparrows, and seemed to call for us when they needed help.

The young were brought up carefully, and we were very lonely when they left us, wondering if they would come back again. The bird-house was made ready for them early, and on April 8, 1914, I heard the little cry I knew so well, heralded the news over the house, and rushed to the porch. There they were quarreling again with the Sparrows for the same house.

So confident was I that they were our old friends that I clapped my hands, and to my great joy the Sparrows flew away, while the Swallows remained: one stood still on a branch of sumac nearby and the other circled over my head singing *Tsweet-weet-tsweet-weet*, interpreted by me as: "We trust you and have come back."

Then one lit on the door-sill and tried to enter. She (if it were she) seemed troubled, called to me again, then to her mate, and chatted constantly as I tried to tell her how glad I was to see her, until, finally, I realized that she could not enter the house. So I quickly brought a step-ladder and found that the Sparrows had worked overtime when no one was watching. House-cleaning was soon done and—must I tell it?—the Sparrows were so persistent in trying to rebuild their nest that heroic measures were used against them.

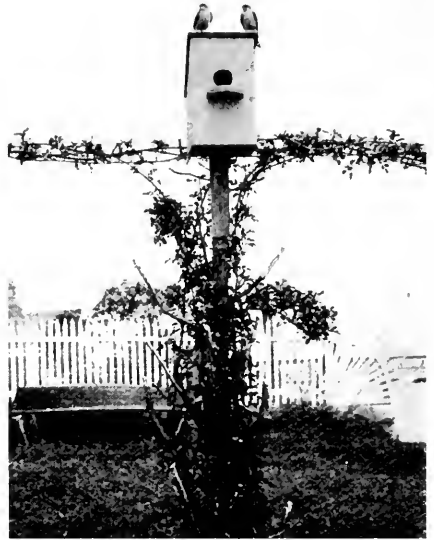
Our birds were once more in possession of the old homestead, and we expected all happiness for them, not realizing that trouble was in store from other Swallows, possibly their own children, who tried for the same quarters. Hurriedly we made another house from a starch-box and placed it near house No. 1.

But, much to our surprise and disappointment, the old birds would not have any other tenants nearby. So we built a third house and fastened it to a rose-pole in another section of our grounds, trusting that our friends would have no objection to new-comers if they lived two hundred feet away. That plan did not suit them either. They fought all comers, and tried for possession of all three houses, and kept us in doubt for a time as to which house they really intended to live in.

Soon they showed a very jealous disposition. One morning, about six o'clock, a duel between our Mr. Swallow and another male was fought in the air. We tried our best, by throwing up caps and sticks to stop the fight; but



INVESTIGATION AND DISCUSSION



CONTENTMENT



THE FIRST STRAW



BUSY DAYS

they kept at it until, breathless, they fell to the ground. Of course we expected to pick them up dead; but, just as we stopped, Mrs. Swallow flew by, snapped 'time' as though she would nip our ears off, then both birds flew up and had another round. After a while they were exhausted and the fighting ceased.

The old birds at last went to the house on the rose-pole, leaving House No. 1 to the younger pair. Then we felt sure that the trouble between them was truly settled. The next two days, I noticed one of the birds sitting alone on an overhead wire. I watched for the mate, but could not locate him, and I was fearful of the outcome of the duel.

The little maid's call grew more sad to me as I imagined that she was keeping sentinel watch over her dear one, so I decided to open the house. There to my horror lay the bird with a covering of a bit of straw and grass and a few buttercups that the Sparrows evidently had taken in with which to start a new nest.

The little hero had fought for a home so long that it was only a place to die in. After he was taken care of, the faithful mate ceased watching and I never saw her again.



READY TO JOIN THE FALL FLOCK

Photographed September 15, 1914

In spite of our constant care and watchfulness, as many as fourteen birds of various kinds have met their deaths this past summer on our grounds. Bird life is not all song.

It was about May 9 when the old birds showed me that they really intended to build in House No. 3—and the poorest one of the lot it was, too. During the hatching-period, Mrs. Swallow was ever faithful. Occasionally, however, she would call to be relieved. Mr. Swallow would hasten to her side, though his reluctance in keeping the eggs warm was apparent. The first bird was hatched June 15.

As the parents were busy feeding their young nearly four weeks, I thought that there must be a large family; so, we dared to take the bird-box down from the pole. Imagine our delight when we saw seven full-feathered, healthy youngsters, the oldest being full-size and the baby about two-thirds grown.

Seeing such a flood of sunshine made the children a bit anxious for the outside world, as they began to appear at the doorway next day, and soon after took their first flight. We regretted their going as greatly as we had rejoiced at their coming, and we shall look anxiously for the return of the family next spring.

Postscript, April 2, 1915.—The Tree Swallows returned today, coming one week earlier than last year. They appeared to recognize me.—M. L. B.

Notes from Field and Study

The Bird-lists of the Massachusetts Audubon Society for 1914

Of the check-lists of birds of Massachusetts, submitted by members of the Massachusetts Audubon Society during the past year, Miss Anna K. Barry, of Dorchester, heads the list with 186 birds noted; Miss Annie E. Cobb, of Arlington, comes next with 181; Henry M. Spellman, Jr., of Cambridge, is third with 142; the Brookline Bird Club, which conducts frequent bird walks, reports having seen on these walks 131 species; Mrs. George W. Kaan, a member of the Club, has seen individually 130. Two other members of the Society should be mentioned, although their lists are not so large as these. Master George S. Aldrich, of Millville, Mass., although only 11 years of age, has seen and recorded 70 species; Edwin Merrill, of Winchendon, reports 54. Master Merrill deserves special credit for this list, as he is an invalid, in pain much of the time, and rarely able to get farther afield for observation than the piazza or hammock in his own yard.

Many members have seen birds so rare that they have no regular place on the printed list; among these may be mentioned the Sooty Shearwater, the Black Tern, the Iceland Gull, the Acadian Sharp-tailed Sparrow, the Acadian Chickadee, Brewster's Warbler, and the Cape May Warbler. Besides these, several report Evening Grosbeaks and Mockingbirds, several of the latter having wintered near Boston and having been seen by many observers.

The Audubon Society check-lists have been in use by very many members, and others who have not reported.—WINTHROP PACKARD, *Secretary-Treasurer*.

Unusual Bird Visitors Near Washington, D. C.

Among the unusual visitors during 1914, Pine Siskins were the first to make their

appearance. A flock of fifty was noted on December 30, 1914, which remained until the early part of February. They were very partial to an old weed field, but irregular in their visits. At times they would be found there every day, and then again they would be absent for several weeks. This is the second time within the last few years that they have wintered here. In the winter of 1911-12, a large flock of about two hundred could generally be found in some pine woods near Chevy Chase, D. C. They remained until late April.

On February 23, 1914, during the worst snowstorm of the winter, I happened to look out of the window and noticed a small flock of strange little birds in the field just opposite our place. They strutted across the snow with bobbing heads, or crouched down in it. On getting nearer, I found them to be Horned Larks, but just which sub-species was represented I could not tell.

Two weeks later, on March 9, I made my real bird record for the year. Passing by some alders, along a stream at Chevy Chase, D. C., Dr. S. W. Mellott and myself noticed a bird come down from apparently nowhere, and alight with a finch-like note in the alders. We immediately thought of a Siskin, but, when peering round about, he showed us his red cap and black chin. Soon three others were found nearby, all with grayish breasts. Of course, we had Redpolls. This was the third record for the species in the District of Columbia, and the first since February 12, 1899. Later on, four more were seen by others. These had rosy breasts, thus making at least eight in the vicinity of Washington last winter.

Two other interesting birds seen in 1914 were the Yellow-throated Warbler, on April 25, and the Prothonotary, on May 3. These were found at Dyke, Virginia, on the Potomac, a few miles south of Washington. The latter species has been seen there each spring for several years,

though I was the only one to note it this year. The former breeds there sparingly.

On May 2, and once later, I saw the Nashville Warbler. This is one of our rarer regular migrants.

On May 15, I heard a peculiar song, starting like the Chipping Sparrow's, and ending as though it needed a little grease. I finally caught sight of the bird and got very near it. It was a Tennessee Warbler. It stayed five days, and sang so persistently, even after dark, that everybody at our house was glad when it had gone. Two summer records of note were of

Schrenk and myself at my summer home at Northport Point, Michigan. This bath is built of ordinary country rock, and the cement used in its construction cost probably thirty-five cents. As will be seen by reference to the photograph, the bowl is built of flat stone, the inside being thoroughly cemented and afterward water-proofed with sulphate of zinc. The bath proper is probably two and one-half feet in diameter, and two to two and one-half inches deep. As will be seen, it is located in the woods, and in the summer it is no unusual thing to see as many as twenty



AN INEXPENSIVE BIRD-BATH

about fifty Little Blue Herons in the white phase, and a dozen large Egrets. They were seen in the marshes along the Potomac, near the National Cemetery at Arlington.

Some other species seen were the White-crowned Sparrow, the Ring-billed Gull, and the Warbling Vireo.—RAYMOND W. MOORE, *Kensington, Montgomery County, Md.*

An Inexpensive Bird-bath

I am inclosing herewith a photograph of a bird-bath erected by Dr. Herman Von

birds in and about the bath. Among the birds that utilize this bath are Robins, several kinds of Warblers, Vireos, and Cedar Waxwings.—W. E. BARNES, *St. Louis, Mo.*

The Wild Pigeon in Minnesota?

Yesterday, a little above this city (which is on the St. Croix River, twenty miles east of St. Paul), I, with three others, saw a bird which I am sure was a Passenger Pigeon. For fifteen years, I have studied the birds of Minnesota; and my daughter, a high-school junior of

fifteen, who was with me, is a first-rate observer. We know perfectly the Mourning Dove, which is common in Minnesota. But this bird was very much larger, and its note was utterly different. At once we pronounced it a Passenger Pigeon. It was perched on a dead, broken limb of a tree on lower ground, and, with the sun at our back, we had an excellent light, though the bird was about one hundred and fifty feet away. There is a stuffed specimen of the Passenger Pigeon in our High School Museum with which we are familiar.

While we watched, the bird flew, and on the wing he gave a harsh squawk, a call with which we are quite unfamiliar.

As we were in a wooded pasture, the bird was soon out of sight; but he alighted not far away, and called several times. I started to follow it; but, after squawking several times, it flew off toward the river, a half-mile or more away.

On reaching home, we studied the 'Color Key to North American Birds,' and were confirmed in our opinion, by the description of the Wild Pigeon's call as therein given, as "an explosive, squeaky, squawk." This was the note, precisely.

We see no possibility of our being mistaken in the identification, though we know that "to err is human."—FRANCIS LESEURE PALMER, *Rector of Ascension Episcopal Church, Stillwater, Minn.*

Notes from Ohio

The rare Prairie Warbler was observed on three successive days, May 5, 6 and 7, 1914, at East Liberty, Ohio. This was my first acquaintance with this bird.

The Cape May Warbler was also much more abundant than usual. For several days males visited our orchard, sometimes singly, or in twos and threes. At nine different times the bird was seen.

Also, the Pileated Woodpecker has been observed here at Hiram on four different days, February 18, 19, March 9 and 12. The birds have been seen by Robert Peden, Ray Hagstrom, and Spencer Cleaver, besides myself.

Earnest Roth and Howard Wilson today very closely observed a Crow with both wings pure white, an interesting albino.

The migration seems to have begun earlier than usual this year, though it was interrupted. Several Robins arrived Sunday, February 14, and the Bluebirds and Song Sparrows arrived on February 15. However, several birds which are now due have not yet arrived, or at least have not been observed near Hiram.

Tree Sparrows, and especially Juncos, have been scarce this past winter. Juncos, indeed, have been rare.—RUSKIN S. FREER, *Hiram, Ohio, March 13, 1915.*

The Starling in New Hampshire

Four Starlings were seen here on April 17, 1915. As this is the first time these birds have been observed here, their appearance seems worthy of record.—E. GORDON BILL, *Hanover, N. H.*

The Crow as a Murderer

One sees many sad tragedies in bird circles, but perhaps none more exasperating than those occasioned by the dealings of birds with other birds. I place the Crow first in the ranks of transgressors, and the reason will be plain when you read of what a dastardly deed I actually saw two Crows attempt.

It happened in Fairmount Park on the last day of April, at about ten-thirty in the morning. I was traveling along the river in the wooded section when a Crow on the ground nearby caught my attention. I was convinced by his preoccupied air that he was up to some mischief,—I raised a Crow once-upon-a-time, and was taught much,—so I stopped and found that the old fellow was standing on the back of a struggling Flicker, and bringing his bill down on the Flicker's head with the speed and rhythm of an electric riveter. I stopped that, and the Flicker got up and flew dizzily away, with the Crow and its mate in silent pursuit. The Flicker sped along about twelve feet from the ground

and the cunning Crows kept a little behind and above until well out of my reach, when they immediately began swooping at him. The Flicker reached the thicker timber, and then apparently went weakly to earth behind some evergreens. I could not follow. Another Flicker, the mate most likely, flew after the three from place to place.—J. W. LIPPINCOTT, *Bethayres, Pa.*

A Reconstructed Baltimore Oriole's Nest

The Baltimore Oriole takes up its summer residence in the 'Tower Grove Park' district of St. Louis about April 25, and, as an example of how some of the birds which winter in the tropics travel north by the calendar, in the spring of 1913, the first male of this species was seen in this locality on April 23, in 1914, on April 26, and in 1915, on April 25.

May 23, 1914, I noted a nest suspended from the end of 'swamp cottonwood' limb (this cottonwood being over fifty years old and one of the largest trees in Tower Grove Park), and overhanging the South Drive at a distance of forty feet from the ground. This nest dangled from the limb all winter, and by early spring, this year, presented a weather-beaten appearance.

While walking through the park at 5 A.M., on May 16, 1915, I noticed a female Baltimore Oriole gathering the tough light-colored fiber which is found in such quantities on the yucca, and flying with it in the direction of the old cottonwood. I made no effort to locate her nest at that time, but a week later, in passing under the wide-spreading limbs of this tree, I glanced upward, to see how the old 1914 nest was faring, and, to my great surprise, noticed what appeared to be a new one where the old formerly hung. Not being entirely satisfied with this hasty observation, I returned the next day armed with a pair of eight-power French prism binoculars in the company of two gentlemen much interested in birds, and who had also seen the old nest during the winter months and early spring.

We had a good look at the present nest

through the glasses, and arrived at the unanimous conclusion that the old nest had been reconstructed, the only evidence of the former one being the black (old) fiber now interwoven with a little of the light (new) fiber, which bound the edge of the nest to the branch.

While watching the nest, the female was seen to enter it, the male carefully inspecting it.

I am interested in knowing if any of the readers of BIRD-LORE have ever observed a similar nest, and is this habit peculiar to the Baltimore Oriole?—GEO. F. TATUM, *St. Louis, Mo.*

Lark Sparrow on Long Island

In support of the statement made in BIRD-LORE for March-April, 1911 (p. 85) that the Lark Sparrow is "working its way eastward," I am sending two dates of its occurrence. I first saw it on April 29, 1911. The bird being new to us, my friend and I observed it for nearly twenty minutes. Its loud, silvery notes, bright plumage, sprightly actions, and character of surroundings identified it beyond question. Again, I renewed my acquaintance with this handsome Sparrow, May 2, 1915, but he did not favor me with his song again. I am reporting this incident, thinking it may be of interest to you and the readers of BIRD-LORE.—MAYNARD A. NICHOLS, *Patchogue, N. Y.*

Red Birds and Blue

In July, 1913, a pair of Cardinals built a nest in a large hydrangea bush in our yard. About ten days after we discovered it, the wind blew very hard one afternoon and, going to examine the nest, I found it blown apart, and three little birds on the ground. My father securely fastened a small flower-pot with wires in the bush, as near the site of the nest as possible, and placed the nest and the birds in it. Some dried grass beneath the nest kept it from sinking too far down. The parent birds were very excited, but late in the afternoon they went to their new home and began to feed the

young ones. I believe this much of the story has already been told in BIRD-LORE, by a friend of mine; but, as it is only the beginning of an interesting acquaintance with these particular Redbirds, I venture to repeat it.

The old birds continued to care for their children in the flower-pot for three or four days; then one day we had the privilege of watching them teach the little ones to fly. They never went back to the nest after that, but stayed in the neighborhood, and came several times every day to the sill of the bay-window close to the hydrangea bush, where I kept corn for them. The three little ones usually sat near the end of a certain branch of an apple tree, which hangs directly in front of the window, and their father would fly back and forth from sill to the branch, to feed them. They did this frequently while I was sitting in the lawn-swing under the apple tree, not more than eight feet away from them. Sometimes a greedy youngster would hop over the others, to get nearer the end of the branch, and the corn. The mother bird came less often, and always alone, and would not go near the window if anyone was in the swing. They kept coming every day till early in the fall, when the young birds were larger than their father. He had worn himself thin taking care of them. We saw no more of the young birds after September, but the old ones have continued to come ever since, never being absent more than two or three days.

In the winter we had some very deep snows, and I put the Redbirds' food on the floor of a porch, not used much in winter, which was easier to clear of snow than the window-sills, and more protected. They came regularly, and so did many other birds. One day in February, when it snowed hard all day, there were eight kinds of birds either on the porch or in a bush where I had put some suet. Besides the two Cardinals, there were Tree Sparrows, English Sparrows, Blue Jays, Nuthatches, Downy Woodpeckers, Tufted Titmice, and Black-capped Chickadees. A few days later, while the weather was

still stormy, some Song Sparrows also come to the porch several times.

When nest-building time came this year, the Cardinals did not build in the hydrangea bush, as we had hoped they would, but in an ivy vine growing over a carriage-house at the home of some friends of ours, which is on the opposite corner of the block. They hatched four young birds, but in some unknown way have lost two of them. The remaining two began coming with the old birds to our house when they got able to fly well, and the head of the family was kept busy waiting on them for six weeks or more. This year, I put their corn on the roof of the bay-window, and on the stone walk which passes under a grape-arbor in the back yard. The birds seem to prefer the lunch-counter in the arbor, as there are plenty of bugs there with which to vary their diet.

In the early summer, this vicinity was infected with swarms of rose-beetles. A plum tree back of our house was literally covered with them. The female Redbird discovered them there very soon, told her mate about them, and the two had a delightful time gobbling rose-beetles, till they had cleared the tree. That tree never before had its plums come to perfection; they always were stung by some insect, and would drop just as they began to turn in color. This year, the Cardinals must have eaten those insects as well as the rose-beetles, as there was a fine crop of plums. If the troublesome insect was the plum curculio, as I suppose, certainly the Cardinal bird is a cardinal antidote for it! The birds also kept the grape-vines in our yard, and in the one where they had their nest, cleared of insects, so that the grapes and the clusters were perfect. I am sure it has been worth while to encourage the Cardinals to stay with us, for the material benefits, as well as for the fine music they give us. There have been Orioles', Bluebirds', and Carolina Wrens' nests in this neighborhood, as well as a great many Robins', but the Cardinals deserve all the credit I have given them, for they have been here constantly, and the other birds only occasionally.

This summer, one of our neighbors noticed a pair of Bluebirds making a nest in a strange place. A street lamp near her house, in which natural gas is now burned, still has attached to it the little oil-can which was a necessary part of it before we had gas, and the Bluebirds used this can for their home. It must have been rather close quarters, but they succeeded in raising a family of two.

One of the rural mail-carriers, Mr. D. A. Bricker, tells an interesting story of some Bluebirds he knew this summer. On his route is a mail-box with a defective hinge, which keeps the lid from closing tightly, and in it the Bluebirds built a nest, and raised five little ones, notwithstanding the fact that several pieces of mail were put into the box every day.—IDA V. REED, *Utica, Ohio*.

Rough-winged Swallows in New Hampshire

On May 14, 1913, in company with two other bird-lovers, I went to the railroad station of Winnisquam, New Hampshire, in the town of Tilton, for the express purpose of noting the birds during their migrations. In a low, swampy area, beside a sizable sheet of water, we sat down for observations. We were by the roadside, near a spot where the road-bed had been cut down a few feet, leaving a bank on one side. Swallows were flying about and we finally noted a pair which, at first, we took for Bank Swallows. They were hovering about the bank in which there were two or three nesting-holes. They frequently alighted on the roadside telephone wires, which were only a few feet above our heads, and something about them made me look and look again. I called attention to these Swallows, and asked my companions carefully to observe their breasts. When they were perched on the wires in plain sight as long as we cared to look, we convinced ourselves over and over again that there was no suspicion of a band on their breasts. Although I had previously seen the Rough-winged Swallows in Virginia, I did not pronounce these New

Hampshire birds Rough-wings until I had consulted all my bird books, but, having read the descriptions of their plumage, there could be no doubt. Through the summer, and during the next year, they were seen by several people, all of whom confirmed my observations.

This year, on May 25, I went again. There were three of four pairs of these Swallows in evidence this season, and they gave us every possible opportunity for study, except to allow us to actually hold them in our hands. They perched on the wires, they flew about at the most moderate speed, and two of them got up the laziest fight that I ever saw. They grappled each other and fell to the road-bed where they lay sprawled out motionless, with outstretched wings and tail, occasionally giving a flop when they took a firmer hold with their beaks, which were buried in each other's breasts. They could not have been more accommodating if they had voluntarily posed for their pictures, and I really thought they were going to allow me to walk up and catch them. I climbed through a fence and got within six feet before they decided to quit the quarrel and fly off.

The moderate flight of the Rough-winged Swallows should attract one's attention at once, as being in marked contrast to the Bank Swallows swift, erratic movements. Then, the color on their backs is a warmer shade of brown than is seen on the Bank Swallows'. As they fly, the white from the underside of the body, at the rear shows from above—that is, the white seems to go more than half-way around the body near the tail, which, with the brighter brown on the back, makes distinguishing marks worth mentioning. Their call-notes also are different; but, not having the Bank Swallows on the same spot for comparison, I cannot describe the difference.

So far as I have been able to learn, the Rough-winged Swallows have never before been recorded as nesting in New Hampshire, except on the Connecticut River near Hanover.—ELLEN E. WEBSTER, *Franklin, N. H.*

Book News and Reviews

PROFESSOR FULLERTON BAIRD. A Biography Including Selections from his Correspondence with Audubon, Agassiz, Dana, and others. By WILLIAM HEALY DALL, A.M., D.Sc. With nineteen illustrations. Philadelphia and London. J. B. Lippincott Company. 1915. 8vo. xvi+462 pp.

Important as were Professor Baird's published works, they form so small a part of the service he rendered science that, without such a record as this biography supplies, we might well fail to realize our indebtedness to him.

Reading this straightforward story of his life, one is impressed by his ceaseless activity (he seems never to have rested) and by the definiteness of his plans. Work with him, as with every true naturalist, was play, but it was play with an object in view. Every stroke was made to count. His energy did not lead him into *cul de sacs*; it was under control. He was in the highest degree effectively constructive. Add to this an enthusiasm which could communicate itself to others, and a personality which won the cordial coöperation, if not the loyal support and loving service, of his associates, and one begins to understand what a power Baird was at a period in the history of American science when the leadership of a man of his caliber was more needed than it ever was before, or probably ever will be again.

Baird's first love was birds, and to the ornithologist that portion of this volume which tells of his early studies and collections, and of his correspondence with Audubon, will have the strongest interest. The latter began in 1840, when Baird was but seventeen years old and Audubon about sixty.

In his first letter, dated, June 4, 1840, Baird reported (as have many beginners since that time!) that he was unable to identify with any of the bird books available to him, including Audubon's 'Biography' and 'Synopsis,' a certain Flycatcher which he had collected. After

describing his specimens in admirable detail, Baird added: "You see, Sir, that I have taken (after much hesitation) the liberty of writing to you. I am but a boy and very inexperienced, as you no doubt will observe from my description of the Flycatcher." To which Audubon, who was then in Charleston, replied on reaching New York, under date of June 13: "If the bird corresponds to your description, [it] is indeed likely to prove itself hitherto undescribed; for, although you speak of yourself as being a youth, your style and the descriptions you have sent me prove to me that an old head may from time to time be found on young shoulders!"

Unlike more modern 'discoveries,' Baird's bird *did* prove to be new, and we know it today as the Yellow-bellied Flycatcher.

The biography abounds in such interesting revelations of Baird's personal relations with ornithologists, from Audubon to Coues, and thus throws many sidelights on the ornithological history of this period. But we may gain from this biography, so well and so sympathetically prepared by Doctor Dall, much more than a history of Baird in relation to the endless series of tasks and conditions which confronted him; we have a picture of the man at work. It was not that, as Harrison Allen wrote, "his industry was enormous" but that, as the same author adds: "He lost no time by misdirected efforts; indeed, he was a personation of systematic energy." And that is an example naturalists, whatever be their specialty, may all well take to heart.—F. M. C.

BRITISH BIRDS. Written and illustrated by A. THORBURN, F.Z.S. With eighty plates in color, showing over four hundred species. In four volumes. Longmans, Green & Co. London and New York, 1915. Vol. I, large 4to. viii+143 pp. 20 pls.

In his preface to this important work Mr. Thorburn tells us that it "has been

designed mainly with the purpose of providing. . . sketches in color from life of our British birds." The "letterpress," he adds, "is admittedly of necessity, largely a compilation. . . ." While the text is a very acceptable and useful accompaniment to the illustrations, it is the latter which make this work a noteworthy addition to the large series of books on British birds which has preceded it.

To the few Americans who are familiar with Mr. Thorburn's drawings he is known chiefly through his illustrations of game-birds; and this volume, therefore, reveals him to us for the first time in the role of a more strictly ornithological artist.

To fill this position successfully requires exceptional taste, talent, and training. Mr. Thorburn obviously meets all three requirements. No one could paint birds as he does who had not studied them with a bird-lover's eye, and who had not the endowments of a great artist.

It is this equipment which has made it possible for Mr. Thorburn to make drawings of birds which will win the approval both of an ornithologist with no appreciation of art, and of an artist with no knowledge of ornithology. The first might find, as the reviewer does, occasional lapses in detail, scale, or pose, and the latter would no doubt discover certain debatable points in regard to technique, composition, etc.; but, taken as a whole, the twenty plates in this book express with equal truth and beauty the colors and characters of the birds they portray.

The plan of publication adopted requires that a number of species be figured on each plate (there are 143 figures in the twenty plates of this volume). Where only closely related forms are thus grouped, the result may be both beautiful and effective; but where birds of dissimilar habits are thus brought together, it requires most skillful handling to avoid incongruous and inartistic associations.

It is in cases of this kind that Mr. Thorburn shows his mastery of his subject. Birds as unlike as the Nuthatch,

Hedge Sparrow, and Dipper are grouped with the Kinglet, Wren, and Accentor in a manner which, by the introduction of some appropriate accessory, reveals something of the habit of each; and still, whether viewed bird by bird, or as a whole, the plate is pleasing.

The artist has very cleverly used the full size (12½ x 10 in.) of his plate, and the reproductions, which are admirable, are printed on a heavy paper (practically cardboard) which gives to each plate an individuality quite apart from the text.

Only the first of the four volumes of this work has thus far been issued. The second is promised for the fall of this year, and the remaining two for 1916.—F. M. C.

The Ornithological Magazines

THE CONDOR.—The May number of 'The Condor' contains only three general articles, including two papers on the birds of Montana and Idaho and a description of a hybrid Duck. In 'A Summer at Flathead Lake, Montana,' Saunders gives the results of his observations in 1914 in a region previously made known by the work of P. M. Silloway. Some interesting recent changes in the avifauna are noted, and several species are added to the local list of birds.

Rust's 'Annotated List of the Birds of Kootenai County, Idaho,' with brief notes on 149 species, is a welcome addition to the ornithological literature of a comparatively little-known state. The observations on which this list was based were made between March, 1910, and December, 1914. It is unfortunate that no reference is made to previous work in the same region, since old Fort Sherman, now a part of Cœur d'Alene City, was made classic by the work of the late Dr. J. C. Merrill and other army officers who were stationed there years ago. A list of the birds today naturally suggests a comparison with the species reported by early observers, in order to show what changes have occurred.

Under the somewhat formidable title 'An Apparent Hybrid between Species of

the Genera *Spatula* and *Querquedula*,⁷ Swarth describes an interesting hybrid between a Shoveler and a Cinnamon Teal, obtained by A. E. Jackson, Dec. 13, 1914, near Del Rey, Los Angeles Co., Calif. This Duck is a male in immature mottled plumage, and is probably a bird of the previous spring. Among the short notes is an important correction by Bent of a Common Loon erroneously reported from Colorado, a number of years ago, as a Yellow-billed Loon, and a record by Law of a remarkable flight of Sparrow Hawks, observed Sept. 13, 1914, near Albuquerque, N. M.

The number closes with the annual 'Directory of the Cooper Ornithological Club,' giving the addresses of 6 honorary, 4 life, and 535 active members—a considerable increase in the number of members enrolled in any previous year.—T. S. P.

THE WILSON BULLETIN.—The Wilson Bulletin for March, 1915 (Vol. XXVII, No. 1), is distinguished by the amount of readable matter it contains. Miss Sherman's 'Birds by the Wayside in Europe, Asia, and Africa,' is distinctly deserving of this description, and W. F. Henninger gives a pleasing account of the 'June Birds of Laramie, Wyoming.' Frank L. Burns contributes an important paper on 'Comparative Periods of Deposition and Incubation of some North American Birds,' which, if it cannot be classed as readable, in a purely literary sense, is nevertheless interesting and exceptionally useful. A list is given showing the incubation period of some 220 species, and this paper of eleven pages contains more information on the subject of which it treats than any publication with which we are familiar.

The number concludes with the usual 'Field Notes,' including an important one by Mr. Burns on the status of the Starling in southeastern Pennsylvania.

The June number of the 'Bulletin' opens with an illustrated study of the Red-winged Blackbird by Ira N. Gabrielson. L. McI. Terrill sends notes on the Yellow-bellied Flycatcher, Golden-crowned Kinglet, and Blackburnian Warbler from the

Laurentian Hills, and Louis S. Kohler, having discovered the evils of premature publication, makes "numerous corrections" and additions to his 'Preliminary List of the Birds of Essex County, New Jersey.'

Harriet Kinsley and Aretas A. Saunders give intimate studies of the Red-breasted Nuthatch and White-eyed Vireo, respectively, and Dr. S. S. Visher sends an annotated 'List of the Birds of Clay County, southeastern South Dakota'; in which the reviewer finds no quotable summary of the species included.

The program of the Second Annual Meeting of the Wilson Ornithological Club held in Chicago (date not given), contains a good list of papers. The meeting was attended by twenty-three members, and was a "decided success."

'Correspondence' and 'Field Notes' close the issue.

THE ORIOLE.—The first number of the third volume of this well-edited organ of the Somerset Hills Bird Club announces a plan for 'A Decoration Day Bird Census,' the results of which we shall doubtless see in a later issue. Louis S. Kohler writes on the 'Home Life of the Scarlet Tanager;' Wm. T. Post, on 'Experiences with the great Horned Owl in Somerset Hills;' John Dryden Kuser, on the 'Winter Avifauna of Aiken, South Carolina,' and Celestine Eustis on morning song and bird visitors to her feeding station at the same southern town.—F. M. C.

Book News

THE April issue of the Nature-Study Review (Ithaca, N. Y.) is a 'Special Bird Number.' It contains matter of interest both to students and teachers of birds.

THE Oölogist for July 15 (Vol. XXXII, No. 7) is accompanied by a 32-page supplement entitled, 'A Bibliography of Scarce or Out-of-Print North American Amateur and Trade Periodicals Devoted More or Less to Ornithology.' It is compiled by Frank L. Burns, who by training and experience, is well qualified to handle this difficult task satisfactorily.

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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

A VISIT to 'Birdcraft Sanctuary' has so impressed us with its possibilities that we cannot resist the impulse to add a word to the account of this unique undertaking which Mrs. Wright gives on a preceding page. While this sanctuary has been developed primarily as a refuge for birds, a local museum, and a home for the State Audubon Society, it is chiefly valuable, to our mind, as an object lesson in conservation and museum methods.

As a 'museum man,' we have had pretty constantly before us for the past twenty-five years the problem of conveying a knowledge of bird-life to the public through the exhibition of specimens. In the light of this experience, we do not hesitate to say that, in its own field of local bird-life, Birdcraft Sanctuary promises to render a greater and more effective return for the capital invested than can be shown by any museum in this country. One cannot say by any similar institution, for we know of none like it.

Combined with a museum, which contains an exhibit designed to interest the casual observer by its attractiveness, as well as to fill the wants of the student, we have an outdoor aviary, walled only by a protecting fence and roofed by the sky, where many of the birds examined in the museum cases may be seen and heard in a series of natural 'Habitat Groups,' which no preparator may hope to equal. And both indoor and outdoor exhibits are under the constant care of a Curator-

Warden ready to supply information in a way with which no printed label can ever compete,—so much more convincing is the spoken than the written word.

Ten acres cannot harbor many birds nor a little museum in the country be seen by a large number of people—as figures go now-a-days—but the idea which they embody can reach to the ends of the earth. So we repeat our belief that Birdcraft Sanctuary will eventually give refuge to birds on many thousands of acres, and a knowledge of the beauty and value of bird-life to many generations of bird students.

DR. ARTHUR A. ALLEN has been made Assistant Professor of Ornithology in the State College of Agriculture at Cornell. This is virtually a new department, and its formation under Dr. Allen's charge is not only a tribute to his ability, but also a significant recognition of the growing demand for technical instruction in ornithology. The economic importance of birds having been demonstrated, some knowledge of them has become an essential part of the equipment of the agriculturist and forester; while the study of the bird in relation to its environment, including other organisms, as Dr. Allen has himself well shown, offers an exceptionally profitable field for the ecologist.

ONCE an ornithologist always an ornithologist.* Colonel Roosevelt's first published article was on birds,† and his latest journey was made to study the birds of certain islands off the coast of Louisiana, which he himself when President, had set aside as Federal Bird Reservations. Colonel Roosevelt was accompanied by Mr. H. K. Job, as photographer and representative of the National Association of Audubon Societies, and a fully illustrated account of his experiences and impressions will, in due time, be published in Scribner's Magazine.

*An attempt to define some of the characteristics of an ornithologist will be found on p. 277 of this issue.

†Notes on Some of the Birds of Oyster Bay, 1879.

The Audubon Societies

SCHOOL DEPARTMENT

Edited by ALICE HALL WALTER

Address all communications relative to the work of this department to the Editor, 67 Oriole Avenue, Providence, R. I.

A PRACTICAL INVESTMENT

Already in these pages an appeal has been made to State Audubon Societies to undertake some special work relative to helping teachers.

Suggestions have been made to the effect that founding scholarships in summer schools where courses in bird-study are given would be a great help to teachers who otherwise might be unable to meet the expense of tuition; and also, that nature-study in our schools would be much improved and its scope broadened if supervisors of nature-study were trained to assist teachers and correlate their work throughout individual states and, furthermore, throughout the country.

Now that the National Association of Audubon Societies has organized centers where instruction in bird-study will be systematically given, State Societies are afforded an unusual opportunity to profit by the work to be done in these centers. It would be a practical investment for any State Society either to found a scholarship, or to pay the expenses of some deserving and enthusiastic teacher who might be qualified for the work, in one of these summer schools.

It is not too much to affirm that well-trained bird-students, whether teachers, lecturers, or private investigators, are hard to find when occasion demands. The effort and time necessary for acquiring thorough technique in field-work, in addition to a comprehensive grasp of the manifold branches of ornithology, make it difficult for the average observer to gain sufficient knowledge to be really well trained.

A person who is to teach bird-study even to children should have some general ideas, at least, about the following subjects:

- | | | |
|--------------------|---|--|
| I. OUTDOOR
WORK | { | <ol style="list-style-type: none">1. Field observation, including the identification of birds by plumage, notes, flight, food, nesting, and general habits.2. Methods of attracting birds.3. Determination of ecological resources available for birds in special study areas. |
| II. INDOOR
WORK | { | <ol style="list-style-type: none">1. A simple but clear conception with reference to birds of the meaning and value of classification, anatomy, distribution, place in nature, economic value, migration, ancestry, reasons for protection, methods of study, civic betterment and esthetic value.2. Correlation of bird-study with the school curriculum.3. Value and methods of presenting special exercises on Bird and Arbor Days; of arranging special exhibits; of outlining courses of reading, and of keeping records. |

This is not an ambitious or top-heavy way of knowing birds. It is merely approaching the subject with eyes and ears open and mind ready to grasp the almost numberless avenues of work in this delightfully varied branch of nature-study. The really well-

trained bird-student is the one who is readiest to acknowledge ignorance, and to keep steadily widening his grasp of both outdoor and indoor work.

No time could be better, and no opportunity more ready at hand than the present one, for helping teachers or students who are fitting themselves to teach to get a well-balanced, sane, scientific start in bird-study. With a dozen, twenty, fifty, or one hundred *trained* workers in each state, the Audubon Society would be immeasurably strengthened and nature-study placed on a secure foundation, as it ought and must eventually be.

Once again, the School Department appeals to each State Society to make a practical investment of fifty dollars or more annually, either in establishing one or more scholarships or in assuming expenses for the benefit of a student or teacher, selected preferably by its members. The investment is bound to pay richly in the end. The effort involved is slight as compared with many other undertakings commonly carried out by Audubon Societies. The net result cannot fail to be successful.—A. H. W.

JUNIOR AUDUBON WORK

For Teachers and Pupils

Exercise XXII. Correlated Studies: Drawing and Spelling.

A BIRD'S TAIL

Perhaps no external part of a bird is more conspicuous or less generally studied than the tail. No doubt the reason for this is that the wings and hind limbs seem far more important. In nature, however, one usually finds that every part of a mechanism has some reason, else it is discarded in due course of time.

The tail of a bird has a curious and rather surprising history. It was the discovery of a fossil tail feather in the lithographic-stone quarries of Solenhofen in Bavaria, that led scientists to trace the history of birds back to the Jurassic period, that is, to a geological period thousands of years ago, when it had not been hitherto known that any birds existed. This fossil tail feather was the clue to a strange bird-like form afterward found and named *Archaeopteryx*, the story of which we shall take up soon. It is enough to say here that since the time of *Archaeopteryx* there have been some notable changes in birds' tails.

Perhaps the easiest way to study a bird's tail is to make a simple table something as follows, which shall contain the more important things one would like to remember:

TAIL .	}	1. Parts	<i>a.</i> bony structure (<i>coccyx</i>) short, more or less fused together, bearing oil-gland.
			<i>b.</i> feathers of two kinds, namely, long, more or less stiffened feathers (<i>rectrices</i>), and short, soft feathers (<i>coverts</i>).
		2. Shape	<i>a.</i> in general like a fan.
			<i>b.</i> in particular
			{ square.
			{ rounded.
			{ forked.
			<i>c.</i> in changing positions
			{ flat.
			{ keeled.
	{ folded.		
3. Uses	<i>a.</i> as a rudder for steering and balancing in flight.		
	<i>b.</i> as a brace or prop while feeding or at rest.		
	<i>c.</i> as an ornament, notably of male birds.		

With this simple outline in hand, we may easily pigeon hole all the information we need to have at present.

If you were asked to point out the tail of a bird, how many would indicate the feathers only, that project from the end of the bird's body? These feathers are not the real tail, but merely appendages that are attached to the tail. Take the backbone of a chicken as you see it on the table with no feathers whatever to confuse your minds. This large broad bone is made up of several principal bones, which in the lizards are separate. These bones form a girdle suspended from that part of the spinal column to which the hind limbs are attached. In the chicken all of this girdle seems to be one large, irregular bony mass, except the little, slender projections on either edge along the under sides.

At the very back end of this bony mass, before the flesh is removed, you see a rather short, pointed, upturned projection with a single oil-gland on its upper surface, provided the cook does not remove it before the chicken is served.

This end of the backbone is the tail and, if you were skilful enough to separate it into its particular parts, you would find that certain vertebræ of the spine are here more or less fused together, especially at the tip end, and that they support the tail-feathers and the muscles which shut and open and lift, lower, or otherwise move them.

Perhaps it would be clearer if you draw one long straight line on a paper, and say: "This is a chicken's backbone." Then, back of the head and neck, you might draw a set of lines to represent the girdle that supports the wings, and continuing along the spine backward, another girdle to support the hind limbs, or legs. There would still be left a short end to the straight line representing the spine, and this is what becomes modified into a tail in *vertebrates*.

A spine is made up of separate vertebræ, movable one upon another except in certain places where particular rigidity is needed. Some of the vertebræ in the bird's tail are separately moveable, while others are fused for strength and to furnish a rigid support to the long feather-appendages. The very tip of a bird's tail is fused with one large fan-shaped bone, and on this rests the oil-gland. In certain species of birds the oil-gland is lacking, and it is smaller in land-birds, as a rule, than in water-birds. Can you think of any reason for this, for, of course, you have seen a bird preen its plumage, and most of you know that when it presses its bill over the oil-gland it is to assist in smoothing the feathers?

We may think then of the real tail of a bird as a series of small vertebral bones, more or less joined together, forming a support on the upper surface for muscles bearing in some cases an oil-gland, and at the extreme end supporting a series of feathers which form a conspicuous part of the plumage.

That these tail-feathers are not all alike one sees at a glance, for some are short and soft while others are long and more or less stiff. The long feathers are arranged in pairs, the middle ones overlapping the pair next under them and, in general, so on to the outer ones. Sometimes these long feathers are pointed and very stiff at the ends, as in the Woodpeckers, or almost needlelike, as in the Swifts. They may be straight or rounded at the end or graduated in one of two ways. If graduated from the outer pair to the inner, the tail has a forked appearance, as in the Barn Swallow; but, if graduated from the inner pair to the outer, the shape of the tail becomes more or less pointed according to the abruptness of the gradation.

It is fine practice and a great help in field study to recognize the bird by its tail. In addition to great variations in shape, the color markings of the tail are very noticeable in many species. Not only are the outer edges of the tail sometimes marked by spots, patches, or showy lines of color, but the soft feathers known as *coverts* may be sharply contrasted. These coverts are found on both the upper and under sides of the tail, near the attachment to the body of the bird, and are sometimes highly ornamental. Who has noticed that the under tail-coverts of a Catbird are a rich umber brown? Who

that knows the Flicker can ever fail to tell it in flight or at rest by its white upper tail-coverts?

Those who wish to know the Warblers cannot do better than to learn first which species have unmarked tails and which show conspicuous spots, edgings, or patches of contrasting color.

Concerning the uses of the tail, it acts as a rudder in flight and probably aids in balancing the body. It is also used as a brace or prop by the Woodpeckers and Creepers and Swifts, for the Swifts brace with their spiny-tipped tails when at rest, just as the Woodpeckers and Creepers do when feeding.

In species like the Peacock and Pheasant, the upper tail coverts are much prolonged into wonderfully varied and beautiful shapes; while in the Marabou Stork the under tail-coverts are lengthened and curled into exquisite form. Altogether, the tail is a remarkable and interesting part of the bird's structure, and is well worth close study and observation. Certain birds carry the edges of the tail turned up keelwise in flight. Others fold together the tail-feathers in such a way as to make the center pair higher than the others, presenting a folded appearance. Ordinarily the tail is carried flatwise.

To recognize birds quickly when on the wing is a decided achievement. In order to do this, learn the form of the wings and tail, for this is a sure clue to correct identification.

SUGGESTIONS

1. What birds carry the tail keelwise in flight?
2. What common bird has triangular white patches on the outer edges of the tail?
3. What Sparrow has white outer tail-feathers?
4. What other birds have similar markings?
5. Is there anything peculiar about a Phoebe's tail?
6. What birds have long tail-feathers?
7. Why do not water- and shore-birds have long tails?
8. What shape of tail has the Blue Jay? the Purple Finch? the Chipping Sparrow? the Hummingbird? Grebes? Ducks? Rails?
9. How does a hen carry its tail?
10. What characteristic movements of the tail have the Palm Warblers, Hermit Thrush, Flycatchers, Catbirds, and Water-Thrushes?
11. What part of the Lyre-bird's tail is elongated?—A. H. W.

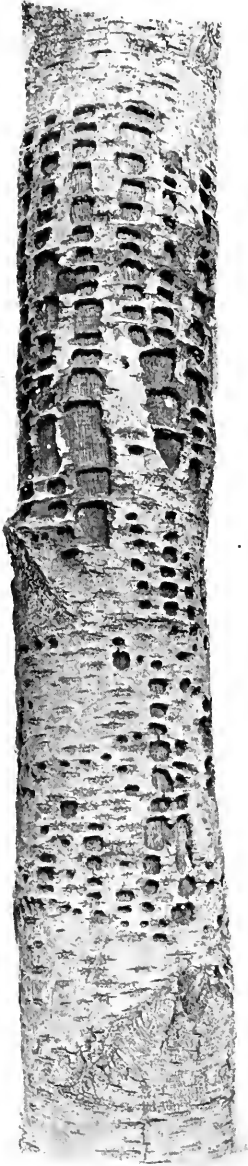
FOR AND FROM YOUNG OBSERVERS

HOW THE SAPSUCKER REARS ITS YOUNG

By CLIFTON W. LOVELAND, Ornithologist for R. I. State Board of Agriculture

During the first three weeks in July, 1914, I had an exceptionally good opportunity to observe the habits of a pair of Yellow-bellied Sapsuckers and their three young. My observations were made around the shores of Stern's Pond, near Camp Katahdin, in Sweeden, Maine. When my attention was first called to these birds by one of the boys at the camp, the young were barely able to fly. They were feeding on sap from the pits, which the adult birds had made for them on a nearly horizontal branch of a gray birch which overhung the pond. They clung tenaciously to the birch, and would not fly until very closely

approached. Just as soon as I retreated, they immediately took up their position on the tree again. They were as persistent in their nursing as a litter of young pigs.



GRAY BIRCH PITTED BY
SAPSUCKERS

As the young birds grew larger and stronger, the adults made pits for them on trees whose position was more nearly erect. By much urging and the use of some force, the young birds were induced to feed at the new pits and, as these were larger and more numerous than those on the horizontal tree, they remained in the new position the greater part of the time. This performance was repeated until the young birds were able to take their sustenance from pits made for them on vertical trees, as shown in Fig. 1. I do not assume from this that young Sapsuckers cannot feed from a vertical position from the first, for I have found many instances of these rearing-places where the pits were placed on vertical trees, as is shown in the case of Fig. 2. It was apparent in the case of this particular family of Sapsuckers that the young ones were gradually taught to assume the vertical position.

The pits were arranged in groups eight to ten feet from the ground. They were nearly square, but with rounded corners (Fig. 1), and were from one-fourth to one inch in width and length. The groups were easily seen from some little distance because of a kind of stain, similar to iron rust in color, due to the exuding sap. A few pits were made at first and, when these began to fail, new ones were made above the old ones. This was continued until a space of some three feet was pretty well riddled, and the trunk completely girdled. The sap exuded from the upper holes, coming down from above, and providing the birds with the elaborated food material of the tree. One might almost call it a predigested food for the birds. The groups of birches generally selected for the purpose border a pond or lake or brook. This probably assures a ready flow of sap at all times.

The young birds were persistent feeders, being seen at the pits early in the morning, and at all

hours of the day, and until after dusk. It is true that they appeared to sleep a part of the time. As the Sapsuckers belong to the family of Woodpeckers, which feeds principally on insects, and as the nestlings cannot procure much sap after winter sets in, it soon became necessary for the parents to attempt to wean their offspring from their baby food. In this they had as much trouble as we humans do when we try to wean our young from milk. Sometimes, by much calling and squeaking, the adult birds were able to get the young to fly to a dead tree nearby. Here a few dextrous pecks by the old birds would disclose the larva of some wood-boring insect, which the young would greedily devour, and then they would beat a hasty retreat for the suckle on the gray birches

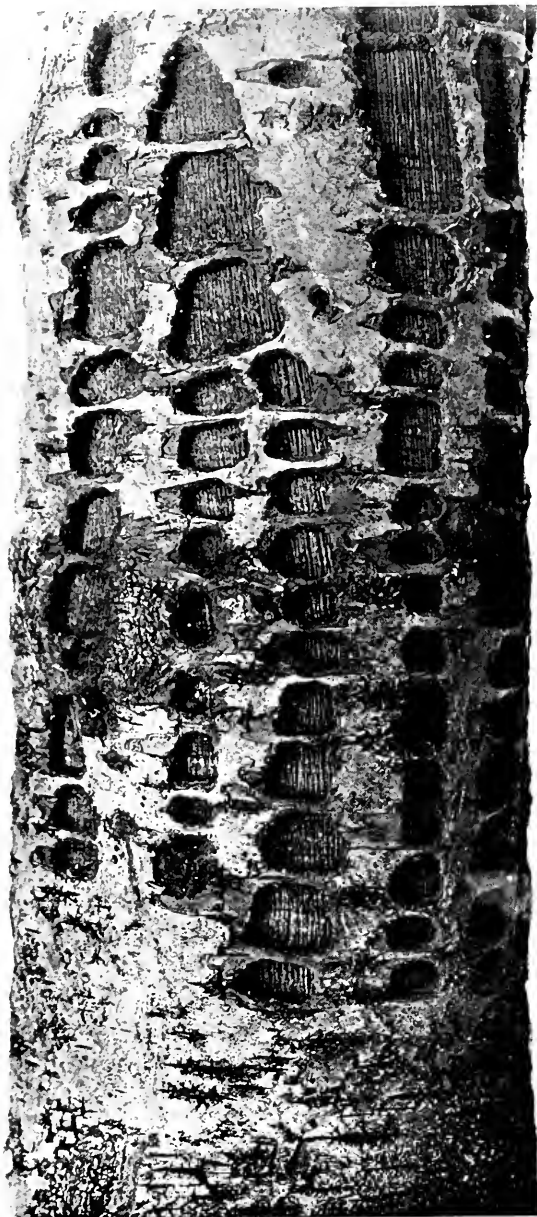


FIG. 1. GRAY BIRCH PITTED BY SAPSUCKERS
A natural-size detail of the preceding illustration

at the waterside. This was repeated over and over again, and sometimes the old birds, losing patience, would actually knock the youngsters from their perches by force, and then call them up to some other nearby tree. They even went so far as to make a few pits on an oak at a point near a dead stub of a limb. The young birds would try the sap, which appeared unpalatable, and the old birds would attempt to interest them in the insects in the dead stub. The adults labored persistently at the weaning, but with little



FIG. 2. GRAY BIRCHES KILLED BY SAPSUCKERS.

result. They made no more pits, but the little fellows soon learned how to enlarge and make them themselves. This seemed to discourage the adults, and they would go off for hours to fend for themselves, leaving the young imbibing sap. The flowing sap attracted a host of insects, so that the young managed to vary their diet by picking up many flies, ants, and small moths.

One of the most interesting features of my observations was the watching of the antics of the various animals which were attracted to the flowing sap. A pair of Hummingbirds devoted their whole time to the tipple. They became entirely demoralized and, instead of performing the duties for which nature intended them, they went on one long and extended spree. I expected to see these little tyrants drive the Sapsuckers away, but they did not do so, fearing, perhaps, to "kill the goose which laid the golden egg." The antics of the male Rubythroat were wonderful and marvelous. At times he would swing back and forth through the air in an arc of nearly half a circle with a diameter of thirty feet, for some twenty to thirty times in succession. He did this with incredible swiftness and, when he made the turn at each end of the arc, he would puff out his ruby patch until it looked like flame.

The effect of the tipple on a gray squirrel was exactly the reverse. It made him so loggy and stupid that I could almost touch him with my paddle before he would move. He merely slouched up the tree and went to sleep in a crotch above. Some of the red squirrels acted similarly, and some of them were unduly quarrelsome. In the early evening, large hawk moths darted from one set of pits to another, and neglected the multitude of flowers below.

I have no doubt that the sap acted as a stimulant to these various animals, as the odor was similar to that of pomace around an old cider-mill. Why it did not have a stimulating effect on the Sapsuckers, as it appeared to on the Hummingbirds and squirrels, I cannot say. The young birds stuck to their tipple until I had to leave for three weeks, and when I returned I saw them no more.

There has always been considerable argument among naturalists as to the damage caused by Sapsuckers. The gray birches in Fig. 2 were killed by their work. A brood of young Sapsuckers were reared on these birches in 1913. In nearly all of the apple orchards in the vicinity, the trees had been pitted more or less. The trees were all alive and apparently bearing well. At the same time, they probably would have done better without the sap-letting. The pits which the adult birds make for their own use are smaller than are those made for the rearing of the young, and cannot do so much damage. The Sapsucker drills a great deal for insects, but, like many human beings, he never becomes entirely weaned from his bottle.

[The method of observation used in obtaining these remarkably interesting facts is the simple one of *seeing*, having eyes to see with, and afterward of setting down in order what was actually seen without exaggeration, or the attribution to birds of faculties

possessed only by human beings. The actions of birds are wonderful when we stop to interpret them, but it is not necessary to *imagine* explanations.

With reference to the injury done by Sapsuckers, see Dr. Fisher's article, and the references given with it in BIRD-LORE Vol. XVII, No. 2, p. 149.

Alexander Wilson observed of the Sapsucker that "it visits our orchards in the month of October in great numbers, is occasionally seen during the whole winter and spring, but seems to seek the depth of the forest to rear its young in; for during summer it is



"CAUGHT IN THE ACT"

Yellow-bellied Sapsucker feeding on sap of mountain oak. Photographed from nature by Dr. Thos. S. Roberts, at Minneapolis, Minn., June 20, 1901

rarely seen among our settlements, and even in the intermediate woods I have seldom met with it at that season."

In 'The Birds of Maine,' Knight says of the Sapsuckers: "In the nesting-season, they prefer mixed or hardwood growth along a river, pond, stream or lake, or preferably in a swampy tract of land which is subject to spring overflow, and near the shore of a pond or river." He also adds this interesting observation: "The nest can often be located by noting the sawdust and chips under the tree, which they usually let fall directly from the hole, instead of carrying it away as many other species do." The writer has seen a Flicker's hole near which the chips were left for a time at least. Possibly individual birds vary somewhat in their habits with reference to nest-building.

Some writers lay emphasis on the fact that the Sapsucker's tongue is shorter and less fitted for extracting deeply boring insects than that of nearly related Woodpeckers

like the Hairy and Downy. How far this anatomical peculiarity governs its food-habits is not precisely known, but undoubtedly, it has something to do with this species' fondness for sap and the living tissues of trees. Elliott Coues says: "The tongue is protrusible only about one-third inch beyond the bill," and "is beset at the end by numerous brushy filaments, instead of the few acute barbs commonly observed in the family." Forbush lists the Sapsucker with the birds which eat hairy caterpillars and the pupæ or imagos of injurious insects. During thirty years, he has found no appreciable damage done by this species in Massachusetts, although he says there can be no doubt that it has killed trees further north where it breeds. Can we not get statistics for the kind of food eaten by the Sapsuckers during each month in the year? A. H. W.]

Reference: See Index to Papers Relating to Food of Birds, p. 63, Bull. 63, Biological Survey, U. S. Dept. of Agriculture.

THE BALTIMORE ORIOLE

One morning, while seated on a fence near a maple tree, I heard a very beautiful song.

As it was so early in spring, I wondered what kind of a bird it was, and whence it came. Part of its song resembled the cry of the Martin. While I sat looking up into the tree, I saw a beautiful streak of orange and black fly over my head. It was an Oriole; I knew this at once.

Later in the day, going out of the back entrance of the school, I saw the Baltimore Oriole perched in the top of a big cottonwood tree, singing with all his might. He was orange and black, a fully matured bird; I knew this because the bird does not get these colors until the third year. Before this the orange on the wings is yellow.

These beautiful birds have no especial range. They are found from Canada to Brazil. They receive their name from Lord Baltimore, the English colonist, because orange and black were his colors. Their nest is usually hung from the fork of a limb on strong, stout strings.

In the evening on leaving school, I went and sat down under the cottonwood tree, and watched the bird. Then, after a time, as I watched him closely, I saw him fly to a slender branch in the top of the tree. At this I was greatly surprised, for on the end of the limb I saw the nest of the Oriole, resembling very much a large, black ball, hanging there.

Since then I have often gone and sat under the tree. I am afraid to climb it, as it is so high, to look at the eggs or young.

Next year I am going to watch and see if the Orioles come back, and if they bring their young to live in the big cottonwood tree. —WM. BRODERICK (aged 14), 1003 Belle St., Alton, Ill.

[It is well to study carefully the range of each species. The Baltimore Oriole is found in eastern North America as far west as the Rocky Mountains. It breeds from Florida and eastern Texas all the way north to New Brunswick and the Saskatchewan plains, while it spends the winter in Central and South America. The observation about the color of the male's plumage is further explained by the statement of certain writers that,

while the young males acquire the *color pattern* of the adult males in their second year, it is not until later that the *brilliance* of their seniors' plumage is attained, a point we may all like to verify for ourselves. Other things that we may discover if we try, are the order of migration, the songs and call-notes and the variety of food of the Baltimore Oriole family. (Family is used here in the ordinary sense, and not technically.)

Do the males and females come together mated, or do the males arrive first? Does the female ever sing? What call-notes do the female and the young make? Where do the Orioles find nesting-material? Does the male assist the female in building the nest?

It may be of interest to look up a bit of history with reference to Lord Baltimore the elder, whose name was George Calvert. What part of the new world did he first visit? From whom did Arundel County, in Maryland, take its name?—A. H. W.]

THE BLUEBIRD

I am a member of the Illinois Audubon Society, so I thought I would write a story of the Bluebird. The Bluebird has blue on his back and tail, and rufous red on his breast. One day, as I was walking down the road with my natural science teacher, she asked me if I would like to see a Bluebird's nest. I said I would, for I had never seen one before, so we walked down the road till we came to a post on one side of the road. My teacher said: "Do you see that hole in the post? Look in there and you will see a nest with four little eggs in it." Every time I went by there the mother bird was near the nest.

One day, a short time after I had first seen the nest, she asked me if I did not want to come with her and take a picture of the mother bird going into the nest. When we were near the nest, we saw the mother bird near the post where her nest was, but, as soon as she saw us, she flew away. We looked into the nest and there were four little Bluebirds in it, so we sat down about eight feet from the nest when, all at once, we saw the male coming with a worm in its mouth. The parents would come to the post next to the one the nest was in, and sit there and wait, then a wagon would come along and frighten them away. We sat there about half an hour, but the birds would not come, so we went away. About a week afterward I came, and the birds were gone.

Beginning April of this year, I have classified the following birds: Junco, Song Sparrow, Crow, Blackbird, Robin, Bluebird, Mallard Duck, Redheaded Woodpecker, Red-winged Blackbird, Meadowlark, Cowbird, Flicker, Fox Sparrow, Hairy Woodpecker, Yellow-bellied Sapsucker, Palm Warbler, White-throated Sparrow, Ruby-crowned Kinglet (female), Golden-crowned Kinglet (female), Swamp Sparrow, Phoebe, Oriole (Baltimore), Black and White Creeping Warbler, Chestnut-sided Warbler, Brown Thrasher, Yellow Warbler, Virginia Rail, Marsh Hawk, Kingbird, American Bittern, Indigo Bunting, Catbird, Black Tern, Orchard Oriole, Sora Rail, Bobolink, Ovenbird, Bronzed Grackle, Barn Swallow, Tree Swallow, Black-billed Cuckoo, Goldfinch, Chewink, and Purple Martin.—ALBERT GOTTNER (Grade 5, age 12). *Allendale Farm, Lake Villa, Ill.*, June, 1914.

[This composition was written outside of regular school-work, and is based on the observations of a lad just beginning the study of birds. The forty-four species enumerated suggest again the value of bird-study within a limited area. To know the birds of a single locality is a task sufficient to tax the energy and patience of the beginner, or to test the knowledge of the mature student.—A. H. W.]

OUR FEATHERED FRIENDS AND THEIR NESTS

This summer I have been making a collection of nests.

On May 31, I discovered a Yellow Summer Warbler's nest. It was in a very young maple tree near a fence. The outside was mostly made of wool; the inside of horse-hair. On May 31, the day I found it, there were four eggs. They were grayish blue, with faint brown spots. When I went near, the mother bird always flew off. She went hopping about, and a Chipping Sparrow, whose nest was near, chased the Warbler around for fear she would hurt her nest.

On June 13 there were four baby birds. They looked like any other kind of young birds. They had just a little fuzz on them and a very red skin and huge mouths.

They were fed very often; but while I was watching, the father bird would not feed the little birds, but would hop around and sing, then flutter in the air on the opposite side.

On June 25 the nest was empty. All the birds had flown.—KATHERINE B. HYDE, (age 12 years).

[First-hand observations of this kind are worth many lessons from a book. How far the feeling of fear governs the actions of parent birds is well described by F. H. Herrick in "The Home Life of Wild Birds."—A. H. W.]

THE LOONS

A pair of Loons built their nest on a muskrat house in a lake near our home, and laid two eggs about the size of a goose egg. They were an olive-green, with brown spots on them.

When my father went to the field he could see the female on the nest.

The Loons came to our lake to feed quite often, so we saw them nearly every day.

My father promised to take me over so I could see the nest and eggs, but we did not get there for two weeks.

But when we did go we saw a far more interesting sight, for the eggs had hatched.

When we drew near, we saw two little black balls of cotton (of which they reminded us), sitting on the nest among a lot of mud turtles.

When we were nearly there, the young came sliding out into the water.

All the time the old Loons stayed very near, giving warning calls, sometimes coming very near to us. One little Loon tried to dive, but could only

get its head under water, while its feet were kicking at the air, which made a very funny sight.

The old Loons would raise up on their tails and kick water about ten feet at us, trying in vain to drive us away.

One little Loon would go away from its parents. We rolled it under with our boat once and, when it came up on the other side, I could have picked it up if I had not been afraid of tipping the boat.

The old ones were giving warning cries all the time, also kicking water at us.

When we were going away, we watched them get the young Loons together again.

It was about ten days after we had been there, not being able to get there but once, that we noticed they were in the lake nearest the house.

We do not know how they got them over, but suppose they carried them on their backs, because they cannot walk, for their legs are set back too far (for the purpose of swimming).

They were in our lake about two weeks, so I saw them every day.

One day, when my father was working in the garden, he saw the young ones trying to cross the pass; but the cows came before they got a very good start and chased them back. But they were not going to give it up for, when the cows were not there, they again started. They were about halfway across the pass when my father called to me and told me to come and see them. We ran through the pasture to where they were.

They stopped when they caught sight of us and turned, all ready for fight. They came up to us in a sliding motion, using their legs as pushers.

The old Loons were over in the big lake calling to them, and they answered them in their queer way.

We picked them up and brought them up to the house, to show the rest of the family.

They were brown on the back and white below, and about one-fourth their natural size.

They have a queer way of calling their parents.

When we went to take them back, we saw the mother Loon fly down into the little lake.

We held them so she could see them, to see how close she would come to us. She would call and they would answer her until she got quite near us, when we put one down.

It swam on top for a few seconds and then dove under water, where it swam for a long time; then came up for a few minutes to get air and down again.

The old Loon started to go after the one we had put down, so we let the other down and it did the same until they both reached their mother.

It was not long before the other old one came. The parent birds did not try to get the little ones out again until they learned to fly.

We watched them every day, and they were getting more like the old ones right along.

They were in the lake about two months, during which time they did not try to get out again.

About two weeks before they left, one old one disappeared and did not come back; at least we did not see it any more.

I used to go down and sit on the bank and watch the old Loons feed the young. They would dive and catch something, come up and call until one of the young would come and get it.

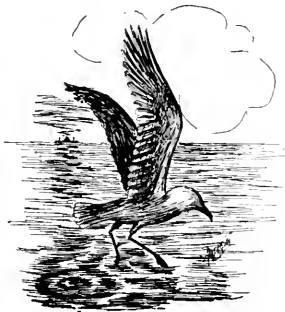
Finally they began to fly. They would rise and fly about two feet above the water all around the lake.

It was about three days after they began to fly that we noticed they had left. It was then about the middle of August.

We heard some Loons after that and also saw them flying over, but do not know whether it was the same ones or not.

I would like very much to hear of the experience of others.—MILDRED L. BULL (age 13), *Stacy, Minnesota*.

[It is rare to have the good fortune this observer had, of watching the nesting habits of the Loon. All of the observations described are particularly interesting to those who must depend upon books for their knowledge of the downy young of this species. In Lincoln Park, Chicago, the writer saw the Loon every spring, and occasionally the Red-throated Loon in the fall. During migration, the Loon at this point, came into the park lagoons familiarly, where it associated with the Horned Grebe, Red-breasted Merganser Duck, Herring, Ring-billed and Bonaparte's Gulls. It was a great treat to the city-dweller to see these species close at hand. Unless disturbed they spent most of the day in the lagoons, but at sound or sight of danger they made their way out on the friendly bosom of Lake Michigan.—A. H. W.]



THE KINGBIRD

By T. GILBERT PEARSON

The National Association of Audubon Societies

EDUCATIONAL LEAFLET No. 81

As I made my way one spring morning among the clumps of reeds along the margin of a southern lake, keeping a sharp lookout for the deadly water-moccasin snakes, I was startled by an unusual sound. It seemed to come from overhead, and just a little behind me. Turning, I beheld a hawk darting sharply downward, and only a few feet in front of it a little Spotted Sandpiper was fleeing for its life. By the smallest fraction of a second the Sandpiper avoided the murderous clutch of its enemy, and then dashed into a thin growth of grass. The Hawk veered sharply upward, wheeled around, paused an instant on outstretched wings, and then, catching sight of its prey, was in the act of plunging again, when, like a bolt from a clear sky, something struck it in the back. This something proved to be a small black-and-white bird, which, with sharp, clattering notes and snapping bill, struck continually at the great Hawk many times its size.

The Hawk at once forgot how hungry it was, and lost sight of the panting, frightened Sandpiper, which lay almost helpless on the ground below; for all at once another idea had taken possession of its mind, and that
The Hunter was to escape this infuriated bundle of feathers with a sharp
Hunted beak that was snapping at its back. So it departed across the shallow lake as fast as its big wings could carry it, and its pursuer, a little Kingbird, urged it on with every stroke. The hunter had suddenly found itself the hunted one, and, judging by the haste it used and the way it dodged, one would think it was as badly frightened as the poor Sandpiper had been a few minutes before. For fully a quarter of a mile the Kingbird kept up the chase, ceasing the pursuit only when the Hawk had entered the woods. Then, evidently satisfied, and, no doubt, pleased with its exploit, it returned with expanded tail and rapidly fluttering wings, lighted on the dead top of a small bush near the shore, and in a most unconcerned manner again took up its watch for passing insects.

The Kingbird was the sentry and also the fighting warrior for all that arm of the lake. He was the self-constituted guardian over the destinies of all the small birds round about, and woe to any large bird that came near. Later, I saw him several times, and he was ever on the alert. Once he drove off a great Turkey Vulture, actually alighting on its back where evidently he held on to a feather with his bill. On two occasions I saw him make life miserable for Crows that ventured into his kingdom.

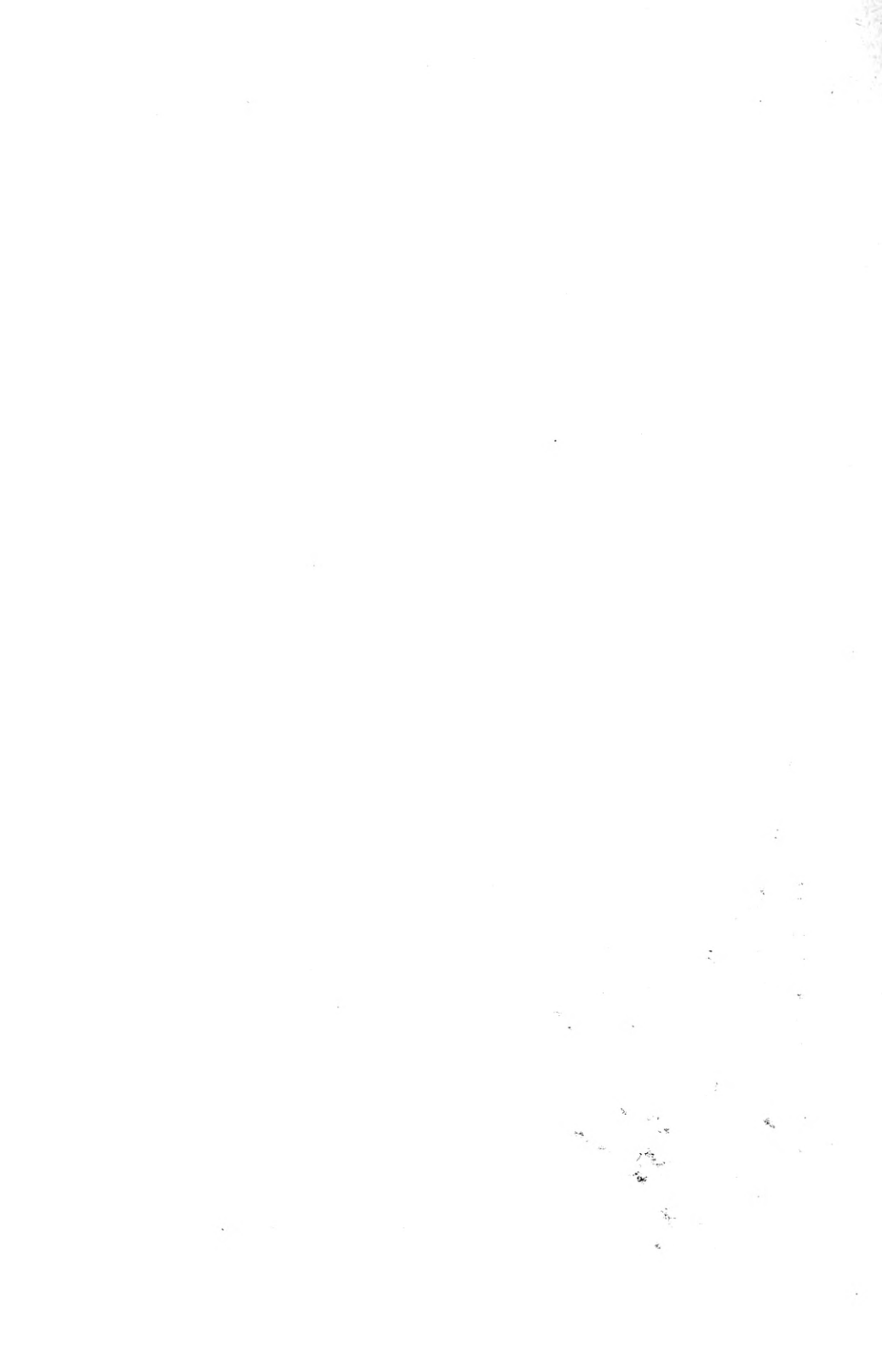
I found his nest, too, and this was a discovery worth while. A button-



KINGBIRD

Order—PASSERES
Genus—TYRANNUS

Family—TYRANNIDÆ
Species—TYRANNUS



wood bush had grown up from the mud and among the water-plants, perhaps two hundred feet out from the lake-shore. It was a thin, discouraged-looking bush, but it served well for a Kingbird's nest. **The Nest**

In this, three feet above the water, the rather bulky cradle had been built. At a little distance it appeared to be only a streaming cluster of long, gray moss, which might have been blown, during some gale, from a bare branch of one of the scattered pine trees back on the shore. When one came near, however, and looked inside, another sight was presented. There, in a cup-shaped inclosure, lay as pretty a set of eggs as one might wish to see. They were about an inch long, and perhaps three-fourths of an inch wide; and scattered about over the white surface of the shells were many spots of brown in various shades. The nest was lined with little roots and grass, and the whole structure was so compact and strong that there was little danger of its being blown apart by the winds, or washed down in the spring rains.

Kingbirds often show a preference for living near streams or lakes, but very often are found far away from such places. This is true, particularly, in the northern states, where we may meet with them in old apple orchards, along highways, or in the neighborhood of farm-fences, beside which trees have sprung up and been allowed to grow.

Early one morning, last June, I was out watching for birds just after sunrise. A little girl, with sharper eyes than mine, was my companion. The air was ringing with the song of a Veery, and a pair of Red-eyed Vireos were calling repeatedly from the nearby trees. My **Nest-Building** fellow-watcher was pointing out a Downy Woodpecker she had discovered, when she caught sight of a Kingbird, the first she had ever seen. It was flying slowly and somewhat laboriously, for in its bill it carried a strip of cloth several inches long. A moment later, the bird settled among the leaves and twigs growing on the horizontal limb of a scraggy, gnarled oak tree just before us. Here it remained for two or three minutes, pulling and tugging at the rag. After getting it placed to its satisfaction, it flew away. We had discovered a Kingbird in the act of building its nest, and, so far as we could discover, had actually seen it bring the very first piece of material with which to make it.

Day after day, in the early morning, we would slip out to see how the work was progressing. The birds seemed to work at their nest-building, chiefly, in the early morning; still, it must be confessed we did not watch very closely at other times of the day, and the birds may have continued their efforts at various periods until the sun went down. In making the nest, the birds used old weed-stalks, grass, pieces of paper, and rootlets; and it took them many days to complete the task. Although it would have been easy to climb up to the nest, we did not do so. The little girl, who belongs to a Junior Audubon Society, told me it was a rather bad practice for children to peep into every nest they found, so we never learned how many eggs were laid in it.

Later, however, we saw three young sitting on the limbs near the nest, where both the father and the mother often fed them. The tree stood not more than twenty feet from the veranda of a summer club-house, where many people came three times a day for their meals.

Children and dogs romped about the place or sat on the bench under the tree, but the Kingbirds never seemed disturbed, and the mother brooded her eggs or young day by day, not fifteen feet above the ground. So far as we could see, not once did she fly away on account of any of the strange sights and sounds beneath her.

If birds are undisturbed by their human neighbors they soon learn that no one means to harm them, and often become very tame. We all have seen many photographs of Chickadees, Bluebirds, and other small birds, that have become so tame that they would alight on the shoulders or hat of a man or woman who was kind to them.

If one watches the Kingbird very long, he will notice that most of its time seems to be occupied with hunting food. Birds have different ways of getting the necessary things to eat. Thus, some wild ducks dabble in the mud; Woodpeckers find food by searching crevices in the bark and wood of a tree; Kingfishers dart into the waters of lakes and rivers to capture small fish; and Herons wade in shallow water and spear prey with their long bills. The Kingbird uses none of these methods. Standing on the topmost branch of some small tree, telegraph-pole, or barbed-wire fence, it will remain motionless, except for frequently turning its head as it searches the air for passing insects. Suddenly it will dash out, sometimes a hundred feet or more, seize an insect, and then return to its perch.

Hidden by the dark feathers on the top of its head is a bright orange-red spot. The Kingbird can open the feathers of its crown whenever it wishes to, in such a way as to show this bright spot. It has been thought by some people that the Kingbird does this to deceive insects into thinking that they have discovered a flower where honey may be gathered. If true, this would be very nice for the Kingbird, and no doubt would help it very much in getting a living. Perhaps some member of a Junior Audubon Class, by watching one of these birds, will discover whether or not this supposition is true.

It is always well for us to know what our bird-friends eat. Kingbirds eat flies of many kinds. They also eat mosquitos, and, in fact, there is hardly an insect so unfortunate as to come within their reach that is not destroyed, for the sharp eye of the Kingbird is ever on the watch, and its strong bill seems never to tire of its work. I once knew a man who paid his boy two cents for every Kingbird he shot. This man raised bees, and he was perfectly sure that he often saw Kingbirds catch bees, as they came across the garden to or from the beehives. So the boy shot the four Kingbirds which lived around his father's place, and then went around the neighborhood hunting for more Kingbirds, killing some as far as four miles

Kingbirds
and Bees

from his home. One day, however, a naturalist connected with the United States Department of Agriculture in Washington made a careful study of the feeding-habits of the Kingbird. He found that, in truth, it did eat bees, but that it appeared to eat only the drones!

We all know, of course, that there are two kinds of bees in a hive: one, the workers that gather the honey and take care of the young, and the other the drones who will not gather honey, will not hunt for pollen, and do not, in fact, assume any of the duties around the hive. The drones are a little larger than the workers, and these are the bees that the Kingbird appears always, or nearly always, to capture. Perhaps the reason it does not disturb the workers is that



A KINGBIRD'S NEST AND EGGS

they have a sharp sting, while the drones have none. So widespread is the mistaken notion that the Kingbird eats useful bees that, in many parts of the country, the bird is known by the name Bee-Martin.

All day and all night during the warm months of the year, many thousands of insects of various kinds are flying about through the air. We do not notice them, in fact we seldom see them while thus engaged; but the Kingbird has a much sharper eye than man, and it has been proved it can see a hundred feet away an insect that we would have difficulty in seeing at a distance of fifteen or twenty feet. After a heavy rainstorm, very few insects are in the air,—the wind and rain having killed many of them. So the hungry Kingbird, from its post, looks around in vain for something to eat. At such times, you will find it on the ground, its sharp eyes having discovered flies and small beetles where they have fallen before the force of the wind and rain. When winter comes, and no insects are to be found, the Kingbird flies away to Central or South America.

The Audubon Societies

EXECUTIVE DEPARTMENT

Edited by T. GILBERT PEARSON, Secretary

Address all correspondence, and send all remittances for dues and contributions, to the National Association of Audubon Societies, 1974 Broadway, New York City.

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Any person, club, school or company in sympathy with the objects of this Association may become a member of it, and all are welcome.

Classes of Membership in the National Association of Audubon Societies for the Protection of Wild Birds and Animals:

\$5 annually pays for a Sustaining Membership
\$100 paid at one time constitutes a Life Membership
\$1,000 constitutes a person a Patron
\$5,000 constitutes a person a Founder
\$25,000 constitutes a person a Benefactor

THE GROWTH OF THE JUNIOR WORK

The Secretary of this Association remarked, last summer, in his report upon the very gratifying progress of the Junior Audubon work during the previous season, that its influence for good was far wider than the limits of bird-protection alone.

"Beyond doubt," the report said, "nothing is so great a problem, or one whose solution is so important to the future prosperity and peace of the country, as the rescue of the children of the land from evil influences, and the diversion of their restless activity and curiosity into safe and beneficent channels. To do this, their interest must be excited in something which will appeal to their minds as amusing, and at the same time really worth while.

"The pursuit of the study of natural history offers just these attractions, and to a large extent appeals to girls as well as to boys. No better place to begin this study exists than in watching the activities of birds, which invite the interest of all children by their pretty ways, sweet voices, and domestic habits. In respect to no other class of animals is sentiment so mingled with science as here; and, when one needs to cultivate in a young mind a sense of the duty of consideration for animals, the bird offers the best possible point of beginning.

"These thoughts would arise first to the mind of the moralist and social economist as he looked at the astounding success of the Junior Audubon movement displayed by the statistics published in these pages,

—and mayhap that is really the important thing that has been accomplished. It may be that these tens of thousands of children, poring over their leaflets, memorizing the various birds pictured, while happily reproducing their portraits with their crayons, and exercising their ingenuity in pleasant rivalry, as they contrive their bird-lodges and set them in cautiously chosen places, are acquiring, quite unknowingly, powers and qualities that will be of far greater value to them in the future than will their store of ornithology."

Such thoughts, strengthened by renewed testimony, continue to please and encourage the officers and directors of the National Association, and the men and women who stand with them behind the movement, as they watch its continued growth. And this growth has been not only continuous, but astonishingly rapid. Each new class formed seems quickly to become the center of a group of new classes, as a tree seeds the ground about it until a grove springs up. The development of interest and results—in this case identical—is truly astonishing. From its beginning in the southern states, in 1910, under Mrs. Sage's benevolence, to the close of the present season, only six years of this work have passed; yet the totals have grown from ten thousand pupils enrolled in one



A HAPPY JUNIOR

This little girl, seven years old, took a special prize in the Franklin, Massachusetts, competition for this exhibit—her own work. Note the flowers in the front yard, and the smoke coming from the chimney of the bark house.

year to one hundred and fifty thousand in a year, and the area covered has spread over the whole United States. This gratifying augmentation is owing not only to the inherent virtue and strength of the idea, and to its usefulness in school-work, but to the continued moral and financial support of those who have coöperated so generously with the Association in its sustained effort to meet this educational demand.

It has been by means of such assistance that the Association has been able to carry forward the extension of the education of the young people of the country in the knowledge and love and appreciation of birds without detriment to its other enterprises, for the amount returned by the ten-cent fees of the Junior members does not go far toward meeting the total expense. Those experienced in cost of printing will readily understand this when told



SECOND PRIZE—JUNIOR AUDUBON CLASS OF WYNCOTE, PENNSYLVANIA,
IN FIELD-STUDY

New Funds for New Work

Mrs. Russell Sage has, year by year, placed \$5,000 to the credit of the work in the southern states; and this will be continued next year. The good friend who has supplied funds for the extension of the Junior work into the northern states, but whose name must not yet be disclosed, gave no less than \$20,000 for the purpose last year. His contributions began with \$5,000 in 1911, and have been enlarged year by year until, as has been said, four times that sum was appropriated for the school-year 1914-15; and the same sum will be provided for the coming year.

that a single item of expense was the manufacture of 1,750,000 four-page leaflets, each accompanied by a plate printed in four colors, and an outline drawing. The Association's postage-bill during the past year, in this department alone, was no less than \$3,800. In addition to this, must be considered the cost of supplying Audubon buttons to all Juniors, as well as bulletins, circulars, and subscriptions to *BIRD-LORE* for the year to the 7,723 leaders of classes.

A detailed account of the results derived from this labor and cost is presented in the annexed table, which gives the numbers and distribution of the teachers and children reached in all the states. This table

shows that in the past year, up to June 10, 1915, 7,723 classes were organized, and that they contained the grand total of 152,164 children—an army of young conservationists. Especial attention is directed to progress in New York and West Virginia.

How much both teachers and pupils, within schools and outside of them, have enjoyed and profited by this delightful association in the study of nature appears from hundreds of grateful and enthusiastic letters received by the Association, a selection of which may be read in the following pages.

Statistical Summary of Junior Classes

SOUTHERN STATES (Sage Fund)

Summary to June 1

States	Classes	Members	
		1915	1914
Alabama	25	410	471
Arkansas	9	266	123
Dis. Columbia	18	245	129
Florida	36	569	3701
Georgia	30	601	1222
Kentucky	63	1219	1465
Louisiana	17	377	503
Maryland	135	2858	2401
Mississippi	6	112	660
North Carolina	34	658	962
South Carolina	15	280	500
Tennessee	43	1074	1716
Texas	246	4315	910
Virginia	122	2186	2336
West Virginia	284	5478	1991
Canal Zone			31
Totals	1,083	20,648	19,121

NORTHERN STATES (Children's Educational Fund)

Summary Ending June 10

States	Classes	Members	
		1915	1914
Arizona	1	10	16
California	58	1055	1119
Canada	149	3070	3655
Colorado	33	792	447
Connecticut	367	7606	2451
Delaware	6	80	64
Idaho	3	59	180
Illinois	328	7128	8065
Indiana	228	4695	2200
Iowa	241	4599	3220
Kansas	67	1645	498
Maine	67	1239	947
Massachusetts	304	6052	8463
Michigan	411	7324	10414
Minnesota	233	4304	4509
Missouri	110	2225	1427
Montana	15	285	770
Nebraska	88	1705	422
Nevada	11	221	471
New Hampshire	125	2467	597
New Jersey	421	9395	9273
New Mexico	4	125	376
New York	1507	28421	14174
North Dakota	22	401	604
Ohio	762	16011	7934
Oklahoma	36	726	608
Oregon	143	2226	780
Pennsylvania	524	10680	6790
Rhode Island	79	1621	1006
South Dakota	47	805	901
Utah	15	297	142
Vermont	42	806	674
Washington	65	1099	982
Wisconsin	122	2133	1253
Wyoming	6	209	396
Totals	6,640	131,516	95,918
Grand totals	7,723	152,164	115,030



FOUR OF THE SEVEN FLICKERS BORN IN THIS BOX ON A FENCE-POST IN IOWA. F. C. Pellett



FIRST PRIZE—JUNIOR AUDUBON CLASS OF WEST NORTH SCHOOL, CANTON, OHIO. EVERY BOX CAN BE USED BY A BIRD

THE JUNIOR COMPETITION

Early in April of this year, the Secretary of the National Association sent to all teachers or leaders of Junior Classes a letter offering twenty prizes for the best and most interesting photographs of Junior Audubon Classes received at this office before June 1, 1915. It was requested that, in addition to suitable labeling, a brief account of the class, what it had accomplished, the influence it had exerted, and other interesting facts, should accompany the photographs. Class-leaders were reminded that the grouping of children with bird-boxes, Audubon bird-plates, or similar things in their hands, is always pleasing; and that pictures taken in the open are usually more interesting than those taken indoors. These photographs were to become the property of this Association, and the right was reserved to use the pictures and the accompanying memoranda, wholly or in part, for the benefit of readers of BIRD-LORE. It is desirable to do this in order that all may know what others in our great Junior College of Conservation are doing.

A large return has been received from this appeal, which excited general and eager interest, and a score of selected photographs are now published, with an indication of the prizes awarded. The prizes offered were:

Winners of Prizes

First prize, ten dollars in cash; 2d, 3d, 4th and 5th prizes, either Chapman's 'Handbook of Birds of Eastern North America,' or Merriam's 'Handbook of Birds of the Western United States;' six prizes of Reed's 'Guide to Land and Water Birds East of the Rockies;' and nine prizes of Pearson's 'Stories of Bird-Life.'

The first five awards are as follows:

First Prize.—Junior Audubon Class of the West North Street School, Canton, Ohio, Miss Mary King, Leader.

Second Prize.—Junior Audubon Class, Wyncote, Pennsylvania.

Third Prize.—Merrimac Girls, Merrimac, Massachusetts.

Fourth Prize.—Junior Audubon Class, Nashua, New Hampshire.

Fifth Prize.—Hospital Open-Air Class, Buffalo, New York.

Notes from Prize-Winners

That the club at the head of this list holds a prize lot of boys and girls may be seen by the picture reproduced on page 320. The number of bird-boxes the boys are carrying is noticeable; but particularly commendable, and of much weight in deciding the award to this photograph of the first prize, was the practical excellence of all the boxes. Canton ought to enjoy an extraordinary population of friendly birds this year.

"April," writes the teacher who conducts this vigorous class, "was the 'Month of Birds' at West North Street School. During the spring vacation, Wren and Bluebird houses to the number of one hundred and thirty were placed in yards adjoining the homes of the members. These houses had been built by the older boys, each one making two, so that the girls also might enjoy the society of bird-families near their homes. For Bird Month each school-room displayed pictures of birds. Many were those sent with the leaflets, and painted by the pupils themselves. The halls also were decorated, each room taking a section and trying to outdo the others in the originality of their decorations. The effect was very pleasing.

"Birds are studied in all departments of the school. The pupils in the upper grades used the pictures of the Educational Leaflets of this and former years in the lantern, and each one gave us a talk about his bird as it appeared on the screen. Monday morning is the most interesting time of all, as so many birds have been observed during the two preceding holidays, and everyone is anxious to hear the new reports and to add new birds to their list. This led to our boys being invited to speak to the boys and girls in other buildings, and tell them why and how birds



THIRD PRIZE—THE MERRIMAC GIRLS, MERRIMAC, MASSACHUSETTS

should be protected. This was regarded by them as a very great compliment. They went out in twos, on the afternoon of Arbor Day, carrying with them a Wren-house and a Bluebird-house. It was a

pleasing sight. We heard very flattering reports of their work, and we are certain they won many new friends for the birds, and had an enjoyable and instructive experience."



FOURTH PRIZE—JUNIOR CLASS, ARLINGTON STREET SCHOOL, NASHUA, NEW HAMPSHIRE

The second prize seems justly due to the Junior Branch of the Wyncote Bird Club, of Wyncote, Pennsylvania. Everyone will admire the admirable posing and the attitudes of eager interest exhibited by the photograph reproduced on page 318. Accompanying it was a note from the Recording Secretary, Miss Esther Heacock, giving us the following information:

"The Wyncote Bird Club was organized in April, 1914, and its Junior Branch has been one of the most successful departments. Meetings have usually been held once a month on Saturday mornings, but when the Club has a program interesting to Juniors as well as to adults a joint-meeting is held in the evening. The Junior Membership fee is ten cents annually, so that none may be debarred, but members and non-members alike are welcomed at the meetings, which have been attended sometimes by more than forty children. As they are of all ages, it seemed best to divide them into groups and to supply different kinds of work. The Junior Audubon Leaflets have been invaluable. The Club supplies these for work at the meetings, but many members have become so interested that they have bought the entire set, and so are beginning their own bird-libraries. The birds so studied and colored have made indelible impressions on the children's minds.

"A carpentering department exists, where feeding-devices of various kinds are made—window-shelves, movable counters on pulleys, automatic grain-feeders, and nest-boxes—all of simple construction, so that the children can make similar ones at home. One day many Wren-houses were made out of discarded tin cans. Once we had a demonstration of tying suet to trees, and that afternoon there was a good demand for suet at the village butcher-shop! A cash prize was offered for the best nest-box made entirely by any boy or girl. Great interest was taken in this, and fifteen boxes were entered, which were so well made that two other prizes were given to reward the careful and thorough work.

"Some of the children have started bird-records, and for the best one a prize was given—a copy of Reed's 'Land Birds.' Several contests have been held in identifying birds from the Leaflet pictures, and prizes were given for the best lists, the prizes being the feeding-devices made at the meeting. Next winter we plan to make carved and painted birds for ornaments in flower-gardens, which, it is believed, will be very attractive hand-work for the

youthful bird-lovers. In mild weather we take walks to the woods, when the children are taught how to look for and identify birds, and these meetings are very popular.

"With the help that BIRD-LORE and the Audubon Leaflets afford, the work of conducting a Junior Society is greatly diminished. We feel that in fifteen months the cause of bird protection has in this village made good progress, and that nothing will strengthen it so much as implanting in the child's mind the love of birds."

Girls as Bird-Students

The Third Prize ought to go, we think, to the "Merrimac Girls," whose happy faces smile at us on page 322. The young president, who is seen in the group bearing the club's pennant, has told us about their very commendable activity in a pleasant letter quoted below:

"Our Junior Audubon Class was formed by Miss Myra E. Worster, a teacher in the Merrimac School, in May, 1914. The Class had but two meetings when Miss Worster resigned her position in Merrimac, and authorized the president, Ruth Wood, who was only ten years old, to take her place in the class as local secretary and leader. The membership was limited to girls, now nineteen in number, and the name chosen was, 'Merrimac Girls' Junior Audubon Class.

"Mrs. Wood, the mother of the president, put a room in her house at the service of the Class. This club-room was arranged with bird-nests, Leaflet-pictures bought with class-dues, and a bird-chart and some large pictures. Meetings are held every two weeks, when the president gives a short talk on such subjects as 'Protective Coloring of Birds,' 'Economic Value of Birds,' and 'Winter Birds and Their Food.' Essays on various birds are read by members, and debates are held. One of the most interesting was a debate on 'Should the Crow be Protected?' The affirmative side was declared the victor. The surrounding country has high hills, and much woodland, with large lakes and the famous Merrimac River, and the Class has taken many walks to study the many varieties of wild birds living here. The members of the Class invite their friends on these trips so that the influence of the Class is extended beyond its membership.

"The Class decided to furnish a Christmas treat for the winter birds, and the members took suet and cranberries into the woods, hanging these dainties on convenient trees and scattering grain and crumbs

in the clearings. This spring, the Class prepared the chart shown in the photograph. It was exhibited one week at a time in the seven grades of the elementary school, and Leaflets were provided for the teachers to read. This chart was very effective in increasing interest in birds among the children, more than one hundred of whom have been induced to sign a pledge promising to protect birds and their nests."

The fourth place seems surely to belong to the large club of the Arlington School at Nashua, New Hampshire, the home city of the New Hampshire Audubon Society; but this commendation is based less on the size and alertness of the Class than on the practical correctness of the bird-boxes—a quality sadly lacking in some of the amateur boxes shown in other pictures. Miss Mary M. Morrill informs us that the Junior Class at this school has more than 200 members, representing all the grades. Those shown in the picture are the Owaissa and the Opeechee Clubs, of the seventh and eighth grades respectively. These names are taken from Longfellow's poem, 'Hiawatha,' and are the names, in the language of the Ojibway Indians, of the Bluebird and the Robin, respectively. Miss Morrill adds:

"Since forming last fall, they have enjoyed meeting once a month, at 6.30 P.M., at the school, in their respective rooms, having first a business meeting, and then a study of some bird from the Audubon Leaflets. Afterward the two classes unite in the hall for an entertainment, one class entertaining at one meeting, and the other at the next.

"We have had a most interesting illustrated lecture on birds by our State Secretary, the Rev. Manley B. Townsend. We have tied suet on trees, put seeds and crumbs into feed-boxes, made bird-houses and a large feeding-shelter (shown in the picture), and have planted sunflower seeds to attract the birds later. Some of the boys are to make cement bird-baths in their manual-training class."

A Solace to Shut-ins

In sad contrast to the vigorous youth in other pictures are the unfortunate children shown in the four illustrations on page 325. They are a few of the Junior Society of the

Open-air Class of the Municipal Hospital at Buffalo, New York. These children, who are the victims of that dread disease, tuberculosis, occupy a building by themselves within which is a court, where the pictures were taken; but many members of the society must remain indoors all the time. The leader of this Class is Miss Nettie V. Howard, who writes as follows:

"We have an Audubon Calendar in our class room, and have had some very interesting bird-bulletins, compositions, drawing lessons and memory lessons from our bird-plates and similar materials. Our bird-list on the blackboard has at present ten birds that the children have actually seen this year. These children stay in the hospital all the time, and, as there are not many trees around the grounds, their list does not grow very rapidly.

"We are hoping to take the children into the country before long. They are looking forward to seeing, as they say, 'lots of new birds.' At present we are very much interested in three mother Robins, whose heads or tails are all we are privileged to see these days. Every day when we take our outdoor exercise, the children want to walk around the trees where the Robins have their nests. The society has done much to make the older boys feel that they are responsible that no harm comes to those patient mothers on their eggs.

"As many of the activities are denied these children, the outside world has to be brought to them by the teachers, through stories, actual experience, and magazine articles. They are eager to know and read about other societies, and are wide awake to be at the head of the rank in any competition."

Three Lively Classes

Any preference among the remainder of the photographs is difficult. The laughing group of girls and boys of the Titusville, Florida, Class shows but a few of the whole number, we are told; and the picture was taken by one of the members. Mrs. Mattie King, their teacher, writes that the boys were to bring their bird-boxes for the pictures, but they assured her they could not do so because all the boxes were inhabited. Surely a good reason!

A very interesting group is that of the Horace Mann School at Kansas City, an



FIFTH PRIZE

THE SOLACE OF THE BIRDS

Children of the Open-air Junior Class in the courtyard and in their school-room at the Municipal Hospital, Buffalo, New York



account of which is written by the president of the class, Miss Ola Moon.

"We have now," she says, "thirty-two members, and the club meets very other week. We have a feeding-station near the school-house, surrounded by buckberry bushes and trees. We had a special committee to carry the food and water thither whenever it was needed. We also bought a suet-basket and kept it out a part of the winter, and twenty-two of our members have been feeding the birds on their own account. This spring we had fifty-four bird-houses put up, and about thirty of them were occupied. We often went to the woods to see birds, wild flowers, and trees. We have begun a paper called *The Horace Mann Bird Star*, in which are articles and notes about birds and other interesting

nest, food, and habits. We correlated with the art-work when the children made posters to announce an exhibit of bird-houses, which the boys had made in their manual training work. Then their bird-boxes afforded another problem for their art and hand-work in planning the covers and designs. The leaves in the book consisted of a drawing of the bird studied, with data collected from personal observation, from the Leaflets and from other sources. Our meetings are held on Wednesday of each week, and we have a twenty-minute program, consisting of recitations, bird-guessing contests, reports of field-trips, etc. Our field-trips have been particularly helpful.

"We have committed to memory Shelley's 'Skylark,' 'The Little Sandpiper,' 'Birds of Killingworth,' and other short



JUNIOR AUDUBON CLASS AT HORACE MANN SCHOOL, KANSAS CITY, MISSOURI

The Class is grouped around the bird-bath built by it in the school-yard, and the cover of the Class magazine is shown

things. We have built a fountain and a bird-bath in the corner of the school-yard near the tree shown in the picture, around which a Virginia creeper is growing. In an elm close by a Robin has its nest. Our club will continue to meet through the summer vacation."

One of the most serious and busy classes in our list is that of the seventh grade of the schools in Somerville, New Jersey, as appears from the report of its leader, Miss Helen E. Bidwell:

"Our Junior Audubon Society was organized in January, 1915. We began studying the winter birds and later took up the Audubon Leaflets, using them for our English work, having first the oral and then a written description of the bird, its

poems about birds. I have found this Junior study a great stimulus to my English work, and hope the interest in the birds will be permanent."

A similar desire for permanence is expressed by Miss Ida S. Given, in her account of the class at Sutton, West Virginia, which is twice as large as last year and very active. "I feel," she writes, "that the lessons the children get now will be lasting."

A Widening Influence

A remarkable influence has been exerted by the Junior Class of the Washington Street School, in Chambersburg, Pennsyl-

vania, according to the account of it sent us by its leader, Miss Helen M. Sellers, who says:

"I send this little report of our work, that you may rejoice with us in the interest and enthusiasm that seems to be spreading all through our town. And the children have accomplished it all! Our Society is young—organized January 29, 1915, and in order that all the leaflets may be studied we have been having meetings every Friday. The whole topic of conversation, these days, is birds. I cannot exaggerate the enthusiasm that seems to

Each child who brought a box was given a printed list of our birds nesting in boxes, and the proper dimensions for each kind of box. We feel that this will greatly help our work for the next year. The other contests will not be closed until the end of the school-year. One is for the best composition showing an intimate knowledge of birds. The other is for the school having the largest number of clippings in their Bird-Clippings Book.

"So we expect to have a more beautiful Chambersburg, and the children in our Junior Audubon Societies will have accomplished it."



JUNIOR AUDUBON CLASS, SOMERVILLE, NEW JERSEY

have seized upon all. Other societies were formed in several other schools, and then the Civic Club began to notice our work and lent a helping hand. A prize was offered to the boy or girl making the best bird-box. Another was offered to the one making the greatest number of boxes for different birds. In the lower grades, the parents were allowed to assist in making the boxes. It was felt that by doing this the parents would themselves become interested. The Bird-Box Exhibit was held on Saturday afternoon, March 30, in the High School. Two hundred boxes were exhibited, and the picture represents our share of the exhibit. Of course, a great many of the boxes were not practical, but they served their purpose of interesting the people.

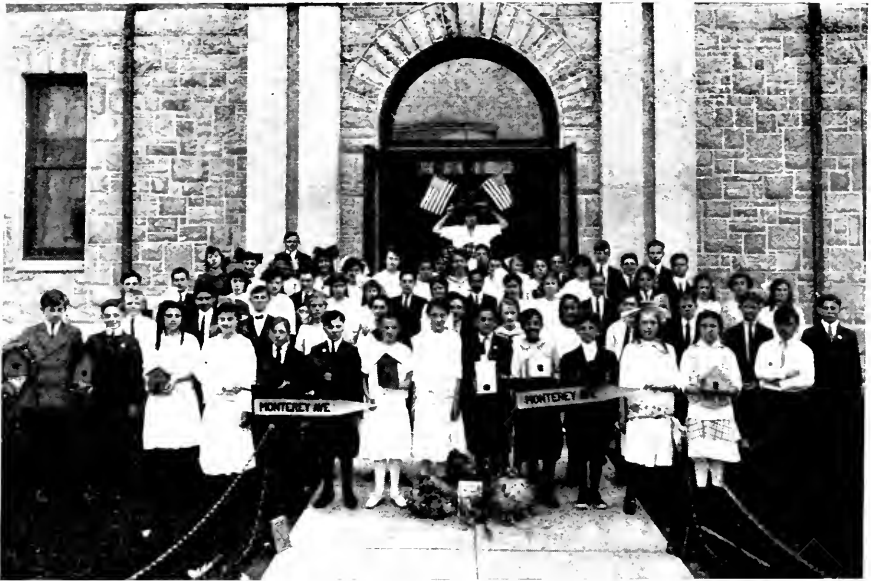
Atlantic City has a large and enthusiastic Class in the Monterey Avenue School; but its leader, Miss Laura N. Herstine, reports that it labors under the disadvantage that birds are few in that crowded and somewhat isolated "city by the sea." Its thirty-five members voted to pay dues of two cents a week, and so raise money for buying the extra Educational Leaflets which all are so eager to obtain. This club has developed a strong interest in poetry relating to birds—an excellent thing; and it is unfortunate that we have not space to print some of the verses written by its



JUNIOR AUDUBON CLASS AT SUTTON, WEST VIRGINIA



JUNIOR CLASS OF THE WASHINGTON STREET SCHOOL, CHAMBERSBURG, PENNSYLVANIA



A CLASS IN "THE CITY BY THE SEA"

members, inspired by the reading of the poets.

The letters that have been quoted above, chosen especially because they were accompanied by prize photographs, are only a few of the hundreds of messages of thankfulness and good cheer that make

our files a precious record of the good accomplished by the Junior Audubon movement among the young people of the land. There can be no question that the experience of the past seven years has shown our plan to be a good one.



JUNIOR AUDUBON CLASS BERLIN CENTER, OHIO



JUNIOR AUDUBON GIRLS, WIMBLEDON, NORTH DAKOTA

A Crowd of Enthusiasts

The remainder of the pictures, are, as a whole, so interesting in fact, and so excellent as photographs, that it is difficult

to choose the best among them; but the nine prizes of T. Gilbert Pearson's 'Stories of Bird-Life' have been awarded as follows:

1. Junior Audubon Class of the Totten-



FOURTH GRADE JUNIORS, FIRST SCHOOL, WINSTED CONNECTICUT

ville (Staten Island) Annex to the Curtis High School of New York City. This class has no stated meetings, we are informed by Charles H. Tucker, the leader, but makes the study of birds a part of the regular work in biology, using the Educational Leaflets as a text-book, and paying especial attention to the economic value of the birds studied.

2. The class at Mountainhome, Pennsylvania, which is displayed putting their bird-boxes in a tree and eagerly interested

represented by a photograph of a capital Martin-house and of the lad who built it.

7. The Junior Audubon Class at Chicopee, Massachusetts, Miss Elizabeth Knight, teacher.

8. The Junior Audubon Class of the New Lebanon School, at East Port Chester, New York. Its president, Jack Masline, reports that it contains 92 members, —a large class, bespeaking a wide and intelligent interest in Audubon work.

9. The Junior Audubon Class of the



CITY LINE JUNIOR CLASS, SYRACUSE, NEW YORK

in the operation. The teacher, George R. Lester, uses the Educational Leaflets, instead of books, as supplementary reading.

3. The Junior Class in a suburb of Columbus, Ohio, taught by Miss Faye S. Ustick.

4. The Class of the Abbott Street School, in Worcester, Massachusetts, led by Miss Marietta Matthews, which sends four charming little pictures illustrating field-study, accompanied by an entertaining account of work done.

5. The Class in Morris Plains, New Jersey, Miss Edith H. Stevens, teacher.

6. The Binford, North Dakota, Class,

George Street School, in Leominster, Massachusetts, of which Miss Miriam A. Hassler is leader.

The following Classes are worthy of special mention: Primary Room, Ridott, Illinois, Miss Pearl A. Ryand, teacher; Friend's School, West Philadelphia, Pennsylvania, Miss Lillian E. Rogers, leader; New York Orphanage, Yonkers, Miss Katherine Herber, teacher; Bluefield, West Virginia, Miss Ruth B. Hawkins, teacher; Johnson Junior Class, Cedar Rapids, Iowa, Miss Marie Kugler, teacher; and Cold Spring Harbor, New York, Miss Mina Schoonmaker, teacher.

Most of these, and of the hundred or more other photographs sent, are accompanied by letters describing a great diversity of ways in which the idea of Junior Audubon educational work is utilized in the schoolroom and out of it, and the excellent training it affords. The joy of the children in it is displayed in many ways, and their moral and mental improvement is shown by an abundance of testimony not only from the teachers and Class-leaders but in the writings of the Juniors themselves, which are inclosed in many of the reports. Particularly noticeable and interesting are the essays from Junior members in the Friend's School, in West Philadelphia, and in the Orphanage, in Yonkers, New York; and it is a great pity that our limited space will not permit of quoting from these and many other reports.

We must, however, give ourselves the pleasure of printing a class-birthday letter from Miss Helen Ensign, teacher and leader of the Sheridan No. 2 class at Dunkirk, New York, because it is full of useful suggestions and encouragement:

"Our Junior Audubon Club has been organized one year today. Out of the seventeen bird-houses that were put up when the class was first organized, fourteen were occupied,—that is, if you may count one Robin's nest built on the flat

roof of a bird-house. This year we have made twenty-five houses, some of which are already 'rented.' This is what we have learned in the year about bird-boxes:

"1. The doors should not be on the floor.

"2. As a safeguard against English Sparrows we must not use perches.

"3. The boxes may hang so that they will swing.

"Our society meets weekly in the nature-study period of twenty minutes in our regular schoolday's program. We study the Educational Leaflets, read selections about birds, play bird-games, have guessing contests, choose a bird for a topic and let each pupil tell something about it, or make bird-houses.

"The children enjoy an initiation when a new member comes in. This usually consists of blindfolding the candidate and leading him about, or asking him to sing or to recite. Once or twice a year they have a 'spread.' They take charge of all Bird Day and Arbor Day exercises.

"Last week we sent a petition to our Game Warden to have our laws for the protection of song birds enforced in our vicinity.

"Last year the children learned to recognize the common birds, but this spring I am delighted to see them searching the books for further information.

"If anyone is timid about undertaking a class like this, he may lay his fears aside and go at it. The children in their eagerness will carry it through, and teach him many things in spite of himself. The apparent failures in our eyes are often successes in theirs."



JUNIOR CLASS, HIGH SCHOOL, TITUSVILLE, FLORIDA



THE HONORABLE GEORGE D. PRATT

Mr. George D. Pratt of Brooklyn, New York, has been chosen by Governor Whitman to be the head of the New York State Conservation Commission, as provided for in the new law. The choice is a particularly happy one. Mr. Pratt is not only a man of wide social and financial influence, but is one of the most level-headed game-conservationists we have in the country. Few organizations of any importance are actually engaged in wild-life preservation, where Mr. Pratt's name is not to be found

among the members. He has for some years been a life-member of, and contributor to, the National Association of Audubon Societies, so that we have long looked upon him as one of our strong supporters.

In accepting this office, he has the united support and good will of all the people of New York State who in any way are interested in the preservation of our natural wild assets, and it is perfectly apparent that he will succeed admirably with the trying duties of his situation.

With the Field-Agents

BIRDS OF THE CACTUS COUNTRY

By WILLIAM L. and IRENE FINLEY

Illustrated from photographs by the authors



HE desert is strict and harsh with her children. Life is spent on the march or in the firing-line. Nearly everything is fortified with thorns. The cactus has a panoply of points to protect its soft, spongy interior; the mesquite,

the palo-verde and the delicate white poppy, clothe themselves in thorns. The pudgy toad in our Oregon garden grows fat and lazy, but he wouldn't last long in Arizona. Out on the desert, Nature arms her toads and lizards in thorns and scales. The toad grows flat and thin, can run like a streak, and digs a hiding-place in the sand. He wears a crown of thorns, and is really a lizard instead of a toad.

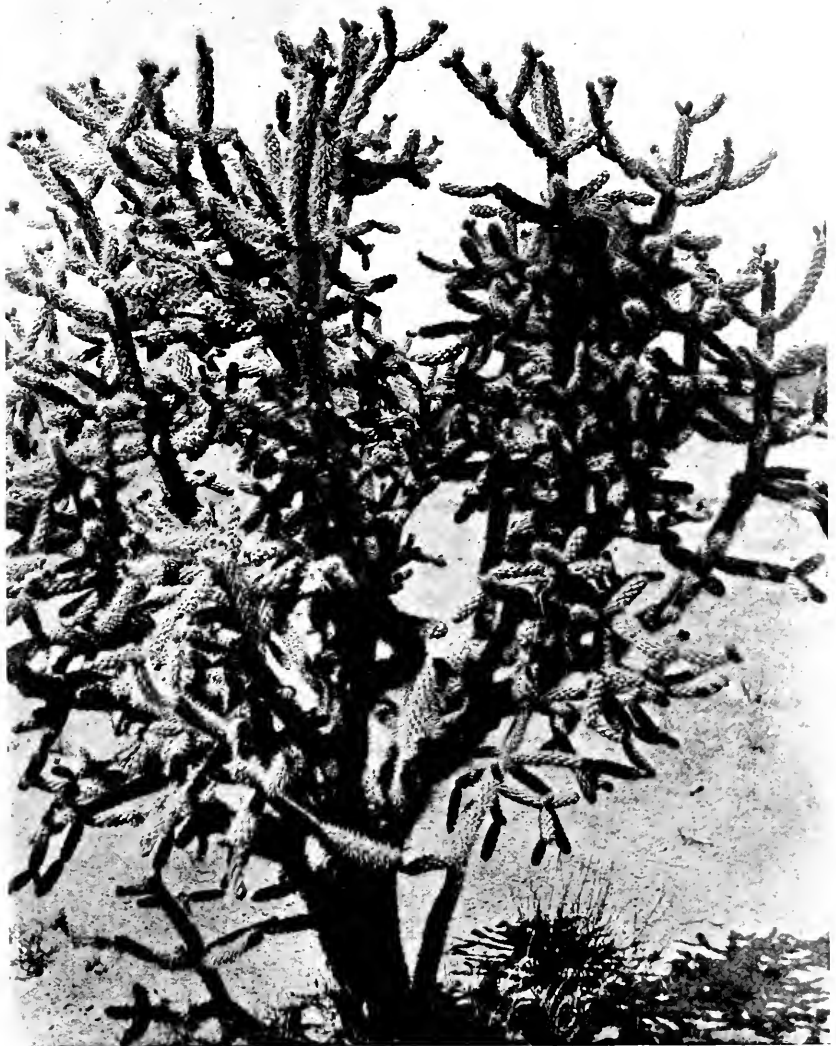
Of all desert plants, the cholla-cactus is the most treacherous, yet it is the favorite nesting-place of the Cactus Wren. The first of these nests we saw was a gourd-shaped bundle of fibers and grasses, with a hallway running in from the side. I couldn't look in, so I tried to feel. I ran my hand in as far as I could till the thorns about the entrance pricked into my flesh. I began to pull my hand back. The more I pulled, the tighter the thorns clung and the deeper they pricked. I was in a trap. I reached for my knife, and cut off some of the thorns, but had to cringe and let some of the others tear out. I looked at them, but could see no barbs; yet, when they enter the flesh, one can readily believe that they have tiny barbs, for it tears the flesh to get them out.

Several times we saw where birds had hung themselves—the largest one an Inca Dove. Later, we discovered a male House Finch firmly impaled on a thorn; but the most cruel incident occurred at the nest in a cholla of a Plumbeous Gnatcatcher, from which the young birds had just departed. One of the baby birds had hopped a few inches from its home, and, making a misstep, had caught one wing on the treacherous barb of a cholla branch. Struggling to get away, it had entangled the other wing and at the same time hooked itself in the body and legs, and was helpless. It had not been dead more than half an hour, and the mother was fluttering about with food for the unfortunate fledgling.

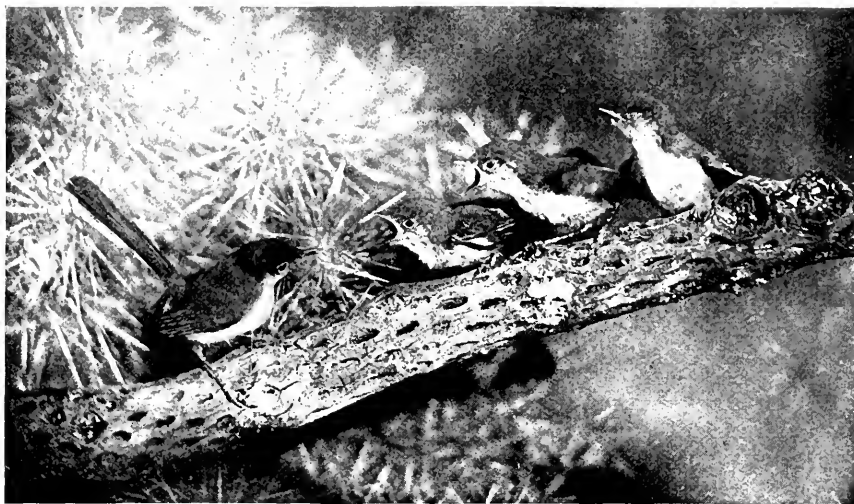
These accidents led us to call the cholla the worst danger to bird-life; but after we had lived in Arizona for a while, we discovered that this horrid cactus was the



A VICTIM OF THE CHOLLA



"THE CHOLLA-CACTUS. . . FAVORITE NESTING-PLACE OF THE CACTUS WREN"



A PLUMBEOUS GNATCATCHER FEEDING ITS YOUNG



A PAIR OF YOUNG CACTUS WRENS

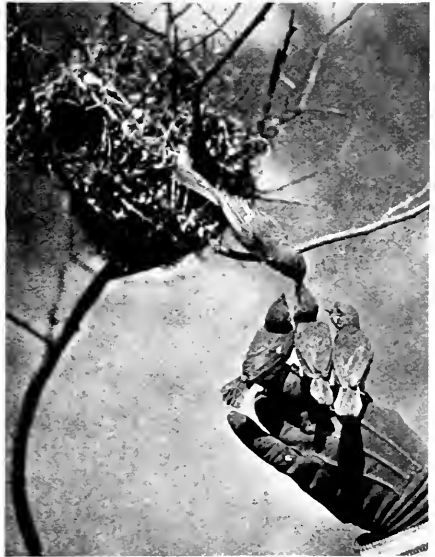
salvation of the birds, for it furnished them nesting- and sleeping-places safe from owls and other night-prowlors.

The end of bird, beast, or reptile in the desert is usually tragic. There is no peaceful old age. A moment's lack of alertness is fatal. The lizard watches to get some unsuspecting fly or to rob an unguarded nest, but he must always have his eyes open to dart for cover, or he will be snapped up by a keen-eyed Road-runner. The Verdin, the Linnet, and the Gnatcatcher, must be on the lookout for hawks, and, if pursued, must dart for the cover of a cholla; but there the least error in judgment may pin him to a death of torture.

One day, as we were passing along a little gully, I saw what appeared to be a small bunch of grass or roots caught on the bare limb of a cat's-claw. I went closer, and saw a small, round hole in the side. In a few moments came a tiny, olive-gray bird, yellow on the neck and head, with a chestnut patch on the shoulder. He was about the same size as, and I could see by his actions that he was a cousin of, the



PALMER'S THRASHER AT HOME



VERDIN'S NEST AND YOUNG

Chickadee. This was our introduction to the Verdin.

I was not accustomed to seeing a nest hung out on a plain, bare branch, with not a leaf to hide it; but the Verdin didn't have much choice of sites, for there was nothing for a mile around except cactus, creosote, and cat's-claw. The best a Verdin can do for self-protection is to make her home look like a little bundle of drift, roof the house with thorns, and make the doorway on the under side.

This bird, which I took to be the female, had a morsel in her bill. She hopped into the house and was quickly out again and off on the hunt, paying no attention to us. We sat down about fifteen feet away. In a few moments the male Verdin came headlong with a mouthful of green measuring-worms. He brought up with a surprised jerk and fidgeted as if he didn't know just what to do. He was evidently saying to himself, "Who are they? What do they want?" He came to the conclusion he would fool us, so he swallowed the bit and went hunting through an adjoining bush to show us that he was merely skirmishing to appease his own appetite, and that he had neither nest nor children.



A FAMILY OF CRISSAL THRASHERS NESTING IN A MESQUITE TREE

When we first found the Verdin's nest, the doorway was a round hole in the side. By getting the light just right, we could look inside. A week later, when we visited the same home, we were surprised not to see a door at all. The birds evidently

and inaccessibility. An open nest, with the eggs exposed out on a bare branch, would not last long in Arizona. This elaborate home is the result of many generations of Verdin history. Living in a hostile country and surrounded by enemies, the Verdin has



PLUMBEOUS GNATCATCHERS AT THEIR NEST IN A CHOLLA-CACTUS

thought we had been too curious, and had built a little roof and porch, sloping it out and straight down, so that I had to get down on my hands and knees and look up to see the doorway, for the entrance was now in the bottom.

The Verdin's home is an accomplishment in nest-building. It has both secrecy

learned to choose trees and bushes that are studded with thorns. More than that, it selects and weaves thorns with the webs and fibers of the walls of his home, which thus becomes a fortified house, with a doorway in the bottom so that lizards and snakes cannot enter. The Verdin makes use of his home not only during the sun-



A MOCKINGBIRD'S NEST IN A THORN-BUSH

mer to raise a family, but often in winter as a sleeping-place. The enemies of the night are many, and he needs a protected place for sleeping.

It is very amusing to watch this pair of Verdins. The mother was quite confiding, but her mate was afraid of the two big creatures who stayed near the nest. At first, he would not enter the house and help feed the bantlings. But she scolded and chided him, and stayed near by until finally he bobbed into the doorway. They hunted together continually, the female fearless and trustful, the male scared and acting as if solely from a sense of duty.

The Cactus Wren, like the Verdin, builds a well-protected, covered home. He selects the thorniest place in a cholla-cactus, as a general rule, although sometimes he nests in a mesquite or a palo-verde. The Cactus Wren, like the Tule Wren and the Winter Wren, often builds nests besides the one used, which are called "cock nests." We examined fifteen or twenty nests of the Cactus Wren before we found one that contained eggs, yet all were elaborately constructed.

At first, we were unable to distinguish the three kinds of Thrashers that are found around Tucson, but after a closer acquaintance we learned to recognize them. The Crissal Thrasher may readily be told by his decidedly curved bill. Palmer's and Bendire's Thrashers look very much alike, but the latter is a trifle smaller. Palmer's Thrasher builds a bulky nest, made of rough sticks, with a lining of fine grasses. The eggs are of the size of the Robin's, and are blue, uniformly peppered with brown dots. Some twenty nests were examined, and all were virtually alike. Often a nest contained two eggs, but usually three. In no case did I find four, which one might imagine a typical set. The nest of Bendire's Thrasher is smaller, and often is lined with horsehair, strings, and fine grasses; and its cup is distinctly smaller than that of Palmer's Thrasher. The eggs also of this bird are smaller.

While both Palmer's and Bendire's Thrashers are birds of the open desert, the Crissal Thrasher likes the river-bottoms. His favorite place is a thick, thorny bush, commonly known as quail-bush.



A CACTUS WREN ENTERING ITS POCKET-LIKE NEST

GENERAL NOTES

New Refuges for Birds

President Wilson has ordered that Spirit Island, a small rocky islet in Lake Mille Lacs, Minnesota, shall be set apart as a reserve, under control of the Department of Agriculture, for breeding birds. It will be known as the Mille Lacs Reservation.

This state also established, on June 16, by order of the Fish and Game Commission, a bird-refuge, including the group of lakes connected with, or near to, Lake Minnetonka, a few miles west of Minneapolis. Frank D. Blair, Field Superintendent of the Minnesota Protective League, announces that the propagation of Mallards, Quails, and Pheasants will soon be undertaken there on a large scale; and that three wardens will be placed there for the general protection of all birds. Many persons of wealth and influence are behind this commendable attempt at bird-preservation, and no labor or expense will be spared that are needed to make this a first-class refuge and preserve of bird-life.

The great Klamath Lake Reservation, on the boundary between California and Oregon, was found to have been unwisely delimited in some respects, and its size has been reduced to a small degree; but it is believed that its usefulness has not been diminished.

The reservation of Blackbeard Island, Georgia, has been abandoned; but special prohibitions for the protection of the animal-life there are still in force, so that in effect the island is still a refuge.

Massachusetts Restrains Aliens

The Legislature of Massachusetts has enacted a law prohibiting the killing of birds or game of any description, and at any time, by "any unnaturalized foreign-born resident, unless he owns real estate in the commonwealth to the value of not less than \$500"; and making it unlawful for any such an alien "to own or have in

his possession or under his control shotgun or rifle of any make." All officers qualified to serve a criminal process are authorized to arrest, without warrant, and on Sunday as well as on another day, any alien found with a gun; and, upon statement of a reasonable suspicion that an alien has a gun in concealment, a magistrate must issue a search-warrant to the officer applying for it.

This law is not too sweeping, nor too severe to cope with the evil against which it is directed; and it is to be hoped its enactment will encourage other states—especially such as Pennsylvania, where ignorant and irresponsible South-Europeans are numerous—to make similar protective legislation.

Junior Work in the Kindergarten

There is no such thing as beginning too early to teach children to know and love birds. This is the recommendation, from our point of view, for the use of our Leaflets and Junior-Class methods in kindergarten practice. On the other hand, there seems no question that bird-study is admirably adapted to the methods of kindergarten instruction, through the medium of Junior-Class organization and the use of the plates in the Educational Leaflets, together with the coloring of the outlines. A concrete example of what may well be done is afforded in the following account of her kindergarten class in Baltimore, by Miss Beatrice M. Riall, of the Homewood Kindergarten, and by the charming photograph accompanying it. Miss Riall writes:

"These little folks are Junior Members of the Audubon Society. All winter they have been feeding the birds until the playground was alive with Sparrows and Snowbirds. In the spring, when the lovely birds returned from their southern tour, we started a serious study of bird-life.

"As the Kindergarten motto is 'Learn by Doing,' we dramatized bird-life as well as we could. First we learned how to fly, hop, and chirp nearly as well as the birds

themselves. Then we learned how the birds carry things in their mouths to make their nests. The father and mother of the little birds in the make-believe nest worked hard over this while the rest of us were 'singing trees'; and we sang:

'Fly little birds, fly east and west
Seeking a place to build your nest;
Tall trees are standing side by side,
Will you among their branches hide?'

"At last it is finished, and mother-bird must choose two of the tiniest children for

"While we are singing these two verses the father-bird is busy feeding first the mother-bird and then the baby-birdies. Now it is time to teach the babies how to fly. Mother-bird and father-bird spread their wings and try to make the babies do the same, while the rest of us sing:

'Fly, little birdies, fly, little birdies,
Fly, little birds in the golden sun,
Fly, little birdies, fly, little birdies,¹
Always fly home when the day's work's done.'



her eggs. These she puts in the 'make-believe' nest in the center of the circle, and then we all sing:

'In a hedge, just where 'tis best,
Mother-bird has built her nest;
(Two small eggs all speckled and blue)
Sits there many days warm and true.
The eggs are hatched and we can hear
Two little birds cry 'Mother dear.'
Near them let us softly creep,
While the birdlings cry *Peep! Peep!*'

"All the spring we have been singing bird-songs and telling stories of bird-life. Early in the spring a bird-house was bought, and a happy family of Wrens are now living on our playground. We have made nests and houses of clay. Many bird-pictures adorn our walls, and on clear days we go to the country to see all kinds of birds. We have Robins, Cardinals, Bluebirds, Blackbirds, Woodpeckers, Wrens, and Baltimore Orioles, all very near our playground."



A Nature-Study Table

This capital exhibition of interest and industry in nature-study was arranged by the Junior Audubon Class of the third and fourth grades of the High School at Altamont, New York, Miss Margaret C. Kinney, teacher.

Good News from New Jersey

The coast of New Jersey was inspected by Mr. Ingersoll, of the National Association, during the first week of June, with reference to bird-protective conditions. He found that a reasonable population of birds of the marshes and beaches remained there, despite the almost continuous line of cities and seaside-resorts which attract thousands of more or less careless pleasure-seekers during the warm weather. The wardens are watchful of their charges, and from Sandy Hook to Cape May the state authorities are well-disposed and alert to enforce the protective laws. It is almost impossible to stop completely the ancient habit of spring-shooting of Ducks; but small birds are as safe in New Jersey as in any part of the country. Incidentally, it may be remarked that New Jersey has one of the most vigorous of State Audubon Societies, and has this year 10,000 Junior members. "There's a reason!"

Starlings as a Nuisance

Dear Sir: On April 9 the first pair of Starlings appeared on my place here, and quite openly, if not noisily, took possession of a bird-box that happened to be the closest to my house,—not more than thirty feet away. On the 20th I evicted this pair and three other pairs from bird-boxes. In three of the nests there were eggs. After this I was away until the 4th of May, when I cleared out the box for the second time. There were six eggs in the nest this time. On May 15 I took out a nest for the third time from this box; there were four eggs in it. Meanwhile I had shot one bird, but I don't know which family he belonged to. After the first eviction, the birds were very sly, and a pair had actually taken possession of a room in a Martin-house (a barrel thirty feet up on the end of a pole), and had hatched three or four eggs before I discovered them. After this last eviction, about two weeks ago, I have seen no Star-

lings on my place, and it is sincerely to be hoped that I am rid of them.

Meanwhile the boxes taken by the Starlings have been occupied by Great-Crests, Bluebirds, and Wrens, some of these evidently second broods. On my place, at any rate, there has been a very perceptible increase in the number and kinds of birds over last year. I shot a large, half-wild, and quite savage cat a few days ago. My dogs-treed him within a few feet of an Oven Bird's nest. Cats, small boys, English Sparrows, Italian laborers, and Starlings—that is about the order of demerit, I think.

Yours faithfully,

R. C. RATHBORNE

Melon Seeds Again

The Melon-Seed Contest last summer developed so wide an interest in birds, and resulted so satisfactorily that the National Association and the Ohio Audubon Educational Board will conduct another contest in Ohio this summer and offer prizes as follows:

- For greatest weight \$4 00
- For second greatest weight . . 3 00
- For third greatest weight . . . 2 00
- For fourth greatest weight . . . 1 50
- For fifth to tenth greatest weights . . . BIRD-LORE one year.
- For 11th to 20th greatest weights Bluebird one year.

Any Ohio girl or boy from the seventh grade down may enter the contest, whether or not a member of a Junior Audubon Class. Seeds of muskmelons, sugar-melons, and sunflowers, are the kinds that may be entered. The seeds must be clean (free of pulp) and dry. At the close of the time limited the seeds are to be weighed, and the child is to write a report, signed by his teacher, stating the exact amount, and this must reach Cincinnati by October 1, 1915; but the seeds are to be kept and fed to the birds next winter. Reports must be mailed to Dr. Eugene Swope, No. 4 West Seventh Street, Cincinnati, Ohio.

Reformation in Missouri

A long forward step has been taken in bird-conservation, and in fair sportsmanship, by the enactment of the new non-sale-of-game law in Missouri. The credit for it belongs principally to Mr. E. T. Grether, who has been tireless in arousing public sentiment by his energetic articles in *Rod and Gun*, and skilful in managing the course of the bill, finally passed last month, through a stormy legislature which at first was almost wholly against it. Heretofore the law in Missouri forbade the sale only of game "killed within the state," and it was easily and constantly evaded, especially in the southern part of the state.

The campaign really began at a meeting of the Illinois Conservation Society, where Mr. Grether spoke at length, and promised to carry Missouri to the right side of the question, while the Illinois men strove for better market conditions in Chicago. Mr. Grether, A. D. Holthaus, of St. Louis, Senator Bardill, and others, then went at the public and the legislature, and fought against almost hopeless odds until little by little the sportsmen of Missouri were convinced that heedless slaughter was not the way to maintain good sport. Finally the long-resisted matter came to a vote, and the conservationists won almost unanimously, against ignorance and callousness in market-guns, greed in dealers, and timidity in politicians. Now no game may be offered for sale in Missouri out of season, no matter where killed.

The good effect of this victory will be widespread. Arkansas, whence hundreds of thousands of Ducks have been going illegally to St. Louis and Chicago, is preparing to adopt the Missouri non-sale law, and Illinois will improve her regulations.

Missouri, as standard-bearer, has thus, in fact, advanced the whole line of Mississippi Valley states toward a better position in respect to a higher type of sportsmanship and a more effective measure of conservation; and the credit belongs mainly to F. T. Grether.



Pictures of Ptarmigans

The photographs of Rock Ptarmigans reproduced in the charming illustrations on this page were taken by I. S. Home, of Kansas City, on Christmas day, a few years ago. The locality is among the mountains of Colorado, on Turkey Creek, near Morrison, where in winter these birds become so tame in their white dress that one may almost catch them by hand. The first requisite, however, is to see them. When the sun shines, their shadows become visible on the surface of the snow; but when the place is in shadow, or flying snow-dust or falling flakes obscure the view, the birds are virtually invisible. These pictures illustrate capitally the value of the white dress as a protective provision.

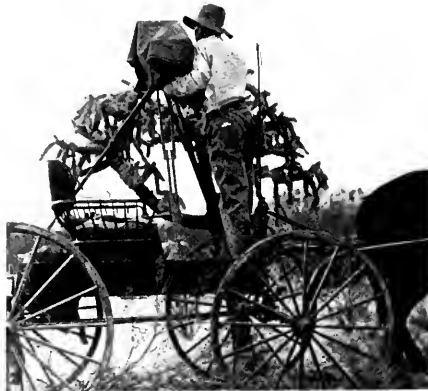
The photographs were sent to BIRD-LORE by H. R. Walmsley, long the President of the Missouri Audubon Society, who is well known in the West as a worker in the cause of better laws and higher standards of conduct with respect to sport with birds.

Signs of Progress

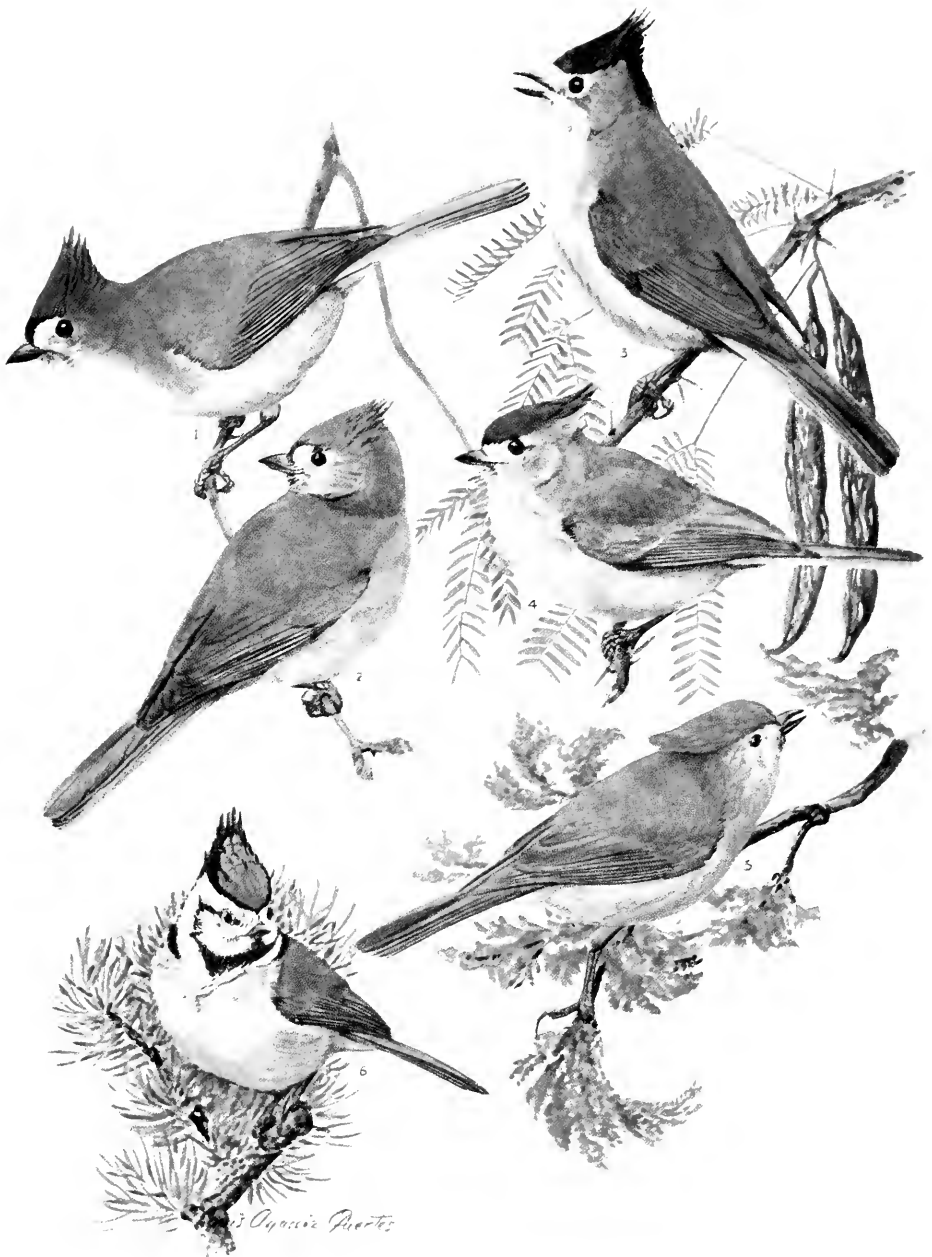
A most gratifying interest has been developed,

this year, in the making of nesting-boxes, feeding-devices, bird-baths, and other things of that sort. The Boy Scouts are displaying increased eagerness in adding this department to their other kindly activities. Competitions in the making of these things are heard of in all directions, and more and more frequently officers of this Association are requested to act as judges. This has been stimulated, and the standard of work has been raised by study of the new edition of the Association's *Bulletin No. 1*, which contains specific instructions for making bird-boxes, etc. The demand for this pamphlet (price 15 cents) is constant. Exhibitions of material of this kind, with books and pictures illustrating the local bird-life, and specimens of the injurious insects and bad weeds the birds aid us to destroy, are now a feature of agricultural

fairs in all parts of the country. Ministers of rural churches are interesting the boys of their congregations in such pursuits; and mothers' clubs are turning to it as a profitable amusement for the children. These are signs of progress in the knowledge and love of birds, and offer encouragement to workers in the Audubon field.



PHOTOGRAPHING A GNATCATCHER'S NEST IN A CACTUS IN ARIZONA



1. TUFTED TITMOUSE, Adult
2. TUFTED TITMOUSE, Im.
3. BLACK-CRESTED TITMOUSE, Adult

4. BLACK-CRESTED TITMOUSE, Im.
5. PLAIN TITMOUSE
6. BRIDLED TITMOUSE

(One-half natural size)

Bird-Lore

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OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

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No. 5

'Bird Clubs in America'

By FRANK M. CHAPMAN

AT INTERVALS during the past fourteen years, BIRD-LORE has published contributions to a series of articles under the general heading, 'Bird Clubs in America.' It now appears that this title was not only literally incorrect but actually misleading. As a matter of fact, the organizations of which these articles treated were not Bird Clubs, but Ornithological Clubs; for example, the Nuttall Ornithological Club and the Delaware Valley Ornithological Club, and more recent developments, show that there is as much difference between an ornithological club and a bird club as there is between original scientific research and the popular presentation of its results.

Ornithological Clubs (or Societies) are composed chiefly of bird-students; bird clubs, chiefly of bird-lovers. It does not follow that the bird-student may not be a bird-lover, but it does follow that the bird-lover may not be a bird-student. Of him it may be said that, like the person who "loved flowers and hated botany," he loves birds and hates ornithology.

As I understand it, therefore, a bird club composed mainly of bird-lovers rather than of bird-students has for its initial object not the study of bird-life, that may follow, but the development of methods which will tend to increase our intimacy with birds.

It is not immediately concerned with nomenclature, classification and avian psychology, but it has an active interest in nesting-boxes, bird-baths and feeding-stands. It cares nothing for the 'law of priority,' but sees to it that the bird-law is enforced.

The comparison of the bird-lover and flower-lover on the one hand, with the ornithologist and the botanist on the other, gives us, I believe, a clue to the human factors underlying the surprisingly widespread interest in birds which the formation of bird clubs throughout the country has revealed. The flower-garden is such a universal adjunct of a country home that its absence, in the face of opportunity would be so unusual as to occasion comment. Wholly aside from botanical or horticultural reasons, the beauty and fragrance

of flowers; and the pleasure to be derived from their culture, afford an all-sufficient explanation for the attention we pay them.

But it has come to pass, during the last quarter of a century, that many dwellers beyond the city gates have become aware that the world contains birds as well as flowers, and that these creatures have not only a beauty which appeals to the eye, but often a voice whose message stirs emotions to be reached only through the ear; and that they further possess humanlike attributes which go deeper still, arousing within us feelings which are akin to those we entertain toward our fellow-beings.

Realizing this, it naturally follows that we should attempt to establish closer relations with these attractive, tuneful, intelligent creatures by offering them evidences of our good will and hospitality. To this end we have developed what, to hold our parallel, we may well call bird-gardening. We cannot, like the child in the story, plant bird seed with the hope of raising a crop of birds, but we can place our bird seed, suet and nuts, baths, fountains, and nesting-boxes in such a way that the crop of birds will materialize after all—provided we weed out the cats, English Sparrows, and other bird enemies.

The flower gardener is independent. The fate of his particular plot lies largely in his own hands. But successful bird-gardening requires coöperation. Of what avail is it for me to be without a cat if my neighbors harbor them? How useless it is for me to war on English Sparrows when just beyond my boundary line they find safety?

What can one or two persons, unaided, do toward the creation of conditions favorable for the existence of Citizen Bird?

What the individual cannot do, the club of individuals can. Given, then, the object, its attainment becomes largely a matter of details and methods. Every Bird Club will have its own purely local problems which it must solve in its own way. There will remain, however, certain general principles applicable to most cases, and BIRD-LORE has invited Mr. Baynes, who has been so prominently identified with the bird-club movement, and others who have had to do with certain clubs, to contribute suggestions or experiences which will be of assistance to others in organizing bird clubs, and in aiding them to awaken a community interest in what Dr. Grinnell has called their "assets" in bird-life.

While we may at first believe these to be only economic and esthetic, closer association with birds cannot fail to arouse that more serious interest in them which, on developing, makes the bird-lover also a bird-student and thereby heir to all the keener pleasures of the true ornithologist.

What the Bird Club Can Do for the Town

By ERNEST HAROLD BAYNES, Cornish, N. H.

IT IS hardly surprising that bird clubs organized to do active work for the birds should be a good thing for the birds; what is surprising, to the novice at least, is the seemingly infinite variety of ways in which such clubs benefit the people who organize them and the towns in which they are organized.

The writer knows of at least three bird clubs which have provided a rational, delightful, up-to-date, inexpensive, and all-the-year-round hobby for practically everybody in their respective towns. He visited one of these towns on a cold morning last winter and, if there was one thing which struck him more than the many evidences of hospitality to the birds, it was the fact that the hosts themselves were having quite as much fun as their feathered guests. For example, in one yard a red-cheeked baby was sitting in a baby-carriage, while the rest of the family were using their ingenuity to get a photograph of a well-fed, patient Pine Grosbeak which had perched quite fearlessly on the baby's cap.

Further up the street, an elderly gentleman stood on his well-swept doorstep, playing with a Red-breasted Nuthatch, which he and his wife had tamed until it would eat from their hands. A few minutes later, a band of school children came trudging along with their books, and, on being asked if they were not making a rather early start, they explained that they were going first to the "bird sanctuary" to feed the birds. The writer went with them to a little grove just off the main street, and found the birds sitting about in the trees awaiting the coming of their little hosts. The latter sat down upon the trampled snow which formed the feeding-ground, and as they tossed from their pockets, seeds, bread crumbs and broken nuts, down came the Redpolls, and Pine Grosbeaks and Chickadees and Nuthatches, until the children were the center of a circle of interested, appreciative, and, let us hope, grateful guests. It was bitter cold, but, after throwing down the food, the youngsters were very quiet for fear of disturbing the birds. One or two of the smaller ones, however, simply could not resist a very strong inclination to pull the sleeves of their jackets over their mittens and to wiggle their toes occasionally, and it was very amusing to observe the frowns of the older members of the party, who thus by silent censure sought to restrain their more restless companions.

By and by the writer went back to call on the old gentleman he had seen playing with the Nuthatch. He stated that, until the bird club had been organized three years ago, he never realized what he had been missing all his life. He said that he got more fun out of taking care of the birds than out of any other form of amusement which had ever been available to him, and that, while he had never studied birds before, he knew practically all the winter birds, because, when feeding, they came so near that he could see them well.

Not long ago, the writer visited another town, to lecture to the members of a bird club which he had organized about a year before. After the lecture, he was taken to a large hall, to inspect one of the finest exhibitions of hand-made bird-houses he had ever seen. It was a joy to look at them. Though differing widely in style, nearly all of them had been designed to meet the requirements of the birds for which they were intended; most of them were well-made from a carpenter's point of view, and a number were very beautiful. None of the members had done such work until recently, but, because they wished to carry out the purpose for which the club was organized, they engaged a manual-training teacher and practically learned a trade. Some of them had continued their studies until they could make many kinds of simple and useful furniture, and probably all of them had learned things which they had not thought of when they began.

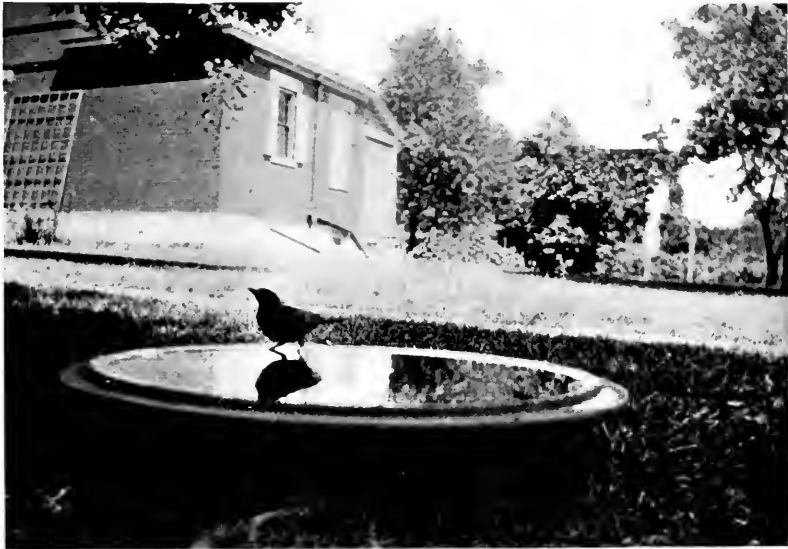
The writer knows several other clubs each of which has established a bird sanctuary, and thus not only provided the birds with a little paradise of their own, but provided the people of the town with a beautiful, quiet spot in which to refresh their minds and bodies, and which they can show with pride to admiring visitors. And it is certain that in some, if not most cases, the presence of the sanctuary has increased the value of the surrounding property, showing that birds and bird-lovers are considered very desirable neighbors.

Space will not permit the writer to tell in detail all the other good things he has seen done for towns and villages by local bird clubs, but perhaps he may at least enumerate some of them. He has seen bird clubs arrange for bird-walks in the woods and fields and along the streams near home, and for expeditions to more distant points, in some cases under the leadership of a trained ornithologist; he has known them to provide for social gatherings interesting games and contests, lectures, plays and debates, and for the writing and reading of essays, all with a view to fostering a live interest in the welfare of birds, but which incidentally brought much pleasure and profit to all concerned.

Some bird clubs the writer knows are helping to beautify their home towns by planting trees and shrubs and vines and flowers; by encouraging the planting of hedges and flower-gardens, and by the erection of interesting bird-fountains and bird-baths—all for the birds, of course, but tremendously attractive to humans as well. He knows of at least two bird clubs which have founded libraries of bird-books for the use of their members, and which provide bird-charts for use in the local schools. There are several clubs which publish interesting literature for circulation among their members, and at least one or two which conduct a column of bird notes in the local paper. And, meanwhile, the residents of the towns are unconsciously absorbing some of the soundest principles of good citizenship, and learning to take their part in the national life by standing shoulder to shoulder with the country's leaders in the great campaign for the conservation of our natural resources.

And all these benefits are in addition to the pleasure derived from the increase of bird life and bird music; in addition to the benefit derived by the farmer and the fruit grower through the destruction of their enemies the weeds, the insects and the rodents, and in addition to the assistance rendered the physicians in their fight against malaria, and other diseases known to be carried by insects of one kind or another.

The writer believes that a network of such bird clubs spread over the United States would solve, once for all, the problems of wild-bird conservation in this country. But he believes that it must be a network—not merely a lot of unconnected bird clubs dotted around. There should be an American Federation of Bird Clubs, and, when the movement has progressed far enough, perhaps State Federations as well. Each club might work independently for the welfare of its local birds, but the federation would show a solid, united front when it came to matters of national importance. Such an organization, if it worked in a broad-minded way and kept clear of the sickly sentimentalism which always disgusts real men and women, would become a great power for good, not only along the lines of bird protection, but along the lines of civic improvement, social intercourse, and community interest in general. The writer has already organized about sixty bird clubs in different parts of the country. Perhaps some of these would be willing to form the nucleus of the proposed American Federation, which the writer believes would quickly have a thousand bird clubs upon its rolls.



ROBIN AT THE BATH

Photographed by F. E. Barker, Hamilton, Ohio



'FEATHERED PEBBLES'—YOUNG KILLDEER ABOUT TWELVE HOURS OLD
Photographed by Julian K. Potter, at Camden, N. J., June 13, 1914

The Brush Hill Bird Club

By HARRIS KENNEDY, General Manager

THE Brush Hill Bird Club of Milton, Mass., was organized as a result of a lecture by Mr. Ernest Harold Baynes of the Meriden Bird Club, in February, 1913. Further interest in the work was awakened by a series of social evenings, when the Club was addressed by such well-known ornithologists as Mr. Edward Howe Forbush, State Ornithologist of Massachusetts, and Mr. Winthrop Packard, Secretary-Treasurer of the Massachusetts Audubon Society. The question of what the Club could do for the township of Milton soon became a vital matter. We realized that the Club had opportunities for useful service to the community.

1. The individual members bought and put up about 100 nesting-boxes.

2. We undertook an educational campaign among the school children of the town, and distributed to the public and private schools, the Public Library and its branch reading-rooms, the three Audubon charts, Trafton's Method of Attracting Birds, and the Massachusetts Fish and Game Protective Association poster, containing the regulations of the Federal Migratory Bird Law and the State Game laws.

3. The Club undertook to complete for the Milton Public Library its files of bird-magazines, and supply such bird-books as would be useful to the community.

4. The Club considered the possibilities of starting a bird sanctuary, but it seemed more feasible to further the use of an already established park area in the town. The trustees of Cunningham Park cordially met the suggestion of the Club, and planted shrubs attractive to birds around the small pond area, according to the plans and list of shrubs furnished by Mr. Frederic H. Kenard of Boston. In addition to the planting, nesting-boxes were put up, and a large feeding-station, built by the manual-training classes of the Milton High School, was installed.

5. Under the auspices of the Club, a lecture was given by Mr. Edward Howe Forbush, illustrated with stereopticon views in the large public school assembly hall, on bird nesting-boxes and methods of attracting birds. This was attended by 450 persons, the capacity of the hall.

6. In order to help the cause, articles applying to bird conservation and the Club's activities were sent to the local newspapers, from time to time.

7. The Club voted to hold an exhibition to arouse intelligent interest in bird conservation. The exhibition so far fulfilled its purpose that this is the basis and forms the major part of the first report of the Brush Hill Bird Club, issued in 1914, and obtainable from the Club at fifty cents per copy. It is, in reality, a handbook on bird protection. During the past year, we have had calls for this Report from eighteen states in the Union, and have had excellent notices of the book by the State Ornithologist of Massachusetts in his Annual

Report, and two excellent reviews—one by Mr. T. Gilbert Pearson and one by Mr. Frank M. Chapman, in *BIRD-LORE*, to say nothing of notices in other publications.

We have continued the activities outlined in our first report, and have followed the educational campaign of supplying the teachers of Milton with the educational leaflets issued by the National Audubon Societies. The request for these already supplied amount to 2,560 for the use of the school children. Our social meetings and lectures have continued. Mr. Charles Crawford Gorst, the noted bird-note whistler, entertained us one evening. The Canton Bird Club, represented by Mr. Horton and Mr. Adams, showed a series of lantern-slides made from their own pictures of birds and animals, all of which were taken locally in Canton.

A second exhibition of a different character from the first was held for four weeks during the spring, at the Milton Public Library, on bird migration. Copies of the charts of migration routes which had appeared in the *National Geographic Magazine*, and later in a little book entitled 'Birds of Town and Country,' were copied and exhibited with pictures and also a mounted specimen or a prepared skin of the bird which made the flight. This added interest to the charts, as showing the size of the birds that made the flights.

The President, Dr. Joel E. Goldthwait, has spoken before several groups of people interested in bird-life. Dr. Chandler Foote, of the Club, led a bird-walk at the 'Bird Day' at Franklin Park. The General Manager has spoken at a bird-protection exhibit at the Framingham Public Library, and also at the 'Bird Day' at Franklin Park, which was held under the auspices of the State Ornithologist, the Massachusetts State Grange, and the Massachusetts Audubon Society, the topic assigned being 'The Building of a Bird Club.'

This spring a 'Bird Day' was celebrated at Cunningham Park, the Brush Hill Bird Club coöperating with the trustees. Mr. Gorst whistled bird-notes and Mr. Jesse B. Baxter, one of the managers of the park, welcomed the 350 persons present and stated the objects for which the 'Bird Day' had been held, and the hopes for the growth of interest in the park area as a bird sanctuary. Miss Turner, who has charge of the nature work and school gardens in the public schools of Milton, spoke on the relation of birds to agriculture, and the work that the children were doing along the lines of bird study. The General Manager of the Brush Hill Bird Club spoke of the practical side of the work, and the three elements which were needed to attract birds: first, winter-feeding; second, nesting-boxes; third, water for drinking and bathing purposes. The Sanctuary, which has been begun in the park, contains these three elements, which may be copied by the townspeople about their own homes.

The Club has further offered a prize of ten dollars in gold for the best essay by the children of Milton on any one of the four following topics:

1. The Birds of the township of Milton.
2. The best method of attracting and protecting the birds of Milton.

3. The economic value of the presence of birds to the town of Milton.
4. The best series of photographic studies of birds of Milton taken by the children.

At the suggestion of the Club, the town adopted the Massachusetts Bird Warden Act (Chap. 296,—Approved March 19, 1913). Under this Act the town of Milton appointed Mr. Ralph E. Forbes its first Bird Warden. In Massachusetts, Dover was the first town, Brookline the second, and Milton the third, to accept the Act and make the appointment to office.

As to our future plans, they naturally contain the extension of the work already begun and the prospect of additions to this work as opportunities arise. The coming winter, we shall devote ourselves to the educational work with the school children, and the increase in the winter feeding-stations throughout the town, eighteen of which were established last year by the chairman of the 'Feeding Committee,' Miss M. Purdon.

The Hartford Bird Study Club*

By LEWIS W. RIPLEY, President

THE Hartford Bird Study Club was organized in 1909, and has at present a membership of about five hundred.

The Club has the usual list of officers, and its management is vested in an Executive Committee. Our work is in charge of the following committees:

The Progressive Committee.—This committee makes up, during July and August, the program for the year which extends from early in September to the end of June of the following year. The program which includes both field and evening meetings is embodied in a Year Book of about forty pages, containing, in addition to the program, the list of officers and committees, our rules of organization, and a list of members.

The Field Committee.—Our field committee has charge of all arrangements for the field meetings, including their arrangement on the program. This committee also has charge of the keeping of the records of observation.

The Publicity Committee.—An important committee so far as our relation to the general public is concerned, for the reason that they have entire charge of the publication of accounts of our evening and field meeting. And the interest of the public in these things is attested by the eagerness of the newspaper men to get reports on all our doings.

*The distinguishing characteristics of this club are evidently well expressed by its title. This, it will be observed, is neither Bird Club nor Ornithological Club, but 'Bird Study Club,' indicating that this successful organization stands between the club composed chiefly of bird-lovers and the one whose members are mainly scientific ornithologists. The account of the club's activities, here presented by its president, is in full accord with the club's name and suggests lines along which younger bird clubs may develop.—F. M. C.

The Educational Committee.—This committee has charge of such educational work as we are enabled to do. Our club believes that the greatest work which it can perform is the arousing the interest of children in birds. We try to do this by giving talks before schools and by the delivery of illustrated lectures. This work we feel sure is but in its infancy.

The Protection Committee.—This committee has charge of all work connected with bird protection. Thus far its principal work has been in appearing before the Fish and Game Committee of the Legislature, in connection with proposed bills affecting bird life.

The Permanent Records Committee.—The members of this committee are the presidents of the club, past and present. The chairman is Mr. John H. Sage, Treasurer of the A. O. U. It is the duty of this committee to pass upon all doubtful identifications before they are admitted to the records of the club.

The meetings of the club fall into three classes: 'Field Meetings,' 'Regular Meetings,' and 'Lectures,' and are held throughout the year, except during July and August.

Field Meetings.—These meetings are held on Saturday afternoons, averaging two a month from September to June inclusive. During the migration season they are held every week. The attendance is governed naturally by the state of the weather, and perhaps to an equal extent by the length of the walk which it is proposed to take. The largest number in attendance in 1914 was about eighty, the average being about forty. The walks vary from about two and a half miles to about seven miles, averaging probably about four miles. On some of these tramps the entire company keep to our general route, while on other occasions, depending upon the nature of the country covered, we divide into small groups each supposed to be guided by an expert in birdlore. When the club is so divided, each group keeps its own list of birds observed, and of course there is a spirited competition on those occasions.

In addition to the stated field meetings, there are a number of extra meetings, usually of an impromptu nature, and caused by the discovery somewhere in the territory of a rare bird. Such occasions arose this year upon the discovery of a Migrant Shrike, which remained several weeks in the same vicinity, and upon the finding of a nest of the Great Horned Owl in which were two young. This was about three miles from the nearest trolley, but a very large number of the club went to see it. The most interesting incident of this character was the sighting of a pair of Pileated Woodpeckers about five miles from Hartford. The discovery was made by two young men who were not members of the club, but we very soon got wind of it, and forthwith there was a migration of the club, in pairs, squads and battalions, to the east slope of the Talcott Mountain. We found that the Woodpeckers had been haunting the place for several years, for there were many mounds on the living trees, which were nearly grown over by new wood. Of course, not all the pilgrims were successful in sighting the birds. One unfortunate group tackled the job in an automobile,

a wood road giving access to the territory. While the bird enthusiasts were up on the ridge hunting the Woodpeckers, one of them came and alighted over the head of the waiting chauffeur. Needless to say, the enthusiasts somehow did not seem pleased at the occurrence, for they failed to find the birds.

I must not forget to mention the finding of the nesting-place of at least three pairs of the Bartramian Sandpipers. Bird-lovers will understand the thrill of delight which came to the writer and two or three of our members, as we watched the three pairs of old birds fluttering about after the young were hatched. They sailed over our heads, now and then alighting on the ground or on the nearby fences, and, stretching up their wings, uttered that strange, weird cry. Certainly these birds, once so common in the vicinity of Hartford but now for twenty years so rare, are increasing in number. In our field meetings we are making the endeavor to cover as well as possible the territory which we have chosen for our guardianship. In this territory we count all towns which are included within a circle whose circumference is within fifteen miles of City Hall in Hartford. There are about forty towns lying wholly or in part within this circle.

Evening Meetings.—Of these we hold about twenty during the year: five of them are for illustrated lectures. It has been our endeavor to have at least two of these lectures delivered by people of national fame in ornithology. At our 'regular meetings,' so-called, we usually have a paper or lecture on a topic connected with nature study, followed by what we call 'field notes,' which consist simply of brief statements by the members concerning things of interest in the bird world which they have seen since the last meeting. The average attendance at these regular meetings is about one hundred.

The field committee has just published a new edition of our 'Check-List,' which contains the names of somewhat over two hundred species of birds that have at some time been seen in the vicinity of Hartford. I think about one hundred and ninety of these have been observed by our members during the last six years.

I wish it were possible to convey an adequate idea of the pleasure and profit which very many of our members get from our meetings in the field and at evening. They help mightily to enlarge our mental and spiritual horizon. They hang fine pictures on the walls of our memories. They fill us with a desire to dig deeper into the mysteries of nature. They make us better men and women.

The Brookline Bird Club

By CHARLES B. FLOYD, Vice-President

THE second annual report of The Brookline, Massachusetts, Bird Club covers the activity of this organization along the following lines laid out last year:

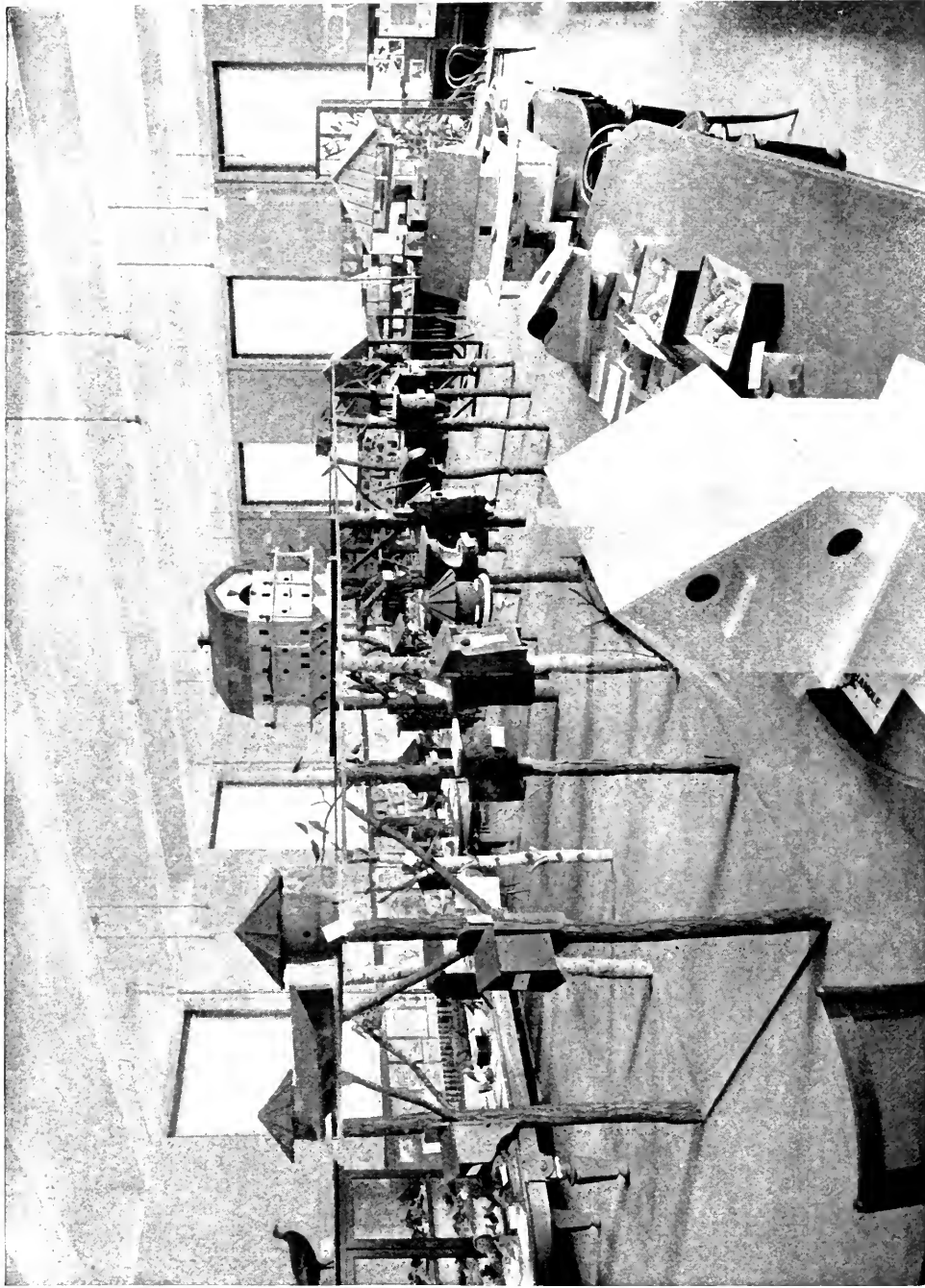
1. Establishment of a bird sanctuary.
2. Lectures and 'round-table talks.'
3. Walks and field study.
4. Bird exhibition.

The interest in bird study steadily increases among old and young, and, while a few members dropped from the roll, this year the membership has advanced well beyond the five hundred mark, so that our club is now the largest of its kind in the state.

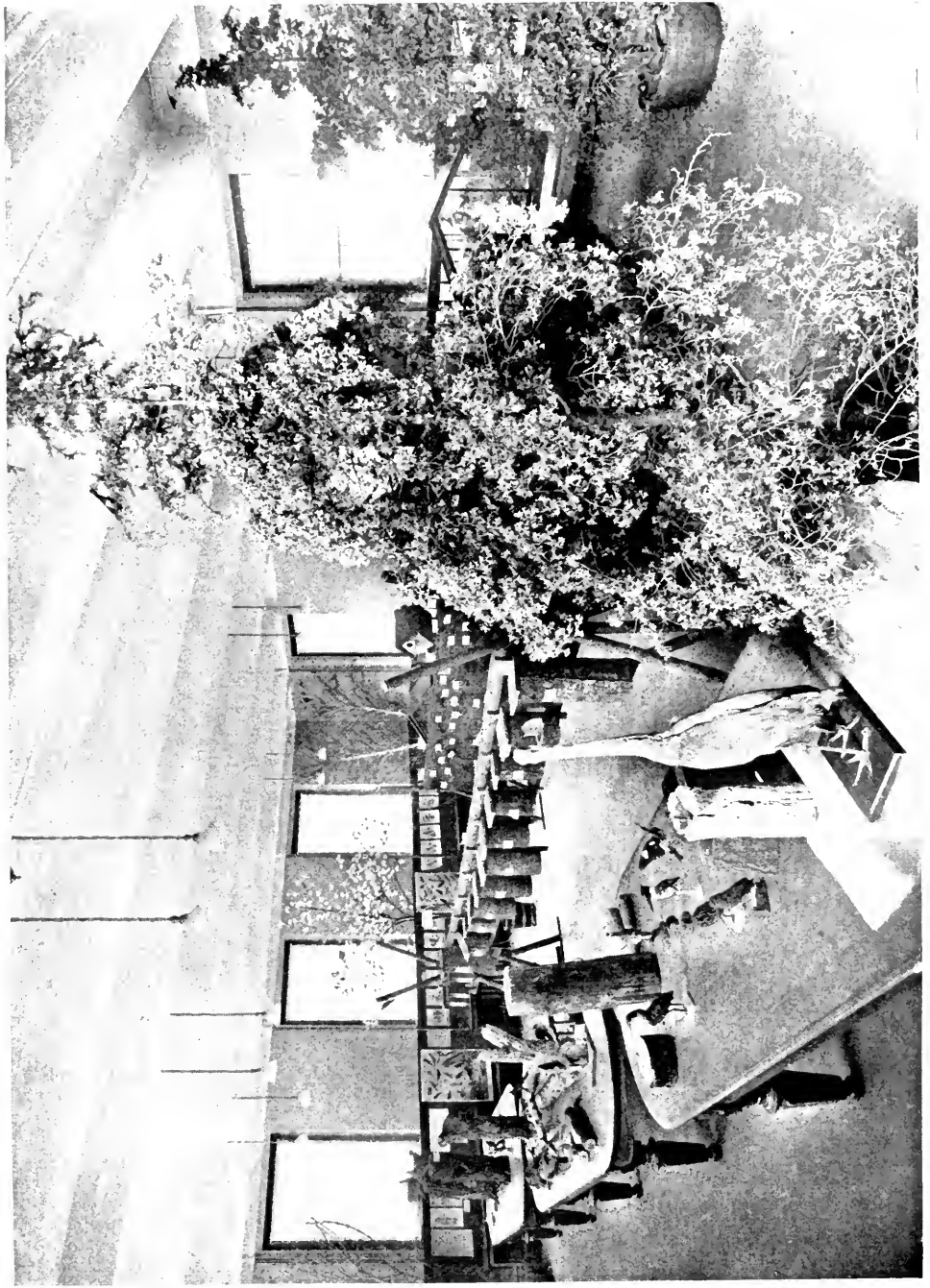
Among the objects incorporated in the constitution is the establishment of a bird sanctuary in Brookline. Many plans have been considered, and it was found impossible to establish a sanctuary similar to that at Meriden, N. H., for the town has grown to the size of a city with a population considerably more than thirty thousand. Many of the largest and finest estates for which Brookline was famous a few years ago have been broken into lots for three-deckers and other buildings. From lack of any area of open land of sufficient size, the sanctuary would have to lie on the outskirts of the town, and be composed of woodland owned by the town of Brookline, and the estates of such owners as would be willing to have their land posted. On the face of it, the task looked like a hard one.

Brookline was the second town in Massachusetts to avail itself of a recent act of the legislature which permitted the appointment of a town bird-warden. Mr. Daniel Lacey, who is the warden, is also the superintendent of the forestry department of the town, and through his splendid work the entire town is now a sanctuary. An open season on Pheasants was declared last fall for the first time, and men and boys with guns and dogs tramped over private property shooting at anything that could fly, regardless of all signs and protests. A great deal of agitation over this indiscriminate shooting arose from all over the state, and during it Mr. Lacey secured the consent of the owners of private estates to have their land posted and placed under his jurisdiction. The bird sanctuary is an accomplished fact, and it is now unlawful to fire a gun within the limits of the town of Brookline in the pursuit of game.

Last year the club met, one evening a month, for a lecture on some subject of bird study. It was found that this was not sufficient to meet the demand, so another meeting was called each month and held for a 'round-table talk.' These meetings are very informal and are most popular. Some groups of birds are discussed or some phase of bird study, and after the address of the leader of the meeting, it is thrown open for informal discussion and questions;



AN EXHIBIT OF THE MILTON BIRD CLUB



AN EXHIBIT OF THE MILTON BIRD CLUB

thus giving all the members an opportunity for expressions of thought and social intercourse, which could not be had in any other way. Junior members are permitted to attend these meetings if they wish to, but other talks and walks are arranged for them by Dr. John B. May.

The walks for senior members are held every other Saturday during the winter, though the members go somewhere every Saturday on walks that are not provided for by the committee on walks and lectures. In the spring, schedules are arranged for every Saturday, and, during the height of migration, twice each week. So many persons have availed themselves of this instructive field work that next year two walks with two leaders will be held the same day.

The popularity of the bird exhibition held last year in connection with the Forestry Department of the town, and described in detail in last year's report, convinced the club directors that another should be held. The exhibition was open the entire month of March and, in addition to last year's features, special emphasis and more exhibits placed, showing the work done by the birds in the destruction of insects. Sections of trees showing gypsy- and brown-tail-moth nests, the work of leopard moths, elm tree beetles, and wood lice were displayed, and other specimens that were gathered by the men of the Forestry Department, with the destructiveness of other pests in evidence, formed one of the main features. More than fifty species of berry-bearing shrubs and plants were displayed, with lists of shrubs near at hand telling what to plant to attract the birds. A chart illustrating the work of the American Bird Banding Association aroused much interest, as did large colored plates and maps defining migration routes of many of the birds. A report of the activities of the Bird Club would not be complete without a word concerning the services of the Forestry Department in connection with bird protection. This department has placed more than four hundred bird-boxes in the shade trees along the streets in Brookline. Each box is numbered on the bottom, so that it can be easily seen from below, and its location, occupant, and anything of interest regarding it recorded in the superintendent's office. The boxes are of various types and designs, some of them made by the department, and the results are satisfactory. During the winter one hundred and fifty feeding-stations are maintained all over the town, suet is fastened to the trees in wire screens, and grain scattered after every snow- or sleet-storm. It is surprising how readily the birds come to be fed, and the quickness with which they find these stations. During the open season this fall, the posted land will be patrolled, to guard against gunners and fire.

Several members of the Club have spoken before other organizations of the character of the Boy Scouts and bird clubs on 'How to Study Birds.' Communications have been received from many places in other states in regard to our work and exhibition.

The Club, as a club, is now affiliated with the National Association of Audubon Societies, Massachusetts Audubon Society, American Ornithologists

Union, and the New England Federation of Natural History Societies, and has done its part in urging good and opposing vicious legislation.

The trustees of the Public Library have been very generous in purchasing books recommended by the Club, but the need has been felt for a library composed of matter which is not of interest to the general public. Pamphlets and government publications of interest to club members are being collected, to found our own reference library.

The Play-Ground Commission of the town has set aside a portion of its appropriation for bird walks this summer under instructors, and the children are thus assured of some practical teaching in the field.

The second year of the life of the club has proved most successful, and we hope to prove still more emphatically during the coming year that "one bird in a bush is worth more than two men with a spraying machine."



BRONZED GRACKLE

Photographed by Miss C. R. Scriven, Webster City, Iowa.



PRESIDENT FUERTES ADDRESSING ONE OF THE COMPANIES OF SCHOOL CHILDREN AND PARENTS AT THE ANNUAL FIELD DAY IN THE CAYUGA BIRD CLUB SANCTUARY.

The Cayuga Bird Club

By ARTHUR A. ALLEN, Secretary

“**B**ELIEVING that the conservation principle needs organized public opinion for its realization, and believing that the usefulness of Cornell and Ithaca to the cause of citizenship will be greatly increased by a popular local conservation movement, the Cayuga Bird Club proposes to teach the conservation principle by a concrete example of the conservation of bird life, through the creation of a bird sanctuary.

“This club should prove a very real factor in the conservation movement, for it will include in its membership scientists ‘to point the way,’ and representative citizens of all ages to promote the cause.

“The birds should prove a wise and popular beginning for conservation because they happily combine esthetic and genuine agricultural values. The entire community should respond to this call for coöperation that is at once selfish, being pleasurable, and altruistic, in that it seeks to preserve nature’s beauties and life-values for generations yet unborn.”

Such is the foreword of the constitution of the Cayuga Bird Club, as written by its founder, Dr. Ruby Green Smith. And the objects to be accomplished are four in number: First, the protection of birds from their enemies; secondly, the increase of native birds by the erection of bird-houses and bird-baths and the feeding of winter birds; thirdly, the seeking of legislative im-

provement of game laws and laws protecting non-detrimental birds and the aiding in the enforcement of those in existence; and fourthly, a persistent educational campaign regarding the interest and value of bird-life.

It so happened that the first efforts of the club were not directed toward the fulfilling of any one of these avowed purposes, but rather toward the accomplishment of a somewhat unexpected conservational movement, which at the same time gained for it its bird sanctuary, the Renwick Wildwood. The city of Ithaca, at the head of Cayuga Lake, is the unusual possessor of a piece of woodland of about one hundred acres lying between the city and the lake front, which is remarkable for the luxuriance of its flora and fauna, containing



ONE OF THE 'BIRD-SCOUT' BRIGADES

many plants and trees rare elsewhere in New York state, and an abundance of bird-life scarcely to be excelled outside of the tropics. Such is the rank growth of the vegetation that it appealed to some of the city fathers, who knew it only from the windows of passing trains, as a jungle, a blot upon the fair name of the city. A wave of civic improvement swept over the Common Council, carrying with it an appropriation for clearing the 'jungle' and establishing a clean city park. This was the call for the bird club to act, for it knew well the value of the woodland in its natural state and the barrenness of the ordinary city park. A campaign of education through lectures and articles in the local papers followed, and resulted not only in saving the woodland almost intact but also in having it set aside as a natural park or bird sanctuary under the control of the Cayuga Bird Club.

Assuming control of this woodland, the club has endeavored, so far as its limited funds have allowed, to make it more available to nature-lovers by the construction of paths and a rustic bridge over one of the arms of the creek. An annual field-day, celebrating Arbor-day and Bird-day, has been inaugurated, to which all the people of the city are invited. This year, nearly a thousand children and adults attended. The number was obviously too large to handle *en masse*, so they were divided into companies which, after a preliminary address by President Fuertes, were further subdivided into squads, with the declared purpose of accomplishing as much work as possible. Each brigade was under a competent leader and had special work to do. There were 'forestry



CARRYING GRAIN TO THE DUCKS ON CAYUGA LAKE

brigades,' armed with jack-knives, to do some much needed pruning; 'fire-ranger brigades,' to gather up and burn the loose brush, not needed for bird shelters; 'gardener brigades,' to do some attractive planting about the rustic bridge and along the lagoon; and 'bird-scout brigades,' to put up the nesting-boxes which they had previously built. The day was an undoubted success from all standpoints, not only in the amount of work accomplished, but also in putting before the city a concrete expression of the conservation movement, and inculcating the value of this woodland in its natural state into the minds of the rising generation.

Now just a word about the other work of the club. With regard to protection of birds from their enemies, two Sparrow-traps have been constructed and operated with fair results, and articles have been published in the local

papers concerning the real status of the house cat, preliminary to more active measures for its control.

The committee on attracting birds has been somewhat more active, and by means of public lectures, lectures in the schools, and articles in the local papers, has created a widespread interest, resulting in the placing of many



SOME BLUEBILLS TAMED BY FEEDING

boxes in all parts of the city, including two Martin houses, the establishment of several attractive bird-fountains, and a large number of individual 'feeding stations' during the winter. In addition, two 'public stations' have been maintained in the Renwick Woods, where grain and suet have attracted quite an assemblage of Woodpeckers, Nuthatches, Chickadees, Brown Creepers, Tree Sparrows, etc., where anyone may see the results to be obtained by just a little effort. Furthermore, the work of feeding the wild Ducks on the lake was continued, with the result that great flocks of Canvasbacks became comparatively tame, and some of the Bluebills would almost feed from one's hand.

The educational campaign of the club has been carried on along three lines: First, there have been monthly lectures, open to the public, on various phases of bird-life or subjects of a conservational nature, by such speakers as Dr. Andrew D. White, Dr. L. H. Bailey, L. A. Fuertes, Ernest Harold Baynes, H. M. Benedict, Clinton G. Abbott, J. G. Needham, and others. These lectures have always filled our largest halls,

During the spring, early morning field trips for the study of birds have been held each week under competent leaders, nearly a hundred persons attending some of them. During the migration, a bird calendar of the birds seen during the week and of those expected during the week following, together with any other points of local interest concerning the migration, have been published each Saturday.

The third line of the educational campaign has consisted of announcements and reports of lectures, information about birds, methods of feeding, etc., published in the local papers to the extent of over 600 inches of column space the first, and over 200 inches the second year of our existence.

Membership in the club has, so far, been limited largely to residents of Ithaca, about three hundred and fifty of whom have joined and are helping in its support as life, sustaining, active, or junior members. Plans for extending the operations of the club to outlying towns are now under consideration.

The Forest Hills Gardens Audubon Society— A Community Venture

By MARY EASTWOOD KNEVELS, Secretary

THE Gardens is probably the first example in this country of a town planned in every essential detail before a spade was put into the ground. The landscape scheme designed by Mr. F. L. Olmsted called for a large outlay in shrubs, trees, vines, flowers, and considerable space allotted to private and public parks, which, with their maintenance and upkeep, meant the constant outlay of money.

It was with the economic value of bird life in mind as the principal, though by no means the only thought, that the Gardens began what was the first attempt on the part of a purely suburban community to organize for bird protection.

The actual amount of land at Forest Hills Gardens is small—204 acres—and this is not particularly favorable for the cultivation of bird life, as the larger part of it is open and as yet there is little shrubbery for cover.

Notwithstanding these difficulties, the Gardens started its campaign, at the suggestion of the National Audubon Society, by inviting Mr. Herbert K. Job to make a survey of the place, and based their initial work on his report. The survey showed what kinds of birds could be expected as summer residents, winter visitors, or migrants—transient in spring and fall,—what birds could be expected to build their own nests, what species would use the artificial nesting-boxes, and what birds required some assistance with their building—such as spreading hair, rags, cotton waste, string, etc., about for them. Winter feeding was advised, and particular stress laid on the need of birds for water both in winter and summer.

It was also urged that special shrubs and trees bearing edible fruit and berries be planted, and that millet and sunflowers be generally cultivated in the individual gardens, to give the birds an extra supply of food.

Using as a basis Mr. Job's report, a committee of citizens met together and formed the Forest Hills Gardens Audubon Society, choosing for their President Mr. E. A. Quarles, of the American Game Protective Association—at that time a resident of Forest Hills,—whose special knowledge and leadership has been of the utmost value to the young organization.

At Mr. Quarles' suggestion, the Forest Hills Society was made a branch of the National Audubon Society, and the Constitution and By-Laws used were those, with slight modifications, of the New Jersey State Society.

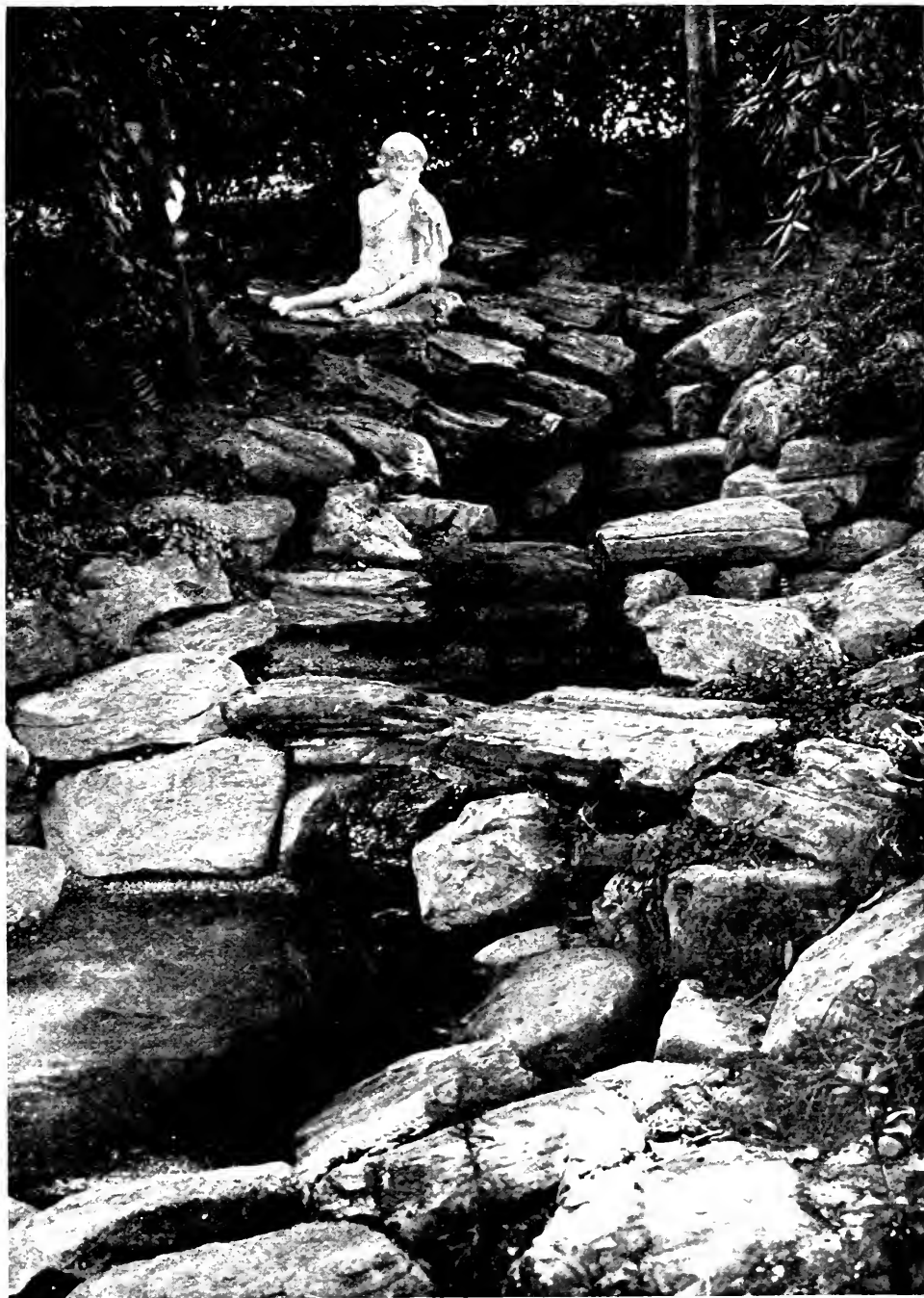
As the main idea of the new society was to make bird protection a community venture, the first thing done was to try to interest every one in the subject, and to get them to become members. This was done by means of a circular letter enclosing Mr. Job's report, and following upon this there were two lectures—one for children—given by Mr. Ernest Harold Baynes. It may be emphasized here that all educational matter sent out by the Society and all lectures and public meetings given by it are free not only to members, but to everyone else. It is strictly a community affair, but not necessarily limited to the Gardens. Any outsider may join, in the hope that he, in his turn, may become the nucleus of a community movement in his own town, and so make Long Island a string of villages allied for bird protection.

Several of the lectures given by the Society have had social features, such as music, others—and these not the least popular—have been open meetings for general discussion of the various community problems. Perhaps chief among these has been 'What to do with the English or Domestic Sparrow?' It has been clearly proved at the Gardens that he is beyond question an enemy to the native birds, and that they cannot thrive side by side. As the Gardens are within the limits of New York City, shooting of the birds is not allowed by law. Sparrow traps have been tried with some success, and killing them by means of poison-soaked grain; but, with all these, getting rid of the Sparrow and minimizing the cats remain the chief problems in the suburban community.

Nesting-boxes have been put freely in the Gardens—a number of them made by the Journeyman's Class of the Junior Branch, which meets once a week in winter.

A course in elementary ornithology has been started in the public school, and special lectures and field excursions provided for the children. Even the very young children have been organized into neighborhood groups.

Giving the birds a newspaper was the idea of one of the trustees of the Gardens Society, and here, as always, the Society had the hearty cooperation of the Sage Foundation Homes Company, the owners and developers of the Gardens. The Homes Company gave ten ornamental iron bulletin boards—



THE BIRDS' POOL AT FOREST HILLS
Designed by Frederick Law Olmsted.

designed by Mr. Grosvenor Atterbury—which are attached to the lamp-posts, and are supplied each week with fresh items of bird-lore.

A constant educational campaign is kept up by means of free circulation of the federal and state pamphlets relating to birds, and the selling at cost of various Audubon matter, and particularly Reed's Bird Guide, an invaluable handbook for the beginner.

The Queensborough Branch of the Public Library is arranging to circulate books on nature subjects selected by the Audubon Society, and the Society hopes, in time, to gather together a reference library of its own.

On the 5th of July, which was Community Day at the Gardens, the bird-fountain in one of the parks, named for Mrs. Russell Sage—Olivia,—was dedicated to the people with appropriate ceremonies. While this is the largest and most elaborate of the bird-fountains, there are many others in the individual gardens—varying from terra-cotta flower-pot saucers, kept filled with fresh water both winter and summer, to a cement basin with running water, designed as a feature of the landscape plan of the garden.

And the results?—it will be asked. The Society is only a year and a half old, and the landscape situation was not a promising one, but the varieties of the birds have sensibly increased, the nesting-boxes are being promptly taken possession of, and the whole community is thoroughly interested in our friends, the birds.

The Englewood Bird Club

By E. A. DANA, Secretary

THE Englewood, New Jersey, Bird Club is too young an organization to have much to report. Unquestionably the most significant thing in its short history is the surprising support it has received in a community where no wide interest in birds was previously known to exist.

The Club had its origin in a delightful illustrated lecture on 'Our Wild Birds and How to Attract Them,' given by Mr. Ernest Harold Baynes before the Englewood Woman's Club, on April 7, 1915, which aroused so much enthusiasm that at its close the Club was hastily organized, with temporary officers.

These officers later invited several bird-lovers to coöperate with them, and on May 7, a general meeting attended by some forty persons was held, a constitution adopted, and the following officers elected: Honorary President, Frank M. Chapman; President, John T. Nichols; Vice-President, Robert S. Lemmon; Secretary, Miss E. A. Dana; Treasurer, John Vanderbilt. With Mr. Chapman as Honorary President, the success of the Club was at once assured, and the names of those desirous of being proposed for membership came in so rapidly that in a few weeks' time the Club numbered over two hundred, with a junior membership of fifty.

The Club meets monthly, but a special May Migration Meeting was held on May 18, with an attendance of nearly one hundred. Mr. Chapman made an inspiring address on 'Englewood as a Bird Sanctuary,' setting the pace for the Club, and urging as a community problem of the first importance the conservation and increase of our local bird-life. To this end he outlined a plan for the Club's work, including the planting of shrubbery for food, shelter and nesting-sites, erection of nesting-boxes, and feeding-stands, building bird-baths, and controlling of English Sparrows, cats, and other bird enemies.

Steps were taken at this meeting to supply three public schools with complete sets of the bird charts of the Massachusetts Audubon Society, and a member of the Club donated a framed set of the Fuertes' plates of land-birds, in Eaton's 'Birds of New York,' to be permanently displayed in the public library.

We were fortunate in having the noted author of these plates as our guest at this meeting, and were entertained by his imitations of birds' songs.

One of the members exhibited a collection of the skins of local Warblers, which those interested were permitted to examine freely.

The last meeting of the Club was held on June 4, with an attendance of about 135. Bird censuses designed to show the bird population of various parts of Englewood were presented by Mrs. Graham Summer, Mrs. Dan Fellowes Platt, Miss Sarah J. Day, Frederic C. Walcott, Frank M. Chapman and Robert T. Lemmon, and illustrated talks on local bird-life were given by Mr. Chapman and Mr. Beecher S. Bowdish, Secretary of the New Jersey Audubon Society.

The Club then adjourned until October 4, when it hopes to open its season's campaign with an exhibit of nesting-boxes, feeding services, Sparrow-traps, etc.

Bird Photography and Suet Stations

By ARTHUR JACOT, Ithaca, N. Y.

With photographs by the author

IT WAS not so many years ago that wild-bird feeding for pleasure or for profit was a thing unknown or unheard of by the masses. Now hundreds or even thousands are attracting birds by grain or suet feeding-stations. One of the reasons for feeding and attracting the birds is to photograph them, and thus add to our knowledge of them, disseminate knowledge of them, or garnish our studios, dens, books, and so forth, with their cheering, buoyant personalities. Whatever may be one's purpose, the more natural and charming the surroundings, the pleasanter is the picture. How then can the appearance of a feeding-station be improved?

Confining ourselves to suet feeding-stations alone, let us note the various methods employed. Those who are confined to the house attach the suet to



RED-BREASTED NUTHATCH

the window-frame, or the porch columns. Photographing at such a place makes a very unnatural background for a wild bird. Although such a picture may be good for illustrating a talk on the adaptability of birds, it makes a poor nature-picture. Often small Christmas trees are used right at the window; the effect is but little better. Where more freedom is possible, trees about the house or in the orchard are used, thus giving a more natural surrounding. Still others have stations out in the woods themselves. The disadvantages of this last method are due, first, to the remoteness, which necessitates more time, less comfort while observing, and but spasmodic observations; and, second, to the environment, as poor lighting for photography—though this can be easily obviated—and depredations by such animals as Crows and squirrels. The advantages, on the other hand, are the natural surroundings, the greater variety of species, and the healthfulness of the

work and tramp outdoors. Of the disadvantages, the only one worth considering is that due to animal depredations.

The method of attaching the suet, however, solves any difficulty that may arise from that source. Most often the chunk is tied on. This works fairly well if a great deal of string is used, and if the string is soft or supple, and yet strong and heavy—a combination difficult to find. Sooner or later, though, a red squirrel will become a little wiser, bite off the string, and carry off the whole chunk. It may be all right to feed a squirrel when food is scarce, but not in such a wholesale way. A newer scheme is to tack up small-meshed wire netting in the shape of a pocket and cram it full of suet. It is from this device that all the fancy suet holders, suet baskets, and the like, have been derived. There is, however, a great objection to this method, it is unattractive to both man and bird. Photographing birds at such an artificial and blatant object makes an unattractive picture at best.



CHICKADEE

Recently a very pleasing and efficient device has been used at some few places. With an inch-and-a-half collapsible auger, a hole is bored for a couple of inches into a dead tree or stump, and into this the suet is jammed flush with the bark. In this way, if there are no projections, no Crow can get a crop full, and no squirrel can run off with the whole piece, every one gets a bit and no one gets none. There is also an economy not found with the other methods. Far better for the photographer—as can be seen from the pictures—the bird is in his natural pose, feels much more at home, and is confined to a smaller area (thus insuring his being in focus), besides, the picture does not suffer from an artistic point of view.

This device can easily be adapted to any environment or limitation. For instance, a suet-hole may be bored into a stub of an orchard tree. If one is desired near the house, the hole can be bored in a section of dead wood or limb, and erected in the yard. If a natural background is wanted at the window, a slab with the bark still on may be fitted to the side of the window-frame, and the hole bored in the slab wherever most convenient. Thus, whatever the situation, one can always procure a natural and attractive bird picture, and do away with the artificial and 'civilized' appearance of a wild-bird picture.



YOUNG LOON AFLOAT ON A LILY PAD
Photographed by S. S. S. Stansell, Manly, Alberta

The Great Destruction of Warblers: An Urgent Appeal

By ALTHEA R. SHERMAN, National, Iowa

THERE seems to be grave danger that one of the most widespread and deadly catastrophes that have overtaken the birds in recent years will pass from the memories of men before sufficient record of it has been made. An urgent appeal is therefore made to every reader of this article having any knowledge of the facts beyond related to report his observations to BIRD-LORE, as a contribution to the history of a disaster the extent of which has not been recognized by those outside the confines of the tragedy. It is safe to say that, had this disaster occurred in New England, New York, or Pennsylvania, the reports of it to the ornithological magazines would have been numerous, and consequently convincing. Happening, as it did, largely in Wisconsin, Iowa, and Minnesota, outside the field of observation of those accustomed to report such matters, this calamity has failed to attract the attention of our leading ornithologists, and any skepticism they may now feel regarding its vastness will be deeper in the future if the readers of BIRD-LORE fail to report their observations of this great catastrophe. Consequently it is hoped that many will respond to this appeal.

Averse as I am to loose and exaggerated statements, I do not hesitate to voice my belief that millions of birds lost their lives in the cold month of May, 1907. The blame for their destruction cannot be placed on men and cats, but must be laid to the weather, and to the instinct of the birds to migrate on schedule time. The spring of 1907 was very backward, vegetation being from three to four weeks behind the growth of the average season, and insect life correspondingly late in its appearance.

'The Auk' for January, 1908, contained two articles that mention this calamity, together with other matter pertaining to the 1907 spring migration. Rev. G. Eifrig speaks of the death of Warblers in the vicinity of Ottawa, Ontario, and Mr. Norman A. Wood writes of their mortality in some parts of Michigan. From these reports we learn that the death zone reached eastward of Ottawa fifty or more miles; and extended southwestward to Saginaw, Michigan. The object of this writing is to gain information that will fix in a general way the boundaries of the territory in which the 'Great Death' occurred, as well as the magnitude of the destruction. While it is known that in the region of the Great Lakes the cold was not severe enough to kill the birds, it is believed that the death zone covered the greater part of Wisconsin, also of Iowa, and all of Minnesota, and it is positively known that the belt was at least one hundred miles wide, having a large list of casualites in the region of Winona, Minnesota.

At my home in northeastern Iowa, the cold was benumbing on May 14, when Warblers in some numbers arrived, nine species in all. Some of them seemed dazed and lost to fear, flying near to me, sometimes nearly or quite

brushing my clothes. They sought food on or close to the ground, with feathers fluffed out nearly straight from their bodies. Chilled and starving, the little creatures seemed unmindful of their course, and soon two dead Nashville Warblers were brought to me by little girls, who had found them hanging to barbs of a wire fence. On later days, other Warblers were found impaled on barbed-wire fences.

Frost and ice were seen on the morning of May 20. The weather continued very cool until the 25th, the afternoon of that day having been rather sultry, and the Warblers present were seen collecting food from the trees. The following morning was still and foggy, and a host of Warblers arrived, representing sixteen species. Early in the forenoon the mercury began to fall, reaching 40° by dusk. Meanwhile some of the birds, seemingly tame, could be taken in the hand, and a dead Wilson's Warbler still warm was picked up. Others were seeking all sorts of shelter for the night, where their dead bodies were found the next morning. Among these places of refuge were wood-piles, hen-coops, barns, sheds, cellars, and even the interior of houses, where, in spite of warmth, they died.

Ice and frozen birds were much in evidence on the morning of May 27. One young man related that in the woods in gooseberry bushes he found dead birds in a sitting posture. On our place, mostly in and about the barn, we picked up fourteen of the victims. The neighbors' cats were out early eating the bodies they found, or a larger number would have been collected; however, thirty-eight dead were gathered from a small area. There were a few small Flycatchers, one Blue-headed Vireo, and the remainder belonged to the Warbler family. Of the last named there were Nashville, Tennessee, Yellow, Black-throated Blue, Magnolia, Chestnut-sided, Connecticut, Mourning, Maryland Yellowthroat, Wilson's Canada, and Redstart. There was one specimen each of Black-throated Blue, and Mourning Warblers, species rare in this region, and of Magnolia Warblers there were eleven, although this species has not been deemed a common one during migration. Of the Grinnell's Water-Thrush several were present, but no dead ones were found, nor did succeeding migrations indicate a very great reduction in this species nor in the Myrtle and Palm Warblers; but, in view of the estimates that are to follow, it should be kept in mind that the Myrtle Warbler is a scarce spring visitor here, though abundant in autumn, and the Grinnell's Water-Thrush is more numerous in the latter season than in the former. Until June 6 there were a few Warblers present each day. It seems now as if there more of them seen then than there have been since, which induces a belief that some of the survivors perished later in the season.

That total annihilation overtook no species has been proved by the appearance of at least one individual of each species since. Eight spring migrations have passed since the slaughter of the innocents. That some species came near to extermination in this region is made clear by notebook records. Prior to

1907, there were spring days when the orchard trees fairly swarmed with Warblers. It certainly cannot be an exaggeration to say that, with ten Warblers to a tree and ten trees in an orchard, a hundred of them would be present in one yard. All of the twenty or more days of the migration period would not be 'Warbler days,' but a thousand records for a season seems to be a fair average, if each Warbler present each day is counted. Evidently this would mean that the same bird sometimes would be counted for several days. Fortunately for the presentation of this subject, my notebooks show pretty clearly what I have seen and recorded in the seasons that have followed the 'Great Death' as we are wont to call it. From 1908 to 1913, the number of Warblers seen each year varied from forty to seventy-five, counting frequently, as before said, the same individual on several successive days. The best of the succeeding years was 1913. I spent from two to four hours daily in the counting of the birds, and a dozen village yards were visited. The number of Warblers recorded in the migration period of twenty days was 264. This was after six seasons for replenishment of numbers, and should be set over against the 2,000 or more that would have been found in the dozen yards previous to 1907. The present year was a poor one for seeing migrants, and the number of Warblers recorded was 52. Or to put the figures in another form, we would have this statement: After the great catastrophe, the number of returning Warblers was but 2 per cent of their former number, and after a period of six years they had increased to 10 per cent.

This testimony, along with these figures, probably will fail to convince the skeptical concerning the enormous loss of bird life in the Upper Mississippi Valley in May, 1907; therefore there is need of a cloud of witnesses, and the urgency is great that others testify regarding the destruction that then befell the Warblers.



The Migration of North American Birds

Compiled by Prof. W. W. Cooke, Chiefly from Data in the Biological Survey

With a Drawing by LOUIS AGASSIZ FUERTES

(See Frontispiece)

TUFTED TITMOUSE

The Titmouse of the genus *Baeolophus* are among the best examples in the United States of strictly non-migratory birds. Many, if not most, of the individuals of the Tufted Titmouse never go ten miles from the site of the nest where they were hatched. A small per cent wander beyond the bounds of the regular range, which extends from Florida, the Gulf Coast and eastern Texas north to New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Iowa, and Nebraska, and these few have been found in southern Connecticut, Long Island, and various other places in New York, even north to Rochester, in southern Michigan and southern Wisconsin. It is not possible to determine how much of this represents actual wandering, as distinguished from the breeding of isolated pairs, somewhat, or even considerably, beyond the normal limits of the species.

BLACK-CRESTED TITMOUSE

The principal home of the Black-crested Titmouse is in eastern Mexico in northern Vera Cruz, Tamaulipas San Luis, Potosi, and Coahuila, but a few individuals breed in the United States in the Lower Rio Grande Valley of Texas. Most of the Texas birds belong to a subspecies, Sennett's Titmouse, which occurs in central Texas from Tom Green and Concho counties east to the Brazos River, and from Young County south to Nueces and Bee counties.

PLAIN TITMOUSE

The individuals of this species have been separated into three subspecies, which together occupy most of the southwestern United States. The Gray Titmouse (*griseus*) has the widest range from eastern New Mexico and the eastern foothills of the Rocky Mountains of Colorado, west to the Sierra Nevada Mountains of California and the desert ranges of the Colorado Valley. The known range of this form has been recently extended by the taking of specimens at Bridge, Idaho, August 13 and 17, 1910, and on the Green River in Wyoming, near the southern boundary of the State, September 19, 1911.

The typical subspecies, the Plain Titmouse (*inornatus*), occupies California west of the Sierra Nevada and from southern Oregon (Ashland) to northern Lower California (San Pedro Martir Mountains).

The Ashy Titmouse (*cineraceus*) is confined to the Cape Region of southern Lower California.

BRIDLED TITMOUSE

The Bridled Titmouse occurs in the highlands of Mexico, south to Guerrero and northern Oaxaca. It ranges north to the mountains of Central Arizona (Prescott and Camp Apache), and in southwestern New Mexico north to Cooney and Silver City. Like the other members of this genus, it is non-migratory.

Notes on the Plumage of North American Birds

THIRTY-FOURTH PAPER

By FRANK M. CHAPMAN

(See Frontispiece)

Tufted Titmouse (*Bæolophus bicolor*. Figs. 1, 2).—Few birds show less variation with age, sex, or season than do our Titmice of this genus as well as of the genus *Penthestes*, which contains the Chickadees. The Tufted Tit in nestling or juvenal plumage closely resembles its parents, but its forehead lacks the black frontlet. It has but little crest, and the gray of the plumage is washed with brownish.

At the postjuvinal, or first fall molt the tail feathers and wing-quills are retained, the rest of the plumage being molted. The new plumage (first winter) then acquired resembles that of the adult, but in some specimens the crest and black frontlet are not so fully developed.

There appears to be no spring molt, and the slight difference between winter and summer plumage is occasioned by wear and fading.

After the breeding season there is the usual complete molt, and if the full crest and black forehead have not already been acquired, they are obtained now.

Black-Crested Titmouse (*Bæolophus atricristatus atricristatus*, Figs. 3, 4). The whitish or rusty forehead and long, black crest at once distinguish this bird from the 'Tufted Tit,' though, aside from the characters mentioned, the birds are surprisingly alike. The sexes usually resemble each other, though the crest is sometimes duller in the female.

In nestling plumage, the forehead as well as crown is gray, somewhat darker than the back or blackish, and the crest is much shorter than in the adult. At the postjuvinal molt this plumage is changed for one like that of the adult, though in some individuals the black crest is not so highly developed.

Until the postnuptial molt the slight changes which occur in the plumage of this species are due to wear and fading.

Semmett's Titmouse (*Bæolophus atricristatus sennetti*) is a nearly related race of the preceding from which it differs, according to Ridgway, in being larger, clearer gray above, in having the crest feathers in the female more often tipped

with gray, while the forehead in both sexes is more often tinged with brown or rusty.

This is the more northern of the two forms; true *atricristatus* ranging from the Rio Grande Valley southward, while *sennetti* inhabits "Central Texas, from Tom Green and Concho Counties, east to the Brazos River, and from Young County south to Nueces and Bee County" (A. O. U.).

Plain Titmouse (*Bæolophus inornatus*, Fig. 5). This well-named species is 'plain' throughout its life. Its small crest is its one adornment. This is worn by both sexes, but is much shorter, indeed almost lacking in juvenal plumage. Aside from this difference, and the greater softness of its plumage, the young bird resembles its parent, and after the postjuvenal molt they are indistinguishable.

If the Plain Titmouse does not vary appreciably with age, sex, or season, it does geographically. A number of races have been described, but only three of them are recognized in the last edition of the A. O. U. 'Check-List,' as follows: (1) *Bæolophus inornatus inornatus*, the Plain Titmouse, inhabits California west of the Sierras. (2) *Bæolophus inornatus griseus*, Gray Titmouse, a grayer form of the arid interior east of the Sierras and west of the Rockies. (3) *Bæolophus inornatus cineraceus*, Ashy Titmouse, a form of the Cape Region of Lower California, which resembles the Gray Titmouse, but is paler below.

Bridled Titmouse (*Bæolophus wollweberi*, Fig. 6).—In juvenal plumage the markings about the head from which this species is named are less distinct; the young birds are therefore comparatively 'unbridled,' the throat is grayish and the crest has developed. These differences disappear at the postjuvenal molt when the young birds usually acquires a plumage like that of the adult, from which thereafter they cannot be distinguished. The female resembles the male.



Notes from Field and Study

Our Ways with the Wild Birds

One snowy day, several years ago, we tied a little cocoa-box, filled with crumbs, to the window-sill, the box resting on its side and the open end serving as an entrance. From this beginning grew the idea of our present lunch-room, a frame house with glass sides, mounted on a shelf, a foot above the window-sill. A small glass dish of chopped nuts is kept on the floor of the house.

Our regular boarders are Chickadees and White-breasted Nuthatches. For many years we had Red-breasted Nuthatches, now they are only occasional visitors, as they are seldom seen in town. They are all perfectly fearless, even eating quietly while the family cat sits watching on the sill, with only the window glass between them. Large numbers of birds feed here every day, from November to May.

Two spruce trees near the kitchen window make a lunch-counter which is even more attractive. This one is used all the year, and a much larger variety of birds come, beginning in early spring, with Robins, Bluebirds, Song Sparrows, and Juncos. Then come two or three weeks of perfect delight when White-throated, and White-crowned Sparrows are constantly feeding there, even singing their thanks before flying to the trees. These Sparrows are back again in August, and last year fed there regularly every day until the twenty-eighth of October.

One season, American Crossbills came for a month. All summer, Robins, Chickadees, Nuthatches, Song and Chipping Sparrows, Juncos, and Hairy and Downy Woodpeckers bring their little ones to this shelf.

Suet and marrow-bones are hung in the trees. An abundance of barberries, crab-apples, honeysuckle berries, and sunflower seeds supplement the fare found on the counters.

The little fountain in the yard is used constantly by all varieties of birds. Wilson's Thrushes are daily visitors, also Catbirds, Cedar Waxwings, Redstarts, Vireos, and Orioles. Scarlet Tanagers, White-winged Crossbills, and Bobolinks come occasionally.

We have solved the questions of how to control our family cat. His days are spent under the south piazza, where he sits contentedly looking out through the netting in front or curls up in a box in a shady corner. After the birds are quiet for the night he is released. The good supper that awaits him at nine o'clock never fails to bring him to the door, where he is captured and safely shut up for the night.

A call of distress from any bird brings a member of the family to its rescue. If the family cat is the offender, he is taken into the house; if a neighbor's cat, he is requested to go home without delay.



A CONTENTED PRISONER

Whenever a nest is discovered, the tree trunk is loosely wound with chicken netting high enough to prevent a cat from jumping over it. But, with all our care, many of our boarders choose to nest in our neighbor's trees, where they are the prey of five marauding cats. We provide, however, several apartment-houses. Bluebirds have occupied one for many years, except when the House Wren drives them away. We have often seen them drop the Bluebirds' eggs from the house door, and take possession; which is more than English Sparrows have ever done!—
 CORNELIA TAYLOR FAIRBANKS, *Saint Johnsbury, Vermont.*

Jonah, The Catbird

I was quietly reading on the porch a few days ago when I became aware of a loud outcry in the bushes near the house, just across the road. At first I paid no attention, but, as the noise continued for two or three minutes, I recognized easily the distress-calls of a pair of adult Catbirds. The calls were loud, sharp, and almost human in tone. They sounded like "Help! Help! Help!"—uttered in the Catbird language.

The appeal was unmistakable. I dropped my book and ran across the road to the clump of bushes just behind the barberry hedge. The Catbirds seemed to be making a great fuss around something on the other side of the hedge, but flew away a short distance at my approach. I stooped down and peered into the hedge, and immediately saw the cause of the trouble. A large milk snake was twined around a twig overhanging a bird's nest, in which I saw one fledgeling and a blue egg. Part of the snake was coiled around the nest.

I grasped the serpent by the middle and pulled it out of the barberry hedge. On shifting my hold to its neck, however, I noticed a large round swelling just behind its jaws. This puzzled me at first. I exerted a slight pressure with my thumb and forefinger on the mysterious lump, and slowly the snake opened its jaws and

disgorged the lump in question, which proved to be a newly-hatched Catbird! Still holding the snake by the neck, I examined its poor victim. What was my surprise to find it still alive! Its head moved and rolled around very feebly on its absurdly slender neck, and, though rather the worse for its adventure, the fledgeling showed signs of surviving. Very carefully I put him back in his nest and christened him Jonah on the spot. As for Jonah's whale, which was the wicked milk snake, he was dealt with according to his crime.

The following day I visited the Catbird family while Mr. and Mrs. Catbird were away, and found Jonah still alive and happy in the nest, with a third fledgeling in the place of the blue egg. No doubt he was relating his marvelous escape from death to the newcomer.—CHARLES J. CLARKE, 'Fernbrook,' *Lenox, Massachusetts.*

A Ruby-Throated Refugee

A Hummingbird was picked up on the streets of Granite City, Ill., on Monday, October 8, 1913, during a cold drizzling rain that had lasted more than a week, preceded by several white frosty nights. It was apparently nearly chilled to death. The person who gave it to me knew that I had one about three years ago. It had flown against a display window and broken its wing, which I set with splints made from a toothpick and fastened them with silk thread, I kept it for nearly three months by feeding it on a mixture of honey and water, alternating with rock-candy dissolved in distilled water.

It died from exposure, the temperature being down to 45 degrees one morning, due to a broken steam-pipe.

When I received the second bird, I held it in my hands a few minutes until it became warm. I tried to feed it some sweetened water; at first it paid no attention to it, then I put a drop of perfume on the cotton wrapped on a toothpick. As soon as I did this, it seemed to notice things, and ate a great deal for so small a bird (it weighed only forty grains). After

eating, it raised its head and looked around the room, then ruffled its feathers and settled down to enjoy the warm atmosphere.

I kept the little fellow for ten days, feeding it about twenty times a day. It was so tame, from the first, that I turned it loose in my office among the flowers, giving it the freedom of two large rooms. When it became hungry, it would let me know by giving a peculiar squeak, the sound being very much like that made by

a mouse, only more shrill. If I did not go to it at once, it would fly to me at my desk, and flutter around my face or light on my hand, and dart its tongue out the same as when feeding among the flowers.

It was so tame that I sent it to the schools, so that the teachers could use it in their nature study work.

It seemed to enjoy having its back stroked, and would sit perfectly still as long as one would stroke the back of its



A PET RUBY-THROAT

head and wings. It was never any trouble to catch it anywhere in the room.

It was admired by all who came to my office, and all seemed surprised that I should be able to catch it so easily.

I had it photographed, because the *Natural History* that I have says that they *never* take food except on the wing, and this one, as well as the first one that I had, would eat while sitting, as dozens of people have seen, as well as the photograph will show; so that will dispel one more fallacy that is generally believed.

I turned him loose one bright warm morning about ten o'clock, and he started south for his winter home, which I trust he reached.—DR. A. E. MACGALLIARD, *Granite City, Ill.*

The Wren's Coming-out Party

This year we had the pleasure of watching the nestling birds come out from our Wren-house. Each year we had planned to be on hand, but some way they were always out and on the ground before we knew of it.

For three summers the Wrens have raised their broods in this little house, which is made of a cigar-box, with a hole of regulation size, and placed on an eight-foot pole. This makes an ideal place, the old birds think—high enough up and with no tree branches near from which a cat could spring. But the little birds consider it a pretty wide world in which to venture forth.

One day we discovered one of the young birds half-way out of the hole, looking all about, first up, and then down at the tiny platform. When the old bird came with a bug, she would push him back, apparently thinking that he was too young yet to try to make his own living. All day long they kept this up, sometimes two of them at the hole, looking every minute as if they were coming down. We were sure that by the next morning they would be out on the ground, and all our watching would have been in vain. But no, here they were peeping out again. The old bird would go in with a bug, and then come out with it and

sit on a tree nearby, giving little chirping calls to them. If they didn't come out, she would take the bug in to them and fly off in search of another.

This day, after she had gone, one of the little birds cautiously stuck out his head, then his whole body, clung by his feet for a second and climbed back in again. All was quiet now for a time, when suddenly out the little bird came, lit on the platform, then, with a mighty courage, fluttered and half flew to a low tree nearby.

We had not more than caught our breath before out popped another head, reconnoitred a little, and flew down as far as the middle of the pole, where he clung frantically for a bit. It was too far to go back, and there was nothing for it but to drop into the cold world below.

Trouble had now begun for the old birds. They flew from one to another feeding and coaxing them into safe places, and every now and then back to the house again with a bug, so we knew there must be more to follow.

After a least half an hour, a little fellow, smaller, if anything, than the other birds, with absurd fluffy feathers sticking out from the sides of his head, half fell and half flew to the ground below. He blundered along through the tall grass, striking a cobweb big enough to block his way, and made for the side of the yard opposite from the others. As far as we could see, he kept on running, but somehow the old bird rounded them all at last into a bush, and such a time as they had clinging to the branches, their little feet straddling about from one twig to another. There they stuck awkwardly while the Sparrows and other birds came to inspect them,—such funny little birds with scarcely any tails to speak of.

No one seemed particularly to welcome the new-comers, and by night they had all disappeared. They were towed around by the tired mother to some other yard probably, forgetting all about our hospitality. The old birds, though, had more than repaid us through the summer with their cheery, busy little songs, and next year we plan to make things a bit more comfortable

for them.—LUCY B. STONE, *Columbus, Ohio*.

A Study in Wren Psychology

I do not remember how the teapot happened to break in such a peculiar way. It was a globular china teapot, about four inches high, and it somehow acquired a hole an inch across in its side. That spoiled it for a teapot, and someone stuck it up on a joist under the eaves of our upper-deck sleeping-porch, to tempt the Wrens.

In a few days, Mr. and Mrs. Wren arrived to inspect the premises. They tested the little hole in the side of the teapot by going in and out about fifty times. At least Mr. Wren did, arguing vociferously all the time. He seemed to think it an ideal house. But Mrs. Wren sat by looking dubious. She must have known it was too small to hold the necessary furnishings of a Wren's home, but she consented to go in once or twice.

After a week or so of discussion, they began bringing sticks. But the sticks were too long and stout, they could not be fitted in, and were generally tossed aside after several attempts. The porch floor became quite strewn with them. Soon the little couple gave up trying to make a nest in the tempting teapot, but all summer long they would visit it from time to time and talk it over. They seemed fascinated by this ideal little house, just too small for a real one.

The next year it was the same thing over again. With the spring, back came the pair of Wrens and tested and discussed the teapot. This season they actually went the length of filling it with sticks and laying two or three eggs in it. Then, one day, we found the sticks and eggs thrown out on the floor, and the Wrens gone. We never knew what caused the trouble, but suspected that the mother Wren had found the quarters too close for sitting and had torn out the nest in anger, or that the eggs had rolled out themselves. But it might have been a Bluejay. At any rate, there was an end of the teapot nest.

We meant to take it away, but neglected to do so.

This spring, to our surprise, the Wrens were back again looking at the teapot. There was not so much noisy discussion and argument as before, but nearly every morning they would come to the porch and take turns going in and out of the little hole. Then Mr. Wren would fly to the neighboring oak tree and sing pæans of praise, while Mrs. Wren hopped about on the rafters.

One day I saw one of the birds coming in with a tiny stick, ever so much smaller than the twigs Wrens usually use for their nests. Then another was brought and another, slender twigs, bits of roots and feathers. Not a piece stouter than a match went in, as we found from examination of the nest afterward. This kept up for several days, amid much singing. Sometimes Mr. Wren would dash up with a feather or straw in his bill, but, before placing it, would fly to the tree and sing his song of triumph, which usually resulted in dropping the feather on the ground. Still we thought it only play, and did not believe that a real nest was being made in the teapot, until one day we found it full of squeaking little birds, clamoring for the bugs their busy parents were bringing them.

Perhaps someone will say that these Wrens who so cleverly adapted their style of building to the small size of the teapot were not the same Wrens who had made the previous unsuccessful attempts. All I can say is that they looked the same and acted the same and, if they were the same, they certainly showed that birds can learn, rather slowly to be sure, by experience.—MARGARET L. SEWALL, *Forest Glen, Md.*

Prothonotary Warbler in Massachusetts

A singing Prothonotary Warbler was seen in Sudbury, Mass., May 13, 1915, by Mrs. F. A. Wheeler, S. R. Slevern, and F. K. Freeborn.

On May 13, 1908, one was seen in the same place by the same people. We have looked every year since for him, and

yesterday were rewarded.—MRS. F. K. FREEBORN, 4 *Prospect St., Ware, Mass.*

Notes on the Dipper in Montana

That interesting and anomalous bird, the Dipper, or Water Ouzel, is a permanent resident in the mountain cañons in this region, spending the summer there, but during the fall and winter it is occasionally seen along the streams in the valleys. One cold morning in the early part of last December, I was interested in watching one gathering its breakfast from the bottom of the mountain stream that flows through one corner of my place. This stream remains partly open all winter. During cold spells (10 to 20 degrees below zero at night) it freezes over along the edges, where the water is still, but remains open in the middle, where the current is swift.

When I caught sight of the bird, it was standing on the edge of the ice, looking down into the water. Presently it plunged into the icy stream and went to the bottom, reappearing on the surface in about a quarter of a minute and regaining the edge of the ice, with a morsel of food in its beak, which it ate, and then resumed its watching position on the brink of the ice. This performance was repeated a number of times, and the bird was always successful in finding food, the nature of which I could not clearly determine, but which appeared to be what fishermen call rock-worms.

The bird was not at all shy, and I was able by moving slowly to approach within twenty-five or thirty feet of it. Occasionally, as it stood on the edge of the ice, it would turn its head to watch me, and I caught the white flash from its nictitating eye membrane; and at intervals it would make a bobbing motion with its body, sandpiper-like.

Finally it finished feeding, and, on regaining the edge of the ice, it shook itself vigorously, fluffed its feathers, and proceeded to preen them.

The morning was bright and still, but cold (temperature about zero), but the bird did not seem to mind either the icy

water or the keen air, and appeared to be as comfortable as though it were a summer morning.—NELSON LUNDWALL, *Bozeman, Montana.*

The Wood Thrush in Village Life

During the years 1888-1894 the writer was interested in the bird life of southeastern Ohio, especially at Marietta and its vicinity in Ohio and West Virginia. Among the unusually large variety of birds found in that section, the Wood Thrush was most attractive, but it was to be found only in the woods at a distance from houses, even farmhouses. It was a great surprise to the writer, on visiting Marietta last spring (1914), after an interval of twenty years since his residence there, to find that the Wood Thrush had taken possession of the well-wooded streets of that beautiful Ohio city at the mouth of the Muskingum. The Thrushes on the streets and on the lawns were more numerous than the Robins and, as the young birds were coming off the nests, they were so tame that one had to be careful not to step on them. The flute-like song of these new village birds was to be heard on every side, and quite transformed the place, from the standpoint of bird-life.

Just how all this has taken place I can only conjecture. The Wood Thrush, as I have known him, has always hitherto been a shy bird. But somehow or other he has learned that man is his friend, and seems in Marietta to have settled down to permanent summer-occupancy of the splendid trees that make out of it a 'Forest City.' It may have been a slow encroachment on the part of Thrushes as they felt their way into the unusual haunts, finding security and protection from their enemies, and it may be a need of more food. At any rate, the phenomenon proves that at least this species of the Thrush family may be brought into close contact with man, to the lasting benefit of both.

It occurs to the writer that what has been brought about by a slow process of nature, in at least one place, can be accomplished by a little forethought and care on

the part of man. The gray squirrel was not made the tamed creature in our city parks by nature. Someone had to bring up squirrels in captivity and teach them that man could be a friend. Gradually the descendants of these tamed squirrels increased until they are almost a nuisance in many places. If this wary quadruped can be thus handled by kindness, there seems to be no reason why the Wood Thrush could not be made a common dweller in all our villages, and even cities, at least the wooded portion of the same. It would be worth while to try the experiment widely over the country, and bring back a wealth of bird song and feathered beauty to grace every park and wooded street in all the land. The Thrush would not come into competition with the domestic (English) Sparrow as to nesting-places or food, and the plan seems altogether practicable.

The Marietta situation makes clear the local instinct of the Thrush, which returns year after year to the old haunts. Though the migration in the autumn months takes the bird far away, he seems to know that he has human friends to whom he is constrained to return.

It may be there is a body of experience along this line of quasi-domesticating the Thrush, and that your magazine will be willing to collect the same and tell us how the thing can be brought about. The writer, now living in a New England borough, proposes to secure and bring up a nest of Wood Thrushes and undertake to make them so tame that they will return in the spring, and gradually fill the streets and parks and private grounds with this lovely singer.—HENRY WOODWARD HULBERT, *Groton, Conn.*

[Although gray squirrels are introduced artificially, they also appear naturally and become semi-domesticated in places where they are protected and where a proper supply of food is assured. Wood Thrushes, if they inhabit the surrounding region, may also be expected to appear in any town when there is sufficient growth to produce an environment such as this

species requires, and when it is given adequate protection. It will find its own food. We do not think that an attempt to introduce this Thrush artificially would meet with success.—ED.]

The Placing of Bluebird Boxes

After fifteen years of experimenting in locating Bluebird nesting-boxes so that squirrels, cats, and English Sparrows will not molest the occupants, the following plan has been adopted, and is so successful that we believe other lovers of birds will be glad to know of it. Select two outside branches of a tree, the larger one about seven feet from the ground and two or three feet above the other branch and extending farther out from the trunk. From it suspend the box by two barbed wires until it hangs in the midst of the foliage of the lower branch, but not where the branches or twigs are large enough to support a squirrel. The hole into the box, however, must be in full view, or the Bluebirds will not select it. Sparrows never build in such a place, and squirrels and cats cannot easily get at it, hence the Bluebirds can live a fairly peaceful life. The boxes should be located early in the spring before the birds arrive.—EMMA L. SHUTTS, *Whitewater, Wis.*

Notes from Bethel, Vermont

The winter of 1914-15 seemed almost birdless here, but this summer, as an offset, many Juncos have lingered in our valley until way into June, and a dead young one was found in our garden today; while another, just like him, was feeding and calling about the yard. In summer, Juncos are usually to be found on our hilltops, but not in the valley.

But the greatest surprise is the presence of White-throated Sparrows here to this date. It is the first time I ever heard them through the warm seasons. They are not on the hilltops, but on rather high lands.—ELIZA F. MILLER, *Bethel, Vermont*, July 27, 1915.

Book News and Reviews

PROPAGATION OF WILD BIRDS. A Manual of Applied Ornithology; Treating of practical methods of propagation of Quails, Grouse, Wild Turkey, Pheasants, Partridges, Pigeons and Doves, and Water-fowl, in America, and of attracting and increasing wild birds in general, including Songbirds. By Herbert K. Job. Economic Ornithologist in Charge of the Department of Applied Ornithology of the National Association of Audubon Societies . . . Illustrated from photographs mostly by the author. Doubleday, Page & Co., 1915, 12 mo. xii + 276 pages.

The title page of this book, quoted above, is in effect a table of contents, and so fully reveals its character that it remains only for us to speak of the manner in which the succeeding pages fulfill the promise of the first one.

We understand that this is the first book of its kind. To write a successful 'first' book on any subject is a difficult task. One must take the lead and break new ground, running, all the time, the risks of the pioneer. But we believe that Mr. Job is exceptionally well qualified to blaze a trail into the subject which he has here treated.

He obviously has an enthusiastic interest in what he is writing about; he has had a practical experience in rearing game birds under a great variety of conditions; he has acquainted himself with the experiments of others in this still new field; he is an exceptionally good photographer, and as a writer has the gift of presenting his information clearly.

BIRD-LORE's readers will be more particularly interested in Part III (pp. 201-265) of this book, which treats of 'Methods with the Smaller Land Birds.' Herein will be found much valuable information in regard to nesting-boxes and how to place them, planting for cover and food, making of bird-baths, and feeding-stands, and at intervals we are reminded that behind this book stands the Department of Applied Ornithology of the National Association of Audubon Societies. So

when the book fails to give the desired information, we have only to write to the Applied Ornithologist for an expert opinion on the needs of our special case.—
F. M. C.

WILD BIRD GUESTS; HOW TO ENTERTAIN THEM: with Chapters on the Destruction of Birds, their Economic and Aesthetic values. Suggestions for Dealing with their Enemies, and on the Organization and Management of Bird Clubs. By Ernest Harold Baynes. With 50 photographic illustrations from photographs. New York., E. P. Dutton & Co. 1915; 12mo. xiv + 326 pages, 50 ills.

Through the medium of illustrated lectures, Mr. Baynes has been so successful in arousing an interest in what may be termed garden ornithology that we heartily welcome their publication in book form. His extended experiences with bird guests now becomes available, not only to those who have heard him present them orally, but to that much larger audience throughout the country who are eager for information concerning the ways and means by which birds may be induced to partake of our hospitality.

Mr. Baynes' book is not only a very readable, but a practical guide to the various methods which by actual trial he has found best adapted to accomplish the end in view. Planting for food, shelter and nesting-sites, feeding-devices, kinds of food, nesting-boxes, birds' baths, and allied subjects, are all here dealt with in an authoritative and helpful manner.

In an admirable chapter entitled 'Some of the Problems which Confront Beginners,' Mr. Baynes writes of various agencies of bird-destruction and the means by which they may be combated.

'Storms,' 'Disease,' 'Natural Enemies,' 'European Sparrows,' 'Cats,' 'Dogs,' 'Forestry,' 'Lighthouses,' 'Market gunning and pluming,' 'Sportsmen,' and 'So-called Sportsmen,' 'Ignorant Foreigners,' 'The Small Boy,' are among the headings

under which this phase of the subject is treated. There is also a section devoted to 'Scientists' which is so much to the point that we cannot refrain from quoting from it.

"As for scientific collectors," Mr. Baynes says, "the writer believes that they should be allowed to go about their work unhampered by petty restrictions . . . The complaint that scientific men do not do their share in the work of wild-life conservation is generally unfair. It is usually the cry of some conservationist who wishes he were scientific, but is not . . . who does not appreciate the fact that the work he is doing is based largely on the work of the scientist." And he adds: "The backbone of this bird-conservation movement is made up chiefly of the scientific members of the American Ornithologists' Union, some of whom founded the original Audubon Society, and who, by patient, unselfish toil through many years, have laid the foundation for the equally important but far more spectacular work being done by others who are oftener in the public eye."

One of the most valuable chapters in Mr. Baynes' book is on 'Bird Clubs, and how to Organize Them.' This is a field which Mr. Baynes has made peculiarly his own, and in which he has won a success that justifies the acceptance of the advice he here offers. The bird club supplies the organization through which the plans herein proposed for increasing both our bird population and our intimacy with it may be carried out. We so thoroughly share Mr. Baynes' faith in the potency of bird clubs that we have asked him and others to contribute to this number of BIRD-LORE some suggestions which may be of service to existing clubs and encourage the formation of others. But to them all our advice is, read 'Wild Bird Guests,' both for its inspiration and information.—F. M. C.

The Ornithological Magazines

THE AUK.—The July issue of 'The Auk' opens with a paper by Mr. J. C.

Phillips on 'Some Birds from Sinai and Palestine.' The account of this desert region is all too brief, although, as in similar portions of the earth, the birds were confined almost wholly to the vicinity of water. A colored plate of Butler's Owl prefaces the paper, the third known specimen of this rare bird having been secured.

It is a far cry from the Dead Sea to the coast of Brazil and to the shores of Alaska, but we may turn to 'The Bird Life of Trinidad Islet,' by Mr. R. C. Murphy, and to the 'Summer Birds of Forrester Island, Alaska,' by Mr. Geo. Willett. On pelagic Trinidad none but 'countless hosts' of sea birds are found, while on coastal Forrester many land birds augment a large sea-bird population, estimated by Mr. Willett at 333,640 breeding individuals. Excellent half-tones accompany both papers, and there is a detailed map of Trinidad. It was on this isolated island that Mr. Murphy obtained a new bird, the Snowy-mantled Petrel. His half-tones show skins of the three supposed species of Petrels found on the island, and several birds in flight.

Notes 'On the Nesting of Certain Texas Birds,' by Mr. G. F. Simmons, records the breeding of some thirty species in Harris County, the character of the country being nicely shown by half-tones. An instructive paper by Dr. C. W. Townsend, 'Notes on the Rock Dove (*Columba domestica*),' points out the fact that in a large majority of the tame Pigeons which we see about our city streets and elsewhere, there has been a reversion in color to the ancestral type. Habits and affinities are also discussed.

Mr. A. H. Wright contributes a fifth and final instalment of his 'Early Records of the Wild Turkey.' It is a great pity the many citations have not been gathered in a bibliography at the end of the paper, instead of being scattered as foot-notes among so many pages. This is, however, no serious reflection on the excellent presentation of a difficult subject. In an article with a half-tone on

'The Fossil Remains of a species of *Hesperornis* found in Montana,' Dr. R. W. Shufeldt proposes the specific name *montana* for a bird of which only the 23rd vertebra has been discovered. Will the 23 prove a hoodoo, or will the half-tone turn the scale?

Our editor has a timely word of warning regarding genera splitting; for it is not the number of genera that a real zoölogist objects to, but the absurdity of placing every species in a separate genus. This is truly "degrading genera until they are perilously near to species."—J. D.

THE CONDOR.—The July number of 'The Condor' contains a brief account of the Pacific coast meeting of the American Ornithologists' Union at the Panama Pacific Exposition, in San Francisco, May 17-20, with a list of the papers presented and two pages of illustrations, showing eight "snap shots of some of the participants."

Four general articles in this number are devoted to notes on the birds of British Columbia, Colorado, Arizona, and Southern California. Anderson's 'Nesting of the Bohemian Waxwing in Northern British Columbia' describes the finding of four nests on islands in Atlin Lake, on July 8, 1914. These nests were built in spruce trees at heights varying from fifteen to twenty-five feet from the ground; one contained two, another four, and each of the others five eggs.

In 'Notes on Some Birds of Spring Canyon, Colorado,' W. L. Burnett gives a list of fifty-five species which have been found on the auto stage road from Fort Collins to Estes Park. The notes are chiefly brief statements of abundance and dates of arrival, and some of the comments containing less than half a dozen words are entirely too condensed.

Gilman's 'Woodpeckers of the Arizona Lowlands,' illustrated by ten half-tone figures, is an interesting description of the habits of the species found along the Gila River between Blackwater and Casa Blanca. It is rather surprising to find in this arid region no less than eight kinds of

Woodpeckers. These species are: The Cactus Woodpecker (*Dryobates s. cactophilus*), the Sierra Sapsucker (*Sphyrapicus v. daggetti*), the Red-naped Sapsucker (*Sphyrapicus v. nuchalis*), Mearns' Woodpecker (*Melanerpes f. aculeatus*), Lewis's Woodpecker (*Asyndesmus lewisi*) the Gila Woodpecker (*Centurus uropygialis*), the Red-shafted Flicker (*Colaptes c. collaris*), and Mearns' Gilded Flicker (*Colaptes c. mearnsi*). The nesting cavities of the Gila Woodpecker furnish homes for the Elf Owl, the Ferruginous Pigmy Owl, and the Ash-throated and Arizona Flycatchers.

Under the title 'Further Notes from the San Bernardino Mountains,' Van Rossem and Pierce give the results of their observations on thirty-five species, selected from a hundred or more which were found in September, 1914 in the vicinity of Big Bear Lake and Bluff Lake. The shorter notes 'From Field and Study,' eight in number, all relate to birds of Southern California.—T. S. P.

Book News

The National Geographic Magazine for August, 1915, contains (pp. 105-158) brief biographies of American game birds by H. W. Henshaw, with 72 colored plates by L. A. Fuertes, the whole forming a valuable addition to the noteworthy series of illustrated articles on American birds which this magazine has published.

An article on 'Nature's Transformation at Panama,' by George Shiras, 3d, completes a number which has an exceptional interest for nature lovers, and which with its circulation of over 300,000 copies is bound to exercise a wide and important influence.

The Year Book of the Hartford, Connecticut, Bird Study Club for 1915, contains an announcement of the program for each of the forty-three meetings or excursions of the Club which have been planned from September 4, 1915, to June 17, 1916. It may be consulted with profit by all conductors of Bird Clubs.

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
Contributing Editor, MABELSGOOD WRIGHT
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Bird-Lore's Motto:

A Bird in the Bush Is Worth Two in the Hand

THE reports from a number of representative Bird Clubs published in this issue of BIRD-LORE indicate, to our mind, that there is not only room, but almost a demand, for organizations of this kind. It seems evident, therefore, that this movement will grow until it possesses a nationwide importance, and one consequently asks how it can best be coördinated to the wide variety of ends in view.

Mr. Baynes' suggestion, on a preceding page, for the formation of an American Federation of Bird Clubs deserves consideration in this connection. That strength lies in union, is axiomatic. Particularly is this true when, fundamentally, the object of one is the aim of all. This prompts the question: What *are* the aims which Bird Clubs have in common? The articles and reports already mentioned supply a wholly satisfactory answer to this query. They tell us that the clubs whose activities they describe try, in various ways, to arouse an interest in the beauty and value of birds, to protect them, to create conditions favorable to their increase, to encourage bird study in the schools and by individuals, to secure the passage of legislative measures designed to protect birds and to defeat those designed to permit their destruction.

In short, these clubs have essentially the same ends in view as those for which the National Association of Audubon Societies is—we will not say struggling, for the Association has long passed the

'struggle' stage and is now firmly on its feet; let us say rather—successfully striving.

Why then cannot the National Association act as the central body to which bird clubs in any part of the country might turn for advice or assistance in solving the various problems which confront them?

We believe it could, and we also believe that it would be most unwise to duplicate the machinery of organization which the Association has working so effectively. The endowment of the Association assures its continued existence. It has permanent headquarters, a competent staff, which could be added to when the requirements of coöperation with bird clubs made such an addition necessary.

If a club wants literature in regard to planting for food and shelter for birds, or on nesting-boxes or feeding devices, why should it attempt to print Bulletins when the National Association can supply them at cost? If it wants suggestions concerning the best way to coöperate with its local schools, where could it get more authoritative information than from an organization which enrolled over 7,000 teachers and 150,000 pupils in the past year? If it wants books or lecturers on certain subjects, the Association can either supply them or tell where they may be found. In brief, the Association is a Central Bureau of Information, which has in its office or on its Board of Directors a corps of experts who can answer or secure an answer to any answerable question in relation to birds; and this service it places freely at the disposal of its members.

By a recent change in the constitution of the Association, a club or other organization is eligible for membership. Instead, therefore, of being called on to contribute to the cost of founding and conducting a new organization, which inevitably would duplicate the work of the National Association, would it not be far more advisable to pay a small membership fee, and in return receive the efficient coöperation of one already established?

The Audubon Societies

SCHOOL DEPARTMENT

Edited by ALICE HALL WALTER

Address all communications relative to the work of this department to the Editor, 67 Oriole Avenue, Providence, R. I.

BIRD CLUBS

The question is sometimes asked, and quite legitimately: "What becomes of a Junior Audubon Society after its first year of existence?" To say that a Junior Audubon Society has only a year's existence, and a school-year's at that, is hardly answering the question fairly.

It is true that Societies of this kind are not permanent, and from the nature of their formation, never can be made so. However, the fact of their organization and existence, brief as this may seem, goes to show that there is a place for them, and not only a place but a real need. *The Junior Audubon idea is of permanent value*, and its perennial growth is a matter for reflection. What does it signify that hundreds of societies are constantly being organized in the name of Audubon among the school-children throughout our country? Hardly less than this, that a gradual awakening to nature is taking place. Each Junior Audubon Society is a mark of progress toward a great ideal, the love and conservation of nature.

The strength of these juvenile societies lies in the great numbers which they reach, and, though their influence may seem merely temporary, a mind once awakened to a great idea can hardly fail to react to it, whenever it may subsequently be presented. The weakness of these societies lies in their lack of permanency, for many children are left without a further opportunity of enjoying the benefits of leadership and organization, just at the time when they have really become interested in bird- and nature-study.

How to overcome this difficulty successfully is a problem which belongs to the State Audubon Societies far more than to the National Association. The latter, having once accomplished its mission of providing the leaven of a love for nature, must leave the task of guarding and increasing this leaven to others. Teachers are far too pressed with regular duties to follow up the membership of a Junior Audubon Society, and to organize those who are sufficiently interested into a permanent club.

State Audubon Societies might well take up the work where teachers are obliged to drop it. Undoubtedly, each Junior Audubon Society would furnish its quota towards a community Bird- or Nature-Study Club, if the right steps were taken at the opportune moment. The following statement of conditions and plans for coöperation, from a correspondent, shows the fine spirit in which work of this kind may be carried out: "I am a woman of sixty-one, more than

half an invalid, living in a suburban neighborhood and near to a grade-school. In this school are fifteen girls, from twelve to fourteen years of age, whom I have known for seven years, and who had a little start in bird-study from a teacher of great ability, who is no longer with us. I would like to organize them into a Junior Audubon class, and also make them an auxiliary to our neighborhood Association. In the field-work I think the teacher I mention would help the girls, as she has a warm interest in them, and is teaching only a mile away. I have a good supply of bird-books, and the city library is available."



MORRISVILLE (MADISON COUNTY, N. Y.) BIRD CLUB
Organized by H. Findlay

The subjoined picture of the Morrisville (N. Y.) Bird Club shows the result of the efforts of an instructor in the New York State School of Agriculture, whose interest in the economic value of birds has led him to appeal to the children of his vicinity to unite in an organized effort to attract and protect birds. Evidently this work was undertaken in a community where a general awakening was needed, as there seems to be no reference to Junior Audubon Societies in the schools of the neighborhood, but its effect is quite as far-reaching.

Still another illustration of ways in which outside workers may reach the schools and render permanent the foundation laid by Junior Audubon Societies—or, where such organizations do not yet exist, open the way for them—is shown by the work of a woman of means, who cordially and earnestly sought to promote an interest in birds in the grade-school of her community by coöpera-

ting with the teachers, not only by giving talks in the school-room, but also by reading the compositions written by the children on birds, and selecting the best three for special mention at the close of the year. That efforts of this kind are appreciated by the children as well as by their teacher is shown in their own words: "My dear Miss M.—: I am sending you the best of the collection of compositions I received. I haven't corrected their mistakes, so please be a little charitable in your judgment. We have very little real composition work in this grade, as you know, the pupils are only eleven or twelve years, and little C— M— whose paper you'll run across is only nine; still, I think they did very well, for it wasn't a prepared subject, and is information they picked up through the interest you have aroused, rather than any they searched for in books just for this occasion.

"They seem quite anxious that you should see the compositions. I know it is asking a good deal of you, but I know you are interested in seeing the fruit of your labors. Thanking you so much for all you have done for my class this year, for I appreciate it deeply, I am etc., A— F—."

"My dear Miss M—: I thank you very much for the little speech you gave our class about 'Birds.' I enjoyed it so much, and will try to do as you told us. I have heard a great deal about birds lately and hope to hear more. I am sure that all the class would enjoy it so much if you would come again and give us another speech. Yours sincerely, B— J—."

Admirable as all of this work is, a step higher is evidenced by a unique organization planned and carried out by five sisters, in a city where available nature is mostly confined to a small park and streets. The following description of this club is written by one of its members, who is attending high school. Only those who are intimately acquainted with the circumstances leading to the formation of the 'Mother Nature Club' can appreciate thoroughly the inspiration and enthusiasm behind it. Rarely does such an instance of *spontaneous love of nature* come from the country. It is doubly suggestive of the innate craving for knowledge of the world about us, coming as it does from the city.

HISTORY OF THE M N. C. (MOTHER NATURE CLUB)

"In September, 1913, I began to take biology in Central High School. One Saturday, Myrtle, Mildred and I were walking in the Asylum yard. We decided that we would like to study the trees and flowers and birds that we were seeing. To do this we formed a 'club' and that day we held our first meeting and decided upon a name for the club. This name is Mother Nature Club. The club has just as many and no more members now as it had on that day, Sept. 27, 1913, and they are all sisters.

"In January, 1914, we had our rules written. There is to be a President, also a Secretary and a Treasurer or Vice-President. Yesterday, in fact, at a business meeting we decided President and Secretary should be the same one.

She has charge of meetings and 'hikes,' etc., and either teaches the lesson or selects someone else to do this. As Secretary, she makes out examinations and marks them, keeps record of dates of meetings and lessons studied.

"In a term we have six regular meetings for lessons, etc., with a review on either the third or fourth meeting. Then we have a seventh meeting for review, examinations and election.

"We finished our third term on the 29th. Myrtle was President the first two terms, I was for the third and have been re-elected for the fourth. No one can be President more than three times in succession. As to the Vice-President, she takes the place of the President when the latter is absent and has charge of one meeting each term. She seldom uses her other title, Treasurer, for the M. N. C. is seldom bothered by money problems.

"Last summer we decided to choose colors to represent the M. N. C. I suggested orange and black after the Baltimore Oriole or else green and white. Margaret, our oldest sister suggested rose and silver, a pretty combination, but it seemed inappropriate to me. However, this combination was selected from the five or six. In our last business meeting, we decided to give up any colors until we can find wholly appropriate ones.

"Each member has a notebook and at each meeting we make a drawing in it. I do the drawing for Florence and Mildred. Myrtle and I do our own, and soon Mildred must. As Margaret works, she seldom comes to meetings.

"Here is a list of members: Margaret, 16; Myrtle, 10; Mildred, 7; Florence, 5 (in August); Mary, 14 (in September).

"At each meeting, we have some recitation or reading and a great deal of visiting. Our purpose is to study 'Nature in general, birds in particular.' This is not a very eventful history but I have told it as clearly as I could."

MARY E. HARRINGTON.

M. N. C. EXAMINATION

TERM III. MEETING 7.

Answer two questions from each group and four other questions.

- I.—1. Show by drawing, of arrangement in flowers or, by the story of the grasshopper that 'Nature knows best.'
 2. Tell all you can about the tumblebug.
 3. Tell about the dandelion burglar, and what you know of it from observation.
 4. Tell about the lace-wing fly.
- II.—1. Tell of the troubles of the house-fly.
 2. Tell about the spiders' bridges, and how they make them. Do they have to be taught to make them?
 3. Tell about 'Luck in Clovers.'
 4. Describe and tell about one bird you know.
- III.—1. What kind of flowers do Hummingbirds like? Name three.
 2. How is *Linaria* protected from insects?
 3. Tell the parts of the flowers and their uses.

4. How are nasturtiums protected from insects?
5. Tell something interesting that you have noticed.

[NOTE: There follows a sample examination paper made out in regular form as approved by the M. N. C.—A. H. W.]

M. N. C. EXAMINATION

TERM III, MEETING 7.

Name.—Myrtle Harrington, age 10 years.

Date.—July 20, 1915.

- I.—2. When the tumblebug lays her egg, she rolls it in the dirt until it becomes a big ball. She and Mr. T. go wherever it is hardest, through weeds, when nearby is a clearing, uphill when they could go down. When they have rolled it enough Mrs. T. buries it.
- I.—3. The Goldfinch is the dandelion burglar. He robs the seeds when the blossom has closed for the seeds to ripen.
- II.—1. The troubles of the house-fly are:
- | | | | | | |
|-------------|---|----------|--------------------|---|----------|
| (a) spiders | } | eat them | (e) birds | } | eat them |
| (b) snakes | | | (f) hornets | | |
| (c) toads | | | (g) flypaper, etc. | | |
| (d) frogs | | | | | |
- II.—3. You can find clover saying their prayers, one leaf bowed over and the other two together, clover in shape of cups, four-leaf, etc.
- III.—4. The pollen of the nasturtium is protected from insects by a sort of hair on the petals.
- III.—2. The butter and egg is protected from insects by its lip. The weight of the bees pull down the lip, but the smaller bugs are not heavy enough to get in this way.
- II.—2. When the spiders are hatched, of course they want to get to some distant place. This is how he gets there. When a breeze is blowing in the right way, he lets loose his web. Soon it catches on something and he pulls it tight. He goes back and forth leaving a web each time until the bridge is strong. They do not have to be taught.
- III.—5. I saw a funny bug (beetle). He was mostly green but the light on him looked orange, blue, red and yellow. I saw lots of them, all on a plant something like milkweed. They were on no other plant.
- II.—4. The Goldfinch is yellow with black wings and cap. It eats seeds of weeds. In winter it becomes greenish in color.
- I.—4. The lace-wing has gauzy wings, golden eyes and is pale green. When they are first hatched, they do good by eating plant-lice.

JUNIOR AUDUBON WORK

For Teachers and Pupils

Exercise XXIII. Correlated Studies: Drawing, Spelling and Clay Modeling

A BIRD'S SKELETON

This is a large subject to discuss briefly. It is a subject that properly belongs to college or university biology. Many men famous in the field of zoölogy and comparative anatomy have devoted much time to studying the bird's skeleton and comparing it with the skeletons of other vertebrates. There are a few points, however, which everyone might well know, and probably would enjoy knowing, about the skeleton of a bird.

Before taking up these points, let us once more state the meaning of the word vertebrate, and with it define biology, zoölogy, and comparative anatomy. In this way we may be sure that we know exactly about what we are talking.

A vertebrate, you may recall, is an animal that has a tubular nerve-cord usually encased in a bony frame-work, called the spine or backbone, because it runs along the back of the animal, never more than two pairs of limbs, and whose heart is always on the front side of its body.

Birds are vertebrates, and not only birds, but also fishes, a great variety of four-footed animals, such as horses, cows, elephants, monkeys, tigers and deer, and the two-legged and two-armed animals, most of which are men. When we study nature in general, we learn all these different creatures by name, and that is quite enough to do at first, though many boys and girls observe a great many other things of interest, all of which we put together and call nature-study.

As we study nature year after year, we grow more and more curious to know what things are, why they grow and thrive where they do, and what the reasons are for their peculiar forms, habits and uses. Biology, which is a study of all living things, or 'a science of life,' as someone has called it, shows us how to find out some of these matters by examining all we see more carefully. Zoölogy is a study of animals taken by themselves, and goes with botany, the study of plants. These two studies taken together, you see, are equivalent to biology. Comparative anatomy is a different kind of study. It is really a method of studying what we may call the machinery of animals and plants by means of taking their different parts one by one and seeing how they are put together and for what purpose. It helps us to discover the true answers to many of the questions in nature-study, biology, zoölogy and botany. Thus the comparative anatomist is able to tell us why birds can fly, why snakes must crawl, why fishes are better fitted to swim than to walk, why plants in general do little else than to grow and store up food, and many more facts of value.

It is the comparative anatomist who helps us see how one group of animals or plants is closely related to or widely different from other groups. By the power of his knowledge of facts, coupled with imagination, this man of science builds what he learns into a wonderful history of life, that far surpasses a story in interest.

Because he sees things correctly and tells the truth as exactly as he can about what he sees, we should be ready to learn all we may from him. Although we are studying simply nature-study now, we can learn one thing from men of science, namely, to see things correctly and to tell the truth as exactly as we can about what we see. With this suggestion, let us turn to the bird's skeleton and try to discover why it is a help and not a hindrance to the bird in flight, and how it is different from the skeletons of other vertebrates.

If a horse could fly, as we sometimes read in myths or fairy-stories that it can, it would have great difficulty in managing its heavy head and long legs and tail, to say nothing of steering its long, thick-set body. A horse is built to run and trot and gallop, but not to fly. If a bird could find all of its food in the air, and could nest and rest in air as most fishes do in water, it would scarcely need legs to walk about or hop on, or to help it swim. Since a bird is above all a highly perfected flying-machine, we may expect to find its skeleton put together most conspicuously to suit the purpose of flight, and, at the same time also, the purposes of swimming and walking or hopping.

The first thing to notice about its skeleton is the *lightness* of the bones of which it is made; the next thing, the way in which these bones are fitted together for *strength*, for *stability* and in some places, for *flexibility*; and lastly, the *thinness* of the bones and general *compactness* of the skeleton as a whole. The bones of a bird are filled with tiny holes, that is, they are porous. This makes them light, and at the same time lets air through them. Some birds have hollow bones, that are filled with air, which adds much to their lightness. It is a curious fact, as you may already know, that certain birds, like the Gulls, for example, which spend so much of their time in flight, do not have hollow bones. The comparative anatomist could help you to understand why this is so.

In order to understand how bones can be light and even hollow, and yet be put together in such a way as to make a strong, rigid, but flexible skeleton, suppose we think of the bird simply as a framework of bones in the shape of a flying-machine. No feathers with bright colors now; no muscles to cover the bones and pull them back and forth into motion; no lungs with big air-sacs to pump in air and expel it to keep the heart beating and the blood circulating, and the muscles working; no brain or spinal cord or nerves to carry messages from one part of the body to the other; we will think now only of the bones and the way in which they are joined together.

In the last exercise, we found that if we drew a straight line to represent the backbone of a bird, we could mark off a short space on it for the neck, another short space for the tail, and then by drawing a circle for the skull and two circles,

or better two tripod-shaped girdles from which the wing-bones and leg-bones could be suspended, we would have a very simple diagram of a bird's skeleton, especially if we added a few curving lines for ribs just back of the front or flight girdle, and a big breastbone. Try making this diagram, again, and then think what the skeleton it pictures must do or be made to do in order that the bird can fly. We have seen that it must be as light as possible, and that it is so by means of air-spaces, and also tiny holes through which air can pass.

At the same time, however, it must be very strong to bear the strain of the rapidly beating heart, which is the pump or motor of this flying-machine, as well as the pull of the muscles and their weight. It must be particularly rigid in the wings or sails, as we may call them, and at the same time very flexible about the powerful lungs or bellows that supply air to the machine to keep the motor going. Perhaps only a comparative anatomist could explain to you clearly how this is accomplished, but, if you will look at the breastbone of a chicken, you will see that it is large in two ways and really equals two sets of bones on account of the thin middle piece that is welded to the broad, flat piece. It can thus carry and bear the strain of large flight muscles. It is a remarkable bone, and the next time you eye the 'white meat' of a chicken at table spend a few moments looking at the bone that holds the meat in place. This large bone, however, must be joined to other bones in order to be of much use, and so we must look at the flight-girdle to which it is joined, and learn how the three bones of which that is made are braced together, and how the rigid wing-bones are attached to it, and how the small rib-bones, with the curious little interlock between each which makes them flexible and still strong, fit on to the backbone.

The leg-girdle too is strongly braced and in places entirely joined together, so that it can bear the weight of the bird when the bird walks or hops or runs. The neck-bones are very flexible, much more so than those of most if not all other vertebrates, and at the same time they are strongly locked together, so that, no matter how fast a bird is flying, it can not only hold its head in position, but also move it about readily and safely.

And lastly, the bones of a bird's skeleton are remarkably thin in places where they can be so, as in the skull, for example, or in the middle piece of the breastbone. The reason, of course, is to make the skeleton or framework of the flying-machine as light as possible, and by reducing every separate bone to the smallest size that will still insure safety and strength, as compact as possible.

All the bones of a bird's skeleton tell us the same story, that is the story of a successful flying-machine, and when we have learned this story completely, we might turn to the breathing-apparatus, the blood or circulatory apparatus, the nerve-apparatus and the reproductive apparatus, and find the same story repeated.

The story of the reasons why the skeleton of a fish or of a horse or of a

man is different from that of a bird is too long to tell here; but, when you see the shape and know the weight of the different bones which make up each, and the ways in which they are put together, you will see much more clearly why fishes are fitted to swim without legs, and horses to run and gallop on four legs, and men to walk erect on two legs. If you will try from now on to see things as they actually are, and to describe them correctly, instead of giving a hasty glance at them and guessing at what you do not take time to see, you will have gone a long way toward learning how to get at the truth quickly and without great difficulty.

Many people think the easiest way to learn to know birds, for instance, is to take a few observations, and then run through a set of colored pictures until one is found that seems to fit any particular bird seen. A far better way, it seems, is to watch a bird as carefully and as long as it stays in sight, to see the shape of its body, the length of its wings and tail, the size and length of its bill, the colors and markings of its feathers, to notice how it flies, where it seems to prefer to feed, whether it is alone or with other birds, what its song is like, and whether it sings on the wing. Feathers alone do not make a bird, however bright or variegated the colors; so, learn to look at other things, and soon you can always recognize a Woodpecker by its flight, shape and actions, a Flycatcher by its bill and peculiar motions, a Vireo by the shape of its head, and so on.

A teacher of biology once said to one of his pupils in college who refused to try to draw the skull of a vertebrate because she didn't know how to draw bones: "Yes, you can draw this skull just as well as anything else if you will look at it until you really see it clearly, but you cannot draw it if you give up after glancing at it after a few times." We can all learn birds or insects or anything in nature if we simply follow this advice, and depend more upon our own eyes and wits and less upon someone or something else. Teachers and books and pictures can help us some, but we must learn to help ourselves, or we shall never know much *thoroughly*. A bird's skeleton is a very excellent thing to study because it makes one think and observe carefully.

QUESTIONS

1. Why cannot birds afford to have teeth?
2. Did birds ever have teeth?
3. What serves birds in place of teeth?
4. What vertebrate uses its tail to help it climb about?
5. What animals have very long tails? very short ones?
6. If a man had a thin membrane attached to his arms in the form of wings, do you think he could fly?
7. What vertebrate has the warmest blood? Why?
8. How far can a bird twist its neck around? a horse? an elephant? how far can you turn your head?
9. Can any birds sit down?
10. Do any birds have flat breastbones? If so, can such birds fly?
11. What birds fly the best? Describe the length and shape of their wings and bodies.
12. Do all birds use their wings in the same way when flying?—A. H. W.

FOR AND FROM ADULT AND YOUNG OBSERVERS

OUR KINGBIRDS

It is now three years since our Kingbirds came to us. There were two of them, dark ashy gray above and white underneath. They came in the bright days of June, and selected an old gnarled apple tree and there built their nest, not on a hidden branch, but well out on a bough, concealed only by a few leaves. It was not long before we found it; yet we were always careful in approaching it, lest we disturb the little dwellers. The nest was loosely put together on the outside, but a cautious peep within showed that it was neatly lined with fine grasses.

Soon five little eggs of pale salmon-color, with spots of purple, brown and orange near the larger end, were laid in the nest. How well that little home was guarded! Often we were called to the door, attracted by the loud cries of some Hawk or Crow, which was being mercilessly pursued and beaten by the male Kingbird. Sometimes children, in a vain endeavor to find a ripened apple, would pass through the orchard and unconsciously come near the tree which held the nest. Then what a circling and fluttering he made above their heads and what loud warning cries he sent to his mate! On occasions like these the erectile feathers on the Kingbird's head parted to form a double crest, disclosing the orange and scarlet base. This fact, coupled with its prowess over other birds, caused us to realize the significance of the name 'Kingbird.'

Finally the little birds were hatched. How well they were fed and with what patience were they taught to fly! First from branch to branch, and then from tree to tree. In September the whole family flew away.

Since that first summer, these birds have continued to make their home in our orchard, nesting in the same place and pursuing the same routine. We gladly await their coming, and, after their departure, we miss their parental flutterings as we stop beneath the tree which holds their home.—BLANCH E. DOUGLAS, *Normal College, Truro, Nova Scotia, Canada.*

[Possibly no group of our passerine birds are more individual in nesting-habits than the Flycatchers, and this fact it is well to remember when one becomes confused in the field trying to distinguish these plainly colored birds. Of all Flycatchers' nests, the Kingbird's is probably the most exposed, due doubtless to the courage and fighting ability of this species. It is very much worth while to write out on a large sheet of paper some of the facts about the members of a family group. Thus, with the Flycatchers, a comparative table of the peculiar nesting-habit of each species in this family, together with a few hints as to preference for woodland, water, lawn or roadside trees, etc., would be a real help in becoming familiar not only with the conspicuous Kingbird and Crested Flycatcher, but also with the smaller and less readily identified species. The simply told story of Kingbirds given above, has the charm of *spontaneous interest* in bird-neighbors.—A. H. W.]

RECORD OF A CHIPPING SPARROW'S NEST

On June 5 of last year I noticed a pair of Chipping Sparrows carrying root-lets and horse hair to a pine tree. I soon located the spot where they were building, and in a few days there was an egg laid. The next day there were three more eggs. In about ten days there were two little Chipping Sparrows hatched, and the next day the other two were hatched. Within two weeks they were out of the nest and had flown away.—JAMES M. ROBBINS, *Haverford, Pennsylvania.*



NEST AND EGGS OF
CHIPPING SPARROW

Photographed by
James M. Robbins

[The nest of a Chipping Sparrow is often difficult to locate, when built in a pine tree, unless one is fortunate, as was this observer, in seeing the building operations. Variation in size is rather a striking thing to observe in connection with the nests of Chipping Sparrows. Remember not all individuals of a species are equally good builders.—A. H. W.]

MY WALK WITH A CHIPPING SPARROW

As I was passing by an ear-leaved magnolia, I heard a flutter of wings in the bush, and whom did I spy but a Chipping Sparrow within a hand's distance of me. I then said, "Now this is my chance to walk with him." After a few minutes of conversation, he flew on the ground to begin his 'insect-hunting' business. The grass in which he was hunting was much taller than he was, and it was so cunning to see him in this condition.

First he would stand up very tall, to see what was on the other side of the tuft of grass; then suddenly he would give a tremendous leap and land on the other side. I was standing very still, but lost my balance somehow or other, and frightened the little fellow across the driveway. And then of course I went too, and found him still at the same work.

After a short time he flew to the flower bed near the porch where ferns were planted, and seemed to have a grand time picking insects off of the plants.

Then suddenly he darted into the air, flying every which way after insects, like a flycatcher. He did this three times, and then another Chippy came along and seemed to disturb my little fellow. Then he flew into a tree and I did not see him again.

I guess I might have seen him another time, but there are so many Chippies around here that he has not been recognized.—SARAH W. WEAVER.

[How many birds not belonging to the Flycatcher family, now and then, or quite regularly, have the Flycatcher habit of hunting their prey? It is something of a surprise in the fall to watch the handsome Cedar Waxwing pursuing insects from some sightly perch with all the skill and abandon of a true Flycatcher. Jot some of these small items

in a notebook under a suitable heading, and at the end of ten years you will have an interesting collection of facts to show for your care in recording what you have seen.—A. H. W.]

BOB-WHITE

Bob-white is a well-known bird in this country. He is called the Partridge. The way he gets his name Bob-white is by his merry note, 'Bob-white, Bob-white.'

The Bob-white is a well-known bird at my home. I have seen many nests full of eggs there, and I watched for the little ones to hatch. They are the dearest little things. They do not stay in the nest like other birds, but are like little chickens.

People kill many of them, but I think it is very cruel. They are of much use to the farmer, getting the worms from his crops. Bob-white is very proud, and wants every one to know his name. He stays the whole year with us. In the summer Bob-whites go in pairs, and in the winter they go in flocks, to keep warm.—ALBERT ADRIAN (aged 11), Fifth Grade, *Herndon, Va.*

[Anyone who has had the pleasure of accidentally flushing a brood of Bob-white chicks knows how charming the tiny sprites are and how rapidly they vanish in the grass! It is difficult to catch even one for an instant, though there may seem to be a half dozen at least around one's very feet and more scattering in all directions. As winter approaches let each bird-lover strive to locate coveys of Bob-white and supply them with food during the coldest weather.—A. H. W.]

THE MAGPIE

When I lived in Wyoming, I learned about the Magpie. It is a small bird with a long tail, it is about a foot and a half long from the head to the end of the tail. It has only two colors, they are white and black.

It lives about the trees at the barn or along a stream. It has the largest nest of any bird I have ever seen, about three feet high.

The nest is shaped like an egg, and it is solid all over, except a place in the center large enough for the bird to get in. The hole where it gets in is on the east or south side, so that the wind can't get in so hard.

[Only a few of our readers probably have had the good fortune to study the American Magpie in its native haunts, and fewer yet, the Yellow-billed Magpie whose range is more restricted. The above description is very welcome, therefore, and especially such notes as the location of the opening of the nest with reference to the wind.—A. H. W.]

THE BALD EAGLE

By T. GILBERT PEARSON

The National Association of Audubon Societies

EDUCATIONAL LEAFLET No. 82

It is a real event to see a Bald Eagle wild in its native haunts. It is so large, so majestic, and flies with an evidence of such enormous strength, that one is impressed with the thought that here indeed is the King of Birds. On one occasion, while eating my lunch in the shade of a little bush on a southern prairie, I saw one carry off a lamb. The noise of some running sheep, not far away, caused me to look up just as the Eagle rose from the ground with its prey. It did not once pause and flutter its wings, as birds-of-prey sometimes do, in order to get a better hold of its burden, for it seemed to have seized the lamb securely when it first made its downward plunge. The bird flew with surprising swiftness and bore the weight of its "kill" without apparent effort. I watched it for half a mile or more until it disappeared in the forest, and not once did it show any indication of weariness. Years later I read an account, written by a bird-student, who watched an Eagle alight on the beach after having carried a lamb weighing more than the bird itself for a distance of five miles across a body of water. It is hard to believe that a bird can be so strong.

Bald Eagles catch many of the larger water-birds, especially wounded Ducks. On the lakes and sounds where much hunting is carried on in winter, many hundreds of crippled wildfowl are left behind when the flocks migrate northward in spring. These fall an easy prey to the Eagles that usually frequent such regions. Once I saw one capture a wing-broken Coot, in Currituck Sound, North Carolina. At the approach of its big enemy the Coot dived, but soon had to come up to breathe, at which the Eagle instantly swooped. Again and again the helpless bird dived and swam under water, but the Eagle was ever on the watch, and in the end they went away through the air together.

That the most expert of diving birds cannot always escape was suggested by my finding a Pied-billed Grebe in a Bald Eagle's nest upon one occasion; but it is just possible that the Grebe had been picked up dead, for Eagles are not averse to eating carrion.

Thus I once found two of them feeding on the carcass of a dead horse in company with a flock of Vultures, and on another occasion discovered four Eagles eating some dead rays which fishermen had left on the beach. The old story that they sometimes carry off children must be dismissed with the statement that it is highly improbable—for one reason, because babies small enough to be carried by an Eagle are not usually left unguarded in situations likely to be visited by these birds.

**Habits of a
Vulture**



BALD EAGLE

Order—RAPTORES
Genus—HALIÆTUS

Family—BUTEONIDE
Species—LEUCOCEPHALUS

National Association of Audubon Societies

I have never known them to attack domestic animals other than lambs, but C. J. Maynard says:

“While encamped on a small island in the Gulf of Mexico, near the mouth of the Suwannee River, I heard one morning a loud squealing among the half-wild hogs, of which there were an abundance in the place. I found that three Eagles were attacking the newly born progeny of an old hog, and she was endeavoring to defend them. The little grunTERS, of which there were several, had taken refuge under the top of a fallen tree, which, however, afforded them only partial protection; thus the Eagles could see them, and, tempted by the dainty titbits, would swoop downward and endeavor to grasp the little black-and-white pigs in their talons, but were constantly repulsed by the anxious mother, who bravely defended her offspring, at the same time giving vent to some of the most ear-splitting squeals that ever a distressed hog uttered. I do not know how the strife would have ended, had I not interfered.”

Bald Eagles probably like fish better than any other food, for they seem always to be more abundant where the supply of fish is large. A dead fish is of course easy to secure, but I have seen them many times fly down and capture living ones. At least three-fourths of these attempts were fruitless, for the Eagle does not seem to possess the same skill in this direction that is enjoyed by its somewhat more agile neighbor, the Osprey. The Eagle is very shrewd, however, and having no inconvenient scruples whatever as to the methods that may be employed in getting food, it does not hesitate in the least to take the Osprey's prey away from it.

One of the most thrilling sights of the wilderness is to witness such an occurrence. An Osprey laden with its fish cannot possibly out-fly a healthy Bald Eagle, although when pursued it certainly does its best to escape. No matter how hard it tries to get away, the result is usually the same. The Eagle gives hot chase, and, soon rising above the Fish Hawk, strikes downward at the smaller bird, which has been rising higher ever since it has discovered that it is being followed. Usually one stroke by the Eagle is enough, but sometimes half a dozen are necessary before the Osprey in despair drops its fish. Instantly the Eagle darts downward with half-closed wings at an enormous speed, and catches the fish in mid-air before the tree-tops are reached.

The Unlucky
Osprey

In mountainous regions or along rocky seacoasts Bald Eagles sometimes build their nests on cliffs, but their eyries are usually found in tall trees. The first nest to which I ever climbed, many years ago, was in a southern forest near a lake-shore. The tree was a large one, and the only possible way to make the ascent was by nailing cleats of wood to the tree as I progressed, keeping myself safe in the meantime by a rope passing around the tree and over one shoulder and under the other arm. The strips of wood were pulled up by a cord from the ground as needed. By actual measurement, the first limb on this giant pine was eighty-one feet from

An Eagle's
Nest

the ground, and the edge of the nest was one hundred and thirty-one feet in the air.

It is one thing to climb to a Bald Eagle's nest, and quite another to look into it when you get there. Above my head was a great accumulation of fragments of limbs and twigs, which made a mass fully five feet across and nearly as high. This great structure was supported by three limbs which represented the main fork of the tree. It was only by tearing away several armfuls of this material, which, however, in no way damaged the usefulness of the nest, that I was able to climb one of the limbs to a position where I could see into the eyrie.



NEST OF A FLORIDA BALD EAGLE

This was almost flat, with a shallow, basin-like depression in the center. Here lay two Eaglets covered with a whitish down. They offered no resistance to my handling, and the only complaint uttered was a low, whistling cry.

The ascent of this tree was made on the twentieth of January, and, as Eagles sit on their eggs for about a month, the presence of the Eaglets showed that the eggs must have been laid some time in December.

The next year I again climbed this huge forest monarch, and, as before, the old Eagles circled around at a sufficient distance to render them safe from gun-fire had I entertained any designs on their lives. This second visit was on January 14, and this time I found the nest to contain young birds, the expanse of whose wings measured three and a half feet from tip to tip. The eggs from which they came must have been laid before Thanksgiving Day. This was in Florida, in many parts of which Bald Eagles are abundant. Farther north, the eggs are deposited later in the year, and in Alaska they are not laid until April.

Usually the nests are placed well back in swamps, or along unfrequented stretches of lake-shore or coast-line. They are ordinarily near water; in fact, all of the twenty or more nests that I have found were so situated that, while brooding the eggs, the old Eagles could look out over some body of water.

If the birds are not killed, the same eyrie is often occupied for a great many years in succession, and is repaired each season by the addition of a new layer

of sticks, twigs, pine-needles, and sometimes of moss. This additional material varies from two to four inches in thickness, and, as the season goes on, there is added to this an accumulation of bones from the fishes, birds, and other animals brought to feed the young. Thus year by year the structure grows, until it sometimes becomes immense. I recall seeing one in eastern North Carolina that must have been over seven feet in thickness from top to bottom.

Many birds receive names of a more or less descriptive character, as, for example, Red-headed Woodpecker, or Crossbill. It is erroneous, however, to regard the Bald Eagle as being a bald-headed bird, for its crown is well covered. When three years old, it passes through a moulting-period which results in the bird's acquiring a white head, neck, and tail. Many Bald Eagles are observed every year that do not possess these white feathers; such birds, of course, are still in their youthful plumage. At a little distance it is often difficult to distinguish the young of this species from a Golden Eagle. The latter bird is rare, however, in eastern United States.

Poorly
Named

In writing of this bird, the great Audubon expressed regret that it should have been selected as the emblem of our country, and refers to the opinion of Benjamin Franklin, who wrote: "For my part, I wish the Bald Eagle had not been chosen as the representative of our country. He is a bird of bad moral character, and does not make his living honestly." After speaking of the Eagle's habit of constantly robbing the Osprey, Franklin continues: "With all this injustice, he is never a good case, but, like those among men who live by sharpening and robbing, he is generally poor. Besides, he is a rank coward, the little Kingbird, not bigger than a Sparrow, attacks him boldly, and drives him from the district."

Despite this unlovable part of the Bald Eagle's character, the fact remains that it is one of the most interesting of our wild birds, and it would indeed be a calamity if its race should be exterminated. In regions where the birds become a source of serious loss to the sheep-raisers, we cannot well blame men for occasionally killing these raiders of the sheepfold. Over vast regions of country, however, the Bald Eagle appears to catch lambs but seldom, if ever, and we should all exert our influence to preserve this fine-looking bird, which is always more majestic on the wing than when lying dead upon the earth.

The Bald Eagle is found from northern Mexico to the Arctic Ocean. Birds of the same genera also inhabit northern Europe and Asia.

The Audubon Societies

EXECUTIVE DEPARTMENT

Edited by T. GILBERT PEARSON, Secretary

Address all correspondence, and send all remittances for dues and contributions, to the National Association of Audubon Societies, 1974 Broadway, New York City.

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Any person, club, school or company in sympathy with the objects of this Association may become a member of it, and all are welcome.

Classes of Membership in the National Association of Audubon Societies for the Protection of Wild Birds and Animals:

\$5 annually pays for a Sustaining Membership
\$100 paid at one time constitutes a Life Membership
\$1,000 constitutes a person a Patron
\$5,000 constitutes a person a Founder
\$25,000 constitutes a person a Benefactor

CATS AND BIRDS

The town of Montclair, New Jersey, has passed an ordinance to prevent vagrant cats from running at large in the community. This appears to be the first ordinance of this character which has been passed in the country, and its operation will be watched with great interest.

Evidence that cats constitute a profound menace to our wild-bird population has been accumulating rapidly, and very naturally bird-protectionists have come to look upon this subject as one that must be seriously dealt with according to the evidence produced. This Association has been slow to take up the fight against the cat; not because we were uninterested, but because it has always been our policy never to launch a campaign until we feel absolutely certain that the project to be advocated is just and necessary. We have watched with interest the efforts made to secure state laws in New York, New Jersey, and Massachusetts, for restricting the numbers of vagrant cats. These attempts have thus far proved unsuccessful, but they have all aroused much discussion of an enlightening character. The Association is not at this time prepared to begin a campaign against cats, but we have undertaken, and shall continue to push, various investigations of

the relation of cats to birds. We want to know the truth; and all readers of BIRD-LORE are invited to forward to this office any evidence they may have bearing on the subject, either for or against cats as destroyers of birds.

The Association has been coöperating with the Massachusetts Agricultural Department, for several months, in careful and energetic studies of this character, Edward H. Forbush having the matter in hand. A brief preliminary report by him published in BIRD-LORE for March-April, 1915, page 165, should be read by every member of this Association.

The New York State Conservation Commission sent instructions, on August 26, of this year, to all the State Game-protectors to gather and submit data on the destructiveness of cats to birds.

Recently, the Long Island Bird Club was organized at Oyster Bay, and the first statement of its objects that was given to the press by its president, Col. Theodore Roosevelt, contained a strong reference to a plank in its platform on the cat problem. I do not know of an active Audubon society, bird club, or sportsman's association that does not look on the cat with misgivings.

Now and then some person, who is at

heart more of a cat-lover than a bird-lover, is shocked when she reads in BIRD-LORE some account of the depredations of cats upon birds, and cries out that we should not say such things about cats. One such person recently wrote to us a strong protest against our "cruelty to cats." She stated that she would like to give support to the Audubon Society, but felt that she must give her aid to another well-known institution whose avowed object is to prevent cruelty to dumb animals. Possibly she may wonder whether she has improved her connections when some day she chances to examine the annual report of the Society for the Prevention of Cruelty to Animals, and finds that, during the past year, this Society put to death 174,925 cats in New York City alone!

Another kind-hearted and undoubtedly most excellent person has just expressed regret that we should do so inhumane an act as to publish a picture of five dead cats killed on the New York State Game Farm; but it is noticeable that she indicates no regret over the fact that these five cats had killed and eaten \$5,000 worth of young Pheasants which the state was attempting to raise!

The trouble is that such people lose sight of the fact that this Association was incorporated for the protection of *wild* birds and *wild* animals, and in carrying out the objects of our organization it seems as necessary to call attention to the destructiveness of cats as it is to protest against killing of birds by other unnecessary means, as for example by the plume-hunters and the big slaughterers of game.

Montclair Cat Ordinance

An Ordinance to Prevent Vagrant or Unidentified Cats from running at large in the Streets or Public Places of the Town of Montclair, in the County of Essex [New Jersey], and for the Impounding, Sale or Destruction of such cats.

BE IT ORDAINED by the Town Council of the Town of Montclair in the County of Essex, as Follows:

Section 1. No person being the owner or harboring a cat shall permit it to run at large in any of the streets or public places of the Town of Montclair, in the County of Essex, at any time, unless identified as hereinafter provided.

Section 2. Any cat shall be deemed to be a vagrant or unidentified cat unless it wears a collar or tag bearing either the owner's name and address, or a registered identification number.

Section 3. Numbered identification tags will be furnished by the Town Clerk at cost.

Section 4. Any vagrant or unidentified cat running at large in any of the streets or public places of the Town of Montclair, in the County of Essex, shall be taken and impounded by any dog-catcher of said town (or other duly authorized officer), and shall be destroyed or sold at any time not less than forty-eight hours after it has been impounded, unless the owner shall, before its destruction or sale, satisfy the Town Clerk of his or her ownership, and shall redeem the same by the payment to the Town Clerk for the use of said town of the sum of One dollar; provided, however, that such redemption and payment shall not release and discharge the owner from the penalty hereinafter provided for.

Section 5. Any cat wearing a collar or tag bearing either the owner's name and address or a registered identification number, that may be captured by the dog-catcher or other officer of the town in the discharge of his duty, shall be released or returned to the owner. The compensation of the dog-catcher shall be the sum of one dollar for each cat lawfully seized and impounded in the performance of his or their duty.

Section 6. Any person violating the provisions of this ordinance shall, upon conviction, pay a fine of not more than five dollars for each and every offense.

Adopted July 6th, 1915.

EDWIN MORTIMER HARRISON,

Mayor.

Attest: HARRY TRIPPETT,

Town Clerk.

MOTION-PICTURES FOR THE NATIONAL ASSOCIATION

In order to obtain motion-pictures to illustrate some of the work of the National Association of Audubon Societies in protecting colonies of water-birds, it was arranged that Mr. Herbert K. Job should make an expedition for the purpose. This trip occupied two months in the spring of 1915, and resulted in securing about

Owing to the unusual backwardness of the season, few of the birds had arrived at their nesting-ground, but they were reported later in good numbers.

"The main work in Florida consisted of a cruise down the west coast, starting from Tampa. On this cruise we visited the following Federal bird-reservations,



COLONEL THEODORE ROOSEVELT EXAMINING NESTS OF BLACK SKIMMERS
ON BATTLEDORE ISLAND, LA.

14,000 feet of film and over three hundred photographs. May was spent in Florida and June in Louisiana. The start was made from New York, April 29, and the return was on June 29. A brief summary of Mr. Job's report is here given.

"My companion and assistant for the Florida trip was Dr. H. R. Mills, of Tampa, who generously gave his services during his vacation, and the use of his gasoline boat, saving the Association a heavy expense. The first locality visited was the Egret rookery at Orange Lake, owned by the National Association.

which have been established through the efforts of the National Association of Audubon Societies: Passage Key (Hérons); Indian or Bird Key, near St. Petersburg (Pelicans, Cormorants, Herons, Man-o'-war Birds); Charlotte Harbor (White Ibises, Louisiana Herons, etc.); Alligator Bay (American Egret rookery). We also traced out an unknown rookery of the White Ibis, far up a lonely river, where there were about 1,500 occupied nests, and about *ten thousand* others deserted. It had recently been shot out—a cruel tragedy!



SOOTY TERNS, NODDY TERNS, AND MAN-O-WAR BIRDS ON THE RESERVATION AT DRY TORTUGAS

"Cruising down to Cape Sable, we traversed Florida Bay to Key West, chartered a larger craft, and crossed the turbulent waters, seventy miles, to Bird Key, Dry Tortugas. On this Government reservation the colony of Sooty and Noddy Terns, and of non-breeding Man-o'-war Birds, has increased remarkably since my visit in 1903, and the wonderful sight of possibly 75,000 birds on eight acres is now recorded on the spectacular film there taken.

"Leaving Florida, several days were next spent at Avery Island, Louisiana, where I was most kindly entertained by Mr. E. A. McIlhenny, whose astounding colony, artificially built up, of 40,000 Snowy Egrets, Herons and other water-birds, attracted to his overflowed garden, might well be considered 'the eighth wonder of the world.' Here one may practice "photography de luxe" from Mr. McIlhenny's draped house-boat or floating blind.

"The record week of June was devoted to the cruise over the Breton Island and Audubon reservations with Ex-President Roosevelt, whom I joined as the representative of the National Association. Colonel Roosevelt was shown various bird-

colonies, among them one of Royal Terns and Cabot's Terns, Skimmers, and Laughing Gulls, variously estimated at from 50,000 to 100,000 birds. I have never had a more interested and charming companion, or known a truer friend of wild birds than he. It was he who, at the request of the Audubon Society, set apart the Breton Island Reservation, and the films show the 'father' among his 'feathered children.'

"After this, I was honored by becoming the guest of the Conservation Commission of Louisiana, and was taken on one of the state's boats on a cruise west to Last Island, Louisiana. Various breeding colonies were visited, notably an enormous one of Brown Pelicans, containing also many Laughing Gulls and Skimmers. As late as June 21-23, the Pelicans had only eggs, many of them fresh; while on the east coast of Florida the Pelicans begin laying in November, and by April many of the young have flown.

"Throughout the trip the temperature was almost constantly in the nineties and hundreds by day, and the eighties by night; and it was probably owing to the charm of the abundant life of the world of birds that our health suffered no bad effect."



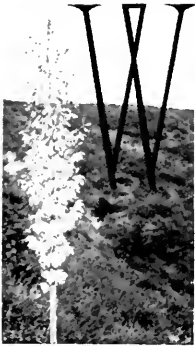
CORMORANTS IN CHARLOTTE HARBOR, FLORIDA

With the Field-Agents

THE CONDOR AS A PET

By WILLIAM L. and IRENE FINLEY

Photographs by H. T. Bohlman and the author.



YUCCA

The Condor belongs to the Vulture family, and to most persons a Vulture would not make an appeal as a pet. To many who visit the park the Condor may

seem like an ordinary Turkey Buzzard, although it is about twice the latter's size. The white lining under its wings and its size readily distinguish it from an ordinary Buzzard.

“**W**HY should one not like a Condor?” I thought, as we stroked the head of the big bird, and he nibbled my fingers. We had been given the special privilege of entering the cage at the New York Zoological Park where the California Condor lived.

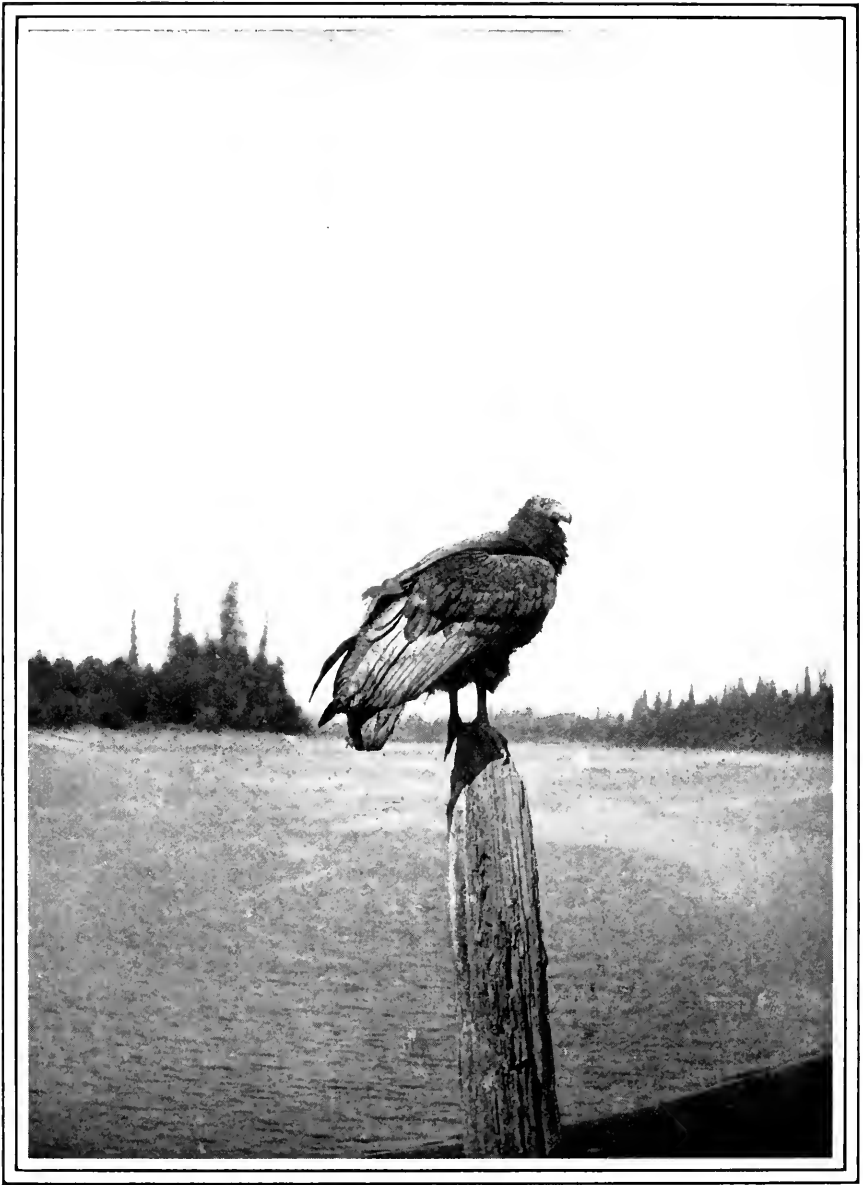
The California Condor is as large as the Condor of the Andes, and when full-grown will measure nine to eleven feet from tip to tip of the wings when they are spread. It differs from its South American brother in dress. Its head and neck are bare, and brilliantly colored in orange and red. Its coat is plain brown or blackish. It will weigh from twenty to twenty-five pounds. The Condor never attacks living creatures; it always plays a waiting game. It never carries food in its talons, because its foot is not made like the Eagle's for gripping and carrying prey. No bird is

seem like an ordinary Turkey Buzzard, although it is about twice the latter's size. The white lining under its wings and its size readily distinguish it from an ordinary Buzzard.

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CHICK OF CALIFORNIA CONDOR IN THE DOWNY STAGE IN ITS HOME CAVE



GENERAL, ON HIS PERCH BY THE RIVER

gentler in disposition or more affectionate in his home life. The range of the California Condor is more restricted than that of any other bird of prey. The few left in the wild state live almost entirely in the coastal mountains of southern California and a part of Lower California. Unless careful protection is given the few Condors remaining in the wild mountainous regions, this largest of flying birds will soon cease forever to be a part of the natural history of California.

If you were to start on a hunt for the

retreats of panthers, grizzlies, and coyotes. These preyed upon the calves and sheep, and did considerable damage. The quickest and best device for getting rid of these animals was by baiting carcasses with poison. The Condors came to feed on the poisoned animals, and large numbers of the big birds were undoubtedly killed in this way.

We knew "General" before he took up his residence in the park, where he has been living since October, 1906. He first saw the light of day on March 22, 1906,



EGG OF THE CONDOR IN THE NEST IN THE CAVE

California Condor, you might search for years, as we did, without success. In the whole world's collections, less than a dozen of these birds are to be seen alive. In the various museums of the world one can find almost twice as many eggs of the Great Auk, a bird now extinct, as of this Condor. The main cause which has been given for the decrease in Condors seems to be that when stock-raising became common in California years ago, the rangers were compelled, in order to secure pasture during the dry months, to drive their herds back into the more remote mountainous parts. Here they invaded the

in a cave back in the mountains of southern California. During April, May, and June, we made several pilgrimages over the rough mountain trails to his rocky shrine. On July 5, when this young Condor was about three months and a half old, he was taken from his home cave to Oregon, where we kept him for two months and a half, and thus had a good chance to study his character.

A young Condor is the incarnation of ugliness to most persons, and is known only as a degenerate and a carrion-eater. But there is more than this in the Condor nature. He readily adapts himself to



MY YOUNG CONDOR WHEN SIX MONTHS OLD

better conditions, and rises above the position that nature has forced him to occupy. General had a strong instinct

for cleanliness; he wanted fresh meat and running water. He had been fed on clean, fresh meat since he was taken from the



THE YOUNG CONDOR AND ONE OF ITS PARENTS AT THEIR HOME ON THE MOUNTAIN

nest, and soon he would take nothing else. Several times we tried him on stale meat, but he never took it unless compelled by hunger. If a piece of meat dropped on the ground or was the least bit dirty, he refused it. Several times we tried him on wild game, such as squirrels and rabbits, but he would not touch it if he could get fresh beef.

General was as playful as a puppy. In the morning, after we gave him his breakfast, he wanted to romp. Down he jumped and pounced upon a stick or leaf, shook it in his bill, dropped it just to jump upon it with both feet and toss it up again. He became hilarious the minute I went out in the morning—seemed hardly able to control himself. He was extremely fond



GENERAL LIKED TO BE PETTED

Fresh, running water was a luxury to the young Condor. He pattered along in the creek for an hour at a time. He liked to play about the hydraulic ram. When he decided to bathe, he got under the spouting water and wallowed in the pool. He never seemed to feel thoroughly washed, for when he was soaked through, he would step out for a moment and then suddenly decide to go in again. He kept this up until he could hardly walk, or until we drove him out of the water.

of pulling on a rope, and we often played with him in this way.

We set up a perch for General out on the river-bank just beyond our camp, and there he loved to sit in the sunshine. He seemed to enjoy watching the Turkey Buzzards that almost daily sailed overhead and the Crows that flapped past. The birds that flew above him were always intensely interested in him. The Buzzards sailed around and around, turning their heads to watch, but never seemed to

understand why he stayed there. The Crows, always greatly alarmed, often perched in the willows and alders nearby, to caw in curiosity while he sat, as if in reverie, watching every move they made.

He was always shy when visitors were about. Ordinarily he played about the yard, paying no attention to our presence, but the minute he saw a stranger coming he made all haste to climb to one of his perches out of reach.

The camera was a bore to General.

He soon learned to follow us about and came when called. If we walked over to the apple tree and patted it, he climbed into it immediately. His instinct to climb was strong. The minute we set a ladder against a tree, up he would hop. He liked to climb to the top of a stump and fly off. One of these stumps was ten feet high. When he was just learning the use of his wings, he seemed to enjoy the sensation. He flew to the ground only to climb up and try the experiment again. Some-



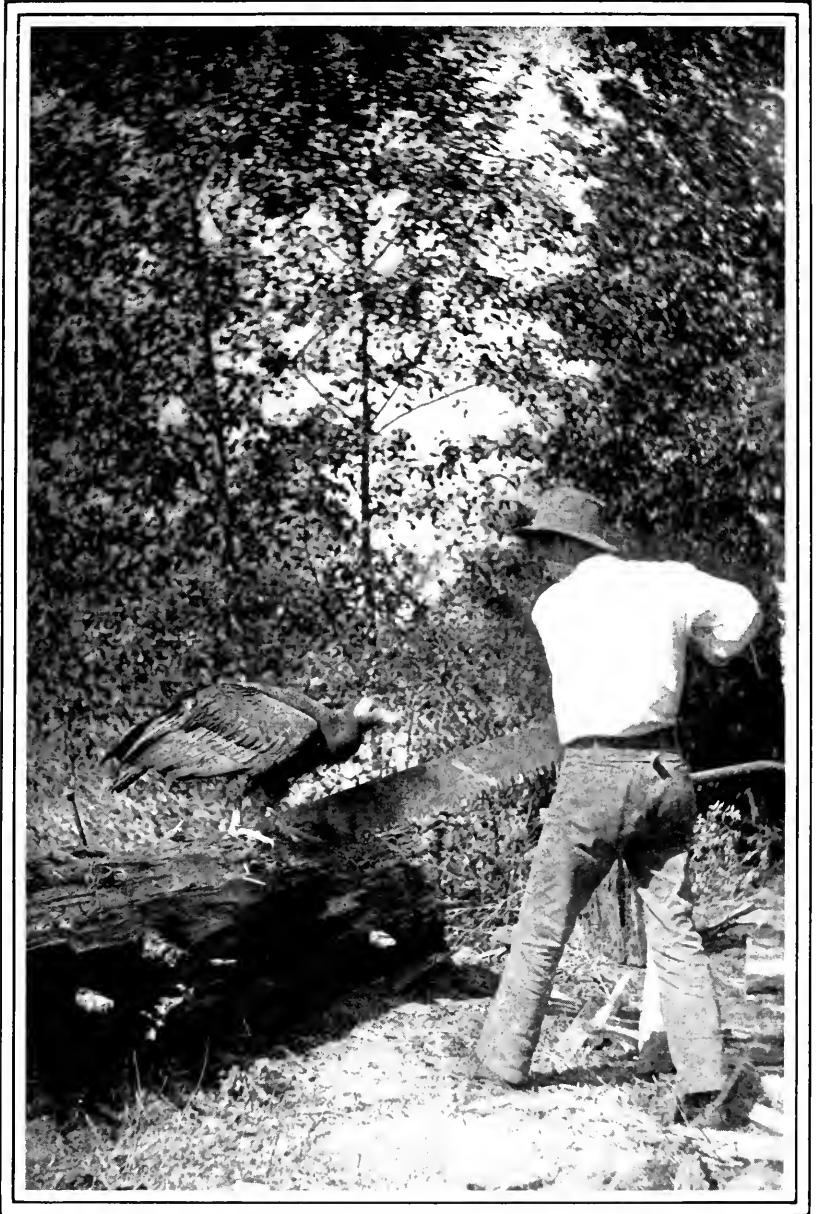
A CHARACTERISTIC ATTITUDE OF THE CONDOR ON HIS FAVORITE PERCH

Usually I could walk up to him anywhere about the yard, but when I approached to take a picture, he began to edge away as far as possible. Perhaps he remembered the instrument from his early days, when he was taken out of his nest, and when he hissed in defiance at being set up before the camera. He was in a savage state then and fought like a demon.

But there is nothing treacherous or savage in the Condor nature. General undoubtedly felt a strong love for society. He liked to be petted and amused. He preferred to be near us rather than alone. His intelligence was surprising at times.

times he flapped his wings with such energy that he lifted himself into the air, but this was only practice, for he was still timid about trusting his wings.

The old Condors had shown great love for each other and for their single nestling. The young Condor lost his wildness when taken from his native haunt, and soon became gentle and fond of those who cared for him. He loved to be petted and fondled. He liked to nibble at my hand, run his nose up my sleeve, and bite the buttons on my coat, and he was gentler than any pet cat or dog. Behind his rough exterior he was very gentle.



GENERAL, HELPING WITH THE CAMP-WORK

THE CANVAS-BACK BREEDING IN CAPTIVITY

As far as we are aware, the first case on record of the Canvas-back breeding in captivity occurred during the past summer, on the estate of William Rockefeller at Tarrytown, New York. Mr. Arthur M. Barnes, who was in charge of Mr. Rockefeller's game-breeding, has forwarded the following account, and also the two accompanying photographs, which he made.

"The drake was observed guarding a part of the shore of a lake not far from one of the main drives, and, upon investigation, a remarkable nest was discovered two feet from the shore under a heavily foliated weeping willow, and amidst a tangle of bittersweet. The structure was made from the long pliable twigs of the willow and was about two feet broad at the base, with a very perfect feather-lined bowl of a nest six inches above the ground.

"There were six eggs, and the female

had begun to incubate. She was not disturbed until we judged she had sat on the eggs about three weeks. Photographs were taken of the Duck and nest and then her eggs were removed and placed under a hen, and other eggs given the Canvas-back to incubate.

"Three promising ducklings were hatched, two of the eggs being infertile. Some difficulty was experienced at first in getting the ducklings to feed, but, as they drank readily, feed was placed in their water-fountain and they soon learned to eat; and now at the age of one month no one would suppose their appetites had ever been weak. The unusual wildness they showed at first is being gradually overcome.

"The parents of these ducklings when half grown, were brought to Mr. Rockefeller by H. K. Job, who had hatched and reared them to that stage while on his



CANVAS-BACK ON HER NEST, TARRYTOWN, NEW YORK



YOUNG CANVAS-BACKED DUCKS CARED FOR BY A HEN

expedition to Lake Winnepagoosis, Manitoba, during the summer of 1913, so that they are a part of an experiment to determine whether hand-reared Canvas-back Ducks would breed in captivity.

The stoned-up shore of this lake was not considered very favorable, nor the fact that there are some two hundred Ducks and Geese of twenty-five different varieties also on the lake."

NEW MEMBERS AND CONTRIBUTORS

Enrolled from May 1 to September 1, 1915

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Anonymous

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 Butterworth, Frank S., Jr.
 Depew, Chauncey M., Jr.
 Ellsworth, James W.
 Hitch, Mrs. Frederic Delano
 Hoff, Mrs. Grace Whitney
 Sibley, Hiram W.
 Tyson, Mrs. George

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Andrews, J. Sherlock
 Andrews, W. H.
 Audubon Bird Club of Minneapolis.
 Augustus, A. A.
 Bailey, Theodore L.
 Baldwin, James

Sustaining Members, continued:

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 Benjamin, Miss Margaret
 Benninghofen, Miss Carrie
 Bergen, George J.
 Birch, G. Howard
 Bird Club of Michigan City.
 Boyd, Miss Frances S.
 Bronk, Mrs. Henry
 Brown, Samuel B.
 Butler, Mrs. Arthur W.
 Carlisle, Mrs. W. A.
 Child, Josiah H.
 Clark, Mrs. Grenville
 Clement, Maynard N.
 Colfax, Schuyler E.
 Collings, Miss Clarinda B.
 Colman, H. B.
 Connor, Rowland M.

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 Cooper, Mrs. Wm. S.
 Crary, C. J.
 Crow, Prof. J. W.
 Cruikshank, Warren
 Dake, Mrs. Wm. Ward
 Dann, William M.
 Davenport, Charles B., Jr.
 Davis, Mrs. Helen G.
 Decker, Robert G.
 DeForest, Mrs. Lee
 Deyo, Mrs. C. Knight
 Dresser, Mrs. H. W.
 Earle, Osborne
 Eddy, F. R.
 Elliott, Dr. W. St. G., Jr.
 Englewood Bird Club
 Estes, Webster C.
 Farrell, James C.
 Farrell, Mrs. Margaret B.
 Ford, A. E.
 Franklin Audubon Society
 Gallup, William A.
 Gould, Charles A.
 Hamler, Roy
 Haskell, J. Amory
 Hendee, George M.
 Hitchcock, Wm. J.
 Horton, C. H.
 Hoyt, Mrs. William
 Hun, Mrs. L. M. H.
 Hutchinson, J. B.
 Johnson, Mrs. Cora E.
 Johnson, Miss Mary A.
 Kelley, Arthur F.
 Kennedy, Miss Louise
 Kyle, Alfred J.
 Lake Placid Club
 Lang, Henry
 Lansing, Mrs. G. Y.
 Livingston, John G.
 Luther, Mrs. N. R.
 Lyon, Mrs. J. A.
 Marshall, F. C.
 Monck, Miss Charlotte A.
 Mortimer, Miss Mignonette S.
 Nelson, E. W.
 Orrman, H. L.
 Pearce, Mrs. R. B.
 Pirie, Miss Isobel
 Pomeroy, Robert W.
 Pope, Harriet B.
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 Reed, Chester A.
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 Sarmiento, Mrs. F. J.
 Seeley, Mrs. C. B.
 Sheppard, William B.
 Staley, Miss Ethel M.
 Stambaugh, H. H.

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 Stewart, Mrs. Philip G.
 Strong, Mrs. H. A.
 Thorp, Mrs. J. G.
 Vail, Carl M.
 Van Alstyne, L.
 Van Antwerp, Miss Gertrude A.
 Voigt, Frederick
 Walton, Frank S.
 Warner, Mrs.
 Wendell, H. F.
 Wheat, Mrs. Corydon
 Wing, DeWitt C.
 Winthrop, Beekman
 Woodcock, Margaret
 Wynne, Mrs. Thomas A.

New Contributors:

Babcock, Herbert N.
 Bishop, Dr. Louis B.
 Fuller, Mrs. A. W.
 Goss, Miss Ida L. B.
 Harris, A. H., 2nd
 Hayes, Edmund
 Howe, E. C.
 Iell, Mrs. James M.
 Perkins, J. H.
 Reed, Mrs. George M.
 Remark, Mrs. Gustavus, Jr.
 Shaw, Mary M.
 Wilkeson, Mary J.
 Williams, Mrs. J. F.

Egret Protection Fund.

Previously acknowledged	\$2,431 07
Agar, Mrs. John G.	5 00
Albright, J. J.	5 00
Anconnu, W. F.	1 00
Auchincloss, Mrs. H. D.	5 00
Baldwin, Mrs. John D.	1 00
Ballantine, Mrs. Robert F.	5 00
Berlin, Mrs. D. B.	1 00
Berlin, Miss Geraldine F.	1 00
Biddle, Elizabeth, Caroline and Clement M.	5 00
Boardman, Miss R. C.	5 00
Bradley, A. C.	2 00
Brewster, Mrs. Benjamin	10 00
Burnham, William	10 00
Carroll, Elbert H.	10 00
Clementson, Mrs. Sidney	10 00
Cochran, J. D.	5 00
Colon, Geo. E.	4 00
Colton, Miss Caroline W.	2 00
Curtis, Clara K.	2 00
Cushing, Miss Margaret W.	1 00
Davidson, Gaylord	5 00
Davis, Dr. Gwilym G.	5 00
DeForest, Mrs. Robert W.	5 00
de la Rive, Miss Rachel	5 00
Emerson, Mrs. Sarah H.	1 00

Amount carried forward. \$2,442 07

Egret Protection Fund, continued:

Amount brought forward	\$2,442 07
Ettorre, Mrs. F. F.	1 00
Ewers, William V.	5 00
Fitz-Simon, Mrs. William	5 00
Foster, Mrs. Cora D.	1 00
Gilman, Miss C. & Friends	4 00
Hessenbruck, Mrs. H.	5 00
Higbee, Harry G.	1 00
Horton, Miss F. E.	2 00
James, Mrs. D. Willis	25 00
Jewett, George L.	5 00
Johnston, Mr. John White	10 00
Jones, Mrs. Cadwalader	5 00
Junior Audubon Society (Wimbledon, N. D.)	1 00
Kleinschmidt, Miss Helen	1 00
Kneath, Watkin	2 00
Kuser, Mrs. A. R.	10 00
Lang, Henry	5 00
Levy, Ephraim B.	2 00
Luttgen, Walther	5 00
Miller, E. L.	2 00
Moore, Henry D.	100 00
Moore, Robert Thomas	50 00

Amount carried forward \$2,789 07

Egret Protection Fund, continued:

Amount brought forward	\$2,789 07
Morgan, Miss F. T.	5 00
Mosley, Mrs. A. Henry	5 00
Motley, James M.	5 00
Olmsted, F. L., Jr.	1 00
Osborn, Carl H.	5 00
Peoples, W. T.	2 00
Phillips, Mrs. John C.	25 00
Puffer, L. W.	1 00
Putnam, George P.	3 00
Redmond, Miss Emily	10 00
Richard, Miss Elvine	15 00
Roesler, Mrs. Edward	2 00
Shepard, C. Sidney	10 00
Small, Miss Cora	2 00
Spong, Mrs. J. J. R.	35 00
Thorne, Samuel	20 00
Upham, Miss E. Annie	1 00
Vaillant, Miss Maria J.	3 00
Vanderpoel, A. E.	25 00
Watrous, Mrs. Elizabeth	1 00
Watson, Mrs. R. C.	10 00
Woman's Study Club	3 00
Young, Miss Emily W.	3 00

Total \$2,981 07

GENERAL NOTES

Elizabeth V. Brown

Miss Elizabeth V. Brown, of Washington, D. C., died at the home of her mother in that city on July 22, 1915. For many years she had been a prominent clubwoman, author, and educator. She was an active worker in the District of Columbia Audubon Society, and her attractive personality united with her unusual ability to impart knowledge and inspiration, made her one of the most valued Audubon workers in the country. Her loss is keenly felt among her host of friends in Washington and elsewhere.

Effect of the Hurricane

A severe hurricane swept northward across the Caribbean Sea and the Gulf of Mexico in August, doing much damage to shipping and towns along our Gulf Coast. That many tropical sea-birds were driven before it, is indicated by the report recently received from Warden Sprinkle, of Pass Christian, Mississippi, that a Noddy Tern came into his possession

there. E. A. McIlhenny at the same time reported from Avery Island, Louisiana, the appearance there of a Blue-faced Booby and a Tropic Bird.

Two Connecticut Clubs

The neatly printed reports of the Hartford Bird Study Club and the Meriden Bird Club, both in Connecticut, are encouraging, as well as interesting reading. The former club, organized in 1909, now numbers nearly 500 members, including many persons living in suburban communities, so that its influence is widely spread. It has learned how to conduct itself so well that weekly meetings are maintained from September to June, many of them field-meetings during the months when weather permits. The program printed in the present report is well worth study and imitation by new clubs elsewhere that are striving to enlarge their popularity and usefulness.

The Meriden Club has its home only a few miles from Hartford, and is somewhat smaller numerically, but appears to be

equally wideawake, and field-excursions are recorded as enjoyed once a week from May 1 to October 30. Connecticut has several other bird clubs of similar character and activity, and all are exerting a fruitful influence.

A Proper Commission

The report of the Commissioners of Birds of Rhode Island for 1914 is just at hand. It is noteworthy as the first result of the change by which men who really knew and cared for birds were placed on the Rhode Island Commission. This admirable change is owing to the growth of a better public sentiment, for which credit is largely due, say the Commissioners, to Audubon Society influences. A noticeable increase in birds in Rhode Island is reported, especially shore-birds and Ducks, which may no longer be shot from motor-boats. Several sensible new laws for bird-protection have been enacted recently, and no less than 104 deputy game-wardens were in service. Warwick Neck has been set apart as a state bird-reservation; and the area of posted land has been much increased.

Italian Atrocities

That two Italians recently confessed in court to have boiled alive and then eaten young Robins and Flickers which they had taken from their nests, is the report made to this office by Division Chief Game Protector, C. A. Johnson, of Hoosick Falls, New York. Mr. Johnson, who conducted the prosecution, states that, as they were unable to pay their fines, the two men were sent to jail for fifty days. He says that in his long career in fish and game matters he had never heard of such uncivilized slaughter of song-birds. He says that the dish is evidently a favorite one with the Italians in out-of-the-way places, and that he had been told it is a real luxury. The birds are not even dressed or cleaned before cooking, except that the feathers are pulled off.

Game Warden Nolan of Milton, New York, arrested two Italians at Stoneco, on Sunday, September 5, for shooting song-birds. They had a gun wrapped in a newspaper. When caught, they threw a package into the river. Placing the two men in the custody of the station-agent at Camelot, the warden recovered the package, and found several Robins, as well as other song-birds. Justice Holmes Vanderwater, of Wappingers Falls, fined the men \$105. They were unable to pay, and were sent to the county jail in Poughkeepsie.

These are but two of the many atrocities committed on our bird-population by Italian laborers, reports of which reach this office with discouraging frequency. No unnaturalized Italian should ever be permitted to carry a gun, and every one should be severely punished when found doing so.

The Nine-Headed Commission

The first paragraph of Article VI of the proposed new Constitution for New York State, which the voters will shortly be called upon to adopt or reject, provides for a nine-headed conservation commission.

At the present time, the laws of New York provide for one paid commissioner. The wonderful work performed today by Commissioner George D. Pratt, and the monumental results accomplished by one of his predecessors, the Hon. James S. Whipple, have served to prove to the absolute satisfaction of the National Association of Audubon Societies, and to all New York sportsmen's organizations with whose views we are acquainted, that a single-headed commission is the wisest possible course for this state to pursue. With nine unpaid men to divide and shift responsibility, we have grave fears that conservation in New York State will suffer if this new provision is accepted. "What's everybody's business is nobody's business," may prove to be a very true declaration.



- | | |
|----------------------------------|------------------------------------|
| 1. PYGMY NUTHATCH, Male | 5. RED-BREASTED NUTHATCH, Female |
| 2. PYGMY NUTHATCH, Female | 6. RED-BREASTED NUTHATCH, Male |
| 3. BROWN-HEADED NUTHATCH, Female | 7. WHITE-BREASTED NUTHATCH, Male |
| 4. BROWN-HEADED NUTHATCH, Male | 8. WHITE-BREASTED NUTHATCH, Female |

(One-half natural size)

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. XVII

NOVEMBER—DECEMBER, 1915

No. 6

The Behavior of the Least Bittern

By ARTHUR A. ALLEN, Ithaca, N. Y.

With photographs by the author

THE walking-sticks and strangely shaped caterpillars that resemble dead twigs, the moths that simulate the bark upon which they rest, the butterflies that close their brilliant wings and appear as dead leaves, are familiar to all who walk in the woods. In the presence of danger, each of these insects assumes its characteristic attitude; and its peculiar shape, as well as its color pattern, cause it to appear as a part of its environment. The discovery of these peculiar forms of life with their strange resemblances is one of the delights of the young naturalist, and one of the inspirations that urge him on to further study. The accuracy with which every knot, or crevice, or leaf-vein is reproduced in the form or color of the animal fascinates him. It is truly one of the most wonderful phenomena in nature.

How disappointing is it, therefore, to find, as we study the higher forms of life, that, as the intelligence of the animal increases, this phenomenon, this method of protection, decreases in importance until it finally disappears entirely. Even among birds, it is extremely rare and imperfectly developed. The Screech Owl, with 'horns' erect and feathers drawn close, it is true, closely resembles a broken stub, an effect that is heightened by the barklike markings of the breast. The Nighthawk, sitting lengthwise on the limb, resembles the stub of a branch; and the Bittern, 'freezing' in the short marsh vegetation of early spring, resembles a projecting snag; but the instances are few. The problem of protection is met either through greater intelligence or through coloration alone, without modification of form.

There remains one bird, however, which seems to display a mimicry, or protective resemblance, even as perfectly developed as that of the insects; for it is resemblance of form even more than of color. The posing of this bird, the Least Bittern, has been described many times, and I doubt not is familiar to most ornithologists in a general way. Such descriptions as have come to

my notice, however, have far from impressed me with the complete simulation of which some individuals of this species are capable.

For ten years after reading Dr. Chapman's descriptions of the Least Bittern, in his 'Bird Studies with a Camera,' I searched for a bird that would behave as had his, continuing to defend its nest against the closest approach



THE MALE LEAST BITTERN ENTERING THE NEST,
BALANCING HIMSELF WITH HIS WING

of the intruder; but, every time I discovered a nest, the wary bird disappeared before I could catch more than a glimpse of it. I was little prepared, therefore, for the experience I am about to relate. It was on the thirtieth of May that I found the nest under discussion. The flag had already grown so high that it waved over my head, as I waded through the marsh, parting the jungle before me. Under such conditions one's eyes soon learn to cease their search for birds, or even for movements that might betray their presence, and

hunt only for denser spots in the dark green vegetation, that so often indicate a nest with the reeds bent over it. I was not surprised, therefore, when a dark spot, suspended eight or ten inches above the black water, led me to the nest of a Least Bittern, containing five eggs. At least, so it appeared to me; but it was more. I parted the flags and counted the eggs before I finally perceived that there, on the back of the nest and in perfectly plain sight, stood the female bird less than three feet from my eyes. Under other circumstances, I should not have called it a bird, such was the strangeness of the shape which it had assumed. The photograph showing the 'reed-posture' gives one but a poor conception of the bird's real appear-

ance at this time. The feathers were fairly glued to the body, and the head and neck appeared no thicker than some of the dried reeds that composed the nest. The bill, pointing directly upward, widened barely appreciably into the head and neck, and the feathers of the lower neck were held free from the body and compressed to as narrow a point as the bill at the other end. The neck appeared to be entirely separate from the body, which was flattened so as to become but a part of the nest itself. There was not a movement, not even a turning of the serpent-like eyes which glared at me over the corners of the mouth. Every line was stiff and straight, every curve was an angle. It mattered not that all about the vegetation was brilliant green, while the bird was buffy brown. It was no more a bird than was the nest below it. I recalled the habit of the American Bittern of rotating so as always to keep its striped neck toward the observer, and I moved slowly to another side of the nest. But this bird was not relying upon the color of its neck to conceal it. It was quite as unbirdlike from any angle, and it moved not a feather.

But this was not its only method of concealment, as was shown a few minutes later. I parted the flags directly in front of the bird, to see how close an approach it would permit. My hands came within twelve inches of it before it melted away over the back of the nest. Its movements were apparently very deliberate, and yet almost instantaneously it disappeared into the flags. It did not go far, and in a very few minutes it came back. Very slowly it pushed its vertical neck and upturned bill between the flags until it just fitted the space between two of the upright stalks at the back of the nest. No longer were the feathers drawn closely to the neck, which was at this time the only part visible. Instead, they



THE FEMALE LEAST BITTERN ASSUMING THE 'BROKEN-REED POSTURE' UPON THE APPROACH OF AN ENEMY.

were shaken out to their fullest expanse, and hung square across the base, instead of pointed. The dark feathers arranged themselves into stripes, and simulated well the shadows between the flags. Again I moved around the nest, and this time, instead of remaining motionless, the bird also rotated so as always to present its striped front to me and conceal its body. This was evidently a second and entirely different stratagem. A third procedure I



THE MALE INCUBATING

hearing nothing, glides lightly and gracefully toward the nest. With neck stiffened and bill vertical, she forces herself between the flags at the back of the nest, and scrutinizes all sides for any movement. Then she steps lightly forward, balancing herself with her wing, ruffles out her feathers and settles upon the eggs. Thus she remains until some slight movement or sound alarms her. If the sound is repeated, even at some distance, her neck stretches upward, her bill assumes its vertical position, and she is ready, upon further disturbance, to assume the 'broken-reed posture'

I learned at a later date after erecting a blind by the nest and spending some time in studying both birds.

Let us suppose that we have taken our position in the blind and that, after a wait of a few minutes, the female bird returns to the vicinity. We can see her approaching at some distance, slowly putting one foot in front of the other and grasping the reeds with her flexible toes. She is apparently listening intently as she approaches and,

described above. Let us assume that the disturbance has come from within the blind, and that we now step out into full view and approach the nest. She evidently realizes that she is seen and, instead of leaving the nest or attempting concealment by the 'rotating-reed posture,' she assumes a third posture, which would strike awe into any animal less fool-hardy than a naturalist.

Her neck shortens, drawing her head back to her shoulders, her wings spread, every feather on her body stands on end, increasing her size three- or four-fold. Her javelin-like bill points threateningly, and her glittering yellow eyes sight along it in a most savage manner. Let one's hand approach within striking distance and, like a flash, the needle point is driven into his flesh and withdrawn again almost before his eye perceives any movement on the part of the bird. Such



THE FEMALE LEAST BITTERN ASSUMING THE 'ROTATING-REED POSTURE' ON THE BACK OF THE NEST

fierce devotion to duty one scarcely expects from one of the timid Heron family.

Thus far we have been discussing the behavior of the female bird. But what we have described applies also to the male, though in a lesser degree, in demonstrations of courage and devotion. He seemed to share the duties of incubation equally with the female, although I could not determine that they followed any regular schedule in changing places. While the female was incubating, the male could often be heard calling. His notes were guttural and

dovelike, or even froglike when heard in the distance, resembling the syllables, *üh-üh-üh-oo-oo-oo-oo oooh*, similar to one of the calls of the Pied-billed Grebe. The call, when given close at hand, often drew a response from the female of two or three short notes, like the syllables *ük-ük-ük*.

Both birds showed considerable uneasiness at the approach of the Marsh Wrens, at their quick movements as they passed often but a few inches below



THE FEMALE LEAST BITTERN ASSUMING ITS
'DEFENSE POSTURE'

the nest, and at their calls, particularly the one which sounds so much like the grating of teeth; but they showed no fear of the swish of the Red-wings over their heads. This uneasiness was particularly noticeable when the bird was away from the nest; for it would hasten back with such signs of alarm that one could not but think that it recognized the Wren as its arch-enemy. (See Chapman, 'Bird Studies with a Camera,' p. 72.)

When the nest was discovered, it contained five eggs; the day following there were six, and exactly fifteen days later the first egg hatched. The young bird was a curious looking object, very pale pinkish in color, inclusive of the bill and feet, with long cream-colored down along the principal feather tracts. The eyes, unlike those of the adult, were coal-black. It was not very active. I am unable to say how long the young remain helpless, or how long they remain in the nest; for, when I returned thirteen days later, none of the birds were about the nest, nor could I find them in the tangle of the marsh.

A Family of North Dakota Marsh Hawks

By FLORENCE MERRIAM BAILEY

A PAIR of Marsh Hawks got so excited when I crossed a patch of silver-leaf bushes, the day of my arrival in the wheat-belt, that I spoke to a farmer about it, and found that he had stumbled on the nest some time before, and that it had then contained eggs. Were the young still in the nest, or was I too late to watch their development?

Anxious to lose no time, I soon returned to the gray brush patch with field-glass and camp-stool. Fortunately, the male Hawk was out on the prairie at the moment, and the female was hunting so low that I was able to creep in quietly up the wind behind a line of the high silver-leaf bushes—well named *argentea*—and sit down undiscovered in a clump of wild plum at the head of the patch. From my vantage ground, I could see Gulls crossing the point between the two arms of Stump Lake, and watch White-winged Scoters skimming over the whitecaps. Only a few rods from my shelter, the female Marsh Hawk, with her brown back, broad wings and white rump patch, was to be seen skimming over the adjoining prairie grass, or beating low over the lovely silvery bushes, some of whose spaces were filled with wild rose and anemones. As she went down, she gave her hunting call—*cha-cha-cha*—and several times dropped to the ground, suggesting mice or young nestlings. Once, before flying down, she hovered in the air, calling.

When flying high enough to be exposed to the strong prairie wind, her maneuvers, and those of the male when he joined her, were fascinating and beautiful to watch. After flapping low over the ground, they would set their wings and, perfected monoplanes, rise with the wind, tilting and turning, changing their angles with enviable skill to meet the vagaries of the air-currents. They would sail with set wings, buffeted by the wind, and then, as if their sailing muscles were tired, turn tail in midair and sweep back with a beautiful downward curve.

When the brown, white-rumped female was beating over the ground, incidentally performing aëronautic feats, the gray male came flying in from the prairie, crossing so close over the bush where I was in hiding that I saw his white wing-linings and black spread quill tips. Discovering me, he broke out into a shrill screaming *cha-cha-cha-cha-cha-cha*. When his alarm-note caught his mate's ear, she came sweeping toward me till I saw the barring of her wing-linings. After flying excitedly over me, she lit and balanced herself by spreading her tail so wide that its dark bands showed.

Having been discovered, I left my blind and went out to investigate the various spots where the female had gone down—all but one, as I remembered afterward with chagrin. If the birds were going to be so wary, it would save time to get the farmer to point out the nest. When he did so, I recognized the one spot I had not examined. I had been deceived by the birds' tactics. Had

they been small Sparrows, the nest would doubtless have been near the plum bushes where they came to expostulate with me; but, to large Hawks, the matter of a few acres between the enemy and the nest is of small consequence. They patrol a large block. The nest being made on the ground instead of in the inaccessible top of a high tree, as are those of most large Hawks, Circus has good reason to police its neighborhood.



MARSH HAWK

Photographed by H. and E. Pittman, Wauchope, Saskatchewan

The nest was on the outer edge of the silver-leaf basin—the last of the beautiful silvery bushes were a few feet away—and it lay on the ground so well hidden by green snowberry bushes that a white twist of cotton was used to mark it. Parting the encircling bushes, I looked in upon the downy nestlings with delight. It was my first Marsh Hawk's nest, and I was not too late! Five downy nestlings lay on a thick mattress of dead grass, whose color they

approximated, and which raised them above the damp ground. No wonder the old birds were anxious about their helpless brood.

Young and inexperienced as they were,—and they could hardly have been over two weeks old,—their instincts were already stirring and, when my head appeared above the green wall, they raised their dark brown eyes and opened their hooked bills at me. At the base of their bills the naked skin was a bright lemon-yellow, that gave a surprising touch of color to their dull, creamy buff garb. Although their bodies were covered with down, wing-quills were obviously developing inside blue pin-feather cases. The five nestlings showed differences in size that indicated different dates of hatching. Two were decidedly larger than the others, and one was so much the smallest of the clutch that for convenience I dubbed it Little Brother. Altogether the downy brood made a most attractive nestful, justifying the most solicitous care.

In trying to make friends with the family, I had followed the example of a previous visitor, and brought some mice that had been trapped about the farm. When the parents discovered me and came flying over, crying out in alarm, I talked to them in my most reassuring tones and presented my peace offering, holding each mouse by the tail high overhead for them to inspect carefully before dropping it in the nest. They swooped low, as if to investigate this surprising phenomenon, and then the female went off and left me there. Feminine intuition, I said to myself, as the male came screaming over my head. She evidently felt that I was harmless! Or was it the mice? Perhaps she had a prejudice in favor of philanthropic helpers of hard-working mothers. Subsequent events however, led me to abandon these flattering theories. She had gone off, it is true—perhaps she had been interrupted when locating a mouse of her own—but she had left her mate to guard the nest!

He certainly did the full duty of man. Had I been a murderous gunman, he could have done no more. Indeed, for all he knew, I might at any moment prove to be a gunman. Used to making friends with families of small birds, which, from toleration of my presence, would quickly pass to indifference or friendly acceptance of neighborly interest and commissary assistance, I failed to realize what a threatening monster I must appear to these wild raptorial birds and, innocent of heart, tried them all too sorely. To anxious Circus parents, ignorant of modern methods in ornithology, I surely did most alarming things. For, after setting up my camp-stool, opening my camera, and breaking off the weeds between it and the nest, I found it necessary to pose the largest of the photographees. The little fellow was down in the bushes behind the nest and, when I tried to get it up into the light, with an instinct bigger than it was, whipped over on its back, threw up its yellow feet till it seemed to be all claws, and caught at my finger so adeptly that I was content to poke it back into focus with a stick. What right-minded father could look on calmly when such unprecedented, portentous liberties were being taken with his brood?

In trying to drive me off, Circus used Kingbird methods, flying at me persistently, only stopping short of pecking me on the head. Starting a few rods away, he would give his war-cry and swoop down, each time, as it seemed, lower and lower. Emboldened by my immobility, he at last started close over the low silver-leaf tops, level with my head, and flew straight at me till his yellow eyes looked close into mine; a method which I can testify is psychologically correct, much more effective than a dive from unseen heights. When

Circus had tried all his best modes of attack, he lit on bushes on one side and then the other of me, as if to make a study of this strangely obdurate creature.

When he had been doing picket duty for some time, the voice of his mate was heard in the distance, and presently she came flying in as casually as if having forgotten my existence. My peace offerings of mice were no longer in evidence, however, for the young, still living on prepared foods, were using them as sofa-pillows. So, instead of reassuring mice, she saw only an unmitigated Human Being—visions of battle, murder, and sudden death—a Human Being actually sitting



TRYING TO DRIVE OFF THE INTRUDER

close by her precious nestful! As the horror of the situation came over her, she gave a prolonged shriek—*kec-kec-kec-kec-kec-kec-kec-kec* and, repeating the best tactics of her mate, from a level with my eyes came screaming straight as an arrow, her brown form growing bigger and bigger, till, as my spine began to creep, she missed me by such a sudden upward curve that her wings made a loud *whuff*. At this her mate renewed his attacks and outcries, and the pair kept it up till passing Gulls stopped in their flight, and turned to see what could be the occasion. The excited cries of the Hawks were always thin and shrill in quality, but varied somewhat in length and note, as *kec-kec-kec-kec-kec*, or *ckeck-eck*, *check-eck*, *check-eck*, *check-eck*.

When not listening to them or not too preoccupied by being the center of fire, I enjoyed the foreign notes of the Clay-colored Sparrow singing in the silver-leaf patch, and the homelike Bobolink songs from out on the prairie. Finally, however, I concluded that nothing more interesting than being dived at was going to happen and, arguing that in devoting themselves to me they might easily neglect their own matters, I started home. When convinced that I was actually going, the Hawks stopped their excited demonstrations and sat

down on the bushes—they might well be a trifle fatigued, I thought! As they sat up straight and tall, I noted the small, round heads, the pale gray head and chest and yellow legs of the male, and the owl-like face of the browner female.

The next day, I surprised the gray Circus. At the awful sight of me, his lower jaw dropped, and he fairly screeched out *eck-eck-eck-eck-eck-eck-eck*. Then he got his mate, and they renewed the hospitable attentions of the previous day. Such a to-do did the misguided parents make that, when I looked into the nest, the youngsters, all unmindful of the cause, sat back on their yellow claws in defiant half-aggressive attitude.

When I started home, the brown female let me go, but the gray male followed me, and was so persistently disagreeable that I began to suspect that diving at the head of a lady was really less work than supplying rodents for a hungry family of five! A Kingbird neighbor who, on occasion assailed my assailant, diving at him till he actually squealed, made me wonder if, unable to punish this pestiferous little enemy, Circus was taking it out on me! But no, the blame was mine. To wild raptorial birds whose relatives nest in high tree-tops, my bold approach to their ground nest may well have seemed intolerable. An umbrella blind might have helped matters, and also more subtle psychological methods. In watching families of small birds, I have always found that quiet reassuring talk calms fears as nothing else can; but, though I started out to reassure the Circus parents, their reception prevented me from persistently explaining my mental attitude. When, rods and rods from a nest bombs hurl at your head, you sometimes forget your point of view. And when, on my fourth visit, the big Hawks acted as if about to pounce and carry me off, with shame be it recorded, I so far forgot psychologic methods that I waved my camp-stool in their faces!

But the young had to be photographed again, so on June 18, two days after their first picture, the farmer's sisters went to the nest with me and gently persuaded the recalcitrant nestlings to sit up and look pleasant. It really seemed as if the interesting little fellows had grown perceptibly since their first picture. At this time the old Hawks, perhaps thinking three people too many to cope with, kept at a fairly respectful distance.

The next morning I saw the pair before they saw me. To my surprise, they were flying high, uttering low squealing notes that suggested love-calls, as they toyed with each other in the air. They were not altogether off guard, however, for, while I was watching them in the sky, their shadows darkened the ground in front of me. Two days later they were again preoccupied, sailing around together high in the sky, uttering soft whistling screams, altogether unlike their distracted cackle, or even their quiet hunting-calls.

By this time—June 21—the young were feathering quite rapidly. One of them had incipient tail feathers and also wing quills projecting an inch or more

beyond the blue pin-feather cases; and, in addition, rufous feathers were invading the down of the breast. Their motions showed less skill than energy. One of them, when clawing at my friend, Miss Wishart, hit his brother in the breast and knocked him over. For the first time ejected pellets were found in the nest—now would have been the psychological moment for mice!

When I had begun to think that the old birds and I had reached a friendly understanding, they suddenly became more violent in their attacks than ever

before, and swooped so close to my head that—honest confession is good for the soul—suddenly recollecting that a cowboy in a hailstorm puts his saddle over his head, I turned my campstool upside down on my head, and walked home! The only worthy explanation I could imagine for this renewal of hostilities was that the young had left the nest, and were scattered around in the bushes, where they were likely to get stepped on. No matter where the old birds met me, whether out on the beach where I was watching Ducks or back over the prairie where I was examining prairie



SITTING UP AND TAKING NOTICE

flowers, it was the same old story. At last, one day when the gray Circus had followed me around till my patience was utterly exhausted, I scolded him roundly. To my surprise, he subsided meekly, and kept quiet long enough to suggest that he realized he was overdoing it.

The next time we went to photograph the young, although we worked longer than ever before, the old birds had never been so little trouble. The presence of a dog may have had a slightly deterrent effect. But, granting the old birds common powers of observation, two facts were surely self evident by

this time: the nestlings had little fear of us and had been neither murdered nor kidnaped.

Though the brood were scattered around in the bushes, four of the five were found without trouble, two at some distance from the nest. They were very different birds from the downy nestlings photographed eight days before; this was June 26. All were now dark with feathers except Little Brother who, while still downy, had an inch of tail and an inch and a half of wing projecting beyond the blue pin-feather cases. He posed well, showing no fear, and doing



'LITTLE BROTHER' HOLDING ON HARD WITH CLAWS AND WING-TIPS

his best to stand up on the board by which we raised him into the light. After tipping over on his bill, he held on hard with claws and wing tips, and finally, as the result of much coaxing and encouragement, sat up like a gentleman. But at the fourth snapshot, when Miss Wishart put in a rufous-bodied elder brother beside him, Little Brother, apparently afraid of losing his hard-worn balance, opened his bill and spread his wings threateningly at his relative.

One of the larger birds whom Miss Wishart held up in her gloved hands, to have its picture taken, had a blackish back and wing-quills about four inches long. Its breast was rufous and its tail blackish with rufous tip. The heads of all the brood were still downy buffy cream.

The little fellows responded so well to Miss Wishart's gentle talk that it seemed as if they could easily have been tamed and actually, two days later,

I photographed one of the brood sitting quietly in my friend's hands. Would that the parents might have seen it!

A week later, when we went down with the camera, I could hardly believe my eyes. Two large brown Hawks, counterparts of the mother, perched statuesquely on bush tops and, as we approached, launched out and were joined by a third, whereupon all three great Hawks went flying around so much at home on their wings that it seemed impossible they could have been spotty nestlings a week before. Their tails were shorter than their mother's, and two

of the birds were decidedly smaller, but one seemed like a fully grown Hawk.

When the three young had flown off, we hunted through the bushes till we found one we took to be Little Brother, though another of the five was unaccounted for. Little Brother, if it were he, still had some down on his body; but his dark brown back and wings were well feathered, and shoulders and belly showed warm tawny color, the belly streaked with it. He could not fly yet, and we took our last photograph of him sitting unwillingly on the camp-stool.



FEATHERED AT LAST

The next time we saw a Circus family, we came upon them a mile away, a self-reliant band of large brown Hawks, beating over the brush patches by the lake, getting their supper. As I looked at the big, handsome birds admiringly, I realized with regret that the family that had grown up under my eyes, from down to quills, were now fairly launched in the world and I should see them no more. The parent Marsh Hawks, viewed with a little perspective, seemed heroic prairie figures, and their misinterpretation of my motives was forgotten in admiration for their dauntless defense of their young.

A CORRECTION

The photographs published on pages 359 and 360, of the preceding issue of BIRD-LORE, were erroneously entitled by the Editor "An Exhibit of the Milton Bird Club." The captions should read, "An Exhibit of the Brookline Bird Club."—F. M. C.



"A GROUSE . . . ALIGHTED ON AN OLD LOG ALMOST AT MY FEET"

Grouse Camp-Mates

By ROY CHAPMAN ANDREWS

With photographs by the author

ON JULY 8, Courtenay Brandreth, my wife and I, went to Shingle Shanty stream on the Brandreth Preserve in the Adirondacks, to select a spot for a summer's camp. While I was poking about in some high grass, trying to find a dry passage across a bit of swamp land, a Grouse suddenly flew out of a balsam tree and alighted on an old log almost at my feet.

I was too startled to move at first, and too excited, for there was no doubt that it was a Spruce Grouse, now so rare, at least in this portion of the Adirondacks, that one has not been seen in years on the Brandreth Preserve.

While I crouched in the grass and endeavored to unsling the kodak from my back, I heard a gentle peeping, like the call of a young Turkey, and a baby Grouse, five or six inches long, hopped on the log beside its mother. In a moment two others joined her, and then all four slipped off in the grass and began to feed. I got a snapshot at about twelve feet, and with infinite caution began to work nearer, taking pictures as fast as the camera could be operated.

The little birds continued to run about, pecking at the grass seeds, even when Courtenay Brandreth and I approached within two or three feet; and the mother Grouse slowly followed her young, clucking softly now and then without the slightest trace of fear.

We left the birds after our films had been exhausted, and three days later, when making camp, the Grouse and her chicks were again discovered almost at our front door.

A motion-picture camera was ready this time, and, from previous experience, it was evident that we need have no fear about approaching too closely. Even when the air-motor, which operated the camera, began to whirl like an



"SHE FLEW TO THE GROUND BESIDE HER CHICKS"

angry rattlesnake, the old Grouse seemed totally unafraid. Sometimes when I pushed the camera within three feet of her, she faced about in annoyance and fluffed out her feathers, but in a moment settled down to the business of directing the energies of her chicks.

Following closely behind, I tried to drive the old bird to an open hillside well lighted by the slanting rays of the sun; but she declined to go, and for several minutes we played a game of hide-and-peek in the grass. She finally won by actually running between my legs while I was trying to 'head her off,' and a little later flew into a low spruce tree.

The next morning at daylight we were awakened by a loud clucking, and a few moments later discovered one of the baby Grouse in the tent. The poor little thing was badly frightened when I finally restored it to the old bird, which was rushing distractedly about outside. In a second both had scurried away into the grass.



"WITH HER HAND OUTSTRETCHED, SHE MOVED SLOWLY TOWARD THE BIRD"



"I GOT A SNAP-SHOT AT ABOUT TWELVE FEET"

We saw no more of our early visitors for three weeks, and concluded that the adventure in our tent had frightened them away for all time; then one morning, when returning from an early paddle down stream, we heard a familiar clucking, and found two 'Grouselets' busily engaged in feeding near our fire-place. The old bird was in a spruce tree overhead and, as we stepped out of the canoe, she flew to the ground beside her chicks.

The little ones were now half-grown, but there were only two of them—probably a Goshawk, of which there were dozens along the stream, had made away with the third.

This time, after all the film we wanted had been secured, my wife decided she would see just how near the Grouse would let her come. With her hand outstretched, she moved slowly toward the bird, which was sitting on a log, and actually stroked it on the back. It did not appear greatly disturbed, but merely crouched closer to the log, and after a few moments slipped off into the grass.

We never saw the Grouse or her little ones after that day; and, although we like to believe they are still alive, I am afraid that the story of their end could be told by a fox or a Goshawk.



FEMALE PHEASANT AT FEEDING STATION
Photographed by Guy A. Bailey, Geneseo, N. Y.

The Migration of North American Birds

Compiled by Prof. W. W. Cooke, Chiefly from Data in the Biological Survey

With a Drawing by LOUIS AGASSIZ FUERTES

(See Frontispiece)

THE WHITE-BREASTED NUTHATCH

The White-breasted Nuthatch is one of the most widely distributed birds in the United States, and probably more closely confined to the United States than any other species which ranges from ocean to ocean. It has been separated into five forms, each of which is non-migratory. The typical form (*Sitta carolinensis carolinensis*) occupies the United States east of the Great Plains, from southern Canada to the northern part of the Gulf States. Next, to the westward comes the Rocky Mountain Nuthatch (*S. c. nelsoni*) inhabiting the entire Rocky Mountain region from southern Canada to northern Mexico. The remainder of the United States west to the Pacific coast is the range of the Slender-billed Nuthatch (*S. c. aculeata*), which also penetrates a short distance into southern British Columbia and into northern Lower California. The Gulf coast east of Mississippi and the State of Florida constitute the home of the Florida White-breasted Nuthatch (*S. c. atkinsi*), while the fifth form, the San Lucas Nuthatch (*S. c. lagunæ*), is restricted to the southern part of Lower California.

THE RED-BREASTED NUTHATCH

The Red-breasted Nuthatch is the only member of the genus that is decidedly migratory, but its movements are so irregular that little can be said with certainty concerning its migrations. It nests at ocean level as far south as Massachusetts, but in the mountains it breeds south to North Carolina, and the presence of these mountain-breeding birds obscures the migratory movements of the more northern breeders. But the irregularity of the wintering is the most serious drawback to an exact statement of the average time of migration in both spring and fall. While most of the birds of the eastern United States winter south of latitude 41° , some remain at this season north to Nova Scotia, central Ontario and northern Wisconsin, nearly to the normal northern limit of the breeding range.

In the western United States the conditions are still worse, for the species breeds in the San Bernadino Mountains of California at the southern end of the range, and winters north to central British Columbia, almost as far north as it breeds.

While a few individuals winter in southern Canada, and thus confuse the records on spring migration, it is noticeable that, at places where the birds have not wintered, spring migration dates are late. Nearly all migrants remain south of latitude 41° until after the first of May, and then within the next two weeks occupy the whole of their summer home.

Some early dates of spring arrival are: Nanton, Alberta, April 13, 1908; Edmonton, Alberta, April 29, 1897, and Fort Simpson, Mackenzie, April 17, 1904; while the average date of the last seen at Aweme, Manitoba, is October 11; latest, October 24, 1903; and the last one seen near Pelican Rapids, Alberta, October 26, 1907.

There is a strange state of affairs in the extreme southwest, where the species breeds on Guadalupe Island, Lower California, and remains there throughout the year—probably the only strictly non-migratory individuals of the species—though it is not known at any time of the year anywhere on the mainland of Lower California.

FALL MIGRATION

PLACE	Number of years' record	Average date of fall arrival	Earliest date of fall arrival
Aweme, Manitoba.....	4	August 24	August 12, 1910
Neligh, Nebr.....	2	September 20	September 15, 1898
Southern Wisconsin.....	8	August 28	August 20, 1904
Central Iowa.....	8	September 10	September 1, 1896
Chicago, Ill.....	10	September 2	August 16, 1899
Central Indiana.....	4	September 20	September 14, 1903
Oberlin, O.....	8	October 5	September 4, 1899
Palmyra, Mo.....			September 12, 1909
Central Kentucky.....	5	September 20	September 12, 1912
Helena, Ark.....			October 3, 1895
Rodney, Miss.....			October 3, 1888
Block Island, R. I.....	3	September 1	August 26, 1914
New York City, N. Y. (near).....	8	September 10	August 11, 1907
Englewood, N. J.....	10	September 3	August 24, 1903
Beaver, Pa.....	3	September 9	September 6, 1913
Philadelphia, Pa. (near).....	5	September 17	September 7, 1888
French Creek, W. Va.....	2	September 13	August 12, 1889
Washington, D. C.....	7	September 24	August 22, 1903
Raleigh, N. C.....	6	October 2	September 13, 1886
Chester, S. C.....			October 2, 1886
Greensboro, Ala.....			October 4, 1888
Fernandina, Fla.....			November 1, 1906

SPRING MIGRATION

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Northern Florida.....	2	February 21	February 23, 1912
Aiken, S. C.....			April 5, 1914
Raleigh, N. C.....	4	March 24	April 4, 1909
Washington, D. C.....	5	May 1	May 12, 1889
French Creek, W. Va.....	3	April 28	May 2, 1893
Beaver, Pa. (near).....	6	May 15	May 19, 1913
Morristown, N. J.....	3	May 10	May 12, 1904
New York City, N. Y. (near).....	4	May 10	May 16, 1904
Bay St. Louis, Miss.....			April 1, 1902
Grand Junction, Tenn.....			April 16, 1906
Central Kentucky.....	6	May 4	May 10, 1911
St. Louis, Mo.....	6	May 15	May 21, 1907
Chicago, Ill.....	12	May 15	June 2, 1907
Central Indiana.....	13	May 11	May 31, 1907
Oberlin, Ohio.....	14	May 14	May 28, 1907
Central Iowa.....	10	May 9	May 20, 1907
Lincoln, Nebr.....			May 10, 1898
Yuma, Colo.....			May 22, 1907

THE BROWN-HEADED NUTHATCH

A narrow strip of country along the Atlantic and Gulf coasts, from southern Delaware to eastern Texas, forms the principal home of the Brown-headed Nuthatch, whence it ranges up the middle of the Mississippi Valley to southern Missouri, and occupies all of Florida. Though non-migratory, it has strayed to Michigan, Ohio, New York, and the Bahamas.

THE PYGMY NUTHATCH

The Pygmy Nuthatch inhabits the mountainous parts of the western United States, from the eastern slope of the Rocky Mountains to the Pacific and from southern British Columbia to central Mexico. The few individuals which occur in southern California and northern Lower California have been separated under the name White-naped Nuthatch (*leuconucha*). While not strictly non-migratory, its movements are scarcely more than a descending to the foothills and the edge of the plains during the winter—even casually to South Dakota and western Nebraska—whence it retires to the mountains for the nesting season.

Notes on the Plumage of North American Birds

THIRTY-FIFTH PAPER

By FRANK M. CHAPMAN

(See Frontispiece)

White-breasted Nuthatch (*Sitta carolinensis*, Figs. 7, 8).—The Nuthatches, as a group differ but little in plumage with sex, age, or season. In our White-breasted Nuthatch the male in juvenal plumage is duller in color than the adult. The crown is rather sooty, not glossy, shining black, and there is less rusty brown in the lower tail-coverts; but at the postjuvenal, or first autumn molt, a new body plumage and wing-coverts are acquired, and the bird then resembles the adult in winter plumage. There is no spring molt, and the summer, or breeding plumage differs from that of winter only by being more faded and worn.

The juvenal female differs from the adult female much as the young male does from the old male, and its plumage changes correspond to those of the male.

White-breasted Nuthatches are found throughout the greater part of wooded North America, and southward to the end of the Mexican tableland. North of Mexico we have, in addition to the White-breasted Nuthatch of eastern North America, the following subspecies:

Florida White-breasted Nuthatch (*Sitta carolinensis atkinsi*).—This race is somewhat smaller than the northern form, the wing-coverts are more narrowly margined with gray, and the female has the crown black, as in the male.

Slender-billed Nuthatch (*Sitta c. aculeata*).—The cap in the male of this race is greenish black, the bill averages more slender, the black area on the third tertial (from within) is usually pointed at the end.

Rocky Mountain Nuthatch (*Sitta c. nelsoni*).—This race resembles the Slender-billed Nuthatch, but is slightly longer and has more white on the tail and more rusty on the flanks and lower belly.

San Lucas Nuthatch (*Sitta c. lagunæ*).—Resembles the Slender-billed Nuthatch, but has the wings and tail shorter, the black tips of the outer tail-feathers more restricted.

Red-breasted Nuthatch (*Sitta canadensis*, Figs. 5, 6).—The plumage changes of the Red-breasted Nuthatch are similar to those of the White-breasted Nuthatch, though the young male has the crown blacker than in the corresponding plumage of the White-breast, and the underparts are much whiter, less rusty than in the adult.

This species is found through the greater part of northern North America, and ranges well southward in the higher parts of the Sierras, Rockies and Alleghanies, but throughout this wide area it shows no appreciable geographic variation, but is everywhere simply the Red-breasted Nuthatch.

Brown-headed Nuthatch (*Sitta pusilla*, Figs. 3, 4).—In this species the sexes are alike. (The frontispiece is wrongly labeled. Fig. 3 represents the adult, and Fig. 4 the juvenal plumage.) In juvenal plumage the crown is brownish gray, the whitish nuchal spot less pronounced than in the adult, and the underparts are washed with brownish buff. In this plumage the bird bears an even closer resemblance to the Pygmy Nuthatch than the figure (Fig. 3) in the frontispiece indicates.

At the postjuvenal molt, the body feathers and wing-coverts are molted and the bird acquires fully adult plumage. There is no spring molt, and the differences shown by the summer plumage are due to wear and fading, the brown crown being tipped with grayish brown, and the underparts losing the buffy tint of the winter plumage. The Brown-headed Nuthatch is found only in the southeastern United States, north to southern Delaware and west to southern Missouri. There are no geographical races.

Pygmy Nuthatch (*Sitta pygmæa*, Figs. 1, 2). The plumage changes in this species correspond to those of its ally, the Brown-headed Nuthatch. The sexes are alike. (As with the Brown-headed Nuthatch, the caption of the frontispiece is incorrect. Fig. 1 shows the adult; Fig. 2 the juvenal plumage.) In juvenal plumage the crown is much like the back, but at the postjuvenal molt the brownish crown of the adult is acquired. In worn summer plumage this becomes grayer and the underparts are less buffy.

The White-naped Nuthatch (*Sitta pygmæa leuconucha*) of the mountains of southern California and northern lower California resembles the Pygmy Nuthatch, but has the nape-patch more conspicuous, and the underparts white, with little or no buff.

Bird-Lore's Sixteenth Christmas Bird Census

BIRD-LORE'S annual bird census will be taken as usual on Christmas Day, or as near that date as circumstances will permit. Without wishing to appear ungrateful to those contributors who have assisted in making the census so remarkably successful, lack of space compels us to ask each census-taker to send only *one* census. Furthermore, much as we should like to print all the records sent, the number received has grown so large that we shall have to exclude those which do not appear to give a fair representation of the winter bird-life of the locality in which they were made.

Bird Clubs taking part in the census are requested to compile the various censuses obtained by their members, and send the result as one census, with a statement of the number of separate censuses it embraces. It should be signed by all the observers who have contributed to it.

Reference to the February, 1901-1914, 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 is available, we may explain that such reports should be headed by a brief statement of the character of the weather, whether clear, cloudy, rainy, 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' (which is followed by most standard bird-books), a list of the species seen, with exactly, or approximately, the number of *individuals* of each species recorded. A record should read, therefore, somewhat as follows:

Yonkers, N. Y., 8 A.M. to 12 M. Clear, ground bare; wind west, light; temp., 38°
Herring Gull, 75. 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 the American Museum of Natural History, New York City) not later than December 28. *It will save the editor much clerical labor if the model here given and the order of the A. O. U. 'Check-List' be closely followed.*



Notes from Field and Study

Fruits for Birds

I append a record of seeds and fruit eaten by birds in Highland Park for the year of 1914. Although doubtless many other seeds and fruits were eaten, those recorded were actual incidents noted by either Mr. Horsey or myself.—Wm. L. G. EDSON, *Rochester, N. Y.*

- Red-berried elder (*Sambucus canadensis*). June.
Robin, freely; Bronzed Grackle, sparingly.
- Ruprecht's Honeysuckle (*Lonicera ruprechtiana*, variety). June and July.
Brown Thrasher and Robin, freely.
- Willow-leaved Honeysuckle (*Lonicera ruprechtiana salicifolia*). July.
Robin, freely.
- Morrow's Honeysuckle (*Lonicera morrowii*). July.
Robin, very freely. This one is probably the best liked of all the honeysuckles.
- Bush Honeysuckle (*Lonicera bella albida*). July.
Catbird, freely.
- Tartarian Honeysuckle (*Lonicera tatarica*). July.
Catbird, freely.
- Bush Honeysuckle (*Lonicera bella candida*). July.
Brown Thrasher, freely.
- Bush Honeysuckle (*Lonicera bella rosea*). July.
Robin, freely.
- English Fly-Honeysuckle (*Lonicera xylosteum*). September.
Black-poll Warbler, sparingly.
- Mahaleb Cherry (*Prunus mahaleb*). July.
Robin, Northern Flicker, Bronzed Grackle, and Catbird, very freely. This cherry, which is used as a stock to graft onto by nurserymen, is commonly growing around old orchards, and is one of the best of bird foods.
- White-fruited Dogwood (*Cornus alba*). July and August.
Catbird, Robin, Northern Flicker, Song Sparrow, Brown Thrasher, and Red-eyed Vireo, freely.
- Mountain Currant (*Ribes alpina*). July.
Robin, and Brown Thrasher, freely.
- Buffalo Currant, (*Ribes aureum*). July.
Robin, very freely.
- Alternate-leaved Dogwood (*Cornus alternifolia*). July and August.
Catbird, Wood Thrush, Robin, and Kingbird, freely. The Kingbirds were observed feeding these berries to their young, after they had left the nest.
- White-flowering Dogwood (*Cornus florida*). September and October.
White-throated Sparrow, Robin, and Wood Thrush, very freely.
- Dogwood (*Cornus controversa*). October.
Cedar Waxwing, and Robin, freely.
- Purpus's Dogwood (*Cornus purpusii*). August.
Robin, freely.
- Japanese Oleaster (*Elæagnus multiflora*). July.
Robin, Cedar Waxwing, and Catbird, very freely. While the fruit lasted there was hardly a time when several of these birds were not in this arborescent shrub.
- Smoke Tree (*Rhus colinus*). July and August.
Goldfinch, very freely. These birds were constantly feeding on these seeds while they lasted.
- Mountain-Ash (*Sorbus americana* and *S. aucuparia*). July to December.
Catbird, Brown Thrasher, Robin, Bronzed Grackle, Baltimore Oriole, Red-headed Woodpecker, and Cedar Waxwing, freely.
- Japanese Viburnum (*Viburnum tomentosum*). July 29.
Catbird, freely.
- Wayfaring Tree (*Viburnum lantana*). August 11.
Robin, very freely.
- Arrow-wood (*Viburnum dentatum*). August.
Catbird, Robin, and Brown Thrasher.
- Pubescent Viburnum (*Viburnum pubescens*). August 27.
Robin, freely.
- Canby's Viburnum (*Viburnum canbyi*). September.
Robin, freely.
- Sheep-Berry (*Viburnum lentago*). September to March.
Robin, Cedar Waxwing, Catbird, very freely.
- Huckleberry or Blueberry (*Vaccinium corymbosum* varieties), August.
Towhee, Cedar Waxwing, Robin, and Catbird, very freely.
- European Bird Cherry (*Prunus padus*). July, very freely.
Robin.
- Wild Black Cherry (*Prunus serotina*). August.
Robin, Catbird, Red-eyed Vireo, and Cedar Waxwing, very freely.
- American Hawthorn (*Crataegus ellwangeriana*, *C. barryana*, and *C. opulens*). September.
Robin, freely. The fruit was thoroughly ripe and had fallen to the ground. *C. ellwangeriana*, being early ripening, with large soft fruit, was the best liked.
- Purging Buckthorn (*Rhamnus cathartica*). September and through the winter.
Robin, freely.
- Buckthorn (*Rhamnus lanceolatus*). September.
Robin, freely.
- Pursh's Buckthorn (*Rhamnus Purshianus*). September.
Robin, freely.
- Sea Buckthorn (*Hippophae rhamnoides*). September.
Robin, sparingly.
- Silver Thorn or Oleaster (*Elæagnus angustifolia*). September to October.
Robin, and Cedar Waxwing, very freely.

- Japanese Crab-apple (*Malus floribunda*).
September to March.
Robin and Cedar Waxwing. The Cedar Waxwings were abundant this fall while these and the Juniper berries lasted; the Robins feed on the fallen berries from the ground in the spring.
- Japanese Crab-apple (*Malus ringo*). October.
Cedar Waxwing, sparingly; Pheasant, freely.
Poirrett's Barberry (*Berberis poirrettii*). September.
Robin, sparingly.
- Common Barberry (*Berberis vulgaris*). September.
Robin, sparingly.
- Thunberg's Barberry (*Berberis thunbergii*).
March and April.
Robin, freely. There is a large collection of barberries in the park, but the birds do not touch them when other fruits are abundant.
- Candle Berry (*Myrica carolinensis*). September to October.
Myrtle Warbler, very freely; in fact they did not leave the park until all the berries were disposed of.
- Red Cedar (*Juniperus virginiana*). October.
Fruited very freely this year.
Myrtle Warbler, freely; Cedar Waxwing, very freely. Because of these and the Japanese crab-apples the Cedar Waxwings were abundant this fall.
- Spindle-Tree (*Euonymus sieboldianus*, *E. europæus*, and *E. maackii*). October.
Myrtle Warbler, freely.
- Matrimony Vine (*Lycium halimifolium*).
November.
Robin, freely.
- Diervilla or Weigelia (*Diervilla hybrida*, in variety). Fall and winter.
Slate-colored Junco and Tree Sparrows, very freely.
- Dandelion (*Leontodon taraxacum*).
Pine Siskin, freely, in early spring.
- Black Birch (*Betula lenta*). December.
Redpoll, freely.
- European White Birch (*Betula alba*). August to March.
Redpoll, Goldfinch, and Red-breasted Nuthatch, freely.
- Red Birch (*Betula nigra*). August and September.
Goldfinch, freely.
- European and Japanese Larches (*Larix europæa* and *L. leptolepis*). September to June.
Goldfinch, and Redpoll, freely.
- St. John's-Wort (*Hypericum prolificum*).
Fall and winter.
Slate-colored Junco and Tree Sparrows, very freely.
- Goumie (*Elæagnus longipes*). July.
Robin, freely.

Pepper

Of our many pets, both feathered and furry, the Holbæll's Grebe, which came to our home February 14, 1913, was the most interesting. A day's snowshoeing across a glistening field, where flocks of

Snow Buntings balanced on the brown seed-stalks, and through piney woods made cheery by Chickadees, brought us at last to a railroad, where we found this queer bird in an exhausted condition. At a time when all lakes and streams in our Maine climate are frozen, he would surely have perished in a few hours had we not brought him home.

Pepper, we christened him for two reasons: The first of his species we had seen was bobbing gaily on the surface of Pepperpot, a tiny pond in the Rangely Lake region, and because of the seeming spiciness of his disposition. This proved, however, to be only fright and, after the first few days his strange, pitiful cry changed to a happy little call-note; and, as he learned that we were his friends, he became very gentle, coming awkwardly to meet us and eating from our hands.

On a trip to the seacoast fifty miles away, we had thought to take Pepper and give him his freedom in the open waters of some bay. But at this time, the oil with which all water-birds are supplied seemed to fail, and whenever he swam in his tub he became wet and cold; so we placed him in the hot-house, where the steady, moist heat seemed to agree with him, and in a few weeks he could boast of well-oiled feathers, that shed water like the proverbial Duck's back.

His food consisted wholly of smelts, which he invariably but daintily swallowed whole, always head first, and if given him tail first, he deftly gave them a flip with his long, pointed bill, and down they went head first!

Fish of other kinds, even though cut in strips to resemble smelts, he refused, but for smelts he was ever ready, eating beyond all reason often five and six large ones, and then suddenly deciding that he was over-eating, he proceeded with a little snap of his head, and no apparent effort, to disgorge the last one or two he had swallowed. How this could be accomplished with the fish coming back tail first, as it must, and considering the natural resistance of the fins, was a never-ending mystery to his friends.

He lived, contentedly, with us, tumbling in and out of his shallow tub at will, and the pat, pat, of his funny feet on the concrete floor of the hothouse grew to be a friendly sound.

And then came the spring, and in our inland town we were unable longer to procure smelts for him, and, as he seemed perfectly able again to take his place in birdland, one warm day we took him to a lake nearby, and as he sailed away we said good-bye to Pepper.

Although practically helpless on land, he was very much at home on the water, and finding that his pond was not surrounded by a wooden rim, he swam and splashed from sheer joy; then, coming out on a small island, carefully arranged his plumage, then swam again. Several times later in the season, as we crossed the cove, we saw Pepper enjoying the life we had saved.—CORABELLE CUMMINGS, *Norway, Maine.*

The Old Squaw in Jackson Park, Chicago

The winter of 1911-12 was remarkable for its severity; Lake Michigan, at least in the vicinity of Jackson Park, being solidly frozen over as far as visible from land, except for a few very small open areas here and there, both in the open lake at a short distance from shore and in Jackson Park Harbor. The Old Squaws were driven in close to shore, doubtless to seek food, which, in the form of silvery minnows, fairly swarms about the piers. (This may be the case every winter, but I have not had the opportunity to observe it.) On account of the few open places, the birds were easily observed at close range, and the following notes may be of interest.

January 28, 1911, they were seen in the harbor, these being the first arrivals, as far as known. The birds stayed in the harbor and vicinity until March 10, a warm and rainy day, but the lake was still frozen over, when they disappeared.

March 10, I saw a dead female floating around in a small open expanse of water

near the end of a pier in Lake Michigan. The same bird had been seen, March 17, in the same locality, apparently in good health, although it did not fly when closely approached, but dove instead.

March 23, I found a female frozen in the ice, out in the lake a short distance from shore. This bird may have been dead for some time, as its plumage was still in the winter aspect, and was also considerably frayed.

April 1, I found another female floating in a lagoon connecting with the lake, it having been carried in with floating chunks of ice. This bird was in its spring plumage. Like the one found March 23, it was in as good condition as most Ducks are in the spring. There were, however, no layers of fat underneath the skin. Its crop contained approximately one hundred and forty entire silvery minnows (*Natropis atherinoides*), averaging about two inches in length, besides many fragments of the same fish; so it seems unlikely that death was due to starvation. Other accounts of the Old Squaws found dead in winter usually state that the birds are very much emaciated, being nothing but skin and bone, but this is certainly not true here. There were no apparent wounds in either of the cases cited.

May 6, with Dr. R. M. Strong's bird class from the University of Chicago, I saw a solitary female on one of the lagoons, a remarkably late occurrence. The bird's presence was not due to rough or cold weather, and it was gone the next day.—EDWIN D. HULL, *Chicago, Ill.*

Gulls and Clams

At the request of Mr. Samuel N. Rhoads, I am sending you a photograph showing the clam-shells on a bridge over Little Egg Harbor Bay, with the following explanation:

I presume this has been done by the winter Gulls, who migrate as soon as the weather gets warm, for the process has not been going on for a month.

This span of the bridge is a mile long, and the photograph shows clearly the

amount of clams that are consumed by a flock of Gulls. While the bridge has been in existence two or three winters, they have found out its possibilities only this year. They have been observed to drop the clams from a height insufficient to break them. They pounce upon the clam and deliberately fly higher, evidently realizing why it did not break the first time. They have been known to do this on the ice and on hard beaches, but I

theless, during the past winter I had the pleasure of observing them on so many occasions as to warrant their stay as a certainty.

Possibly a few lines on the climatic conditions of the winter would not be amiss. The early part of the winter was mild and warm. No cold weather of any amount was experienced until the middle of January, at which time the creeks were frozen hard enough to permit skating.



WHERE GULLS FEAST

believe this is the first time they have ever discovered the use to which a bridge can be put.—R. F. ENGLE, *Beach Haven, N. J.*, May 12, 1915.

The Killdeer, a Winter Resident in Dorchester Co., Md., 1913-14

During the winter of 1913-14, the Killdeer was a resident in this locality. Usually for a period of two months, the Killdeer makes a migration occupying the latter part of December, January, and the greater part of February. Never-

The remainder of January and the early part of February was followed by intermediate spells of freezing and thawing, but practically devoid of snow. However, on the 13th, real winter set in. First came snow, turning to rain making a slush, then freezing and snowing again. These conditions prevailed for five days, making a veritable barrier from the earth. On the 18th it moderated, and we had more agreeable weather until March 11. On this date we had what was the deepest snow of the season, six inches falling in ten hours. This snow lasted until the 13th,

when it commenced to melt and within a short time disappeared.

At different dates, the Killdeer was noticed during the winter. I went afield every day during this bad weather, besides several others, to look for these birds, and had the satisfaction of observing them on each occasion.—RALPH W. JACKSON, *R. D. No. 1, Cambridge, Md.*

An Old Note Regarding the Breeding of the Red-headed Woodpecker on Long Island

Breeding records of the Red-headed Woodpecker on Long Island are exceedingly few, and the following account seems worth publishing, partly because it constitutes an additional record, partly because of its data on the nesting habits of the species.

The note was written on April 23, 1880, by the late Mr. William L. Chapel, of Brooklyn, whose collection of eggs was given to the Brooklyn Museum many years ago. The manuscript containing the account is in the form of an unaddressed letter. The locality of the nest is given simply as "Long Island," with a statement that one had not been found in this locality before. Judging from other notes left by Mr. Chapel, I believe that the neighborhood was almost certainly at the western end of Long Island, probably within the limits of the present borough of Brooklyn.

"About the 4th of June, while looking principally for Bluebirds' and High-headers' nests, I noticed a newly made hole in the top of a hickory tree. The tree was forty feet high, being broken off at the top, and having but one limb. I attempted to climb it, but as it was so rotten, and as I could not start anything out of the hole by sounding, I gave it up as too risky, and was just commencing to eat my lunch when I heard a Woodpecker at work, and, looking up, to my delight discovered a Red-headed Woodpecker at work at this hole; so I sat perfectly still and watched him. I never saw a bird work so hard before; it seemed as though his life

depended on his making that hole in about ten minutes. He worked steadily for about five minutes and then flew to the limb close by and rested. He had dug to the heart of the tree, it being about eight inches in diameter, and I have neglected to state that the hole was within six inches of the top. While he was resting, his mate flew down and commenced operations. She did not work with so much zeal as he did. After they had worked for about fifteen minutes, they flew off, to search, I suppose, for their noonday meal; and that put me in mind of my own, so, after the ants had first finished (as I had left it lying on the grass), and I had eaten what remained, I put on my clamps and ascended the tree to see what the hole looked like.

"They had dug it in to the center and then down about four inches; so, being satisfied that they were going to breed there, I came down and went on my way. I may as well say that the tree was very disagreeable to climb, as we had been having damp weather, and consequently the tree was covered with mildew and was very slimy.

"On the 14th of June I visited the tree again, but saw no signs of the birds. I thoroughly sounded the tree, but to no effect. I nevertheless climbed it, and this time it was much easier, as it was very dry. On getting within fifteen feet of the hole, I looked up, and was greatly encouraged by seeing the bird looking at me, with his head out of the hole, so I hastened my movements, and succeeded in getting within five feet of the hole before she flew out.

"The birds had since dug the hole to a depth of twelve inches.

"The eggs were four in number, being pure white, and not so shiny as those of our Golden-winged Woodpecker."

Continuing, Mr. Chapel speaks of the abundance of the Red-headed Woodpecker in Pennsylvania and the Middle West, and closes with an account of his observations along the banks of the St. Joseph River, Michigan:

"I found Red-headed Woodpeckers in

all parts of the country alike—in the deep woods, on the banks of the river, in the numerous swamps, and in the farm-yard, as much in one as the other; but, if it has any choice, it prefers the more open district along the bank of some stream for breeding. On the bank of one creek there were hundreds of them, and the trees, mostly dead ones, were fairly riddled with holes, and there must have been fifty nests within half a square-mile of woods, the trees being scattered, along the course of the creek.”—ROBERT CUSHMAN MURPHY, *Brooklyn Museum*.

The Carolina Paroquet in Florida

[In a letter by Mr. W. F. H. McCormick, to Mrs. Kirk Munroe, sent to the Editor of BIRD-LORE by Mrs. Munroe, mention was made of the occurrence of the Carolina Paroquet in southern Florida. A call for further information brought the following response from Mr. McCormick. We omit his reference to the locality in which the birds were seen.—F. M. C.]

In reply to your request to Mrs. Kirk Munroe in your letter of July 6, I will say that there is very little to make “a detailed statement” of in regard to my seeing the Carolina Paroquet.

I was down in that country on a pleasure cruise during the last weeks of March and early April, 1915, and first saw the birds while I was following a panther through thick scrub. At that particular time I did not pay much attention to them, as I was intent on the bigger game, but some days afterward I visited the same place and saw about a dozen of the birds flying about and eating the berries of the mastic and rubber trees. This time I made sure that they were the real Paroquets. I am not sure that they were nesting, but supposed they had young, for they carried berries away with them every time they left the trees. On my last visit (the first week in May) I saw none.

I will also say that I made no mistake of indentionation, for I have been familiar with the Paroquet since childhood, and also have a speaking acquaintance with

other Parrots, gained in a two years' residence in Central America.—W. F. J. MCCORMICK, *Cocoanut Grove, Fla.*

Meadowlarks Wintering in Indiana

The winter of 1914-15 was severe, the ground being covered with a deep snow for weeks. January 28, when it was two degrees below zero, there were five Meadowlarks seen in freight-yards, where some straw and litter had been thrown from cars. They would fly only far enough to keep out of reach, and seemed to do this with difficulty. January 29 was warmer and snowing again, and three of them were seen. January 28, I noticed a small Hawk watching them, and think probable that it caught some of them. It would have been an easy matter for it to catch them, as they were so cold and stiff they could move but very slowly. The fast trains, also, might have killed some. There are hundreds of birds killed in attempting to fly across in front of trains, and getting too close to them.—J. H. GILLILAND, *Carlisle, Ind.*

Meadowlarks Wintering in Iowa

Mr. Lowe, section foreman of the Rock Island Railway at Wiota, a few miles east of Atlantic, in southwestern Iowa, about midway between Des Moines and Omaha, reports that two flocks of Meadowlarks, about twelve or fourteen birds in each flock, and a flock of eight Doves, wintered in separate locations along the track a mile or so east and west of Wiota, under his daily observation. BIRD-LORE's Iowa Advisory Counselor, C. R. Keyes, of Mount Vernon, writes that the presence of any especial number of Meadowlarks in Iowa in the winter is very uncommon. The railroad through Wiota runs in the valley of Turkey Creek, which is here enclosed by rather high rolling hills, especially on the south. Mr. Lowe says there was an abundant supply of hemp along the creek, and the birds lived on the seeds. Transient Meadowlarks have been spoken of by farmers in

this vicinity as seen on two or three mild days in January and February, and they were probably foragers from the flocks wintering at Wiota, whose presence was then unknown to me. They were not seen at their winter quarters, according to Mr. Lowe, after the snow melted about March 1st. While not as extremely cold as sometimes noted, the winter, in fact, has been long, cold, and prevailingly cloudy, the ground snow-covered most of the time.—THOS. H. WHITNEY, *Atlantic, Iowa*, March 29, 1915.

The Campbird

The books call him the 'Rocky Mountain Jay,' but he isn't as much of a 'Jay' as the Long-crested chap, or any of his other relatives in Colorado. He is just a plain 'Campbird,' as full of curiosity, and with just as mighty an appetite, as his first cousin in Canada, or the Adirondacks. Somehow or other, I don't like to hear him called a 'Camp Robber,' even if he is ever anxious to take scraps where he can't get everything else in sight. After all, he cannot side-track memories of long, cold, starvation winters, and can't

must admire the grit and persistence exemplified in these two birds, even though they may have been automatic in them. It's hard enough, in bird world, to dodge all the hundred-and-one things which spell death, when one has a complete equipment to battle with element and enemy, and we can never know how much more difficult it must be, in the face of such physical disabilities, to avoid being at once blotted out; nevertheless both of these birds were adults, and fat and vigorous. One wonders how such losses come about, for they are not rare with birds, and evidently do not necessarily lead, in the struggle for existence, to prompt death. Accidents in bird world must be many, and the chances for their occurrence still larger, and it is probable that most do lead to early death. I am glad to know, however, through personal knowledge, that many birds survive physical injuries of considerable magnitude, and yet afterward seem full of bird happiness and health. I once saw a Robin strike against a telegraph wire while in full flight, and still make off as if not disabled; House Finches are frequently seen minus a foot or a leg, or with a foot or a leg



"FEARLESSLY TOOK THE MEAT"

help trying to be well supplied for the next to come; his body remembers if his mind doesn't. Many years ago, while camping in our Rockies, I watched and fed for several days a Campbird which had lost one leg, and only this past summer I saw and fed another which had lost nearly half of its lower mandible. Surely, one

crippled. A Flicker was brought to me, some time ago, one leg of which had been broken, and healed at an angle of 90 degrees, without the deformity affecting the activity or general condition of the bird. Birds are often caught in deadfalls or steel traps, and in the latter I have found, at different times, Eagles and

Turkey Buzzards, and once a Magpie. A steel-trap might completely cut off a leg, capturing and liberating the bird at one stroke. I know that bird accidents are many, but how most of them come to pass I don't know, nor do I know how nature treats the results. I have never been lucky enough to find a bird that had

ity. It was at this camp that I had the delightful and unusual experience of having one of these birds boldly take meat from my hand, without any preliminary training, and also take food from my hand while I was seated alone in the timber, away from camp and its possible associations of safety, and food abundance. This



"TUGGED HARD"

dressed its wounds with feathers, or made of them a splint for fractured bones. Maybe, if I am patient long enough, and keep wide awake and open-minded, I will.

Born and raised in lands or at altitudes with almost perpetual snow, they are inured to hardships; yet the long, cold winters must press these cheerful Campbirds hard in their efforts to find food and keep warm. It is small wonder that every-one of them, like a dog after a long fast, swiftly snatches up and hides every least scrap of food. I have often watched one take a large piece of bacon rind almost too heavy to carry, and *cache* it under the loose bark of a dead tree or stump; and the wish within me has followed just as often, that no other bird or beast might discover it, in order that the bit of food would help the devoted mother bird to keep her eggs warm in the bitter cold of late winter. In the latter part of last June, our camp was constantly visited by Campbirds, several being youngsters of the year, their bluish bills and darker heads pointing unmistakably to immatur-

bird (or these two birds?) hopped boldly along the ground, or on the log, and fearlessly took meat from the outstretched hand, and, with the second piece proffered, tugged hard while I mischievously held it fast. I have never seen them disagreeable to each other; they always impress me as jokers, deceiving their bird neighbors by imitating perfectly a Hawk's scream, or other birds' songs. They are always good company, and greet one at each new camp as though they were the ones just left at the old camp. One of my camping companions always said to them, as they appeared when we unpacked and were making a new camp "Hello! Got here ahead of us, did you?" I never tire of watching their adroitness at 'lifting' an unguarded bit of food. The Colorado bird is just as facile in spearing a chunk of butter as is his Canada cousin in carrying off a biscuit almost as large as himself. One of the pleasantest recollections of many camps in high altitudes, is that of a Campbird uttering his delightful whisper song, while perched on the tip of a tall

spruce whose tapering top was aglow with the last warm lights of a dying day.—W. H. BERGTOLD, M. D., *Denver, Colo.*

The Evening Grosbeak in Central Minnesota

Noticing the very interesting article by my friend A. A. Allen, of Ithaca, in the November-December, 1914, BIRD-LORE, it occurred to me that my observations on a large flock of Evening Grosbeaks during the winter of 1913-14 might be of value to bird students. A flock of about forty arrived in Eagle Bend about the middle of October, 1913, and all winter were a source of inquiry and observation to many of our citizens as they fed upon the box-elder, ash, and other seeds of the trees in our town. As usual, they were very tame, but very few of them were killed, as wanton destruction of our birds is a thing of the past in our neighborhood.

As the Evening Grosbeak is not a rarity here in the winter time, if one looks for them, my interest in them was mainly sustained because of the size of the flock. They remained unusually late in the spring. By referring to our School Chart of Spring Birds for 1914, I notice that my red-letter day came on April 12. It was a warm, sunshiny morning, and I was on my usual trip looking for spring arrivals. Entering a low but rather open piece of forest along our creek, I was listening to the sweet song of a flock of PurpleFinches that had arrived during the night. All at once several loud and rather melodious notes struck my ear and, astonished, I stopped. The bird did the same, but in a few moments sang again his broken song. By this time I had spied him. A beautiful male Evening Grosbeak. Another male was near him, and may possibly have been the first bird that sang. The song was much louder, but sadly lacked the sweetness of our Rose-breasted Grosbeak. I watched them for some time, but the performance was over. I had hoped that they would nest with us, and a male was seen twice later in the season.

The last observation was on May 3, by one of my students. It seemed late in the season to leave for the Canadian Rockies, but the last straggler left this locality at least about that time. They had been with us over six months.—J. P. JENSEN, *Eagle Bend, Minn.*

Smith's Longspur in Iowa

On the afternoon of July 29, 1915, I was walking along one of our country roads, two miles south of Osage, Iowa, when a very sweet warbling chatter came from a hundred bird throats over in an oat field at my right. I stopped to look and listen, when, with a whirring of wings, they flew over my head into another field on the left side of the road, at least a dozen individuals lit on the fence and in the bushes, and gave me a chance to study their markings at close range. In order to satisfy any critics, I give the notes I made at that time, 'Bill like a Finch's; back, brown; tail, forked; lesser primaries black; head striped like a female White-throated Sparrow; breast yellowish buff; size of bird a little larger than an English Sparrow.'

Since my experience, I have found three other persons who saw the same flock, in about the same locality, and their description tallies with mine, and also gives me two other dates for the bird, which I believe were Smith's Longspurs.—F. MAY TUTTLE, *President Osage Naturalist Club.*

Chestnut-sided Warbler Nesting near Baltimore

From July 10 to August 3, I visited a farm about one-half mile from Reisters-town, Md., and about twenty miles northwest of Baltimore city. The elevation of the farm was said to be about seven hundred feet above sea level. Adjoining the farm is a tract of chestnut woodland, a part of which has been largely denuded of its trees, but which is rather thickly overgrown with chestnut sprouts and other shrubby growth, mostly from four to eight feet high. Along this portion runs a

small stream, and even parts of the woods tract tend to be swampy. On July 13, I made my first acquaintance with the subjects of my observation, a pair of Chestnut-sided Warblers, while following a path through this woods. Two days later I looked for them again and found them both, but the female with an insect in her mouth, and she, as well as the male, very much disturbed at my intrusion. I concluded then that they were evidently summer residents, and searched for a nest, but could not find it. The next day I went again, determined to run the evidence out to something definite, and was fortunate enough to find the mother bird feeding an almost fully fledged youngster, one of three I was able to find, up in the higher branches of a tree of considerable size. Now the point of interest in this to me is that I have never before known of the Chestnut-sided Warbler breeding so far south as the vicinity of Baltimore city, though it is common enough during the migrations. Is not this a new nesting record worth noting, since the records all seem to locate the breeding birds so much farther north, except in the mountains? For, to be full in my report, I might add that frequently afterward I saw the same birds, often in company with White-eyed Vireos, and once with a pair of Kentucky Warblers that inhabited the same woods. CHALMERS S. BRUMBAUGH, *Baltimore, Md.*

Thrashers and Thrushes

Are wild birds ever known to do freakish, or unnatural performances? In other words, is bird instinct so fallacious at times as to lead them to play the game of 'make believe?' Where we live is mostly a wooded place, with one corner of the grounds used as a camp for cooking outdoor meals. In July of this year, while sitting on the porch, at noon, my attention was attracted by a slight noise which sounded like the faint patter of raindrops. The sky being clear, I looked toward the camp, a distance of about sixty feet. I was surprised, indeed, to see a Brown

Thrasher wallowing on a small table, covered with white oil-cloth, free from moisture (as I later ascertained), vigorously shaking his plumage, ducking his head, spreading his wings, engaged in all the actions necessary for a bird-bath. Having a time-piece in my hand, I noted that he did this for nearly three minutes. After wallowing over the whole surface of the table, and shaking off imaginary drops of water, he sat up, arranged his feathers, and flew away. In a few days I witnessed the same farcical dry-bath; but I had no way of knowing whether it was the same bird or not. I wish to emphasize that, at that time, a small stream of water was running through a ravine, not a dozen feet away from the dining-table.

Repeatedly I have noticed a Brown Thrasher taking a dust bath, seemingly, in a small hollow he had made in a coarse cinder-pile near our garden.

Around our home is a beautiful tract of wooded land, made up of a few hills and ravines, untouched as yet by real-estate companies, an ideal nesting-place for Wood Thrushes. This year I have heard only one Wood Thrush singing, and it was usually near a street occupied by houses and with much travel. I have observed many Brown Thrashers in the wood, especially, several pairs that nested near our house, which is pleasantly isolated. The presence of Robins, Cuckoos, Catbirds, Cardinals, Towhees, they tolerated, but when a Wood Thrush came in their vicinity, they began a mad chatter, and a swift pursuit; even young Wood Thrushes were made decidedly unwelcome. I am wondering if the Thrashers were instrumental in keeping out of these several acres the charming Wood Thrushes, except the nesting pair I mentioned.

The much discussed cat-and-bird problem has been solved by a neighbor-friend of ours, who owns a fine Persian. The cat was severely punished for catching the birds that were keeping house in the shrubs and vines, but could not be persuaded that bird-murder was prohibited.

The difficulty was overcome by making a cage. The framework was about five feet square, covered with wire netting left from the garden fence. When the members of the family are too busy to keep an eye on 'Blarney,' he is put in his wire house at some place on the lawn, either in sunshine or shade, and a table is placed inside for cat-naps. I can truthfully say to cat lovers that Blarney apparently enjoys the cage, never minding the loss of former freedom. One day, after being housed, he was found eating a Sparrow. The bird probably went through the wire, and the feline trait was ready for immediate action.—SOPHIA M. NEWHOUSE, *Columbus, Ohio*.

The Brown Thrasher and the Cowbird

In 'North American Birds,' by Baird, Brewer & Ridgway, Vol. 2, Page 155, we find: "Mr. J. A. Allen saw, in Western Iowa, a female *Harporhynchus rufus* feeding a nearly full-grown Cowbird; a very interesting fact, and the only evidence we now have that these birds are reared by birds of superior size."

This was, of course, written a great many years ago, and probably many observers have seen the same thing since. I, however, had never seen a Cowbird being fed by a Brown Thrasher, until this year. On June 12, at Creve Cœur Lake, a resort twenty miles from this city, my daughter spied a young Brown Thrasher in a low bush only a few feet in front of us. We had been watching it only a short time, when the old bird flew down and fed it. I immediately set up my camera, and, after photographing the young bird, attached a long rubber tube to the shutter, and retired about twenty-five feet behind some shrubbery, hoping to get a picture of the old bird feeding the young one. I had no sooner chosen my position, which commanded a good view of all the surroundings, than a young Cowbird flew up on a fence post about fifteen feet away. This bird was apparently full-grown, and, as it began to

flutter its wings and beg for food, I was very much interested to know who its foster parent was, as I could not locate the bird, which was evidently on the ground behind the fence post. It proved to be the Brown Thrasher, who, after feeding the Cowbird, flew down to the ground, to be followed an instant later by the Cowbird; and for the next half hour I saw this voracious youngster follow the old bird all around the place, begging for each morsel of food, and generally getting it. In one instance, when the old bird seemed determined to come over and feed the young Thrasher on whom I had the camera focused, the Cowbird grabbed the worm which the Thrasher still held on to, and actually tugged and fought until the old bird relinquished her hold, when the evidently choice morsel was quickly swallowed by the ever hungry Cowbird. In the meantime the young Thrasher, who was nearly full grown, went unfed, and I rather think the close proximity of the camera caused the mother bird to stay away, although she certainly had her 'hands' full, trying to stuff the Cowbird sufficiently to make it quiet down, and let the balance of the family be fed. This, however, was finally accomplished, and I was very glad to see the old bird come hopping along the ground toward the shrub on which the young Thrasher was sitting, its bill filled with insects, and the Cowbird nowhere in sight. I had high hopes for an interesting picture, but was disappointed in this, for the old bird, instead of flying up to the limb on which the young bird sat, as it did when we first saw it, stopped a few feet away and chirruped to the young one, who immediately flew down to the ground and was fed. I saw no sign of any other young Thrashers, and suppose this was the only one reared with the Cowbird.

Strange to say that, of two instances of the Cowbird coming under my observation this season, both were raised by larger birds—the abovementioned case by the Brown Thrasher, and the other by a Wood Thrush. The latter nest contained three young Thrushes, two of which grew up and

left the nest, but the third was killed by being dashed to the ground during a storm.—EDWARD S. DANIELS, *St. Louis, Mo.*

A New Use for Bird's Nests

The other day, while hunting Red-winged Blackbirds' nests along the edge of a pond, I came across a Marsh Wren's globular nest—the first I had ever seen. While congratulating myself upon my discovery, I heard a squeaking within. Knowing that it was too late for young Marsh Wrens, I put my finger into the hole in the side and pulled out three baby mice. The mother mouse had evidently found the nest and appropriated it for a nursery. It was easily reached, being not over a foot from the ground. The inside of the nest was lined entirely with red worsted.—LAURENCE SNYDER, *Huguenot Park, N. Y.*

Unusual Winter Birds near New London, Connecticut

About the last of December, 1914, some friends told me of seeing some strange birds at Riverside Park, northeast of New London. From the size, and the noting a large white patch on the wing, I could think of nothing but the Red-headed Woodpecker, though this seemed improbable. On January 6, I visited the park, and soon heard the 'tree-toad'-like call of the Redhead, which was answered by another farther away. The first bird I soon saw on a chestnut tree—an immature bird—the other, which later appeared, was a beauty; but although its head was brilliant, there were traces of gray in it. In the park are many very large chestnut trees, all more or less affected by the chestnut blight, and these had many Woodpeckers' holes. Again, on January 8, I saw at the same place one of the birds, and my friends saw them on January 9.

A physician, driving on his rounds, reported seeing, about December 16, at Bride Creek, in the town of East Lyme, a Great Blue Heron. On January 2, which was snowy and cold, he saw it again,

standing on one leg with a disconsolate air.

On January 9, with a determination to see it, if possible, with a friend I visited the creek. It was not to be seen from the road, so we stole down along the east side of the creek, through the woods and bushes, and finally out onto the marsh, where, after a while, we spied a large bird crouching down in the grass in an unheroic position. As we came nearer it rose and flew, and, to our joy, it was the Great Blue Heron. Later we saw it again. There was much ice in the creek, but some open water.—FRANCES MINER GRAVES, *New London, Conn.*

Bird Notes from Cape Cod

During several days of sleet and snow, in the early part of February, 1915, I derived a great deal of pleasure from watching the birds feeding at the places I had prepared for them. I put out crumbs on a feeding-shelf, and also in different places on the ground around my home. I also put out chaff from the barn, and suet on the trees, some with a quarter-inch mesh wire over it, so it could not be carried off in large pieces by the Jays. I likewise put some on a stick, fastening it securely by winding string around it many times, and then nailing it to a tree. I saw Chickadees, Woodpeckers, and Jays eating from the suet, also a few Juncos. Feeding on the ground were a number of Juncos, four Tree Sparrows, and one Song Sparrow. The Tree Sparrows did not come until it was very cold, and the Song Sparrow was the last of all to come.

I also saw one Goldfinch here on two days, eating from the weed seeds. On the morning of January 31, I was much surprised to see a Robin in a tree near the house. They are rarely seen here in winter. I also saw two Purple Finches on two different days in January, which is also unusual here; although there was quite a flock of them, at the home of a neighbor of mine, two years ago, at about this same time of year.—MISS ETHEL L. WALKER, *Bourneedale, Barnstable Co., Mass.*

Book News and Reviews

HOMING AND RELATED ACTIVITIES OF BIRDS. By J. B. Watson and K. S. Lashley. Papers from the Department of Marine Biology of the Carnegie Institution. Vol. VII, 1915, pp. 1-104 (Publication No. 211 of the Carnegie Institution of Washington).

Dr. Watson's earlier studies* of the Terns on Bird Key in the Dry Tortugas, with particular reference to their homing instincts, have already become part of the literature of ornithology. In the present publication he includes the results of further studies and experiments made in 1910 and 1912, and, with the assistance of Dr. K. S. Lashley, in 1913.

These later studies were centered chiefly on the homing and related instincts of the two Terns—Sooty and Noddy—which breed by thousands in the Key, where all the conditions are exceptionally favorable for work on this vitally important function in the life of migratory birds.

An introductory Chapter giving a resumé of experiments on homing birds and theories which have been advanced to explain their homing powers, shows how little of real value had been done in this field, and how widely at variance are the theories which have been offered in explanation of observed phenomena—chiefly in connection with homing Pigeons.

There is also some most welcome, because evidently authentic, 'Information on Homing Pigeons Gathered from Practical Fliers,' in which it is shown that, in a one-hundred-mile flight "with hardly any wind," the birds fly at an average speed of 1,400 yards a minute. With a strong, favorable wind, they may reach a speed of 1,900 yards a minute but, with a head wind, may be reduced to 600 yards per minute. Flights are mentioned in which Pigeons returned from a distance of 500 miles in ten and a half hours. Nearly ten days, however, were required to return from a distance of 1,000 miles.

*The Behavior of Noddy and Sooty Terns. Carn. Inst. Pub. 103; See also BIRD-LORE, XI, 1909, p. 178.

Important additions are made to the studies of nesting habits already published by Dr. Watson, and various experiments having a direct bearing on the homing problem were carried out.

These were designed to determine the part played by near, as compared with distant orientation, to show the number of days a bird which has been deprived of its mate will remain at the nest, the length of time which birds removed from the nest retain the nesting habit, and the comparative natatorial powers of the Noddy and Sooty Terns, the two birds concerned in these researches.

The latter experiment showed that, while both species are rarely seen resting on the water, the Noddy can swim buoyantly for an extended period without its powers of flight becoming impaired, but the plumage of the Sooties when forced to alight on the water, became so water-logged in from two to four hours that they could not fly. It hence seems evident that, while migrating Noddies, might, if need be, rest upon the water and later continue their journey, a Sooty must either go to land or find some floating object, if it desires to perch. A circumstance which recalls our once seeing a Sooty riding on a small bit of drift-wood far from land between Progreso and Vera Cruz.

The technique of the actual homing experiments, in which marked birds were sent from Bird Key in the Tortugas to Key West, Mobile and Galveston is given at length. It is now common knowledge that, in earlier experiments of this nature, Terns released off Cape Hatteras returned to Bird Key. It has been suggested, in explanation of this remarkable flight, that the birds simply followed the coast-line back to Key West, from which point it was supposed they could see the Tortugas, and although this theory will carry little weight with those familiar with the factors involved, its validity is completely dis-

proven by the later experiments recorded in this paper.

The number of birds returning from any given point of release was found to depend primarily upon their condition when starting. Terns do not take kindly to captivity, and the special fish they require as food cannot always be obtained. It was not until the latter part of the time covered by the experiments here recorded that methods for the satisfactory transportation of the Terns were evolved. We give, therefore, in the appended table only the results attending the last experiment when twelve Noddies and six Sooties were released on the route from Key West to Galveston, at distances varying from 418 to 855 miles from Bird Key:

possession by birds of a sense of direction.

Dr. Watson himself accepts this as proven, and he turns now from the more purely ornithological part of his researches to an effort to locate the sensory factors involved.

The results of his first experiments in this direction are here presented in a paper entitled 'Studies on the Spectral Sensitivity of Birds,' in which it is shown that the theory that homing animals possess retinas sensitive to extremely long wavelengths, and consequently might find their way to a distant goal by sight, is without foundation.

Dr. Watson proposes to continue his search for the seat of the homing function;

No.	Name of bird	Released	Distance from Key West in statute miles	Reached Bird Key
19	Noddy	May 20, 8.45 P. M.	418	No record.
23	Noddy	"	418	"
20	Noddy	May 21, 8. A. M.	585	May 26, 10.30 A. M.
21	Noddy	"	"	No record.
22	Noddy	"	"	May 25, 5.15 A. M.
24	Noddy	"	"	May 27, 12.14 P. M.
7	Sooty	"	"	No record.
8	Sooty	"	"	May 27, 5.30 A. M.
9	Sooty	"	"	May 25, 2.45 P. M.
10	Sooty	"	"	May 27, 5.30 A. M.
11	Sooty	"	"	May 29, 5 A. M.
12	Sooty	"	"	May 28, 9 A. M.
17	Noddy	May 21, 7 P. M.	720	June 7, 7.30 P. M.
18	Noddy	"	"	June 2, 8 A. M.
1	Sooty	May 23, 5.30 A. M.	855	May 29, 7.30 A. M.
2	Sooty	"	"	No record.
3	Sooty	"	"	"
4	Sooty	"	"	"
5	Sooty	"	"	"
6	Sooty	"	"	May 30, 11.35 A. M.
13	Noddy	"	"	No record.
14	Noddy	"	"	"
15	Noddy	"	"	June 4, 5 A. M.
16	Noddy	"	"	No record.

It thus appears that, out of twenty-four birds released, thirteen returned, three of these having flown from Galveston, a distance of 855 miles. The water lying between Galveston and the Tortugas is not marked by islet, shoal, or reef and this experiment, in connection with the others conducted by Dr. Watson, establishes beyond all reasonable doubt the

but whether or not he discovers it, his contributions to the more objective study of bird migration have placed bird students deeply in his debt, not alone for what he has accomplished, but for the models he has set them of methods which may be profitably employed in the study of the life of birds. His papers should be examined by all serious students of birds.—F. M. C.,

OUT WITH THE BIRDS. By HAMILTON M. LAING. Outing Publishing Co., New York. 1913. 12mo. 249 pages, 39 halftones from photographs.

Mr. Laing writes of bird-life in Manitoba, and succeeds in conveying to his reader no small part of the pleasure which he obviously derived from the experiences and observations he here records.

His photographs were apparently made with a short-focus lens, usually at considerable distance, and very few of them show the large image of a bird, which most bird photographers strive to secure, both for its inherent interest and as an evidence of their skill in approaching their subject. Nevertheless, there is much to be said for these pictures, in which the birds are seen with enough of their surroundings to give one an excellent idea of how they appeared in life, not to the bird photographer from his blind, but to the general observer.

Mr. Laing's book contains much original matter, and is fully deserving the index which, strangely enough, the publishers have failed to give it.—F. M. C.

Recent Publications of the Biological Survey

For the sixteenth consecutive year, the Survey issues its 'Directory of Officials and Organizations concerned with the Protection of Birds and Game,' thus bringing into a 16-page pamphlet information of much value, which, until this publication was established, could be obtained only with difficulty.

'Farmers' Bulletin' No. 692 (64 pages) contains a summary of the game laws for 1915, and again we have to thank the Survey for making accessible, and consequently more effective, information in regard to shooting seasons, licenses, etc., which concern every sportsman.

Bulletin of the United States Department of Agriculture, No. 205, 'Eleven Important Wild Duck Foods,' by W. L. McAtee, supplements Circular 81, Biological Survey, and Bulletin No. 58, Department of Agriculture. It contains

information of practical value to those who would make preserves or sanctuaries attractive to Wild Ducks (25 pages, price 5 cents).

Department of Agriculture Bulletin, No. 217, 'Mortality among Waterfowl around Great Salt Lake, Utah,' by Alex Wetmore (10 pages), is a preliminary report on the so-called 'Duck malady,' from which many thousands of Wild Ducks, Shorebirds, Snowy Herons, Grebes, and some other birds, have died in the Salt Lake region and southern San Joaquin Valley. The origin of this remarkable disease has not yet been definitely determined, but the evidence thus far gathered indicates, according to Mr. Wetmore, that it is due to an alkaline poison. Drainage which will prevent stagnation of alkaline waters, and an increase in the supply of fresh water at certain seasons, are the suggested remedies. These important studies were to be continued during the present year (10 pages, price 5 cents).

Bulletin No. 280, Department of Agriculture, 'Food Habits of the Thrushes of the United States,' by F. E. L. Beal (23 pages), presents in detail the results of the study of some hundreds of stomachs of these birds which, it is gratifying to learn, are as useful as they are musical. (23 pages, price 5 cents.)

Bulletin No. 292, Department of Agriculture, 'Distribution and Migration of North American Gulls and Their Allies,' by Wells W. Cooke, is a most acceptable addition to the series by this author treating similarly of various families of North American birds. The data presented for each species is graphically summarized on maps which, at a glance, plainly show the area over which the bird is distributed and the season in which it occurs. (70 pages, price 15 cents.)

All the Bulletins mentioned above may be obtained from the Superintendent of Documents, in Washington, for the prices named. The one by Professor Cooke gives a list of publications of the United States Department of Agriculture relating to the distribution and migration of birds, which we reproduce herewith for its reference value.

Available for Free Distribution—

Distribution and Migration of North American Rails and Their Allies. By Wells W. Cooke. Pp. 50, figs. 19. 1914. (Department Bulletin 128.)

Bird Migration. By Wells W. Cooke. Pp. 47, figs. 20. 1915. (Department Bulletin 185.)

Our Shorebirds and Their Future. By Wells W. Cooke. Pp. 275-294, pls. 3, figs. 3. (Separate 642 from Yearbook, 1914.)

Distribution of American Egrets. By W. W. Cooke. Pp. 5, figs. 2. 1911. (Biological Survey Circular 84.)

For sale by the Superintendent of Documents—

Distribution and Migration of North American Warblers. By Wells W. Cooke. Pp. 142. 1904. (Biological Survey Bulletin 18.) Price 10 cents.

Distribution and Migration of North American Ducks, Geese, and Swans. By Wells W. Cooke. Pp. 90. 1906. (Biological Survey Bulletin 26.) Price 10 cents.

Distribution and Migration of North American Shorebirds. By Wells W. Cooke. Pp. 100, pls. 4. 1910. (Biological Survey Bulletin 35.) Price 15 cents.

Distribution and Migration of North American Herons and Their Allies. By Wells W. Cooke. Pp. 70, figs. 21. 1913. (Biological Survey Bulletin 45.) Price 10 cents.

The Ornithological Magazines

THE AUK.—The October issue closes a volume of 568 pages which, like its predecessor, is a mine of ornithological information. New writers are coming to the front, and some of the veterans are passing away. We read with regret an able obituary of Dr. Theo. N. Gill, by Dr. T. S. Palmer, and there are also brief obituaries of Graf Hans von Berlepsch and Dr. Otto Herman. The half-tones of Drs. Gill and Herman are excellent likenesses.

Dr Frank M. Chapman writes on 'The

More Northern Species of the Genus *Scytalopus*; Gould,' describing a new genus (*Myornis*) and four new species, thus illustrating the analytic side of ornithology; and Mr. O. Bangs, in 'Notes on Dichromatic Herons and Hawks,' throws together a number of species supposed to be distinct, thus illustrating the synthetic side. Mr. Bangs considers Cory's Bittern a color phase of the Least Bittern, and Ward's and Wurdemann's Herons phases of the Great White Heron.

Mr. W. W. Cooke presents an unusually instructive article on 'Bird Migration in the Mackenzie Valley,' graphically shown by outline maps of North America with isochronal lines and routes of migration of several species. His theories seem well supported by the facts in most cases, but it should be remembered that new facts might modify very materially the lines as now determined.

An intimate study of 'The Plum Island Night Herons,' by Mr. S. W. Bailey, is a pleasant bit of word painting, and we feel as we read that we are tramping over the dunes or pushing through the tangle between them, or even sitting among the branches of the rookery itself. Another intimate study is one by Mr. H. Scudder on 'The Bird Bath.' There are no less than five methods of bathing described, evidence, perhaps, that man did not originate the first health resort.

Mr. S. F. Rathbun furnishes a 'List of Water and Shore Birds of the Puget Sound region in the vicinity of Seattle,' some eighty-two in number; Dr. R. W. Shufeldt writes concerning an extinct Cormorant, of which a few fossil bones are shown in a plate; and Mr. C. E. Johnson describes anatomically a four-winged wild Duck, of which there are several plates.

A brief account by Mr. John H. Sage of the Thirty-third Stated Meeting of the A. O. U. needs little comment, save to say that this meeting in San Francisco was a success, although so far away from its usual habitat.—J. D.

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 Supreme Court of the United States now has under consideration arguments for and against the constitutionality of the Federal Migratory Bird Law. Whatever may be its decision, nothing can rob us of the knowledge, gained while the law was in force, of the inestimable value of this measure. To return now to state laws, with their vicious exceptions and special privileges designed in the interests of this faction and that section, with small consideration for the fundamentals of true conservation, would be so great a backward step that we are convinced every true protectionist would rise in rebellion against it.

The economic necessity, scientific reasonableness, and broad legal justness of a law based on a nation-wide knowledge of the present and future demands of bird protection are beyond dispute; and if the constitution of these United States denies Citizen Bird the rights we all admit he deserves, let us change the constitution!

WE commend to every reader of BIRD-LORE Mr. Pearson's Annual Report as Secretary of the National Association of Audubon Societies, published in this issue. During a year of much financial stress, when exceptional demands have caused more than one humane or philanthropic organization to close its doors or curtail its activities, the National Association has had the most successful year in its history. An income exceeding that

of any previous year has permitted it not only to maintain and increase already established lines of work, but also to enter new fields.

Over 152,000 pupils, under more than 7,000 teachers, were enrolled in the junior classes; and the far-reaching importance of this branch of the Association's labors has so commended itself to the superintendents of education in some of our largest states that their future coöperation is assured. The Association has supplied teachers of ornithology to various summer schools throughout the country, and the opportunity for the development of this kind of affiliation with other institutions is limited only by our ability to meet it.

The Department of Applied Ornithology has filled a pressing want, and all the signs point to the establishment of a Department of Bird Clubs, which shall be a central bureau of information.

To one not familiar with the underlying causes, this continued growth of interest in bird-life seems too rapid to be healthy and normal. But to one who has been closely in touch with all the influences which, during the past twenty-five years, have been urging the beauty and value of birds, it is the reaping of crops which, if long in maturing, are now yielding nobly.

Impressive as is the comparison of our present attitude toward birds with one which existed a generation ago, we believe that an even greater change will occur in the succeeding decade. The inertia of nearly complete ignorance has been overcome. Ways and means for the development of our inherent and almost universal interest in birds are now so numerous that some of them are bound to be within reach of everyone. Leaflets, books, and colored plates exist now, in the aggregate, by hundreds of millions, where a score of years since they were barely available. And as the bird and its place in nature becomes a matter of general knowledge, it will become also a matter of general interest; and thus, in time, it will be as much a part of our lives as the changing seasons with which it is so closely associated.

The Audubon Societies

SCHOOL DEPARTMENT

Edited by ALICE HALL WALTER

Address all communications relative to the work of this department to the Editor, 67 Oriole Avenue, Providence, R. I.

A SUCCESSFUL VENTURE

In the preceding issue of BIRD-LORE, bird-clubs were described in detail. Another phase of activity is described in the following article, showing how a State Audubon Society took advantage of the opportunity to add an exhibit to a Pure Food Fair, which was open to the public for two weeks, during which time 75,000 or more people were in attendance. The expense necessary to present an exhibit of sufficient magnitude to attract attention was a source of some anxiety to the Society, but the success of the exhibit fully justified the venture.—A. H. W.

AN AUDUBON EXHIBIT AT A FOOD FAIR

At the Pure Food Exposition held in Providence, R. I., in February, 1915, permission was given to the Rhode Island Audubon Society to place an exhibit illustrating its work, on the stage,—the most advantageous position in the hall. The exhibit, which was in charge of Harold L. Madison, curator of the Roger Williams Park Museum, proved to be one of the most attractive and, it is hoped, most permanently beneficial of the great variety of demonstrations. The stage was divided into three aisles, through which people were guided by red arrows, thus avoiding confusion. In the first aisle the spectator saw a collection of birds found in Rhode Island, with a screen containing specimens of wild and cultivated fruits used for food by birds. A revolving disc bearing lantern-slides, giving the life history of Bob-white from egg to maturity, proved a great attraction, as did also a similar contrivance showing harmful weed seeds destroyed by birds. The remaining aisles showed methods of attracting and protecting birds, with a large collection of suet-bags, bird-baths, weather-vane food-houses, and bird-houses. Birds' enemies were represented by a stuffed cat, red squirrel, and turtle, while methods of protection were suggested by such devices as the English Sparrow-trap. Near the information desk were a large map of Providence and one of the state of Rhode Island, upon which red stars were placed as visitors reported feeding the birds. The accompanying picture of the map showing the position and number of feeding stations for Providence, is kindly loaned by Mr. Madison.

Regular attendants were in constant charge of the exhibit, ready to explain and give information along all lines of bird work. These attendants were assisted by members of the Civic Biology class of the Rhode Island Normal School, each student being on duty one afternoon and one evening. The time was filled with obtaining information for the feeding-station maps, receiving new Audubon members, both adult and junior, distributing leaflets, and explaining puzzling features of the exhibit. As the study of birds was being taken up as a first and very important problem in the class, the very helpful opportunities given to the girls in their work at the exhibit were thoroughly appreciated. The students gave reports of their experiences to the Civic Biology and Nature-Study classes at the Normal School, and later to the Audubon Society.—MARION D. WESTON, Instructress in Nature-Study.

JUNIOR AUDUBON WORK

For Teachers and Pupils

Exercise XXIV. Correlated Studies: Drawing and Reading.

Feathers, Part I

During the year, we have briefly and very simply discussed the plan of a bird, namely that of a highly developed flying-machine, and have sought to gain a clearer conception of what this plan embraces. The wing, tail, and skeleton of a bird have been emphasized because they differ in so great a degree from similar structures in other *vertebrates*. In this exercise, let us learn a few general facts about feathers, since feathers play an important part in the very beautifully perfected mechanism of a bird's flight.

The first fact to note and remember is that, when a feather is mentioned, it is not necessary to state that a bird's feather is meant. No other animal or organism of any kind whatever has feathers. The only place, therefore, where one may look for feathers is on birds. This very simple fact is one of the strongest arguments for bird protection. It means that the supply of feathers is limited to one group of living creatures, and that it is an impossibility to get feathers in any way except from live birds. More than this, feathers form so integral a part of the structure of birds that only in a few instances, as, for example, in getting the plumes of the ostrich, can feathers be taken from live birds without killing them. Even if a bird could live after losing its feathers, it would be very helpless and unfit to get food for itself or to care for its young. Nature alone knows how to change the feathers of birds each year without injury.

A strange fact, which is linked with this one, is that the only parts of a bird that are dead are its feathers, scales and claws. A feather, like a scale, or a beak or a claw or a nail, may be said to die as fast as it grows. A bird stripped of its feathers is indeed a repulsive object until one knows what to look at and study about it. Probably very few people would care much for bird-study if birds had no feathers. Even their melodious songs would scarcely take the place of their varied plumage. And yet feathers are structures that are dead by the time they are grown, while the bones, muscles, nerves, organs of circulation, digestion, reproduction, and sense are all living structures.

We may think perhaps of feathers as the clothes of birds, in order to understand somewhat better their use and durability. Let us suppose, for an instant, that we had but one suit of clothes for all times of the year, that this suit was not only water-proof, but heat- and cold-proof, and very nearly wind-proof, and that it was so constructed that it renewed itself from year to year, presenting a fresh, trim appearance. We may have read in fairy tales of such suits and longed to possess one, especially that kind of a suit with the seven-

leagued boots attached; but we knew it was not possible to have one. Birds do have such a suit, so wonderfully made that they are comfortable whether at the equator or the Arctic Circle, in sun or rain, in winter or summer, anywhere and at any time.

This is a very remarkable fact, and one that is more easily stated than explained.

A fourth fact of interest about feathers is that, though they appear to cover the entire body, with the exception of the eyelids and feet (in most birds), many



MAP SHOWING LOCATION OF BIRD-FEEDING STATIONS IN PROVIDENCE, R. I.
(For description of article, see page 465)

places on the body are naked, with no sign of feather-growth. A careful study of these bare patches in different species of birds has led to a complex and elaborate classification of what are called the *feather tracts* on the bodies of birds. Not only are feathers, taken separately, found to be of various kinds and complicated structure, but their distribution also is varied and intricate. One must learn first to distinguish the different kinds of feathers, and afterward the different patterns of their distribution.

In order to understand better the kinds of feathers and their patterns of arrangement, let us think of a few reasons why it would be inconvenient and far from practicable for a bird to have only one kind of feathers covering the entire body. Without feathers, a bird could probably not fly at all; and with only one kind of feathers, it is doubtful whether it could fly well or perfectly. There are at least four things that feathers must do if they serve the purposes to which they are put. First, they must protect the bird's body by keeping it dry; second, they must further protect the bird's body by assisting in regulating the temperature of the blood; third, they must act as a special mechanism for flying, and fourth, they must aid in steering the body of the bird in flight. There are various minor uses to which feathers are put, such as bracing the bird against an object, for ornaments, and for cleansing purposes, but their main uses are to protect the body, help regulate the temperature, and assist in flight. For these various purposes, therefore, it is essential that feathers be of different kinds.

The fact that they do not grow equally on all parts of the body is only another evidence that every possible saving has been made in reducing the bird's weight and bulk without interfering with its normal activities.

QUILL- OR CONTOUR- FEATHERS	}	1. Covering the body in general, without special adaptation for flight.
		2. In particular places on the body, and specially developed to aid in flight.
DOWN-FEATHERS	}	1. Of adult birds.
		2. Of nestlings.
DEGENERATE FEATHERS	}	1. Semiplumes.
		2. Filoplumes.
		3. Powder-down feathers.

Before defining these different groups, we must next see what a feather is, and learn something of its structure.

Feathers, like hair, grow out of the skin. If we could look through a microscope and see a feather starting to grow, it would seem like a collection of tiny cells pushing out from the skin in somewhat the same manner that a glove finger which has been turned inside may be pushed out. Pushing farther and farther out, these tiny cells take a definite course and shape, until they have

reached their final growth, when they cease to be nourished from their base in the skin and may be said to have become dead structures. As soon as they become worn and unfit for use, they are displaced by new feathers that grow in their stead; and since the feathers of a bird, as we shall see, are fitted together in a particular way, this displacement of old feathers by new ones takes place regularly. Ordinarily we speak of this change of feathers as 'shedding feathers,' or molting.

Of all feathers belonging to a bird's plumage, the quill or contour feathers are the most symmetrically developed, especially the so-called 'flight-feathers' which are found in the wings and tail. For this reason, we will take as a type a quill-feather, and study its general parts, omitting details that could not be well understood without the use of a microscope. Two parts of such a feather at once attract the eye, namely, the long, semi-transparent, somewhat horny *shaft*, and the flexible feathery sides, or *vane*. The shaft is larger and conical at the end where it is attached to the body, and this part is called the *quill*, while the word *shaft* is used only in connection with the part which is somewhat flattened, thinner, and angularly edged where the vane is attached. An easier word to remember than vane possibly is *vexillum*, which means a pennant or flag. Any one of you who has ever carried a flag knows that it has a wooden shaft to which the flag or pennant part is attached, and that this shaft ends in a handle. In similar fashion, a quill-feather, or any contour-feather, is made up of a stiff supporting shaft with a handle and a flexible pennant. The entire feather, it is needless to say, is very light. The expression 'of scarcely a feather's weight' is familiar to everyone.

So long as the feather is growing, it must have some place for nourishment to enter. By looking carefully at the end of the quill, you can discover a tiny hole, and if your eyes are very sharp you may find another on the inside of the feather, where the quill flattens into the shaft.

The vane, or vexillum, is far more complex than the quill and shaft. Although it looks so smooth and whole, it is in reality made up of thousands of tiny parts. By running your fingers along the edges of the vane, you can easily break it apart at any point, and when you do this, if your finger-tips are sufficiently sensitive, you will feel a kind of rough, burlike surface. Starting from the shaft, one might run a pin to the edge of the vane, as one can between the teeth of a comb, and so break up the vane on either side of the shaft into numberless pieces. Each of these pieces is called a *barb*. Seen under a magnifying glass, a barb looks something like a tiny, lath-shaped structure, ending in a point. Now each barb has a central stiffened part, supporting more or less flexible parts on either side. Unlike the big general vane of the feather, which is alike except in size on either side of the shaft, a barb carries two sets of minute structures on either side of its central shaft, known as *barbules*, and these, in turn, are further subdivided into *barbicels*, or *hooklets*. Since we cannot see these without magnifying glasses, we will attempt to remember only

one thing about them, that they are formed like a series of catches, or interlocking hooklets. On one side of the barbs, are barbules shaped like hooks, and on the other side, barbules shaped like troughs, into which the hooks catch and cling, while on each side of the barbules are still more minute structures. This device is very remarkable, because it locks the vane of a feather so completely together that every part is taut and trim, and yet the entire vane can be pulled apart, if necessary, and relocked. Did you ever see a bird locking a feather which had become broken apart, by running it through its bill? You can lock a broken feather together again by simply running it through your fingers. You can readily understand that this kind of vane is far more flexible than a vane made out of one whole piece of feather material would be, and not only more flexible but more durable, since it can be quickly and easily repaired at any point if it becomes torn.

There is still another part to a perfect feather, called the *aftershaft*, which is a reproduction, on a smaller scale, of the main feather to which it is attached at a point near where the quill and shaft meet. Many feathers do not have aftershafts, and not all aftershafts are perfectly developed.

Returning to the classification of feathers above, we may say that quill or contour feathers are, in general, like the typical feather just described. The contour feathers covering the body in general are not as stiff as the so-called 'flight-feathers' of the wings and tail, and their vanes are softer and less tightly locked near the quill end.

As their name suggests, they serve the purpose of giving grace and symmetry to the body of a bird, besides protecting it, and assisting in flight. They are also the feathers most prominently seen and, as we shall learn in a later exercise, they are very dissimilar in color and markings, thereby adding beauty to the bird's plumage.

Down-feathers do not have a main shaft, but the barbs branch out from one common center, without being locked compactly together into a shapely vane. Instead of resembling flags or pennants, these feathers might be said to look like tiny bouquets, in which long, soft, fluffy barbs are joined at one point, namely, the handle of the bouquet. The barbules of the barbs of down-feathers have no hooks, but are often long and edged with tiny knobs, which serve to make these feathers slightly thick and like felt. Since the down-feathers are mostly hidden beneath the contour-feathers, they are sometimes described as the underclothing of birds.

Nestling birds at first grow only down-feathers of a peculiar kind, so that in their case it would not be correct to speak of these feathers as underclothing.

Semi-plumes, filo-plumes, and powder-down feathers are spoken of as *degenerate*, because they never develop into perfect feathers. Semi-plumes are half-perfect feathers, being downy toward the quill end. By studying their location with reference to the more perfectly developed contour-feathers, you would probably see a reason for their structure. Filo-plumes are commonly

known as 'pin-feathers.' They are clustered about the bases of contour-feathers. Examined closely, they are seen to have a very tiny vane at the tip, but their general appearance is so different from that of a perfect feather that they resemble hairs, or bristles, or eyelashes more than feathers.

Powder-down feathers are a peculiar kind of down-feathers, that seem to bear a 'dry, waxy powder.' They grow indefinitely but keep breaking off at the tips, diffusing this powder through the other feathers in their vicinity. Not all birds have this kind of feathers, but those which do find them useful in keeping the plumage clean.

QUESTIONS

1. Can you think of any reason why the plumes of the ostrich are so loosely locked together? If an ostrich could fly, what would it need to make the wing-feathers true 'flight-feathers?'
2. What is the meaning of *plume*? of the prefix *semi*? of the prefix *filo*? of the words *semiplume* and *filoplume*?
3. Do you understand the meaning of the word *feather* better after looking up its derivation?
4. What does the word *plumage* mean?
5. How do the quills of the porcupine compare with the feathers of birds?
6. What birds have feathers below the heel? Why?
7. What birds have powder-down feathers?
8. Can you think of any differences between feathers and fur and hair?

REFERENCES

Look in the Century Dictionary and Encyclopedia Britannica for illustrations of feathers, filoplume and aftershaft.

See Chapman's Handbook of Birds of Eastern North America, p. 84: The Plumage of Birds.
A. H. W.

FOR AND FROM ADULT AND YOUNG OBSERVERS

A CANARY AT LARGE THROUGH A NEW ENGLAND WINTER

On August 29, 1914, I saw from the house a bird which I entered in my notebook as a Canary. Three times in September it was seen feeding on the lawn with a large flock of English Sparrows, September 17 being the last date. On December 12, we were astonished at its appearance, in company with three or four Sparrows, on a tree within twenty feet of our window. The day was mild, but we had had snow and severe cold, through which it seemed impossible for a Canary to have survived. We questioned ourselves, "Is it a Canary, or an albino Sparrow, or some other bird?" It was again observed on January 16, February 1 and 16, and March 11 and 12, 1915. Careful observation convinced

us that it was really a Canary. It was with us several times in April, and then we saw it no more.

Inquiry in the neighborhood has given us this story. A female Canary made a nest, in the summer of 1914, on a low branch of a tree on Orchard Ave., in which she laid three eggs and sat upon them, but they never hatched. The gardener of one of the houses caught the bird in a trap and kept it in his barn for a while, but, as he was unable to find anyone who wanted it, he set it free again. He often saw it flying around with a Sparrow, through the winter. A lady living on the same street noticed it, and put seeds where they would attract it. She left a window open, and the Canary spent the night in her home for several months. This spring another nest was made, and three eggs were laid. It was in an evergreen shrub less than two feet from the ground. One morning it was found that the nest had been torn to pieces, probably by a cat, and the bird was never seen again. No one has any idea where the Canary came from.—LUCY H. UPTON, *Providence, R. I.*, June 23, 1915.

[The writer had the good fortune to be told of the appearance of a strange bird in company with English Sparrows, and twice saw the Canary at close range. It was also identified by a third observer, so there seems to be no doubt that this particular Canary survived a rather mild winter in the open, seeking company with the ubiquitous Sparrows. Perhaps more interesting than its survival outdoors is the fact of its nest-building without a mate, a striking instance of the power of instinct.—A. H. W.]



FIND AND NAME THE BIRD

WHO CAN NAME THE BIRD IN THIS PICTURE?

I am sending this photograph of a wild bird which I do not know the name of. I took it with my own Brownie camera, which does not take very large pictures, but I think if you try real hard you can see the bird in the picture.

A young lady, a girl and myself were out rowing, taking our cameras with us. We went up a little opening in the bog, and along between four and five o'clock we noticed a bird in the swamp rushes near the bank. It was a gray bird with yellow feet, and when it flew its feet would hang straight downward. I did not notice

the bill, and I am sorry I didn't, now. I think it knew that someone was watching it for it moved very cautiously. We were able to get within nearly five feet of it. We saw two others, but at a distance.

I took three or four snapshots, but they didn't turn out very well. This one I am sending is the best. This happened in the month of August, at Cape Cod. The only other birds we saw were a wild Duck and Gulls.—HELEN STEARLY, (age 10 years), *Montclair, New Jersey*.

[Perhaps with the cue that the feet of the bird in question were yellow, and that they were carried straight downward when it started to fly, together with the fact that the general color of its plumage was gray, our readers can guess the name of the bird. Surely the note about the environment "swamp rushes near the bank, in a little opening in the bog" will help. If the bill had been described also, the bird's identity would have been almost surely discovered.—A. H. W.]

OUR AUDUBON WALK

It was a bright, clear afternoon in December that we chose for our walk. How refreshing the brisk breeze seemed in comparison with the city's air! You may ask us where did we go. We started at Eagle Road, and walked in a semicircle to a small station called Aronimink.

We walked on the outskirts of a grove of trees, and then down a hill into another grove of trees. The trees were bare, and many of the chestnut trees had been killed by a disease. There were a great many dry leaves on the ground, under which was hidden the grass which was sure to be beautiful in the spring. Farther in the woods we dug from under the leaves the beautiful, thriving, little vine of the winter. It was the plant which has the perfect, red berries, hidden from view. The Bob-whites feed on them and they are called partridge berries. I dug enough of this winter plant to make a beautiful Japanese basket full of them. On the handle of the basket I tied three button-balls. The button-balls grew upon a tree as perfect as the partridge berries were. The tree was brown and its branches were full laden with the pretty round balls. Behind the tree glowed in full beauty the sun, as it was about to set.

Along with us we had a small glass through which we examined moss. We saw Darby Creek, and walked along the pieces of ice which were washed up along the shore. After our walk was about half through, we all sat on a rock and ate some sandwiches, which seemed very appropriate at that time. My brother and I sat like two somewhat large squirrels on the outstretched limb of an old iron-tree.

The sun was sinking in the west and we made our way toward the station. We climbed up and down hill, and it was the hill on which the station was, where I climbed up, with a little trouble, a small but steep bank, to pick the choice bittersweet. The bittersweet I arranged with a small bunch of hemlock. This combination made as beautiful a bouquet as the flowers of summer.

Now that I have told you about a few of the flowers we saw, I must tell you of the birds and their nests.

I do not know what you think, but I think birds and flowers should be classed together.

The first we saw of the birds' nests was a little Field Sparrow's. It must have suffered from the harsh winds and rains, for it fell apart soon after we found it. We found on a young tree a Robin's nest. It consisted of a mud cup, which was concealed by the dry grass and moss which were woven around it.

Swinging on a small bush was a Vireo's nest, which was very different from the Robin's. It was frail and had no mud cup to support it. It was woven and fastened tightly between two twigs.

We were unfortunate enough to see but very few birds. In the topmost branches of a tall tree was the roomy Crow's nest. It was a large one, and appeared from below to be made of twigs covered with leaves.

It would be difficult to tell you all the things we saw while taking our walk.



THE YOUNGEST MEMBER OF THE 'WAKE ROBIN'
JUNIOR AUDUBON CLUB

But everyone has the chance of belonging to an Audubon Club and enjoying some of the beautiful walks, as well as studying about the birds and flowers.—EMMA MAY MACINTYRE (age 11 years), *West Philadelphia, Pa.*, Member of Junior 'Wake Robin' Audubon Club.

[The following explanation of the article above is given by the founder of the 'Wake Robin' Junior Audubon Society: "The work is entirely the little girl's own, and I would like to give your readers an idea of the benefit children derive from these Audubon club meetings and walks. You will observe that Emma May says little about the birds, for we saw none on the day of the walk she describes. However, there were many other interesting things to see, and the children proved to be sharp observers. In class they are shown birds, wild flowers, berries, leaves, and told their names, so that when the birds are scarce they find many other beautiful and interesting things. In the Audubon

Corner, which is always arranged for club meetings, there are birds' nests, leaves, flowers, country scenes, stuffed birds, curios, and *always I have something new and fresh from the woods*. Then we sing nature songs, and recite bird and flower poems.

"The 'Wake Robin' is not one of the school clubs. I have gathered the children from various neighborhoods, and hold the meetings at my own home. It has been somewhat difficult to organize, on this account. The children sometimes forget the dates of meetings, and I am obliged to telephone, write cards, etc., as reminders. Now it has developed into a very successful club with a membership of nineteen. The children love to come, and especially do they love the "hikes," as they call them. I take them away off into the wild country places where trolley cars and automobiles are unknown. They see picturesque portions of the country they did not know before. The walks are about five miles, and we never retrace our steps. The children come home with roses in their cheeks and the joy of outdoors in their hearts." The subjoined picture is a likeness of the youngest member of the 'Wake Robin.' He is holding a Vireo's nest in his hand.—A. H. W.]

THE BIRDS' CHRISTMAS TREE

A few days after Christmas, I helped my brother take down the Christmas tree. He took it out into the yard, to wait until the ashman came to take it away. I happened to be there, and thought it a good idea to set it up for the birds. I asked my brother to fix it for me, which he did. Then I went to the store and asked for some suet, which I tied on the tree. I also got some small pieces of bread and fastened them to the twigs. At first I got discouraged, as I thought the birds were not coming, but in a short time a number of Sparrows came, and the flock became larger and larger each day. I kept feeding them for a week or two, and then, when the snow had gone, my father cleaned up the yard and took the Christmas tree away. He did not know I had it fixed for the birds, but I continued throwing bread out of the window to them. They come every morning as if they know the bread will be ready for them.—BEATRICE M. DALEY (age 12), *Beverly, Mass.*

[A bird's Christmas tree is such a delightful idea that everyone ought to try decorating and providing food suitable for the birds' use, in connection with one. A Christmas tree is an attraction always, in itself, but a bird's Christmas tree is so unique an idea that we lose the pleasure we might easily have if we undertook to maintain one for a few weeks. Even monkeys like Christmas trees, as visitors to the "Zoo" in Lincoln Park, Chicago, know.—A. H. W.]

"Midwinter comes tomorrow
My welcome guest to be."

—W. J. LINTON.

THE SURF SCOTER

By T. GILBERT PEARSON

The National Association of Audubon Societies

EDUCATIONAL LEAFLET No. 83

If you chance to be aboard a vessel steaming up the Hudson River late in October, you may see, if you keep a sharp lookout, numerous flocks of wild Ducks. If you examine these through a field-glass, you will probably discover some that appear larger than others, and that many of them are black. Watch closely for such birds, for these large black Ducks of the open waters are pretty sure to be Surf Scoters. They do not remain here long, and after the middle of November are rarely seen on the Hudson River. At this season they also frequent the waters of Lake Champlain, and to some extent other lakes and rivers, particularly along the seaboard; they are numerous, too, at some points in the Great Lakes. The Scoters come down from the north, along with the general movement of the feathered hosts that are fleeing before the freezing advance of the Ice King. Being particularly fond of open water, few, indeed, are the individuals that care to linger in lakes and rivers which may freeze. Hence, if we want to find the Surf Scoter in winter, we must journey down to the sea. Out in the rolling Atlantic, off Long Island, they are usually numerous at this season, and also may be met with along the New England Coast, where they begin to arrive early in September. They occur along the coast southward as far as South Carolina, and some have been known to wander to Florida. In the Pacific Ocean, off Washington and Oregon, they are even more abundant than in the Atlantic, and at times go as far south as northern Mexico.

Of the three species of Scoters found in North America, it is possible that this is most abundant. E. W. Nelson mentions a flock found by him near Stewart Island, Alaska, which formed a continuous bed of black bodies sitting closely together on the water over an area that averaged more than half a mile in width and about ten miles in length. This observation was made late in the breeding season, and apparently all the birds were males. When rising from the water the noise from their wings was like the continuous roar of some gigantic cataract. The species must have been very numerous for these were all males, and we must remember that females and young were doubtless in far greater numbers in the neighborhood.

The summer home of the Surf Scoter is in the far North. None is known to rear its young in the United States. Those occasionally found in our borders in summer are either cripples, as the result of winter shooting, or are non-breeding individuals. They nest in suitable localities north of a line drawn through Labrador, northern Quebec, Great Slave Lake, and southern Alaska. Audubon, describing a nest which he found in Labrador, wrote:



Male

Female

SURF SCOTER

Order—ANATIDÆ
Family—ANATIDÆ
Species—PERSPICILLATA

Order—ANSERES
Genus—OIDEA

National Association of Audubon Societies

Allen Brooks

“For more than a week after we had anchored in the lovely harbour of Little Macatina, I had been anxiously searching for the nest of this species, but in vain; the millions that sped along the shores had no regard to my wishes. At length I found that a few pairs had remained in the neighborhood, and one morning, while in the company of Captain Emery, searching for the nests of the Red-breasted Merganser, over a vast and treacherous fresh-water marsh, I suddenly started a female Surf Duck from her treasure. We were then about five miles distant from our harbour, from which our party had come in two boats, and five and a half miles from the waters of the Gulf of St. Lawrence. The marsh was about three miles in length, and so unsafe that more than once we both feared, as we were crossing it, that we might never reach its margin. The nest was snugly placed amid the tall leaves of a bunch of grass, and raised fully four inches above its roots. It was entirely composed of withered and rotted weeds, the former being circularly arranged over the latter, producing a well-rounded cavity, six inches in diameter, but two and a half in depth. The borders of this inner cup were lined with the down of the bird, in the same manner as the Eider Duck’s nest, and in it lay five eggs, the smallest number I have ever found in any Duck’s nest. They were two inches and two-and-a-half eighths in length, by one inch and five-eighths in their greatest breadth; more equally rounded at both ends than usually; the shell perfectly smooth, and of a uniform pale yellowish or cream-color.”

In a letter which the writer recently received from W. E. Clyde Todd there occurs this statement:

“The Surf Scoter breeds on Charlton Island, near the head of James Bay, and along the east coast of the same, as far south as the Sheppard Islands, in latitude $52^{\circ} 45'$, at both of which localities I encountered young birds in the summer; of 1912. On July 12, at Charlton, a brood of four ducklings, not over a week or ten days old, accompanied by their parents, were discovered in a small lake hidden away in the woods, nearly two miles from the shore. This raised the question as to whether the old birds are accustomed to seek out such retired situations as nesting-places, and when and how the young are conducted to the open waters of the bay. Later in the season (August 3) a female with her brood was met with in a sheltered cove along the shore of one of the Sheppard Islands. The young at once made for the shore, while she pattered off in an opposite direction, endeavoring to draw attention to herself—just as I have seen other Ducks do under similar circumstances.”

The male of this species is in appearance a striking bird, as may be seen from the accompanying drawing. His face can hardly be said to be handsome, however, and yet no less an authority than William Leon Dawson says: “the duck-ladies like him.”

“In fact they have to,” he continues, “for they are such homely bodies themselves that the perversity of attraction must be mutual. I have seen a Surf Scoter courtship in mid-April. Five males are devoting themselves to one

female. They chase each other about viciously, but no harm seems to come of their threats; and they crowd around the female as though to force a decision. She, in turn, chases them off with lowered head and outstretched neck, and great show of displeasure. Now and then one flees in pretended flight and with great commotion, only to settle down at a dozen yards and come sidling back. If she will deign a moment's attention, the flattered gallant dips his head and scoots lightly under the surface of the water, showering himself repeatedly with his fluttering wings. One suitor swims about dizzily, half submerged, while another rises from the water repeatedly, apparently to show the fair one how little assistance he requires from his feet in starting, a challenge some of his corpulent rivals dare not accept, I ween. I have watched them thus for half an hour, off and on, and the villains still pursue her."

At many points in the ocean along the New England Coast, where other Ducks are not always abundant, the Scoters, locally known as Sea Coots, are extensively pursued by gunners. In describing the methods of hunting them in these regions George Bird Grinnell has written:

"Ducking in line is a communal form of hunting. The gunners of a locality agree all to go out on a certain day, and unless fifteen or twenty boats go it is useless to make the start. The boats range themselves in a line off-shore, from some headland or point which separates two bays in which the Ducks commonly feed. The first boat is placed two or three hundred yards off the shore, the next one a hundred yards outside of that, the next still further out, until the twenty boats, extending out from the point, make a cordon of gunners, extending out to sea nearly a mile from the point. Usually lots are drawn for position, those nearest the shore not being so desirable as those farther out. An effort is made to be on the ground before daylight, as the shooting begins with the earliest dawn. Often, therefore, the gunners are obliged to rise at two or three o'clock in the morning to make their way to the shore, get into their boats, and perhaps pull a distance of three or four miles before reaching the ground. At other times, all of them will congregate in some barn near the starting-point and sleep there, and the start will be made together . . .

"The sky grows brighter and brighter, more gunshots are heard, and presently the sun rises. Now, as one looks seaward, great bunches of birds can be seen rising from the water, and these breaking up into small flocks in all directions. Perhaps the first to approach the line will be a bunch of great 'Coots,' some of them white-winged, others dead black, and still others gray. They fly swiftly and steadily, and come nearer and nearer, until they have almost reached the line of boats, and then, noticing them—seemingly for the first time—they try to check themselves; but it is too late to turn, and with swift and steady flight, at wonderful speed, they fly on, passing between two of the boats and twenty or thirty feet above the water. In each boat a man springs to his knees, follows the swift course of the birds for an instant with his gun, and fires."

Forbush has declared:

“The ‘Coots’ mate early, before the spring migration commences; and after they are mated if one be shot the other will follow it down to the water, and if frightened away will come back again. Therefore, the gunner who understands their habits seldom fails to bag both. . . . This Scoter is an experienced diver and can swim such a long distance under water that it is easy for it to escape the gunner in a sail-boat by constantly changing the direction of its flight under water. Sometimes a cripple, if pursued, will dive to the bottom, and seizing some marine plant with its bill will hold on and commit suicide by drowning rather than submit to capture by his greatest and most persistent enemy.”

The food of the Surf Scoter consists chiefly of mussels and other bivalves of various kinds which come from the seas, bays, and river-mouths. W. L. McAtee, of the Biological Survey in Washington, is responsible for the statement that he dissected nine specimens of this bird to ascertain on what they had been feeding. His examination disclosed the fact that about 80 per cent. of the food which these birds had taken shortly before being killed consisted of mussels; about 14 per cent. of periwinkles; and about 6½ per cent. of algæ and eel-grass. There are few if any birds whose diet consists of fish or shell-fish that are really palatable to human consumption, and it would seem that these facts alone would protect the Scoter from the continuous onslaught of gunners to which it is subjected during its southern migration. As it is universally regarded as a game-bird, it may be interesting to note just to what extent its flesh is esteemed by epicures.

Speaking of the Scoter as an article of food, Walter H. Rich, in ‘Feathered Game of the Northeast,’ says:

“They are unusually tough customers, either in life or at the table. Most of our cooks believe it impossible to so prepare this bird as to make it decent food for any but a starving man. The best recipe that I have seen is something as follows: First, skin your fowl and let it parboil in saleratus water at least one day, or until it can be dented with a fairly sharp axe. If your courage holds out, the game is now ready to stuff and bake, as you would any other Duck, except that you must put enough onions into its inside to take away all Coot flavor. Arriving at this stage of proceedings, there are two lines of retreat yet open to you; either throw your delicate morsel away or give it to someone against whom you hold an ancient grudge,—on no account should you try to eat it.”

The Audubon Societies

EXECUTIVE DEPARTMENT

Edited by T. GILBERT PEARSON, Secretary

Address all correspondence, and send all remittances for dues and contributions, to the National Association of Audubon Societies, 1974 Broadway, New York City.

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Any person, club, school or company in sympathy with the objects of this Association may become a member of it, and all are welcome.

Classes of Membership in the National Association of Audubon Societies for the Protection of Wild Birds and Animals:

\$5 annually pays for a Sustaining Membership
\$100 paid at one time constitutes a Life Membership
\$1,000 constitutes a person a Patron
\$5,000 constitutes a person a Founder
\$25,000 constitutes a person a Benefactor

THE ANNUAL MEETING

The public session of the Eleventh Annual Meeting of the National Association of Audubon Societies was held in the main lecture-hall of the American Museum of Natural History, New York City, on the evening of October 25, 1915. Several hundred people gathered on this occasion to listen to a brief address by T. Gilbert Pearson, followed by three reels of moving-picture films exhibited for the first time, and described by Herbert K. Job, who is in charge of the Association's Department of Applied Ornithology. These films were made by Mr. Job during the past summer, chiefly on the Reservations of the Audubon Association and the Government in Florida and Louisiana. The audience showed much interest, and the films were highly praised by the experienced bird-photographers present.

The business meeting was held at 10 o'clock on the morning of October 26. The reports of the Secretary, Treasurer, and Auditing Committee were presented, approved, and adopted. Edward H. Forbush presented the report of Winthrop Packard, Massachusetts agent, and also enlarged on the Audubon work in his territory the past year. The report of Dr. Eugene Swope was read by Prof. H. L. Madison of Providence, who also gave an account of the advancement of

bird-protective matters in Rhode Island. Reports were presented by Arthur H. Norton of Maine, and by Mrs. Mary S. Sage, the special school-lecturer recently added to the staff of field-agents. Mrs. Mabel Osgood Wright greatly interested the meeting by telling of experiments with sparrow-traps carried on at Birdcraft Sanctuary in Fairfield, Connecticut. Additional instances showing that many desirable species are caught in traps along with the English Sparrows, were furnished by Wilbur F. Smith. By resolution the members asked Mrs. Wright to prepare a circular of warning in reference to the handling of sparrow-traps, with the purpose of the Association publishing it for distribution. Ernest Harold Baynes spoke on the subject of organizing bird-clubs and the relation they should bear to the Association; and Miss Katharine Minahan gave an account of the manner in which the Bird-Masque Sanctuary under her direction is being received.

The following directors were elected: Dr. Frederick A. Lucas, T. Gilbert Pearson, Ernest Harold Baynes, and William P. Wharton. The Advisory Board of thirty members was reelected, with the exception of three, for whose names those of Donald Scott, Dr. Joseph Grinnell, and George Batten were substituted.

WILLIAM DUTCHER APPRECIATED

One of the pleasantest features of the Annual Meeting of the Association, this year, was having President William Dutcher at all the sessions. His many friends will be pleased to learn that he has sufficiently recovered from his long illness to be able to walk with the aid of a cane. It is particularly proper at this time that our readers should be presented with a letter of appreciation from Abbott H. Thayer, of Monadnock, New Hampshire, who has been a life-long and intimate friend of Mr. Dutcher, and who raised the funds with which Mr. Dutcher began, and for several years carried on, his protection of nesting sea-birds at the beginning of the present Audubon movement. Mr. Thayer writes:

"The later arrivals upon our field of bird-preservation work, the younger generation who are just emerging into it, and have in view so noble a corps of leaders to follow, do not, probably, as a class, know how great a debt they owe to William Dutcher.

"Through the first two-thirds of Mr. Dutcher's life this thing was already 'in the air,' and a good number of our best Americans, Dutcher himself among the number, did much local bird-preserving on their own responsibility; but their life-long experience of the general popular indifference kept them hopeless of the possibility of any wide-spread or more centralized operations. The difference between Dutcher and all the others was, however, destined to come to light. One day an inexperienced enthusiast went the rounds of the principal members of this group of bird-lovers, urging, with certain grounds for hope, the attempt to enlist enough wealthy supporters to establish a system of wardens for the protection of our sea-birds. Only Dutcher, among them all, saw his way to *do* anything about it.

His life-work began on the spot. In him alone blazed up such a flame of power and devotion as only death can quell; he gave the rest of his very life to preserving to posterity the beautiful bird-world that he so passionately loved. It is one thing to wish a thing, and a very different thing to wish it to the degree that makes one *give one's life for it*. *That is what he did*. The gigantic reforms needed throughout the whole United States he no sooner conceived than he *undertook*, although to succeed against the marshaled hordes of greed and time-honored custom meant his personal presence in the halls of many legislatures throughout the country, as fast as his watchful eye saw the day coming for the next iniquitous legislation. No entreaties from his friends that he should spare himself were of any avail, and his early break-down was inevitable.

"His case is that of all human experience. Pasteur gave the world, at one stroke of *perception* (verified by *him alone*, before he gave it forth), the measureless fact—*germs*; and yet, after only ten years had gathered about this fact an army of *followers*, the slowly aroused popular interest arrived too late to distinguish, so to speak, the one candle in the room from its reflected images in all the window-panes. The Century Dictionary itself actually gives Pasteur as "famous, especially for his researches *in bacteria*" (Italics mine)—as if there had been any such field at all until he made it!

"In Rome, the nearest wine-shop that shuts off your view of St. Peter's is, through perspective, as big as the mighty cathedral itself, and only when you get twenty miles away, out on the campagna, do you fully see the truth—a vast monument towering above a low-lying, spread-out Rome, on the plain beneath.

"Whatever other bird-lover among us might have done this thing, *he did it!*"

THE McLEAN LAW BEFORE THE SUPREME COURT

The constitutionality of the Federal Migratory Bird Law, passed March 4, 1913, was argued before the Supreme Court on October 18, 1915. Harvey V. Shauver had killed three Coots in violation of this law. The case had come before the Federal Court of the Eastern District of Arkansas, and the law in question had been declared unconstitutional by the presiding judge. The Government then took the case to the United States Supreme Court, where, on the date indicated above, E. Marvin Underwood made oral argument and submitted a brief in behalf of the Government. Printed briefs were also submitted by William Haskell, of the American Game Protective Association, by Edward W. Sanborn, for the Camp-Fire Club of America, and by Charles S. Davison, for the Boone and Crockett Club of New York. Original and supplementary briefs for the defendant were submitted by Edward L. Westbrooke, of Arkansas.

It may be a month or even three months before the Supreme Court will hand down its decision. The following is a brief summary of Mr. Underwood's oral argument:

This case is an indictment for the killing of three Coots in violation of the Migratory Bird Law. The sole question involved is the constitutionality of the act. The Government maintained that it was authorized under two provisions of the Constitution—paragraph 2, section 3, Article IV, which provides that "the Congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States;" and paragraph 3, section 8, Article I, which authorizes Congress "to regulate commerce with foreign nations, and among the several states, and with the Indian tribes." Under the first head, the following theory was developed:

That the ownership of wild game is in the sovereign is a legal principle founded entirely on common law. The question in

this case is what sovereign owns the migratory wild life of the United States, whether the nation as a whole or the several states? This question is an original one, involving the nature and source of property rights; and the decision in this case must declare the common law determining such rights upon principle, uninfluenced by supposed authority.

Animals *feræ naturæ* are common property, belonging by the law of nature in common to all citizens of the sovereignty. This has been recognized from time immemorial not only by common-law writers but also by civilians. The property being common to all citizens, each has the same right to its enjoyment. That this right may be safeguarded and rendered available to all, the common law vests the title in the Government in trust for the people.

The only reason for, or purpose subserved by, so placing the title is that the common property may be protected and controlled. If there is no Government which has power to protect, there is no reason for a trustee, and the title, as well as the beneficial ownership, may well rest in the people. The Government's title, therefore, to animals *feræ naturæ*, has its source in and depends upon its ability to protect and control them for the benefit of all. This being true, the common law in case of conflict will uphold the title of that Government which has the superior power to protect and control such property for the benefit of its common owners.

The state, in contradistinction to the United States, has, for the benefit of, and in trust for, its people, ownership of all wild animals remaining permanently within its territorial limits. Having entire control over such animals, the state can protect and conserve them by its laws for all of its people. From this power of control and protection the common law, as interpreted by both federal and state courts, has deduced state ownership of animals *feræ naturæ*.

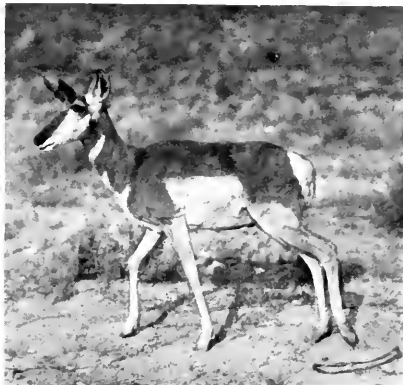
In the case of migratory wild life, how-

ever, the several states have not such control or power over it as renders possible its protection by the states for the benefit of the people. While such animals are on other territory than its own, a state has absolutely no power over them, nor can it enter into treaties with other governments for their protection, or even make agreements concerning them with other states, without consent of Congress. For the greater part of the time, therefore, a particular state has, because of express provisions of the Constitution, no power to control or protect migratory wild life. The Federal Government alone can protect and regulate, at all times, animals *fera nature* remaining permanently within the limits of the United States yet migrating over several states; and it is also the only government that can enter into treaties with foreign countries where such animals migrate beyond the limits of the United States. Migratory birds, therefore, being property of the United States, Congress, by virtue of the authority granted by the Constitution to "make all needful rules and regulations respecting the territory or other property belonging to the United States," may pass any laws it may deem proper for their protection, although such laws may have the quality of police regulations.

Under the second head (the Commerce clause of the Constitution) the following facts are presented:

Should it be admitted, for the purposes of this argument, that the title to migratory birds while actually within a state is in such state, then of necessity title thereto must pass from one state to another as such birds cross the boundary between the states. Thus, under such theory, a migratory bird flying from one state into another, passes from the ownership of the former into that of the latter state. If this be true, a thing recognized by the courts as an article of commerce when passing between individuals passes from the ownership of individuals in their collective capacity to other individuals in their collective capacity, the ownership of the states being merely ownership in trust for their respective citizens.

Such transmission of title, in connection with the actual passage of the birds from one state to another, constitutes, it is submitted, interstate commerce within the meaning of the Constitution. "Transit" means "the act of passing over or through; passage." (*New Standard Dictionary*.) The word "commerce," as used in the Constitution and defined by this court, is sufficiently comprehensive to include the periodical and systematic "passage" of migratory birds among the states. Therefore, under the power to regulate commerce among the states, Congress was acting entirely within its authority in passing this act for the protection of migratory birds.



THE PRONGHORN—AN ANTELOPE DIS-
APPEARING FROM OUR PLAINS

PRIZES FOR BIRD-PHOTOGRAPHS

To stimulate interest in bird-photography, and at the same time encourage the winter feeding of wild birds, The National Association of Audubon Societies offers ten prizes for the best photographs of wild-bird feeding at window-boxes, food-houses, food-shelves, or other similar devices:

First prize, Fifteen dollars in cash.

Second prize, Ten Dollars in cash.

Third prize, Five Dollars in cash.

Fourth and Fifth prizes,—Chapman's "Handbook of Birds of Eastern North America."

Sixth, seventh, eighth, ninth, and tenth prizes, Baynes's 'Wild Bird Guests.'

All photographs must be mailed in time to reach T. Gilbert Pearson, Secretary, 1974 Broadway, New York, on or before April 1, 1916. Each contestant may submit any number of prints, but the full name and address of the contestant must be plainly written on the back of each print. The photographs may be of any size, and preferably should be printed on glossy paper; but this is not required. All prints submitted will become the property

of The National Association of Audubon Societies, which reserves the right to publish any of them.

The judges will be the following well-known bird-photographers: Frank M. Chapman, Herbert K. Job, and Ernest Harold Baynes. In making their decision, the judges will take into consideration the following points:

1. The number of individual birds in the photograph.

2. The comparative shyness of the species that have been attracted.

3. The sharpness and definition of the photograph.

4. The attractive appearance of the feeding-device used, from the human as well as from the birds' point of view.

5. The composition of the photograph as a picture.

Whenever possible, the feeding-device, or other object, should be set up in a position not only satisfactory to the birds, but so as to be viewed advantageously by the photographer, and to have good lighting and a good background.

THE SPIRIT OF AUDUBON

There has recently been released, for the use of commercial motion-picture houses, a two-reel film prepared by the Than-houser Film Corporation of New Rochelle, New York, entitled, "The Spirit of Audubon." It is interesting and highly educational, and this Association is greatly interested in its success, for, if there is a good demand for it, this will doubtless be the beginning of a series of educational films presenting the Audubon cause.

A very pretty story runs through this exhibition. Audubon comes at night and takes two little children from their beds, one of them being a nest-robbing boy. In

vision he takes them to Florida, Louisiana, Connecticut and elsewhere, and shows them wonderful pictures of bird-life. The most of the film consists of motion-pictures taken by Mr. Job. It shows also a procession of children in New York at Audubon's birthday celebration, and at the end the children, standing at the Audubon monument in Trinity Cemetery, pledge loyalty to the birds and to the Audubon idea.

If teachers and others will request their local-motion picture-houses to produce this film, it will be of great assistance to the Audubon cause as well as provide a delightful entertainment.

With the Field-Agents

CRUISING THE KLAMATH

By WILLIAM L. FINLEY

Photographs by Herman T. Bohlman and the author

NO marsh-area in the West appeals to me like the vast tule region of the Lower Klamath, with the river winding back and forth in its meandering course through the wide stretch that furnishes unnumbered



home-sites for Ducks and other wild-fowl. The lake itself, which was once a broad body of water, has gradually been filled by the encroaching tule-islands that spread farther and farther from the shore each year until they occupy the borders for miles, and in one place have crept clear across the middle of the lake as if to form a bridge. These floating tule-islands are the homes of great colonies of Pelicans, Gulls, Cormorants, Terns, and other birds.

On May 30, 1915, Messrs. T. Gilbert Pearson, R. B. Horsfall, J. J. Furber

(Warden of Klamath Lake Reservation), and I, set out for a survey of the lake. It was a very different trip from that of 1905, when Bohlman and I, at the suggestion of William Dutcher, embarked with two weeks' provisions in a small rowboat to discover bird-colonies and try in some way to put an end to the slaughter of Grebes, Terns, and other birds killed for the millinery market. At that time no launch was available, but the Audubon Patrol Boat No. 5 is now constantly encircling the lake and guarding the great colonies of nesting birds. For nearly ten years this little launch has patrolled the Lower Lake, traversing every channel among the tule islands in all kinds of weather, in its mission of bird-protection. It was purchased for the National Association of Audubon Societies by Mr. Dutcher. It has perhaps seen longer and more useful service than any other patrol-boat, for it is one of the pioneers of the Audubon bird-protection fleet.



CALIFORNIA GULLS IN A WELL-PROTECTED COLONY

A cruise of twelve or fifteen miles is necessary from Klamath Falls down Klamath River before one reaches the main body of the lake, which is about

home of the Great Blue Herons, whose platform-nests were scattered over an area of several acres; some were rafts just above the surface of the water, but others



TERNs, CORMORANTS AND PELICANS ASSOCIATING ON LOWER KLAMATH LAKE

twelve miles long and five or six miles wide. The main bird-colonies are toward the northwestern end of the lake. Warden Furber steered straight for the flying specks of white that were hovering above the green field of tules. The first colony at which we stopped was the ancestral

had apparently been added to year by year until they were several stories high.

The Great Blue Herons are rather irregular in their nesting-habits. Some of the birds begin as early as March, for one may find eggs before the winter's snow has melted; yet some of the nests contained



CALIFORNIA GULLS AT HOME ON KLAMATH LAKE



A FARALLON CORMORANT WINGING ITS SOLITARY WAY

eggs at this time, and fully grown young birds were walking about in the tules.

At the south end of the Heron colony, we found a village of Farallon Cormorants, where several hundred half-grown birds were sitting around in groups. They had tramped over the tules so much that the growth was worn down almost to water-level, and the place looked like a dance-hall. Although Mr. Pearson ap-

proached the multitude in the spirit of a protector, and talked in the Negro tongue, yet the members of the colony waddled off suspiciously. They are not yet able to tell friend from foe, although they have been under Audubon protection for seven years. One family of three youngsters remained, however, and, as their genial god-father approached, they stretched their skinny necks in welcome, and opened



VISITING A VILLAGE OF FARALLON CORMORANTS ON LOWER KLAMATH LAKE

wide their mouths in a hungry and expectant attitude.

From the Cormorant colony, we cruised around to some of the White Pelican camps. Here rows of hundreds of great white birds, sitting like a huge congregation with their chins resting on their

chests, were solemnly awaiting our arrival. The wisdom of all bird-ages seems to be centered in the hoary head of a Pelican. For fifteen minutes, we sat in Quaker silence on the bow of the patrolboat, watching the big white birds come and go. They in turn reviewed us quietly



A PINTAILED DUCK ON HER NEST BESIDE KLAMATH LAKE



WHITE PELICANS AND CORMORANTS PROTECTED AT KLAMATH LAKE

with no alarm, some of the assembly not more than twenty or thirty feet away. A few of the old birds were sitting on eggs, but most of them had young, some newly hatched and some half-grown. For many years the White Pelican disappeared rapidly. Many hunters shot these birds wantonly, and others killed them for

their quills, which at one time were fashionable, and in this way thousands of the big birds paid penalty to the milliners' trade. They would have been exterminated here in the Klamath country, perhaps, had it not been for Audubon and Government protection.

The colonies of California Gulls that



A WHITE PELICAN TAKING FLIGHT



A BLUE HERON'S ELEVATED NEST

formerly nested near the Pelicans and Herons have moved farther to the West. They can be reached only by traversing shallow waters in a canoe, and wading through a heavy growth of tules. Years ago a small colony of Caspian Terns were

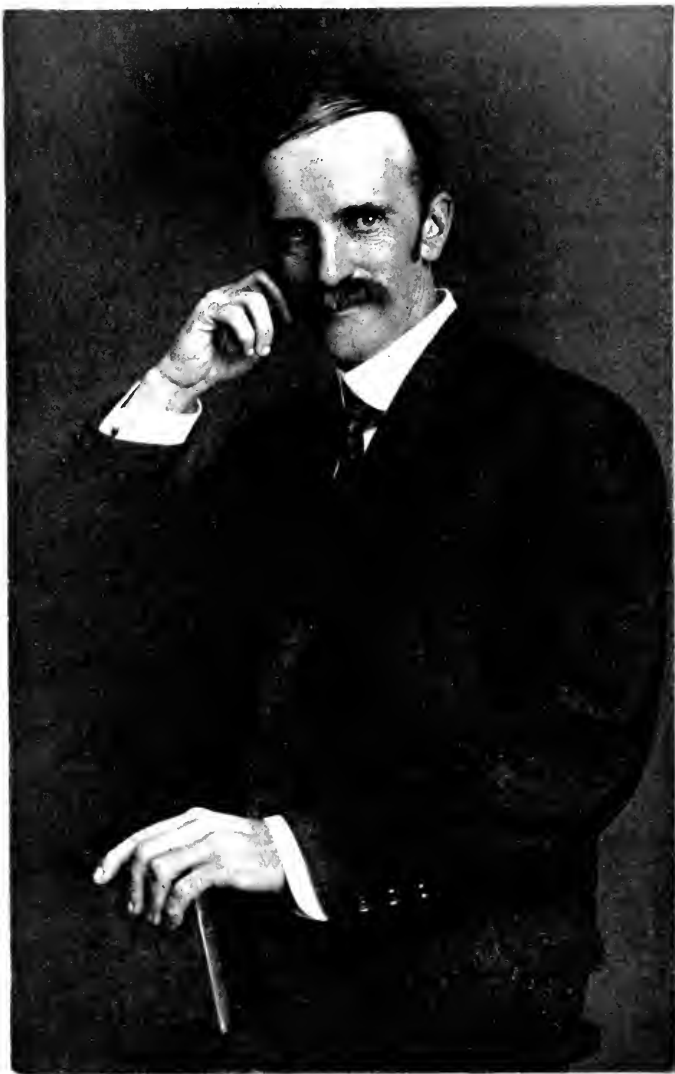
neighbors to the Gulls; but this colony seems to have been exterminated, or has moved to some undiscovered part of the lake, for Warden Furber has not been able to find the homes of these birds.

We spent one night at Laird, in northern California, which is at the southwestern corner of the Lower Klamath. The next day we cruised along the southern and eastern borders of the lake, expecting to find the Western Grebes at their nesting-site, but though we saw many birds, only a few nests were discovered. While these birds have had careful protection for the past seven years, they are not yet very numerous. The raids of the plume-hunters, years ago, were so effective in this part of the lake that few Grebes survived, and it will take many years of protection to enable these birds to regain their former abundance.

Wild Ducks are common on the Klamath marshes, and with little difficulty we discovered nests of the Redhead and Pintail. Canvasbacks and Cinnamon Teals were seen in large numbers. Many families of Canada Geese were encountered, the young in no case old enough to fly. Of Coots there seemed to be no end. Many Avocets and Black-necked Stilts were found, and photographs were made of the nests and eggs of both species.



BUILDING A BLIND OF TULE, FROM WHICH TO PHOTOGRAPH WHITE PELICANS AT KLAMATH LAKE



Herbert K. Job.

Annual Report of the National Association of Audubon Societies for 1915

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REPORT OF THE SECRETARY

INTRODUCTION

The past twelve months have been the most tumultuous year in the history of the human race. The map of the world has been greatly changed, national life in some nations all but wiped out, and thousands of worthy institutions, not only abroad, but in this country, have suffered irreparable damage. It is therefore with feelings of profound thanksgiving that your Secretary is able to report that during this period of prolonged depression the National Association of Audubon Societies has stood like a rock against the winds of adversity, and that, measured by every conceivable standard, we are stronger today than we have ever been in our history. It is true that some members and contributors, whose fortunes have been affected by the wars of the world, have been forced to withdraw their support, but many more friends have come forward to take their places.

During the year we have educated more children in bird-study than ever before; there has been an increase in the number of our field agents, in the number of the office force, in the number of wardens employed, an increased

output of literature, and we have coöperated to mutual advantage with a greater number of societies, clubs, and institutions.

AUDUBON WARDEN WORK

The warden system of the Association, instituted many years ago under the wise direction of President William Dutcher, has resulted in enormously increasing certain species of our larger water-birds, once threatened with extinction over wide areas of their range. The Directors of the Association therefore regard this feature of the Audubon work as one of very great importance, and its continuance from year to year is producing notably beneficial results. In the report submitted last year an effort was made to give some idea of the numbers of water-birds breeding in the colonies guarded by this Association exclusively, or in coöperation with the United States Department of Agriculture. From the reports of the wardens, and from accounts by ornithologists and others who have visited the protected regions, it appears that the birds have everywhere passed through a season markedly free from human depredations, and that at least a half million young birds in these regions were brought to maturity. Innumerable small birds have likewise received protection. An encouraging increase appears in the number of Eider Ducks nesting on the coast of Maine. On the other hand the Roseate Spoonbills of South Florida continue to show an alarming decrease. I doubt if more than five hundred of these interesting birds are left in Florida.

Storms as usual have taken their toll. For an example of the havoc occasionally wrought by storms I quote from the report of J. R. Andrews, warden for one of the colonies on the coast of Virginia.

"This has been the worst year on birds I have ever seen. On June 3, the tide raised so high that it washed away every egg that was laid, and I am sure it drowned 75 per cent. of the old Marsh Hens, and every egg and young Marsh Hen. The Gulls, Terns, Willets and Oyster-catchers all laid again, and on July 25 and 26 the tide came again and washed all of the eggs and young birds away again, and they did not lay again. It seems too bad to have as good a hatch out of young birds as I had and not raise one, but we cannot help what the blessed Lord does."

On the other hand there is the cheerful report of Warden Harlow, of Moosehead Lake, Maine, who apparently in all seriousness feels that he has found a panacea for all nesting troubles of the Herring Gull. In one nest, built in the top of a hollow stump, he discovered the left hind foot of a snowshoe rabbit, and gravely asks if this is not responsible for the fact that all three of the eggs hatched and the young did well.

EGRET PROTECTION

In our determination to guard nesting rookeries of Egrets during the past season, seventeen special wardens were engaged—one in Georgia, one in Mis-

souri, three in South Carolina, and twelve in Florida. They had under their care twenty distinct rookeries. Many of these colonies of birds change their nesting-places from year to year, influenced by the draining of swamps, excessively high water, or the drying up of the shallow ponds in which stand the trees occupied by the birds. Hence it is not possible in all cases to keep a close watch and record of the fortunes of many of the birds we most desire to protect, although especial effort is made every season to do so. Funds are raised and local agents employed as wardens. Our yearly statements of the number of Egrets and their associates protected are compiled from the reports of wardens, visiting ornithologists, and occasional inspection-trips by the Secretary. As far as can be determined the Egret rookeries guarded by the Association the past year contained about 7,340 Egrets, and 3,240 Snowy Herons. In addition to these there were counted, or in some cases estimated, about 50,000 Little Blue Herons, and approximately the same number of Wood Ibises and White Ibises. Perhaps 1,000 Ward's Herons also receive protection, as well as at least 5,000 Louisiana Herons, 500 Night Herons, 800 Water Turkeys, 800 Yellow-crowned Night Herons, 50 Florida Ducks, 275 Limpkins, and 63 Roseate Spoonbills, scattered through three Florida rookeries; also about 1,000 Least Bitterns, 3,000 Florida Gallinules, 2,500 Purple Gallinules, 3,000 Boat-tailed Grackles, and 900 Green Herons.

JUNIOR AUDUBON CLASSES

No part of the Association's activities annually brings to the office so many commendations as does the very large system of educational enterprise among the children which we call our Junior Classes. The organization of local bird-classes has increased this year with an accelerated pace, 7,723 clubs having been organized, with a total paid membership of 152,179 children. Space in this brief summary is not sufficient to enlarge on the glorious results obtained, but members may glean some idea of what is being achieved from the notes published in *BIRD-LORE* from time to time. We can pause long enough, however, to say that this work has resulted in hundreds of school-exhibitions, thousands of special Bird Day programs, and the building and erection of innumerable bird-boxes all over the country. In many places, also, the boys in these classes serve as scouts for the local game-wardens, with most interesting results. As heretofore, this entire work has been supported by a contribution of \$5,000 from Mrs. Russell Sage, and a gift of \$20,000 from a benefactor whose name we are not privileged to publish. The success of the Junior Audubon work is due in no small part to active coöperation by many State Audubon societies, local Audubon societies, and bird-clubs.

SUMMER SCHOOLS

During the past year the Directors authorized an entirely new undertaking, namely, courses in bird-study to be given by well-known experts in

various state summer schools. In this advance we were materially aided financially by one of our most loyal members, who has through the years assisted in many phases of the work. The following is a brief summary of what was accomplished:

Dr. C. Hart Merriam gave four splendid illustrated lectures at the summer-school held at the University of California, in Berkeley.

Prof. A. A. Saunders taught a class in bird-study at the Biological Laboratory of the University of Montana, and also gave an illustrated address before the entire summer-school at the University in Missoula. He was instrumental in securing the creation of a bird-sanctuary on the island in the lake near the Laboratory.

Dr. H. F. Perkins, of the University of Vermont, gave a six weeks' course in bird-study there, the influence of which was felt in the entire summer-school.

Mr. Ludlow Griscom, an instructor at Cornell, gave two courses, each six weeks in length, at the University of Virginia. He also delivered several public lectures.

Dr. Eugene Swope gave illustrated lectures and conducted bird-walks daily for a week at the summer-school of South Carolina.

Prof. R. J. H. DeLoach and Prof. C. F. Hodge lectured for two weeks, and conducted bird-walks, at the University of Georgia, at Athens. The public lectures given by Professor Hodge created great interest.

Dr. G. Clyde Fisher, of the American Museum of Natural History, conducted a month's course and gave public lectures at the University of Florida.

Mrs. Alice Hall Walter and Professor Ehringer taught bird-study for six weeks at the Biological Laboratory at Cold Spring Harbor, New York. In addition to this we were able to arrange for Dr. Chapman, Mr. Forbush, and Mr. Job, to give illustrated addresses to the summer-school at Cold Spring Harbor, which consisted of a colony of somewhat over one hundred science students and instructors.

In order to see how the work was progressing, and to look into the advisability of continuing it, the Secretary visited the summer-schools at the University of Vermont, University of Virginia, South Carolina State Normal College, University of Georgia, and University of Florida. At all of these places he gave illustrated addresses, and had the fullest opportunity of presenting the whole subject of the Audubon work, and the scope of its various activities, to the students and faculties.

He was able to organize the Georgia Audubon Society with a notable selection of officers and directors.

LEGISLATION

As usual during a legislative year Audubon Society workers have been active, either in opposing harmful measures for wild-bird-and-animal protection, or striving with others to secure the enactment of further shooting restriction. A partial list of the bills in which we were interested is as follows: In California the question of taking protection from Meadowlarks and Robins was again raised by the fruit-growers, but the measure was defeated. The state law on wading-birds was changed so as to conform with the Federal regulations for the protection of migratory birds. Part of the Angeles Forest Reserve

was made a game-refuge. In Maine the state law on migratory game-birds was revised to make it uniform with the Federal law. The open season on the Ruffed Grouse and Woodcock was shortened by two weeks, and for the first time in that state the Spruce Grouse was given protection. Hunting with motor-boats was prohibited in certain waters. Massachusetts enacted a law which prohibits unnaturalized aliens carrying guns, and an attempt to secure legislative action protesting against the migratory-bird law was easily defeated. As Mr. Packard has recently written: "It is gratifying to note that the sentiment in favor of bird-protection has grown to be so strong a force in New England that comparatively few bad bills were listed the past year." In New Hampshire an attempt was made to take protection off the Great Blue Heron and the Kingfisher, but the Audubon forces defeated the measure. In Ohio protection was taken from Hawks and Owls, no distinction being made between the beneficial species and others that at times may be injurious to game-birds or to poultry. The legislature, however, was induced to declare a two-years' closed season on the killing of Bob-whites, and a closed season was also extended to the Mourning Dove.

In Rhode Island an unsuccessful attempt was made to force out the present game-commissioners, whose positions are well known to have been secured by Audubon Society influence, and put in others whose views were known to be less restrictive on the matter of killing. An effort to discredit the Federal migratory-bird law was defeated. The Hawk and Owl bounty law was up again in Tennessee, and was opposed by our workers. Efforts to get a five-year-closed season on the Quail were unsuccessful. Texas took a backward step by extending the season for the killing of Mourning Doves to a period of six months.

APPLIED ORNITHOLOGY

The Department of Applied Ornithology, established on August 1, 1914, with Herbert K. Job in charge, has been a decided success. His efforts have met with the warmest reception and with adequate financial support. He has visited the estates of many gentlemen engaged in the propagation of game-birds, and has noted the methods employed. He has answered many requests for information, and has gone by invitation to various towns, city parks, and private estates to map out general plans, either for the propagation of game-birds, or the increase of other birds by means of extensive bird-box and feeding-station systems. He has prepared for the Association two large illustrated Bulletins on the propagation of game-birds, for which there has been an immediate and continuing demand from all parts of the country. The months of May and June were occupied by a trip to the Federal and Audubon reservations of Florida and Louisiana, where he secured many thousands of feet of moving-picture film, showing the teeming wild life of those regions. During the year he has also found time to write a useful book, 'The Propagation of Wild Birds,'

which doubtless will be recognized for many years as the standard work on the subject.

FIELD AGENTS

In addition to Mr. Job the Board employed six other field agents during the past year. Miss Katharine H. Stuart has continued her successful efforts in arousing the people of Virginia on the subject of bird-protection. She also spent a few weeks lecturing in West Virginia. Winthrop Packard, as heretofore, has divided his time between the duties of field agent for the Association and the secretaryship of the Massachusetts Audubon Society. His energy and good judgment are resulting in a continuing increase of interest in Audubon matters among the people of Massachusetts and the surrounding states. Dr. Eugene Swope has presented the cause of bird-protection from one end of Ohio to the other, besides making a side-trip for a few weeks into West Virginia. He is unusually successful as a worker in the schools. Arthur H. Norton in Maine, and William L. Finley in Oregon, have continued their labors along the lines in which they have been so successful in years gone by.

Recently Mrs. Mary S. Sage was employed as a lecturer in schools, with the special object of encouraging the formation of Junior Audubon Classes. The results already achieved by her we may regard as an earnest of what is to be expected from this tactful, capable, and energetic worker. Edward H. Forbush, one of the most useful conservationists on whom the sun ever shone, continues to be connected with the Association as supervising Audubon agent for New England. Details of the large amount of work carried on by these various representatives will be found to be presented more fully in their reports.

STATE SOCIETIES AND BIRD CLUBS

Many of the Audubon Societies throughout the country have shown much activity the past year. In addition to coöperating with the National Association in the Junior Class work, a number of exhibitions have been held, and some of the workers have been very active in legislative matters. Indiana again held one of her wonderful annual meetings which may well serve as a model for all other states. Massachusetts, financially the strongest of all the state societies, watched every turn of the long legislative session, and continued a vigorous educational work as heretofore. The reorganized Michigan Audubon Society has found a genius, as a successful worker, in its new president, Mrs. Edith Munger. The most splendid achievement of any state society has been the establishment and development of the Birdcraft Sanctuary at Fairfield, Connecticut. This is the property of the Connecticut Audubon Society and has been financed by a personal friend of the state president, Mrs. Mabel Osgood Wright. If by any chance you have overlooked the account of what has been done for the birds in Fairfield I would urge that you turn back to the July-

August issue of *BIRD-LORE* and read Mrs. Wright's own account of it. It is worth the time and expense of any bird-lover to travel a thousand miles to see Birdcraft Sanctuary!

Within the past two or three years Bird Clubs in widely scattered communities have been formed with remarkable frequency,—a manifestation of the new and widespread interest in inducing birds to come about the home, which has recently developed. A majority of these clubs have sprung up over night, usually after the leaders have listened to an inspiring address by Ernest Harold Baynes, whose enthusiasm in describing the results achieved by the Bird Club at Meriden, New Hampshire, has been too contagious to resist. Early the past year the by-laws of the Association were amended so that local organizations may be received to membership; and up to the present time about forty clubs and societies have become affiliated with the National Association.

PUBLICATIONS

During the year we have published, first in *BIRD-LORE*, and later as separates, six Educational Leaflets accompanied by colored plates of the birds treated. These were leaflets No. 77, Crow, No. 78, Loon, No. 79, Towhee, No. 80, Chipping Sparrow, No. 81, Kingbird, and No. 82, Bald Eagle. We have also prepared and published Bulletin No. 2, 'Propagation of Upland Game Birds,' and Bulletin No. 3 'Propagation of Wild Water-fowl,' both written by Herbert K. Job. Circular No. 1, 'The Audubon Movement,' by Ernest Ingersoll, was published in May. During the year we have issued for the various uses of the Association the following: Four-paged circulars to teachers, 103,500; Bulletin No. 1, 10,000; Bulletin No. 2, 10,000; Bulletin No. 3, 10,000; Circular No. 1, 50,000; outline drawings of birds, Educational Leaflets, and colored plates of birds, 3,715,000 each. Of record-blanks, letterheads, and miscellaneous publications for office work or for circularizing, 592,300 units have been printed. In addition to this we published 223 pages in *BIRD-LORE*.

It has been found necessary during the year to take additional office-room, as it now requires five offices to house the busy clerical force, which, headed by Ernest Ingersoll, accomplishes a volume of work that would doubtless surprise anyone not acquainted with the vast volume of detailed effort necessary to an institution of this size. The Association also contributes to the support of our Boston branch office in charge of Winthrop Packard, and to the Cincinnati office in charge of Dr. Eugene Swope.

FINANCE

One Patron and twenty-six new Life Members have been enrolled during the year. The \$3,600 thus received, and a special sum of \$25, have been added to the permanent Endowment Fund of the Association. The sustaining mem-

bership has increased from 2,462 to 2,558. The total amount of cash actually received by the Association during the year has been \$93,178.34. This gives us decidedly the largest annual income for current expenses in the history of the Association. For those not closely acquainted with the finance of the Association it may be well to add that this does not take into consideration the funds collected and expended by various state and local Audubon societies.

In conclusion, the Directors and officers wish to place on record an expression of their most profound gratitude to the membership of the Association, and to the general public, for the splendid and increasing support which has been received from year to year—support not only in the matter of contributions for paying the necessary expenses, but support in the form of time and goodwill, which many hundreds of workers have given without any thought or desire of reward. It has not been the custom in these annual reports to speak of future plans and hoped-for support, and the only reference to the subject which will be made at this time is that the Directors are thoroughly alive to the needs and opportunities of the Association, and that prospects were never brighter than at present.

T. GILBERT PEARSON, *Secretary*.

REPORTS OF FIELD AGENTS**REPORT OF ARTHUR H. NORTON, FIELD AGENT
FOR MAINE**

The work of the closing year has been oversight of legislation, forwarding Junior work, aiding local societies and clubs, and responding to miscellaneous calls. The state laws for taking migratory game-birds were revised to accord with the provisions of the Federal Migratory-Bird Law.

The open season on Ruffed Grouse and Woodcock was shortened two weeks, and Spruce Grouse for the first time was accorded protection, its season now being the same as that for Ruffed Grouse. The use of motor-boats in hunting water-fowl was prohibited on all inland waters, and in Saco, Merrymeeting, Bluehill, and Frenchman's Bays. Two small reservations were established—Kineo Point, and the southerly point of Swan's Island in Merrymeeting Bay, where all hunting is prohibited. The use of firearms on Megunticook Lake near Camden was prohibited. A close-time of four years was placed on all moose. This splendid animal, which formerly inhabited all of Maine, has become restricted in its range, being fairly numerous now only in the northernmost and eastern sections. The narrowing of its range during the past twelve years has been rapid. An act was passed prohibiting the digging out of fox-dens between March and November. Beavers still hold scattered colonies in the wilds of Maine, where, owing to the danger of extermination, a perpetual close-time was established a few years ago. The result of this action was immediate, and a decided increase is noticeable, followed by considerable damage to forested lands and timber by their dams and other works.

An act was passed empowering the Commissioners of Inland Fisheries and Game to grant an open season on beaver colonies when it is shown that substantial damage is being done. The Commissioners are authorized to reverse this act at any time. A daily close-time on all mammals, from one hour before sunset to one hour after sunrise, was established. For the first time frogs were given legal protection in the state by an act to prohibit their shipment from Eagle and several adjacent lakes in northern Maine. A measure to establish a resident-hunter's license was introduced and well supported, but it was lost in a deluge of opposition. No inspection of bird colonies was ordered the past year, so that few of the resorts have been under observation by your agent. A successful season was reported for the Herons and other birds in Penobscot Bay. For some unknown reason the Night Herons at Scarborough seem to have deserted their last year's resort. Eider Ducks were reported nesting this year in Jericho Bay. Since the prohibition of shooting Black Ducks have increased, and now not only winter in large numbers near settlements, but remain all summer in many places where formerly they were only in winter.

At the meeting of the Maine State Teachers' Association in Portland, a

large number of leaflets on the formation of Junior Societies were distributed, resulting, it is believed in an increase in these organizations in Maine.

REPORT OF WINTHROP PACKARD, FIELD AGENT FOR MASSACHUSETTS

During the past year the work of your Field Agent had dealt largely with legislation. All the legislatures of the New England States were in session, and it has been necessary to watch carefully all bills introduced. It is gratifying to note that the sentiment in favor of bird-protection has grown to be so strong a force in New England that comparatively few bad bills have been listed, and that it was possible through earnest effort and the very efficient aid of state organizations to combat these successfully. In New Hampshire an attempt was made to remove protection from the Kingfisher and the Great Blue Heron on the plea that these birds depleted the trout fisheries, a claim that seems to have been made through a misunderstanding as to the food and habits of these birds. The New Hampshire Audubon Society, through the very able work of its Secretary, the Rev. Manley B. Townsend, rallied the bird-lovers of the state, and, seconded by your Secretary, made a successful appeal to the Legislature, so that the bill was killed. New Hampshire legislators were very fair and open-minded in the matter, and treated the bird-lovers—and in the end the birds—with every consideration.

In Rhode Island a strong attempt was made by reactionary interests to replace the present able and fair-minded bird commissioners with a committee of huntsmen, to increase the open season, and to discredit the Federal law. These attempts failed signally.

In Massachusetts the bill forbidding unnaturalized aliens to possess a rifle or a shotgun went through, and its good effect is shown in much improved conditions in the hunting season now open. This law is practically identical with the one now in force in Pennsylvania, and is felt to be legislation of prime importance in the cause. A large number of bills, proposing to make minor changes in Massachusetts' present excellent game-laws, were defeated, as was an audacious attempt to have the Massachusetts Legislature protest against the Federal law.

During the year more than 20,000 letters have gone out from the office, calling the attention of New Englanders to the need of bird-protection and urging them to participate in the work of the National Association of Audubon Societies, and the response has been generous. During the year your agent gave forty-one lectures before various organizations throughout the state to audiences varying in number from fifty to five hundred.

Three Bird-Day celebrations were held in Massachusetts during May, in Boston, Springfield, and Greenfield, the National Association joining with the Massachusetts Audubon Society and the State Grange in big, open-air mass-

meetings, at which the work of bird-protection was put before large audiences. Bird-club exhibits in considerable numbers throughout New England have been assisted with advice and materials, and the joint office of the National and State Societies has been continually the headquarters of interest, information and assistance, not only to New England bird-lovers but for the country at large. Requests for advice and assistance come to us from far distant states, as California, and Florida, as well as from others nearer home.

REPORT OF KATHARINE H. STUART, FIELD AGENT FOR VIRGINIA

The educational work in Virginia during the past year has been similar to that of the previous five years. In September we had a large meeting at the Manassas High School of the three adjoining congressional districts. Literature was distributed, and the Governor's Bird-Day Proclamation read and discussed. I was invited to bring before the assembled educators the Junior Audubon Class work and the importance of observance of Bird Day and Arbor Day. During the Teachers' Conference held in November in Richmond we conducted a successful Junior Audubon Exhibit. The drawings, original poems, and bird-boxes, the last made by the children of the schools, attracted wide attention; methods of feeding the birds in winter were also shown. Mrs. Robert Smithy, State Secretary, and D. M. Rucker, were untiring in their efforts to make it a success. Mr. Rucker collected a large number of beautiful colored drawings, and the bird-boxes made by the Richmond school-children, which, with those sent in by Mrs. Mary Moffett from the school at Herndon, formed a most striking part of the exhibit. Each day we had short talks on bird matters.

In December I visited the schools of Alexandria County and of Fairfax County. This was a most delightful experience, and many classes were formed in these two counties. In January I was invited to visit the schools of Richmond, and the Board of Education detailed Mr. D. M. Rucker, Superintendent of the Stonewall Jackson School, to take me to the schools of the city. Mr. Rucker has a thorough knowledge of birds, and has done much in the Richmond schools to awaken interest in the Junior Audubon work. We found a lively interest in bird-work in all the schools. In many of the rooms excellent drawings were displayed. I visited the southwestern part of the state later, and gave several talks to the 300 pupils of the State Normal School. These girls are later to be teachers, and are doing some work in bird lines. On May 4 a fine program was prepared for the Bird Day observance. I have visited six or more of the State Normals, and have given talks and lectures. Mrs. Smithy prepared a splendid Bird Day program, which has been printed in many of the state papers, and sent to teachers and superintendents.

After reading an article by T. Gilbert Pearson in the January *Craftsman* I

determined to establish several feeding-grounds in our cemeteries, as he suggested. They have proved eminently satisfactory, and we have had more birds than ever before in Richmond. I feel sure the result of this increase of Cardinals and Mockingbirds was due to this work. His thought of having the song-birds keep vigil over our beloved dead is a beautiful idea. Bird- and nature-study courses were given at the State University summer-school by Ludlow Griscom, special agent of the National Association of Audubon Societies; and his morning walks with the teachers were well attended and very delightful.

During the year the Junior Audubon Classes numbered about 125, and the pupils did excellent work all over the state, setting up bird-boxes and feeding-stations everywhere. Our last Legislature gave us a State Forester, R. C. Jones, and he has offered to assist me in my work for the birds. In closing this report I must add a word of heartfelt appreciation to those who aided me in West Virginia. In March I was assigned to visit eight towns in the interest of bird-life, namely, Charlestown, Martinsburg, Keyser, Parkersburg, Hinton, Charleston and Bluefield. Miss Ida M. Peters, Secretary of the West Virginia Audubon Society, and her aid, Mrs. W. W. George, are doing a grand work all over their state, and were untiring in making the way plain to me. My time was spent in giving talks and illustrated lectures before schools, clubs, etc., and in interviewing the officers of clubs. I called on Governor Hatfield, who received me with great courtesy, expressed his desire to conserve the natural resources of the state, and commended the work in which I was engaged.

REPORT OF EUGENE SWOPE, FIELD AGENT FOR OHIO

A changed attitude of mind toward wild birds is rapidly manifesting itself throughout Ohio, and all protected birds that breed in the state are increasing in numbers.

The fact that 762 public-school teachers voluntarily organized Junior Audubon Classes, and thereby brought 16,011 Ohio girls and boys under special instruction in bird-study the past year, gives some hint of the onward movement of the conservation idea; also, philanthropic Ohio citizens have given more financial assistance this year than ever before. A continually increasing number of the daily and weekly newspapers are giving space and editorial attention to the cause of bird-protection. Some of our ablest cartoonists rendered marked assistance last winter in our successful fight to secure a continued closed season for the Bob-white.

The Ohio Audubon Society of Cincinnati, the Audubon Society of Columbus, and The Bird Lovers' Association of Cleveland, have in their respective communities awakened much interest in the wild birds. Dr. R. C. Jones, the President of the Cincinnati organization, gave fifteen illustrated bird-lectures last year. He took a leading part in the fight against the Hawk and Owl

Bounty Law; has incessantly advocated licensing cats; and urged preserving the Bob-white from extermination by putting it on the list of protected birds. Miss Lucy B. Stone, Secretary of the Columbus organization, has been active among the Juniors, and successful; and her services in fighting the Hawk and Owl Bounty Law, and in helping secure a continued closed season for the Bob-white and the Dove, are highly appreciated by bird-protectionists. Mrs. Elizabeth C. T. Miller is the President and moving influence of the Cleveland organization, which has a large membership, maintains an office, a paid secretary and a field agent, and has had special lecture-work done.

The building of bird-houses has been given much attention in the manual training department of many of the public schools. At several places, especially Cincinnati and Canton, boys were not only instructed how to build bird-houses for themselves, but also were required to build such houses for any of the girls in the same school who asked for them. The State Superintendent of Public Instruction, Frank W. Miller, has added the word 'bird' to the title of his last Annual, which now reads "Arbor and Bird Day Manual." It took the National Association's Field Agent three years to secure this deserved official recognition of bird-study in the public schools. Of all the active influences in behalf of bird-protection in Ohio, the National Association of Audubon Societies has been the most influential and constant in its operations. Without its help and encouragement conservation in this state would have, as yet, made little or no headway against its opponents.

It is regrettable that one retrograde movement must be reported in Ohio—the bounty law on certain Hawks and Owls. This was passed through the last Legislature, in the face of advice to the contrary from the United States and State Departments of Agriculture, and of protests from Audubon Societies. This backward movement was in a measure offset by a victory for the conservationists in securing from the same Legislature a continued closed season of two years for the Bob-white, and also a closed season for the Mourning Dove.

Your Field Agent has in the last year given 157 bird-talks in Ohio, and 65 in West Virginia. Appearing before that number of audiences has meant much travel. Requests for 'bird-lectures' now come from schools, churches, clubs, societies, libraries, and other organizations so frequently that he is able to respond to only a part of them. Contrasted with the situation in this state three years ago, this fact is encouraging indeed. A large number of Ohio newspapers have been furnished news-items and educational matter by your Agent, and he has secured the attention of the state educational journals, which will give assistance in the Junior work. No small part of your Agent's time has necessarily been given to a heavy correspondence.

REPORT OF WILLIAM L. FINLEY, FIELD AGENT FOR THE PACIFIC COAST STATES

Special protection has been given for several years to a colony of American Egrets (*Ardea egretta*) that lived on Silver Lake, Harney County, in south-eastern Oregon. This was the only breeding-place remaining in the state. The Herons lived in a clump of willows on an island in the center of the lake. In the past the surrounding water has furnished some protection, but last summer was unusually dry, and as the lake evaporated the Herons did not return to nest. Only an occasional bird has been seen since last spring, and their nesting-place is unknown. Ten to twelve years ago Egrets nested on Malheur Lake. When the colony was destroyed by plume-hunters the remnants took up their home on Silver Lake. In 1911 there were 21 old birds and 10 nests in the colony; in 1912 we saw 11 nests and 23 mature birds. During the two following years the numbers remained approximately the same, although 30 to 50 young birds reached maturity each year. These showy birds have many enemies; and whenever a species is so reduced in numbers as the Egret has been in Oregon it may be recorded as extinct.

During the past year legislative sessions have been held in Washington, Oregon, and California. An attempt was made again in California to place Meadowlarks, Blackbirds and Robins on the list as game-birds but it failed. Much credit is due Dr. H. C. Bryant, who is in charge of educational and scientific work for the California Fish and Game Commission, for spreading useful information on the economic status of wild birds. No laws were passed that were detrimental to our song-birds or other non-game birds. It is noticeable on the Pacific Coast that during the past few years the complaints have been much less frequent against our wild birds than formerly. There is far greater protection for song-birds because of the increased public interest, and this is largely due to educational work in the schools. For the year ending June 10, 1915, 266 Junior Audubon societies were organized in Oregon, Washington, and California, with a total membership of 4,380.

During the past summer T. Gilbert Pearson, Secretary of the National Association, visited the Pacific Coast States on a tour of inspection. The thirty-third annual congress of the American Ornithologists' Union, which convened in San Francisco in May, brought ornithologists and bird-lovers from the East.

Conditions on the various wild-bird reservations have been favorable. The bird-residents are becoming more abundant each year. The orders issued by the Biological Survey prohibiting visitors going to the colonies while the nests contain eggs, or when the birds are very young, has had an excellent effect in that thus fewer nestlings died at the critical time in the breeding-season.

Special effort has been made by your Agent to collect moving-pictures of wild birds and animals to use in the schools, and moving-picture lectures have

been given in various parts of the state, especially to school-children. Exceptional pictures have been secured of Sage Grouse, wild antelopes, and other creatures seen about water-holes in the arid region of southeastern Oregon. Antelopes are becoming scarce, and unless an area of land is set aside as a refuge for these animals in this part of the country they will speedily disappear. I do not believe there are 1,500 wild antelopes in the state today, where several thousand existed ten years ago.

REPORT OF HERBERT K. JOB, DEPARTMENT OF APPLIED ORNITHOLOGY

Upon the establishment of this Department on August 1, 1914, the most pressing need was for printed information with which to answer inquiries, as no adequate publications existed in America explaining propagation methods. To meet this demand I prepared Bulletin No. 2, 'Propagation of Upland Game Birds,' and Bulletin No. 3, 'Propagation of Wild Water-fowl.' I also prepared at the earnest request of some of the gentlemen most interested a general manual of the entire subject, published as a book under the title 'The Propagation of Wild Birds.'

Personal assistance has been given to owners of estates or preserves, by letter, by supplying the above publications, and by visits and laying out local plans. Coöperative work has continued on various estates, such as those of William Rockefeller, Edmund C. Converse, Senator George P. McLean, and others. Nesting-boxes were put up for the National Association on the estates above mentioned, and on the grounds of the Cold Spring Harbor Biological Laboratory, in order to secure data for further use. Similar plans were carried out on the great estate of Alfred C. Harrison, near Philadelphia; and a colony of Purple Martins, and pairs of other birds, were induced to breed in these boxes. The well-known estate of Otto Kahn, on Long Island, is now being surveyed for a supply of apparatus and food-plants and trees, as are various other estates and preserves.

Coöperation in propagation experiments has been continued. On the estates of William Rockefeller and of Edmund C. Converse, the Canvasback Duck was bred under restraint, for the first time in history, under plans carried out by the Department. The breeding of the Ruffed Grouse and of the Bob-white, continued on the estate of Senator McLean, was successful. Many workers, by following the methods of Bulletin No. 2, have reared Quails during the past season without incurring the Quail-disease; and other managers of estates in various parts of the country are being advised and helped in beginning such work.

The need felt, not only by the Department, but by the National Association, for motion-pictures with which to interest and educate the public, led to an expedition for that purpose which I conducted for two months among

the colonies of birds breeding on the coasts of Florida and Louisiana, part of the time accompanied by ex-President Roosevelt. Nearly three miles of motion-films of bird-life were obtained, from which three reels have already been exhibited and are on hand for the use of the Association. A two-reel production from these films, entitled 'The Spirit of Audubon,' has also been issued by the Thanouser Film Corporation, of New Rochelle, New York, which supplied the motion-picture outfit for the expedition. This Association receives no further financial profit by the arrangement, but looks for an advantageous publicity and a spreading of the educational propaganda. It is much to be desired that members and friends of the National Association, and especially the school authorities, in all parts of the country, should endeavor to induce managers of local theaters to obtain and exhibit this beautiful and instructive production, in order that it may be seen by children everywhere.

A number of lectures, illustrated with lantern-slides, were given by me during the past season, at places scattered from Maine to Maryland. In the former state a lecture was given in the legislative chamber of the state capitol at Augusta. In Maryland a lecture was given in a theater in Baltimore on the occasion of the organization of the Maryland Wild-Life Protective Association. Lectures with motion-pictures are now available, and duplicate motion-films are being prepared to be used by other lecturers for the Association.

To provide for the Association a library of bird-photographs useful in varied publicity work, I have taken during the past year several hundred new photographs, and have also given the Association a considerable series of pictures from my own collection.

The excellent financial condition of the Department is shown in the report of the Treasurer of the Association.

REPORT OF MARY S. SAGE, ORGANIZER IN SCHOOLS

During November, 1914, I lectured and worked in the schools of Babylon and Patchogue, New York, and was welcomed in both towns by the superintendents and principals. Several Junior Audubon Classes were immediately formed. In March, 1915, I went to Chattanooga, Tennessee, and spoke in every school in the city, both colored and white, and in all country schools that were equipped with a lantern. Forty-three lectures were given, reaching a total of nearly 12,000 school-children in and around Chattanooga.

The last of May found me in Rhode Island, where lectures were given in Newport, in Providence, in the small schools between those cities, and at Fall River, Massachusetts.

In June I went to the Panama-Pacific Exposition at San Francisco, and gave more than thirty lectures in the Palace of Education. Many teachers brought groups of children to the Exposition, and to these groups I gave talks

by request, aside from the regularly scheduled talks given to which many children also listened.

The last of September found me in Albany, New York. The Superintendent of Schools in that city is greatly interested in nature-study, and through him I have been enabled to visit every school in Albany, and shall also go to certain of the surrounding towns, where one of the district superintendents desires me to form classes. While some of the principals in Albany have not taken up the work with enthusiasm, all have shown interest and a willingness to allow me to address any school.

REPORTS OF STATE SOCIETIES, AND OF BIRD CLUBS

California.—During the past year we continued our educational work, sending out our digests of the game-laws, 'Value of the Birds,' and other leaflets, and giving illustrative lectures of the birds before clubs, schools and other organizations. Our secretary was appointed 'Commissioner of Birds and Wild Life' in the California Federated Women's Clubs, which brought her in close touch with the various clubs of the state and extended the bird-protective work. This being a Legislative year, we were again called upon to defend the Meadowlark, Robin, and Blackbird, and so strong was the sentiment toward these birds that the bill was killed in committee. Several laws were enacted which have strengthened the cause of bird-protection. One makes the state law concerning our large waders conform to the Federal law, thus giving them protection at all times. Bag-limits have been lessened; shooting from behind an animal-blind has been prohibited; portions of the Angeles Forest Reserve were set aside as a game-refuge; and an adequate forestry bill was passed. The friends of the birds are increasing, and we have great cause for encouragement.—(Mrs.) HARRIET WILLIAMS MYERS, *Secretary*.

Central Texas Audubon Society.—This Society was formed in January, 1914, and now has about forty members. Last July we awarded prizes of cash and of books for drawings of birds by school-children, displayed at the Taylor fair. This competition drew attention to the Society. We coöperated with the State Game Commissioner, and two deputy game-wardens residing here were appointed on the recommendation of our president. Our members worked tirelessly to prevent the extending of the Dove-season at the last legislative session, but were unsuccessful, as the gun-and-ammunition lobbyists were too numerous. Doves may now be shot for half the year! We have recently published a thousand copies of H. P. Attwater's bulletin 'The Passing of the Mourning Dove in Texas,' which we hope will arouse a sentiment that will ultimately result in giving Doves the protection they deserve. Articles on birds and their protection, written by G. F. Simmons, Prof. W. S. Taylor, H. P. Attwater, and myself, appear in the local press at frequent intervals.—H. TULLSEN, *President*.

Colorado.—Our Society is young, but already we have many active workers in the field. More than thirty associate members have Junior Audubon Classes in charge. We recently acquired a lantern that may be rented to responsible persons, together with a collection of 265 slides, many furnished by our president, E. R. Warren. A printed list of the slides has been sent to members and to schools of the state. During the year copies of the game-laws

were mailed to all newspapers in Colorado, with a request for publication. Bird articles, written by R. Rockwell, W. W. Arnold, and E. R. Warren, have been printed in various magazines and newspapers. Mrs. Hitzler has given talks to five clubs, and introduced Junior Audubon work into the Clayton School of Denver. Prof. Lloyd Shaw, of Colorado Springs, did much field-work with his various classes. Miss Olive Jones, of Fort Collins, has given many illustrated lectures, and Dr. Arnold, of Colorado Springs, has lectured on birds in every school, as well as to the Boys' Club, the Young Men's Christian Association, and other institutions of his city. He illustrates his lectures with cages of convalescent birds from his bird-hospital, and is always greeted with enthusiasm. The secretary had some patients in her aviary, and as her house is situated in the woods it became the place for liberation of many of Dr. Arnold's patients.—LEONA ROBBINS, *Secretary*.

Connecticut.—This year has been marked by a steady and healthy progress in many directions. The sustaining membership has been increased, while the Junior Audubon membership, under the charge of Miss Frances A. Hurd, of Norwalk, coöperating with the National Association of Audubon Societies, has passed the six-thousand mark. Seven meetings of the executive committee have been held in the new room in Birdcraft Bungalow, with an average attendance of eleven members. These meetings are not only for the transaction of business, but have a helpful social side, members presenting for discussion any phase of the work that may occur to them, and sub-committees being then appointed for any special work needed. The circulation of the free traveling libraries continues excellent, the only limit being the supply. Fifty sets of the colored bird-plates from Eaton's 'Birds of New York' have been obtained. Wilbur F. Smith and James C. Hall, of Norwalk, have in charge the separating of these sets into three groups, arranged according to the season when the birds pictured may be most easily recognized by Connecticut school-children. The plates are to be mounted on cards and circulated with the traveling libraries.

Through the thought of one of our charter members, Mrs. Walter M. Smith, of Stamford, the Society received a gift of \$250 for special work to be indicated by the president. As Mrs. Smith died within a few weeks after the gift, the money was turned, as a memorial, into the more permanent educational channels, namely: framing a set of 'The Birds of New York' plates for Birdcraft Museum; binding the text belonging to the plates; binding a complete set of BIRD-LORE; and the preparation of two new traveling lectures for school use. The great local work of the year has been focused about Birdcraft Sanctuary (see BIRD-LORE, Vol. XVII, pp. 263-73). This unique undertaking will be an object-lesson in methods to the entire eastern coast, and the success of the little museum has resulted in the doubling of the size of the building, and the installing of a heating-system. It will be open to students

during the winter three afternoons a week and all day Saturday.—(Mrs.) M. SPALDING, *Secretary*.

District of Columbia.—Our eighteenth annual meeting was enlivened by Charles Crawford Gorst's charming lecture on 'The Musical Genius of Birds.' In April we had another most interesting lecture by our National Secretary, T. Gilbert Pearson, his subject being, 'The Movement for Audubon Bird-Protection.' Our bird-study classes were well attended, and much good and earnest work was done during the past year. Our field-meetings were more satisfactory than for many years. They were well attended and immensely enjoyed, and I venture to say that we had one experience not indulged in by any other society. One hardly thinks of this terrible war as affecting the peaceful Audubon societies, but one of our walks led us through Fort Washington, where a gentleman in gold buttons and much gold braid suddenly informed us that neither cameras nor foreigners were allowed within the fortifications! Fortunately we could assure him that no photographs had been taken within the fort, and that the two foreigners of the party were harmless. The experience gave us a shock, and made us realize that we were at least slightly 'prepared.' The field-meetings have proved so popular that we increased the number to six this year. We have also published several numbers of our 'Current Items of Interest.'—HELEN P. CHILDS, *Secretary*.

East Tennessee Audubon Society.—We tried to get a bill through the legislature prohibiting the hunting of Quails for a term of five years. It was lost. We also opposed a bill offering a bounty on all Hawks. The Society had one public lecture. The secretary has spoken before two large audiences, and a flourishing Audubon Society was organized as the result. We have organized several Junior Audubon Classes. Mrs. Walter Barton, our treasurer and a deputy game-warden, attended the Farmers' Convention, and spread our literature throughout the entire state. By her persuasive eloquence—a woman's best weapon—she gained great influence over Young America; and stopped, in many cases, the indiscriminate slaughter of birds.—MAGNOLIA WOODWARD, *Secretary*.

Iowa.—During the present year our work has been directed principally to coöperation with the National Association in the furtherance of Junior Classes. We have distributed many of the leaflets over the state, and hope to make the work quite general in the schools of Iowa. The teachers of the Waterloo schools have responded splendidly, with a Junior membership of over eleven hundred, and these boys and girls have shown great interest in bird-study and the building of bird-houses.

Besides the talks given in the local schools, the president has addressed such gatherings as the Mothers' Story-Tellers' League, a Young People's

Club, Woman's Club, and Social Center meetings at rural schools. In most of these addresses, the radiopticon was used. The children are delighted to see their feathered friends pictured on the screen. Most of the pictures are the colored plates issued by the National Association. Pictures in black and white are also used. This kind of lantern makes possible a large collection of pictures at slight expense.—(Mrs.) W. B. SMALL, *President*.

Maine.—The campaign of bird-protection has been carried forward with more vigor than ever the past year. The Hon. C. H. Clark has continued his work with clubs and schools in eastern Maine. Prof. W. L. Powers, of Machias, gave a series of lectures illustrated by about a hundred lantern-slides loaned by the State Secretary and Field Agent. His lectures were before classes in his school, local clubs, and audiences composed of teachers. A local society was organized here. Miss Cordelia J. Stanwood has continued her life-histories of birds, and the publication of her results in popular and attractive reports. Mrs. Frederick P. Abbott, of Saco, has carried the cause forward before the women's clubs. Mrs. C. J. Buggell, President of the Bird Conservation Club, of Bangor, has been active in legislative and demonstration work. Miss Nellie E. Brown, of Bangor, on the occasion of the May meeting of the mothers in the Kindergarten Association, organized a mass-meeting for a Bird Day observance. Mr. Clark gave a lecture on birds and their value to man. An exhibition of bird-houses, feeding-devices, books, charts, and leaflets formed a feature of the meeting. A large number of Educational Leaflets furnished by the National Association was distributed.—ARTHUR H. NORTON, *Secretary*.

Massachusetts.—Probably the greatest gathering of people interested in birds and bird-protection that the state has ever seen was the one which greeted T. Gilbert Pearson, Secretary of the National Association, who was the principal speaker at the annual meeting of the Massachusetts Audubon Society, held in Huntington Hall, Boston, in March, 1915. More than 1,200 persons crowded the hall, the platform and the aisles, and as many more waited patiently for a second meeting, when the program was repeated. The audience was at once a tribute to the speaker and to the interest in the cause here in Massachusetts. Further evidence of this great interest was given at the two illustrated lectures by William Finley in the same hall in October, persons coming to Boston to attend them from all over the state.

Surrounded by such enthusiasm the work of the Massachusetts Society goes on bravely toward greater opportunities. During the year the membership has increased, and the staff has carried on the usual work of the Society with excellent success. Its exhibition of bird-protective appliances, bird-books, charts, and literature of all sorts, has been increased, and larger numbers of persons have come to view these and learn from them. The secretary has lectured all over the state for schools, colleges, clubs and other organizations, and

the output of the literature has been very large. The work of forming Junior Classes has been carried on in conjunction with the National Association of Audubon Societies, and the office has given personal advice on matters of bird-study and bird-protection to thousands of eager inquirers. Material for exhibitions has been supplied in whole or in part to small bird-clubs and conservation societies throughout the state, and enthusiastic reports of the success of these suggest that the good work has been furthered thereby.

The committee on legislation, headed by President Edward H. Forbush, has vigilantly watched matters at the State House, and is glad to report increased success in the enactment of good laws. The growing strength of the sentiment for bird-protection throughout the state yearly tends to make this branch of the work less arduous. Perhaps the most important success of the year in protective legislation was the enactment of the law forbidding unnaturalized aliens to carry or possess a gun. This law, which is similar to the one already effective in Pennsylvania, was proposed by the Massachusetts Fish and Game Protective Association and the Audubon Society was glad to join in the work for the measure.

The Society again joined with the National Association in placarding the state with poster-requests to feed the wild birds during the season of severe cold and snow. All the newspapers of the state generously printed the call, and it was read at meetings of various women's clubs. The result was that a large number of birds were saved from suffering and perhaps from starvation. The Society has supplied, free of charge, in small quantities, cloth posters forbidding shooting, and thus very many estates, large and small, have been posted. The Audubon calendars and charts have been increasingly popular, and are finding ready sale all over the country.

In December, 1914, the Society was incorporated under the laws of Massachusetts without change in the personnel of directors or officers. It joined the National Association and the state Grange in celebrating three state Bird Days last May, at Boston, Springfield, and Greenfield, large and enthusiastic audiences being present at all the meetings. The traveling libraries and traveling lectures were in constant use throughout the year. I have indicated only the more important of the Society's many activities. The lesser ones have been far too numerous to mention in brief space.—WINTHROP PACKARD, *Secretary*.

Michigan.—We have experienced an exceedingly busy year. Every opportunity has been seized to work through channels already organized. Mrs. Edith C. Munger, our president, has addressed 59 organizations, giving 63 lectures, besides talks or stereopticon lectures in rural communities at schools and granges. In this way, through her tireless efforts, she has personally reached over 11,750 people. We have a record of over 200 Bird Day programs given in Michigan this year, and have ourselves responded to 112 appeals to furnish material for them. Our President has secured much newspaper public-

ity, having written about a hundred articles that were published. She has furnished articles regularly for 'The Michigan Sportsman,' and has sent more than 900 letters and cards, besides circular letters, to clubs. More than 1,000 packages of bulletins, pamphlets, and folders have been distributed by us. We have had most successful exhibits at our state fair, county fairs, state organizations, and other places where quantities of literature and strong talks on the licensing of cats and on bird-protection were given to hundreds of inquirers. Our President's plans for this year's work far outreach the ambitious aspirations of the most enthusiastic.—*GERTRUDE READING, Secretary.*

Missouri.—After a period of inaction our State Society was reorganized on August 14, 1914. We have since enrolled 85 members, including four life members. Interest in bird-protection has been stimulated by articles written by members and friends of the Audubon Society, and published in the daily newspapers of St. Louis and of other cities. Illustrated talks, using lantern-slides bought from the National Association, have been given in schools; during the 'Children's Hour,' in public libraries; and before meetings of the Parents' and Teachers' League and chapters of the Society of the Daughters of the American Revolution. Many have become interested in the work of the Society, and from all sides we hear of the feeding of birds, placing of bird-baths, and building and erection of nesting-boxes.—*ROWENA A. CLARKE, Secretary.*

New Hampshire.—The second year of our work has been one of marked success. Our present membership is 548, a gain of 241 during the year. We have gained 12 life members, making our permanent fund from this source now \$825. The Junior Audubon work, carried on with the coöperation of the National Association of Audubon Societies, absorbed much of the secretary's time, and 111 classes were formed, with a membership of 2,230. The teachers who have taken up this work are enthusiastic, and write letters full of appreciation. Every child interested becomes a missionary and teacher at home, influencing fathers and older brothers for bird-protection. "A little child shall lead them."

A large and varied correspondence has been maintained during the year. All sorts of inquiries have been carefully considered and fully answered. Especially noteworthy have been the inquiries from granges for information about the economic value of birds. We are making a good reputation among the farmers, who are waking up to the importance of bird-conservation. The secretary has given more than fifty lectures and addresses, before all sorts of people in all sorts of places, schools, colleges, fish-and-game associations, summer hotels, men's clubs, summer institutes, etc. A notable triumph of the Society, helped by the National Association's Field Agent in Massachusetts, Winthrop Packard, and by the Concord Bird Club, was the killing of the bill

in the Legislature to permit the destruction of the Great Blue Heron and the Kingfisher. Our Society wants to count large for bird-conservation, and looks forward to a future of increasing usefulness.—MANLEY B. TOWNSEND, *Secretary*.

New Jersey.—The fifth annual meeting of the New Jersey Audubon Society was held in the Public Library, Newark, October 5, 1915. The Board of Trustees was reëlected, except Mr. and Mrs. R. Bruce Horsfall, absent from the state. Bishop Edwin S. Lines, of Newark, and Miss Mary Pierson Allen were elected to fill the vacancy. At the annual meeting of the Board of Trustees, immediately following, Col. Anthony R. Kuser was elected president, and the vice-president and secretary-treasurer were reëlected. During the year the Society has added one patron, 49 sustaining members, 340 members, 22 associate members, and 4,745 junior members. Under an arrangement with the National Association it has organized 421 Junior Audubon Classes, 15 less than the high record of last year, but with a membership of 9,395, or 122 more than last year. Twelve lectures were given, at schools, churches, and elsewhere by the secretary during the year. Several objectionable bills were defeated in the legislature, and two progressive bills were passed. The receipts for the year were \$3,923.14 and the disbursements were \$3,532.41, leaving a balance for the year of \$390.73.—B. S. BOWDISH, *Secretary*.

Ohio.—The first year under the administration of our new president, Dr. Robert C. Jones, has been very successful. This is due to the energetic manner in which he has devoted himself to the work, and to the faithful assistance given by the Board of Directors, as well as by the Society at large. Our membership has increased so rapidly that we have outgrown the small, though exceedingly pleasant, quarters in the library of the Cuvier-Press Club, and now meet in the large lecture-room of the Public Library, where we have the use of a first-class stereopticon. Miss Katherine Rattermann, who for many years had been the efficient and widely-known secretary and treasurer, was compelled by stress of other duties to lay down the burden of office.

The educational work in the schools, as well as in churches, clubs, and organizations of various kinds, continues to be the most important feature of our work. It is our plan to have lecturers visit every school in Cincinnati and surrounding cities during the coming winter months. We are fortunate in having among our members a goodly number of men and women who are excellent speakers, and who are willing to devote their time and efforts to the good cause. Public sentiment all through this part of Ohio is highly favorable to the cause of bird-protection. Wherever one goes, in the city or in the country, he may see nesting-boxes, bird-baths, and feed-boxes of all kinds erected for the use of the little feathered visitors. The Park Commission of Cincinnati has purchased several hundred nesting-boxes and feeding-trays during the past

year, and has put them up in suitable places in our parks and boulevards. We have reported many violations of the bird-laws to our local game-wardens during the year, and they have always vigorously prosecuted offenders.

In order to make possible the extension of the work of our Society, the members decided to double the annual membership fee. We have about 136 colored lantern-slides, showing our native birds. These are loaned to the lecturers who visit our schools and various organizations. The weekly field-trips, which have been an important feature for years, are held from September until June. Much enthusiasm is always displayed by those who attend. The local papers are showing a most gratifying interest in our work. Recently we adopted resolutions and prepared a petition to the city council, requesting the passage of an ordinance providing for the licensing of cats, and for the destruction, in a humane way, of all stray cats. We will also present to the council a model cat-ordinance. Dr. Eugene Swope, Field Agent of the National Association for Ohio, continues his splendid activity in behalf of our birds with undiminished success.—WILLIAM G. CRAMER, *Secretary*.

Pennsylvania.—With the financial coöperation of the National Association we were last year able to employ Henry Oldys for a lecture-tour of four weeks beginning October 15, 1914. Mr. Oldys spoke in 28 towns, and spent a week in Pittsburgh, where he delivered about 30 lectures and addressed over 10,000 people, including the Training School for Teachers, two women's clubs, two Audubon societies, and 1,000 students of the University of Pittsburgh. It would be impossible in this brief report to give an account of all the places where Mr. Oldys found interest and sometimes enthusiasm for bird-study and bird-protection, but it may be said truly that in every place where a Junior Class had been started previously the eagerness to follow up the work was more than satisfactory.

The interest that has been aroused in bird-study and bird-protection in the few years that the Junior Class plan has been followed in Pennsylvania cannot be too strongly emphasized; and had the Pennsylvania Society the means to follow up this tour of Mr. Oldys with work by a field-secretary, several bird-sanctuaries might, no doubt, be definitely secured, and other towns would follow the example of the club in Erie and erect bird-fountains in suitable places in the public parks, while the schools would consider Junior Audubon Classes most desirable adjuncts to their natural-history teaching. Will not the Pennsylvania readers of this report take these matters under consideration, and confer with the State Audubon Society as to what can be done to take advantage of the strong interest and good will that have been secured?—ELIZABETH W. FISHER, *Secretary*.

Rhode Island.—The activities of the Audubon Society of Rhode Island for the year have been largely educational. Coöperating with the National

Association of Audubon Societies we organized 79 Junior Classes with a membership of 1,621. In the traveling-library work 53 sets of 15 books each went into 40 schools, with a circulation of 7,213; and 1,848 went to 350 individuals directly from the Museum, the headquarters of the Society. We have given 53 lectures to 3,797 children and 1,540 adults in schools and clubs. The Society took an active interest in state bird-legislation this year, standing for such legislation as it believed would afford protection to the greatest number of birds, while recognizing that the hunter who pays for his license is entitled to certain privileges from the state.

In February the Society installed a bird-exhibit at the Providence Pure Food and Domestic Science Exposition, which ran for two weeks. This exhibit consisted of mounted birds common to the state, also bird-foods, native shrubs, bird-fountains, feeding-devices, nesting-houses and nest-boxes, cat-traps and sparrow-traps, bird-enemies, and an extensive display of Audubon literature. About 200,000 people saw the exhibit, much interest was shown, and a number of new members were enrolled. One of the most helpful events of the year was the visit of the Secretary of the National Association to Providence, and his two lectures to the children in the afternoon, and to adults in the evening, were much enjoyed. The Society takes this opportunity to express its appreciation of Mr. Pearson's courtesy, and to call attention to the fact that when such visits can be arranged with the busy National Secretary, the result is an inspiration to the State Society and the community.—H. L. MADISON, *Secretary*.

South Carolina.—Exhibits showing the usefulness of birds were held last fall at the State Fair and at several county fairs, by the National Association of Audubon Societies, in coöperation with the State Federation of Women's Clubs. These activities, in addition to financial aid from the National Association, resulted in a revival of this Society, which had been at rest for the preceding four years. At a meeting held in December, 1914, Frank Hampton was elected president, and Miss Williams secretary. The first duty was to recover some of the former members and add new ones. Prizes were offered and awarded to schools for compositions about birds. A leaflet containing helpful hints for bird-study was prepared and widely distributed; and programs were made out, by request, for bird-meetings held by several women's clubs. An exhibit composed of educational charts, bird-houses, bird-books, and literature for free distribution, was held at the annual meeting of the State Teachers' Association, and of the State Federation of Women's Clubs, and later in Columbia schools, the secretary spending several days at each school, talking to the grades separately. Cloth posters warning against unlawful hunting have been printed and offered to the public at cost. Hundreds of letters have been received asking for information and literature on every phase of bird-work. Many more requests have been received, for the use of the exhibit, and for lectures, than can be complied with.—BELLE WILLIAMS, *Secretary*.

Virginia.—The Junior Audubon work has made progress the past year, and great interest in it has been shown by children and teachers. The secretary gave much time and attention to this phase of the work. A Bird Day program was issued for May 4, Audubon's birthday, which, together with Governor Stuart's proclamation for a general recognition of that day, was largely distributed through the state. We held a most creditable exhibit during the educational conference in Richmond last November, when much literature was distributed. Besides this, literature was sent to each superintendent and many teachers, requesting their special attention to the formation of Junior Classes in their schools.—(Mrs.) R. B. SMITHEY, *Secretary*.

West Virginia.—An educational committee was formed the past year consisting of the president, vice-president, and Mrs. W. W. George, chairman. This committee visited the superintendent of the local schools, and at his invitation talked to a meeting of the principals on Junior work; to the pupils on bird-conservation; and to the manual-training teachers on nesting-boxes and feeding-boxes. The committee secured the active coöperation of the city authorities in putting up nesting-boxes and a feeding-station in one of the city parks. The boxes have been occupied. We were instrumental in having a good deputy game-warden named for this county. The Rev. Earle A. Brooks was appointed our representative at the annual meeting of the Field, Forest and Game Protective Association, and was instructed to vote for a hunter's license-fee and a closed season on Quails for three to five years.

The best work we have ever accomplished is the organization of Junior Audubon Classes in the schools, and we feel under great obligations to the National Association for enabling us to do this. The Society requested Mr. Pearson to lend us two of his field-staff. He kindly directed Miss Katharine H. Stuart and Dr. Eugene Swope to work with us for a few weeks. Our educational committee communicated with school authorities in the towns to be visited, in order to prepare the way for these lecturers, who visited thirteen cities and spoke in the schools, in some places giving public illustrated lectures. Miss Stuart alone spoke to more than 12,000 children; and their combined work resulted in the formation of 284 Junior Classes. In Parkersburg alone 806 Junior members were enrolled. One branch society was established at Morgantown this year, called the West Virginia Bird Club, with a membership of 41 and much enthusiasm for the work.—IDA M. PETERS, *Secretary*.

CLUBS AFFILIATED WITH THE NATIONAL ASSOCIATION

Audubon Society of Buffalo.—This Society was organized May 10, 1909, and now has a paid up membership of 240. Coöperating with the Buffalo Society of Natural Sciences, we are privileged to hear five lectures a year by the best talent that the country affords. For five years we have published, for

three months in the spring, a series of illustrated articles on bird-life. These have appeared in the best illustrated Sunday newspaper in western New York.

For three years the Society has published a Bird Almanac of great beauty and educational value. For two years the edition has been quickly sold out and equal success is anticipated for this year. A complete migration calendar of birds, reported by members, has been kept each year. The Society owns a fine set of bird-slides, and twenty illustrated lectures were given the past year in schools, before Boy Scouts, Campfire Girls, Bible schools, and women's clubs. Eight other lectures were given on winter-feeding, and on building bird-boxes, both made practical by illustrations. It is a conservative estimate that 2,500 Buffalo boys and girls are members of Junior Audubon Classes.

An effort is now being made by the Society to induce Purple Martins to return in large numbers to western New York to nest. A twenty-eight-room Martin-house has been erected in Delaware Park. An offer has been made by the Society to six towns to pay one-half the cost of house-erection, if school-children and friends of birds will raise the other half of the expense. The Society is working in coöperation with the Chief Inspector of Game Laws for the Buffalo Division in the prosecution of cases of destruction or injury to birds. The Society is also coöperating with the State Department of Education in its efforts to educate the children in rural districts to protect bird-life.—(Mrs.) G. M. TURNER, *Secretary*.

Audubon Society of Columbus (Ohio).—Organized in June, 1913, the Columbus Audubon Society has a membership of 210. Most of its work has been in the form of providing free lectures, illustrated with lantern-slides. These have attracted the boys and girls, and many Junior Audubon Classes have been formed in the schools. On Arbor Day the Society has arranged bird-programs and provided speakers in the several school-buildings. A collection of 600 mounted birds, which has been on exhibition in a park, has been given to the club, and for the present it will be for the use of the school-children.

Bird-feeding stations were made by the boys in the manual-training department, and placed in the parks and school-grounds. The Trades School boys competed with other boys for prizes for the best nesting-boxes. These boxes were on exhibition at the Public Library at an evening entertainment, when each boy competing was given some kind of a prize, as a field-glass for the best three houses, Chapman's 'Handbook of Birds,' 'Bird-Life,' and 'Bird Guides' for the next best, and a year's subscription to *Blue Bird* to the others. Two real-estate companies contributed to the prizes, as they wished bird-houses to be put up in their properties. During the spring migration many persons joined the club in order to go on the 'hikes' which were taken every Saturday. All are agreed that the thing of most interest in the club has been the 'experience meetings,' when each one has been eager to tell what he or she has done individually.—LUCY B. STONE, *Secretary*.

Audubon Society of Elgin (Illinois).—This Society was organized June 12, 1914, by a number of enthusiastic bird-lovers. It has the usual list of officers and also standing committees on program, field-work, and publicity. The Program committee outlines the work for the year, and prepares for one or two papers on birds to be read at the conclusion of the business session of the meetings, which take place on the second Friday of each month. During the first half-year of the Society's existence we met in the homes of the members, then, through the kindness of the Young Women's Christian Association, the use of a room in their building was given it for that purpose. During the year a large number of bird-books have been purchased by the Public Library upon recommendation of the Society. A committee conferred with the Board of Education regarding the building of bird-houses by the manual-training pupils. The plan was enthusiastically received and the work was taken up immediately, which resulted in 250 Wren-houses and 12 Martin-houses being built, the largest having 54 rooms. The Wren-houses were placed on the home grounds of each builder, and the Martin-houses were presented to the Park Commissioner, who placed them in the park. It is our intention to be one of the leading societies for bird-study and protection in the state.—CARL F. GRONEMANN, *President*.

Audubon Society of Evansville (Indiana).—Our Society was organized on March 8, 1912. Much of our effort has been directed toward the organization of Junior Audubon Classes. More than 1,000 school-children in Evansville are now earnest students in Junior societies. Through the influence of our president, George S. Clifford, with his good bird-talks, a number of classes have also been formed in the nearby town and district schools. The Society secured from the City Park Board permission to keep in its natural state, as a bird-retreat, a tract of land given to the city for park purposes. In 1914 we entertained the State Society in its annual meeting, having at the same time as our guest of honor Miss Harriet B. Audubon, of Louisville, the granddaughter of the great naturalist. As a memorial to John James Audubon we are planning to join with Henderson, Kentucky, in establishing a bird-preserve on the banks of the Ohio River, where he did so much of his work.—LIDA EDWARDS, *Secretary*.

Audubon Bird Club of Minneapolis.—As in former years this Club has been active along educational lines. Many lectures have been given to schools and clubs. A bird-club was formed by members of the Woman's Club of Minneapolis, and an exhibition was held by it in the Public Library, where nesting-boxes, food-plants, drinking-fountains, etc., were shown. The visitors during the week that it was held numbered 3,000. The bird-feeding stations in our public parks were kept up during the winter, and these have now proved to be a great success. Chickadees, Nuthatches and Woodpeckers were num-

crous at the feeding-places all winter. Last spring the Park Board distributed 143 nesting-boxes along Minnehaha Parkway.

The following species of birds now enjoy a five-years' closed season, according to an act passed by the last Legislature: Woodcock, Wood Duck, Bartramian Sandpiper, Golden Plover, and Mourning Dove. The Ruffed Grouse is not as numerous as two years ago, and its cousin, the Pinnated Grouse, is on the wide road to extinction. Nothing but a long closed season, and the setting off of large tracts of land as bird-sanctuaries, can now save the Grouse of the state.—J. W. FRANZER, *Secretary*.

Audubon Club of Norristown (Pennsylvania).—This Club is one of the largest and most successful local organizations of its kind in the state. It is composed of about two hundred ladies and gentlemen as active members, with a long list of boys and girls as 'Junior Associates.' It may be seen from this that its special method is to enroll children for the study and protection of birds only under the direct guidance and control of persons of an older growth. The Club was organized on March 27, 1911. Most important of its activities has been the creation of a universal atmosphere in behalf of birds in a borough of nearly 30,000 people, situated in the center of a rich region.

Many meetings have been held, at which both the esthetic and economic values of bird-life have been presented, so that leading citizens of all classes have been won over to the good cause, and have taken a hand. Martin-boxes have been erected at many different places, including one in Courthouse Square, and much other similar provision has been made for attracting and feeding birds. Besides this, direct aid has been given by the Club in promoting the cause of recent progressive ornithological legislation in Congress and at Harrisburg. Finally, an officer of the Club, who is a successful business man, has assembled, at much expense, a splendid collection of mounted specimens for which he has just completed a fine and capacious building to serve as a museum, where the club may have its headquarters and the whole subject of ornithology may be studied to the best possible advantage.

The present officers of the Club are: Augustus W. Bomberger, President; H. Severn Regar, Vice-President; Miss Lois Fornance, Secretary-Treasurer; Executive Committee, Willis R. Roberts, Miss Nina B. Reed, Montgomery Evans, Esq., Mrs. Sarah C. Garsed, and Prof. Allen S. Martin.—AUGUSTUS W. BOMBERGER, *President*.

Bird Club of Michigan City (Indiana).—Very early in the spring of 1915 a few ladies who were bird-enthusiasts met and planned to confer with each other during the spring season. No definite plan was made, but all were to observe bird-life as much as possible, and to report their observations weekly. The plan was so successful that by June we were justified in forming an organized club. We joined the State Audubon Society, and the National

Association, and have held meetings weekly during the spring, and fortnightly since the middle of summer, and we are very ambitious to accomplish real things. We are glad to report a movement to make a state game-preserve of this township. One of our members acts as press secretary, and publishes weekly in local newspapers articles on some phase of bird-interest, which are attracting a great deal of attention. We are attempting to interest the public-school teachers in the work. We are posting bulletins in conspicuous places; seeing that pictures of birds are in view in the Public Library, and that these are classified according to the birds likely to be seen here each month. Last summer one member was able to save many young Robins from tormentors. She has been active in causing slingshots, popguns, and other weapons to be less popular among the youngsters. Last, but most important, perhaps, we are keeping accurate records of all birds seen in this locality, with dates of their migrations and other interesting information. We believe we can present some valuable data relative to bird-life in the northern part of this state.—ALICE M. BELDEN, *Secretary*.

Bird-Lovers' Club of Brooklyn.—This Club was organized June 5, 1909. For several years before a small but earnest group of bird-students had ridden their hobby in Prospect Park. They did not know one another, but the field-glasses carried were 'open sesame' to acquaintanceship, and in an informal way notes and records were exchanged at the chance meetings. Finally the Club was formally launched at the home of Dr. E. W. Vietor. Dr. and Mrs. Vietor, Mrs. Charles S. Hartwell, L. F. Bowdish, and the writer, were the charter-members. The Club now numbers forty-two. For a while it met monthly at the homes of the several members until a permanent meeting-place was found at the Children's Museum.

The work of the members has necessarily been limited largely to Prospect Park, where, however, surprising results have been obtained, and about 160 species of birds have been identified. From the beginning the Club has furnished the Central Museum and other institutions with a monthly record of the Prospect Park birds. More recently the Club has undertaken the education of the public in birds and their protection. In this connection, and with the coöperation of the Brooklyn Institute of Arts and Sciences, a lecture by Charles H. Rogers was delivered in the Academy of Music. For the spring of 1916 the Club has planned a Bird Exhibit, the first of its kind in New York City. It is to be held in the Central Museum, Eastern Parkway, Brooklyn, during Easter week of 1916, and the week following, and will, it is hoped, cover the subject of birds, their study, value, protection, and attraction, in all its phases.—EDWARD FLEISCHER, *Secretary*.

Brookline (Massachusetts) Bird Club.—This Club was organized in June, 1913. Its objects are the stimulation of interest in bird-life; the increase

and protection of our local wild birds, and the gradual establishment of a bird-sanctuary in Brookline. 'Bird-walks' have been arranged for nearly every Saturday afternoon, except during the summer months, and lectures or Round-table Talks every month, with the same exception. The extensive park system about Boston permits a great diversity in the walks to discover land- and shore-birds. The attendance at these walks varies from ten to about fifty members. The lectures are given by well-known authorities on birds. The Round-Table talks are made interesting by having a different leader for each one, and confining the talk to some group or family of birds, or to some special bird trip by a member.

In the spring of 1914 an exhibition was held in the Public Library in connection with the Forestry Department of Brookline. Feeding and protective devices were shown, together with specimens of bird-houses and bird-baths. More than 3,000 visitors registered at this exhibit. Another exhibition was held in the spring of 1915, showing cases of birds in the act of destroying insects; specimens of foods which attract wild birds; bird-houses of various design and size, some made by the school-children. Specimens of the branches and trunks of trees were shown by the Forestry Department, where valuable work had been done by birds boring for grubs.

One important purpose of the Club has been accomplished. Owners of large contiguous estates to the extent of about 1,500 acres, as well as the selectmen of Brookline, have forbidden the use of firearms or traps for birds, so that the whole town of Brookline may be considered a bird-sanctuary. Present membership 535. The origin of the Club was through our secretary, who had attended a lecture by Ernest Harold Baynes.—GEORGE W. KAAAN, *Treasurer*.

Budd Lake (New Jersey) Nature-Study Club.—This Club was organized July 20, 1910, with six members. Since then our membership has increased to twenty-four. During this time we have had lectures on 'Bees,' and 'Ants,' and one on 'Wild Birds,' by Edward Avis. All these lectures were well attended. This club consists of ladies who spend their summers at Budd Lake. During the summer months weekly meetings are held, and wild birds and flowers are studied. During the winter monthly meetings are held at different places in New York City. We know our influence is being felt by the fact that so many people who are not members come to us asking questions about birds they have seen, and birds' nests they have found. We know we have aroused interest in bird-life at Budd Lake, and even small children are deeply interested.—WILLIAM MARTIN BERRY, *Secretary*.

Burroughs-Audubon Nature Club of Rochester.—Our Society was first organized as 'Burroughs Club,' but in January, 1915, we became affiliated with the National Association of Audubon Societies, and the name was changed to the one indicated above. We have had many instructive walks

through Rochester's beautiful parks, headed by our president, Mr. Hoot, by Mr. Laney of the Park Board, one of our vice-presidents; and by Professor Fairchild of the University of Rochester. We have brought to Rochester such lecturers as Henry Oldys, A. H. Pratt, Guy A. Bailey, and Charles C. Gorst. Through the courtesy of Charles A. Green, a member, we were also able to enjoy Herbert K. Job. Added to this, we have had lectures by our best local talent. Nothing could be more beautiful to the eye, or bring us more near to the heart of nature, than the illustrated lecture by C. E. Kellogg, Principal of one of our schools and a fellow member. Mr. Hoot has also given us a delightfully illustrated talk, 'Hunting Without a Gun.' One of our officers, Mrs. S. P. Moore, an authority on birds and a well-known writer, has furnished much enjoyment by her informal talks. We have also been favored by talks from Dr. Charles Howard and Miss Florence Beckwith.

One of the triumphs of the Club was a visit on June 25, 1914, by John Burroughs. During his stay, our bird-sanctuary (adjoining Durand-Eastman Park) was dedicated, under the title of 'Cottage Grove and Fernwood.' The spade used in the dedication was inscribed by Mr. Burroughs and turned over to the Club.

We have taken up the cat problem and the members are using their personal influence to overcome this evil wherever possible. Mr. Edson, a member, and a friend, Mr. Horshey, issue a list weekly, in the daily papers, of all birds seen in and about Highland Park. This gives the reading public an opportunity to become familiar with the names of our local birds. Rochester had two Cardinals that wintered here a year ago, and we have several colonies of Martins. Our Club has a membership of more than 200, and we are still growing.—
JULIA TOOLE, *Secretary*.

Cleveland (Ohio) Bird-lovers' Association.—This organization is not quite a year old, yet it has more than 180 members. We had a week's campaign, with two public lectures by Henry Oldys, who spoke to more than 10,000 school-children during his visit to Cleveland. We have bird-houses, and feeding-shelves, and books on bird-study and conservation, for sale, and, of course, the Audubon leaflets. We have had a melon-seed contest this summer, and now we are trying to post and protect a small lake near a school-house for the migrating birds, which will be of interest to the children. Dr. Swope feels that he cannot continue *Blue Bird* so I am taking it over for the Association, and my publication will begin with the December number.—
(Mrs.) ELIZABETH C. T. MILLER, *Secretary*.

Dorchester (Massachusetts) Woman's Club.—The Bird-Class of the Dorchester Woman's Club was organized in 1909 by a few enthusiastic members. For two years, with a membership of about thirty, we conducted it as a study-class with frequent trips to museums through the winter and with

field-walks during the spring. A somewhat similar program is still continued. The number taking the bird-walks varies from five to thirty-five, according to the weather. On one of our trips to Boone Lake, Hudson, directly in the path of bird-migration, we counted thirty Blackburnian Warblers on one small tree. We have been so interested in our own Dorchester birds (one of our members having tabulated 119 varieties at her own feeding-station), that last year we began a new work.

Our district is changing, woods and fields are disappearing, and houses and people fill the feeding- and nesting-places; so last autumn we chose the six school districts most adjacent to our club-house, showed the children charts of the winter birds, and asked them to feed the birds and provide boxes and homes for them during the winter. We used the material in the Audubon Society's leaflet, employed our own experiences as stories, and gave a half-hour talk to 800 children in each school-hall. We obtained permission for the boys to make bird-houses in their manual-training work, and some of these bird-houses were taken to the Franklin Park Audubon Society's Field-Day. Winthrop Packard gave a delightful illustrated lecture for children in two of the school-halls into which we had gathered the three upper grades of six districts. At Christmas we gave a trimmed birds' Christmas tree to most of these schools. We have also presented the matter of caring for the birds to a number of clubs and organizations in Dorchester, and have asked that shrubs and trees bearing berries be planted on the lawns. Everywhere we have aroused interest, and we feel that the people of Dorchester will do their best under changing conditions to care for our birds.—(Mrs.) E. H. WRIGHT, *Chairman*.

Fitchburg (Massachusetts) Outdoor Club.—Our Club was organized February 22, 1913, with the idea of studying Nature in various forms, but we have done little except to study and protect birds. We now have thirty-eight members. During the winter indoor meetings are held at the houses of the members, and through the spring and early summer weekly bird-walks are taken. Last winter feeding-boxes were maintained in woods outside the city, and members of the Club visited them regularly two or three times a week. One member makes migration reports to the Biological Survey.—GRACE F. BARNES, *Secretary*.

Onondaga County (New York) Audubon Society.—Our Society was organized February 19, 1914. It has a membership of fifty. It has promoted an interest in birds in the public schools. Frequent publicity has been obtained in the daily press of the city as to the esthetic and economic value of birds. Its monthly meetings and weekly trips afield in May and June have aroused the interest of many outside its membership. Many have been led to encourage and protect bird-life by the erection of nesting-boxes, and by winter feeding.

Several illustrated lectures on birds have been promoted in schools and churches.—WILLIS G. BOOTH, *Secretary*.

Sewickley Valley (Pennsylvania) Audubon Society.—On the evening of April 2, 1914, a group of people met at the residence of Dr. and Mrs. Stanley M. Rinehart with the purpose of organizing an Audubon Society; and at a subsequent meeting, on April 28, our Society was organized. J. M. Tate, Jr., was elected president; B. H. Christy, G. H. Clapp, W. E. C. Todd, and Norman McClintock, honorary vice-presidents; and Miss Elizabeth S. Anderson secretary-treasurer.

Our first work was the arrangement of Saturday outings, and of study-classes, which met on Friday afternoons and evenings at intervals of two weeks during May. The outings began earlier and were bi-weekly. Henry M. Oldys visited Sewickley in October, 1914, and talked to the school-children, with the result that subsequently 135 children were enrolled as Junior Members. Owing to the Society's influence a greater number of persons fed birds during the winter. Holders of large properties were asked to coöperate with the Society by feeding and protecting the birds on their estates. At the first annual meeting, C. B. Horton was elected president, and Miss M. M. Alice Haworth, secretary-treasurer. The president appointed committees on legislation, observation and records, bird feeding, foreign-speaking population, and Audubon work in rural schools.

The Society has subscribed to BIRD-LORE for five rural schools, and has bought bird-boxes from the manual-training class in the Sewickley School and placed them in the woods. The committee on observation and records made excellent reports to the Society and to the U. S. Biological Survey.—M. M. ALICE HAWORTH, *Secretary-Treasurer*.

Sussex County (New Jersey) Nature-Study Club.—In November, 1906, Luther Hill, of Andover, New Jersey, sent out a call through the Sussex County papers for an assemblage of those interested in the forming of a Nature-Study Club. As a result fourteen persons assembled in Newton on November 17, and an organization was formed. The constitution adopted declared: "The purpose shall be particularly the study of birds with a view to their protection; and incidentally the study of plants and minerals." Mrs. W. K. Harrington, of Andover, was elected president. Under her guidance the first efforts of the members were directed toward familiarizing themselves with the 150 birds that either inhabit or visit Sussex County. This study has proved most interesting, and each year advancement has been made, until now nearly every bird can be recognized by the members at sight, and by song. The members use their influence in every way possible for the protection of bird-life. The Club is connected with the National Association and with the State Audubon Society, and contributes annually to their support. We have also

made considerable progress in the study of trees, flowers, ferns, mosses, and minerals. The membership of the Club is now thirty-two. Meetings are regularly held once a month throughout the year, and a definite program is carried out. Mrs. W. G. Drake, of Newton, is the present president. The success of the organization has proved an incentive to towns in a neighboring county, and similar clubs have been formed, and with these a friendly interchange of ideas and methods is enjoyed.—(Mrs.) W. E. WILLSON, *Secretary*.

Vermont Bird Club.—Our Club was organized January 25, 1902, by the adoption of a constitution and the election of Prof. G. H. Perkins as president. In 1914 the Bird Club and the Botanical Club united to form the Vermont Botanical and Bird Club, as many members belong to both clubs. The summer meeting for field-work had also been held jointly. These meetings have been held in different localities, although the winter meetings have been held more frequently at the University in Burlington. Many valuable papers, migration lists, local lists, observations of rare nests, of specimens new to the state, and notes of unusual activities in one or another species, etc., have been given at the meetings. The Club is a member of the National Association, and has always been in sympathy with Audubon work. In the beginning we had 94 members, now the number is 250. An attractive bulletin is published annually in which the principal papers are included.—G. H. PERKINS, *Secretary*.

Winchendon (Massachusetts) Woman's Club.—In our Club the work along the line of bird-study has been done in the Nature Department, which was established in 1906. One member, who has been chairman for a number of years, and who is the local secretary of the Massachusetts Audubon Society, has secured 235 Junior members and 35 life members for the Audubon Society. Nine bird-charts have been purchased and placed in different school-rooms. Two traveling lectures have also been given before the schools, through the efforts of this department of our Club. We have also had a case of mounted birds placed in one of the school-rooms, and have supplied Audubon leaflets to the teachers. One afternoon last year, the club had Winthrop Packard for their speaker, and two or three years ago had Edward H. Forbush. We have also circulated petitions, and written letters to senators and representatives in support of laws for better bird-protection.—LENA F. PARKER, *President*.

Woman's Club of Seymour (Connecticut).—We are not a bird-study club, although we are interested in the preservation of the birds and have a membership in the National Association of Audubon Societies. We took an active interest in the bill of Senator McLean, and in the tariff proviso, writing to senators and influential people, for we are always willing to do our best to help the National Association.—ALLIDA L. BOOTH.

JOHN H. KOCH & COMPANY, Certified Public Accountants
Liberty Tower, 55 Liberty Street, New York

NEW YORK, October 22, 1915.

THE AUDIT COMMITTEE,
National Association of Audubon Societies.

Dear Sirs:—In accordance with your instructions we have made an examination of the books, accounts and records of the National Association of Audubon Societies for the year ended October 19, 1915, and present for your scrutiny the following statements,—viz:

- EXHIBIT "A"—BALANCE SHEET OCTOBER 19, 1915.
- EXHIBIT "B"—INCOME AND EXPENSE ACCOUNT, GENERAL FUND.
- EXHIBIT "C"—INCOME AND EXPENSE, SAGE FUND.
- EXHIBIT "D"—INCOME AND EXPENSE, EGRET FUND.
- EXHIBIT "E"—INCOME AND EXPENSE, ALASKAN FUND.
- EXHIBIT "F"—INCOME AND EXPENSE, CHILDREN'S FUND.
- EXHIBIT "G"—INCOME AND EXPENSE, DEPARTMENT OF APPLIED ORNITHOLOGY FUND.
- EXHIBIT "H"—RECEIPTS AND DISBURSEMENTS.

An examination of all disbursements for the year was made, which we found were duly verified with approved receipted vouchers and cancelled endorsed checks. We attended at the Safe Deposit Company's vaults and examined all investment securities, which we found in order. Submitting the foregoing, we are

Very truly yours,

JOHN H. KOCH & CO.
Certified Public Accountants.

The Report of the Treasurer of the National Association of Audubon Societies, for Year Ending October 19, 1915

Exhibit "A"

ASSETS

<i>Cash in Banks and Office</i>		\$26,815 75
<i>Furniture and Fixtures—</i>		
Balance Oct. 19, 1914.....	\$1,564 02	
Purchased this year.....	231 22	
	\$1,795 24	
Less—Depreciation.....	179 52	
		1,615 72
<i>Inventory of Plates, etc. (Nominal Value)</i>		500 00
<i>Bird Island Purchase, Orange Lake, Fla.</i>		250 20
<i>Buzzards Islands, S. C.</i>		300 00
<i>Audubon Boats—</i>		
Balance Oct. 19, 1914.....	\$1,702 58	
Additions this year.....	1,400 00	
	\$3,102 58	
Less—Depreciation.....	310 25	
		2,792 33
<i>Investments, Endowment Fund—</i>		
Bonds and Mortgages on Manhattan Real Estate.....	\$361,400 00	
U. S. Mortgage & Trust Co. Bonds.....	3,000 00	
Manhattan Beach Securities Co.....	2,000 00	
		366,400 00
<i>Investments, Mary Dutcher Memorial Fund—</i>		
Bonds and Mortgages on Manhattan Real Estate.....		7,100 00
<i>Accounts Receivable—</i>		
Bond Interest Receivable.....		120 00
		\$405,894 00

LIABILITIES

Endowment Fund—

Balance Oct. 19, 1914.....	\$368,240 41	
Received from anonymous Patron.....	1,000 00	
Received from life members.....	2,625 00	
	<hr/>	\$371,865 41

Mary Dutcher Memorial Fund—

Balance Oct. 19, 1914.....		7,737 70
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Special Funds—

Mrs. Russell Sage Fund Exhibit "C".....	\$3,476 30	
Egret Protection Fund Exhibit "D".....	711 26	
Alaska Fund Exhibit "E".....	26 95	
Children Educational Fund, Northern States, Exhibit "F".....	1,180 68	
Department of Applied Ornithology Exhibit "G".....	4,279 27	
	<hr/>	9,674 46

<i>Accounts Payable</i>		11,283 05
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Surplus—

Surplus beginning of year.....	\$1,841 94	
Balance from Income Account.....	3,491 44	
	<hr/>	5,333 38

\$405,894 00

INCOME AND EXPENSE ACCOUNT—General Fund
EXPENSES

Exhibit "B"

Warden Service and Reservations—

Salaries.....	\$1,185 00	
Launch Expense.....	499 26	\$1,684 26

Legislation—

Massachusetts.....	597 44	
Florida.....	50 00	
		647 44

Educational Effort—

Secretary, Salary and Expenses.....	\$6,626 83	
E. H. Forbush, Field Agent Expenses.....	23 50	
Winthrop Packard, Salary and Expenses.....	2,571 75	
W. L. Finley, Salary and Expenses.....	600 00	
Dr. Eugene Swope.....	325 50	
Arthur H. Norton, Salary and Expenses.....	200 00	
Press Information.....	43 54	
Miss Belle Williams, Salary and Expenses.....	230 11	
Bird-Lore, Extra pages and annual report.....	2,513 78	
Printing, Office and Field Agents.....	532 68	
Traveling, local workers.....	21 50	
Electros and half-tones.....	986 46	
Library.....	188 48	
Slides and drawings.....	869 76	
Educational leaflets.....	935 25	
Bird-Lore to members.....	2,153 32	
Bird Books.....	2,385 11	
Colored plates of birds.....	1,094 75	
Colored plates in Bird-Lore.....	638 86	
Outlines.....	436 75	
Field Glasses.....	853 20	
Contribution to South Carolina Audubon Society.....	100 00	
Contribution to Michigan Audubon Society.....	58 03	
Contribution to Pennsylvania Society.....	200 00	
Summer-school work.....	1,001 17	
Publicity.....	500 00	
		26,090 33

General Expenses—

		\$28,422 03
Salary, Chief Clerk.....	\$1,530 00	
Salary, Cashier and Bookkeeper.....	1,669 50	
Salaries, Stenographers (four).....	2,355 81	
Junior Clerks (two).....	686 52	
Telegraph and Telephone.....	160 74	
Postage.....	1,292 11	
Office and storeroom rents.....	1,800 00	
	\$9,494 68	
Amount carried forward.....		\$28,422 03

INCOME AND EXPENSE ACCOUNT—General Fund, continued

Amount brought forward.....		\$28,422 03
Expenses brought forward.....	\$9,494 68	
<i>General Expenses, continued—</i>		
Legal services.....	255 00	
Auditing.....	125 00	
Envelopes and supplies.....	350 74	
Miscellaneous.....	299 36	
Stenographic work.....	44 65	
Cartage and expressage.....	126 26	
Insurance.....	110 32	
Electric light.....	34 59	
Sales Department expense.....	431 59	
Depreciation on boats.....	310 25	
Depreciation on office furniture.....	179 52	
Exchange on checks.....	29 43	
Annual Meeting expense.....	145 35	
Stencils, Addressograph Machine.....	47 12	
New Members' expenses.....	2,178 85	
	<hr/>	14,162 71
<i>Total Expenses.....</i>		\$42,584 74
<i>Balance, Surplus for year.....</i>		<hr/> 3,491 44
		<hr/> \$46,076 18

INCOME

Members' Dues.....		\$12,790 00
Contributions.....		7,243 50
Interest from Investments.....		19,186 36
Rent of Willow Island.....		30 20
<i>Sales—</i>		
Educational Leaflets Sales.....	\$2,501 13	
Field Glasses.....	509 33	
Sales of Slides.....	697 04	
Bird-Lore Sales.....	768 97	
Bird Book Sales.....	2,349 65	
	<hr/>	6,826 12
		<hr/> \$46,076 18

MRS. RUSSELL SAGE FUND
INCOME AND EXPENSE ACCOUNT

Exhibit "C"

INCOME—

Balance unexpended October 19, 1914.....	\$2,877 49
Contributions of Mrs. Russell Sage.....	5,000 00
Junior Members' Fees.....	1,806 50

 \$9,683 99

EXPENSES—

Pictures and Literature, Junior Members.....	\$2,035 41
Dr. Swope, work in West Virginia.....	54 80
Expressage.....	156 42
Printing circulars.....	183 25
Printing envelopes.....	87 04
Postage on circulars and literature.....	816 48
Bird-Lore, Subscriptions for Junior Secretaries.....	522 35
Stenographic and clerical work.....	787 76
Office rent.....	15 00
Office supplies.....	59 61
Salary and expenses Field Agent, Miss Stuart.....	1,078 34
Miscellaneous.....	15 00
Stencils.....	10 22
Buttons for Junior Members.....	205 78
Half-tones for publication.....	60 41
Report and publicity.....	89 82
Colored plates, Bird-Lore.....	30 00

 \$6,207 69

 3,476 30

Balance unexpended October 19, 1915.....

 \$9,683 99

EGRET PROTECTION FUND
INCOME AND EXPENSE ACCOUNT

Exhibit "D"

INCOME—

Balance unexpended October 19, 1914.....	\$447 57
Contributions.....	2,754 50

 \$3,202 07

EXPENSES—

Egret Wardens, salaries and expenses.....	\$2,176 65
Building a warden station.....	75 00
Postage, printing, envelopes and circularizing.....	215 00
Purchase of plumes for exhibition purposes.....	18 68
Miscellaneous.....	5 48

 \$2,490 81

 711 26

Balance unexpended October 19, 1915.....

 \$3,202 07

ALASKAN FUND

INCOME AND EXPENSE ACCOUNT

Exhibit "E"

INCOME—

Balance unexpended October 19, 1914..... \$1,889 70

EXPENSES—

Alaskan book..... \$1,862 75

Balance unexpended October 19, 1915..... 26 95

\$1,889 70

CHILDREN'S EDUCATIONAL FUND

INCOME AND EXPENSE ACCOUNT

Exhibit "F"

INCOME—

Balance unexpended October 19, 1914..... \$565 18

Contributions..... 20,000 00

Junior Members' fees..... 10,245 80

\$30,810 98

EXPENSES—

Dr. Eugene Swope, Field Agent..... \$291 00

Mrs. Mary S. Sage, Field Agent..... 260 85

Stenographic and Clerical Work..... 2,053 20

Office Supplies..... 211 29

Furniture and fixtures purchased..... 161 90

Expressage on literature..... 570 71

Postage on circulars and literature..... 3,087 48

Printing 3,378,750 Colored Plates, Leaflets and Outline
Drawings of teachers and children..... 15,577 09

Printed circulars to teachers..... 1,020 43

Bird-Lore for Junior Classes..... 3,106 97

Half-tones for publication..... 222 11

Reports and Publicity..... 1,181 39

Buttons for Junior Members..... 973 41

Colored Plates in Bird-Lore..... 249 64

Printed Envelopes..... 244 49

Office Rent..... 375 00

Stencils for Addressograph Machine..... 25 15

Miscellaneous..... 18 19

\$29,630 30

Balance unexpended October 19, 1915..... 1,180 68

\$30,810 98

DEPARTMENT OF APPLIED ORNITHOLOGY
INCOME AND EXPENSE ACCOUNT

Exhibit "G"

INCOME—

Balance unexpended October 19, 1914.....	\$5,325	59
Contributions.....	3,450	00
Earnings by H. K. Job from public lectures.....	315	36
For advertisement in Bulletin No. 2.....	25	00
		\$9,115 95

EXPENSES—

Herbert K. Job's Salary.....	\$2,500	00
Herbert K. Job's Traveling Expenses.....	899	97
Publishing Bulletin No. 2.....	458	50
Publishing Bulletin No. 3.....	305	50
Envelopes for mailing Bulletin.....	60	09
Postage on Bulletins.....	340	00
Blocks and half-tones for illustrations.....	153	25
Printing (letterheads and envelopes).....	49	95
Bird-boxes for experimental stations.....	62	62
Miscellaneous.....	6	80
		\$4,836 68
Balance unexpended October 19, 1915.....	4,279	27
		\$9,115 95

STATEMENT OF RECEIPTS AND DISBURSEMENTS,
YEAR ENDING OCTOBER 19, 1915

Exhibit "H"

RECEIPTS—

Income on General Fund.....	\$45,956 18
Endowment Fund.....	3,625 00
Sage Fund.....	6,806 50
Egret Fund.....	2,754 50
Children's Educational Fund.....	30,245 80
Department of Applied Ornithology.....	3,790 36

Total Receipts year ending October 19, 1915	\$93,178 34
Cash Balance October 19, 1914.....	13,608 78

\$106,787 12

DISBURSEMENTS—

Expenses on General Fund.....	\$40,852 79
Investment on Endowment Fund.....	\$12,000 00
<i>Less</i> —Received on account of Mortgages.....	9,500 00

2,500 00

Expenses on Sage Fund.....	5,060 78
Egret Fund.....	2,430 81
Alaskan Fund.....	1,862 75
Children's Educational Fund, Northern.....	21,286 11
Department of Applied Ornithology.....	4,836 68
Furniture Account.....	231 22
Audubon Boats.....	1,400 00

\$80,461 14

<i>Less</i> —Depreciation charges on boats and furniture.....	489 77
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Total Disbursements for year ended October 19, 1915.....	\$79,971 37
Cash Balance October 19, 1915	26,815 75

\$106,787 12

NEW YORK, October 25, 1915.

DR. F. A. LUCAS,
Acting President,
National Association of Audubon Societies,
New York City.

Dear Sirs:—We have examined reports submitted by John H. Koch & Company, certified public accountants, on the accounts of the National Association of Audubon Societies for the year ending October 20, 1915. The account shows balance sheets of October 20, 1915, and income and expense account for the year ending the same date. Vouchers and paid checks have been examined by them in connection with all disbursements, and also the securities in the Safe Deposit Company.

Yours very truly,

J. A. ALLEN,
FRANK M. CHAPMAN,
Auditing Committee.

LISTS OF MEMBERS OF AND CONTRIBUTORS TO THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

BENEFACTOR

*Albert Wilcox.....1906

FOUNDER

Mrs. Russell Sage.....1910

PATRONS

William P. Wharton1909

Miss Heloise Meyer.....1912

Anonymous.....1915

LIFE MEMBERS

Abbott, Clinton G.....	1910	Brown, Miss Annie H.....	1914
Adams, Mrs. George E.....	1912	Brown, T. Hassall.....	1911
Ahl, Mrs. Leonard.....	1915	Browning, J. Hull.....	1905
Alms, Mrs. Eleanor C.....	1913	Butterworth, Frank S., Jr.....	1915
Andrews, Mrs. E. B.....	1914	Cabot, Mrs. A. T.....	1913
Armstrong, Dr. S. T.....	1913	Camden, J. N.....	1914
Arnold, Benjamin Walworth.....	1914	Camden, Mrs. J. N.....	1914
Ash, Mrs. Charles G.....	1913	Campbell, Helen Gorden.....	1909
Auchmuty, Mrs. R. T.....	1913	Carr, Gen. Julian S.....	1907
Austen, Mrs. Isabel Valle.....	1914	Case, Miss Louise W.....	1914
Babcock, Mrs. Perry H.....	1912	Chapin, Chester W.....	1910
Bacon, Mrs. Robert.....	1912	Chapman, Clarence E.....	1908
Bancroft, William P.....	1906	C. ———, E. S.....	1913
Barbey, Henry G.....	1914	Chase, Mrs. Philip A.....	1913
*Barnes, Miss Cora F.....	1908	Childs, John Lewis.....	1905
Bates, Mrs. Ella M.....	1914	Clarke, Mrs. W. N.....	1912
*Bates, Isaac C.....	1910	Clyde, W. P.....	1905
Batten, George.....	1911	Comstock, Miss Clara E.....	1914
Baylies, Mrs. N. E.....	1912	Coolidge, J. Randolph.....	1913
Beebe, Mrs. J. Arthur.....	1907	Coolidge, Oliver H.....	1912
Beech, Mrs. Herbert.....	1914	Coolidge, T. Jefferson, 3rd.....	1907
Bennett, Mrs. Alice H.....	1914	Crocker, Mrs. Emmons.....	1912
Berwind, John L.....	1915	Crosby, Maunsell S.....	1905
Bigelow, Dr. Wm. Sturgis.....	1912	Crozier, Mrs. J. Lewis.....	1908
Bingham, Miss Harriet.....	1907	Cudworth, Mrs. F. B.....	1911
Bliss, Miss Catherine A.....	1911	Cutting, Mrs. W. Bayard.....	1913
Bliss, Mrs. William H.....	1912	Dane, Edward.....	1912
Bolling, Mrs. Raynal C.....	1909	Dane, Ernest Blaney.....	1913
Borden, Miss Emma L.....	1914	Dane, Ernest Blaney, Jr.....	1912
Bowdoin, Miss Edith G.....	1911	Dane, Mrs. E. B.....	1913
Bowdoin, Mrs Temple.....	1911	Davis, David D.....	1911
*Bowman, Miss Sarah R.....	1905	Davis, William T.....	1910
Brewster, William.....	1905	Deering, Charles.....	1913
Bridge, Mrs. Lidian E.....	1907	Depew, Chauncey M., Jr.....	1915
Brooks, A. L.....	1906	District of Columbia Audubon Society	1915
Brooks, Mrs. Everett W.....	1907	Dows, Tracy.....	1914
Brooks, Miss Fanny.....	1913	Draper, Mrs. Henry.....	1913
Brooks, Gorman.....	1911	Duer, Mrs. Denning.....	1915
Brooks, Peter C.....	1911	"E. D. F." In Memoriam.....	1914
Brooks, Shepherd.....	1907	Earle, Carlos Y. Poitevent.....	1905
Brooks, Mrs. Shepherd.....	1906	Earle, Miss E. Poitevent.....	1905

*Deceased.

LIFE MEMBERS, continued

Eastman, George.....	1906	Kuser, John Dryden.....	1911
Edgar, Daniel.....	1908	Lane, Benjamin C.....	1909
Elliot, Mrs. J. W.....	1912	Lawrence, Samuel C.....	1905
Ellsworth, James W.....	1915	Leferts, Mrs. M. C.....	1914
Emmons, Mrs. R. W., 2nd.....	1908	Loring, Mrs. W. Caleb.....	1913
Endicott, H. B.....	1908	Loyd, Miss Sarah A. C.....	1914
Farel, Mrs. Franklin.....	1913	McClymonds, Mrs. A. R.....	1914
*Farwell, Mrs. John V., Jr.....	1909	McConnell, Mrs. Annie B.....	1908
Fay, Dudley B.....	1913	McGraw, Mrs. Thomas S.....	1908
Fay, Mrs. Flora Ward.....	1905	Mackey, Clarence H.....	1908
Fenno, Mrs. L. Carteret.....	1913	Mallery, Mrs. Jane M.....	1914
Field, Cortlandt deP.....	1915	Marshall, Louise.....	1906
Fleischmann, Julius.....	1913	Marshall, Thomas K.....	1915
Flint, Miss Jessie S. P.....	1913	Mason, Miss Ellen F.....	1913
Foot, James D.....	1907	Mason, Miss Fanny P.....	1912
Forbes, Mrs. William H.....	1914	Mason, George Grant.....	1914
Forbush, Edward Howe.....	1910	Massachusetts Audubon Society.....	1915
Ford, James B.....	1913	Meloy, Andrew D.....	1910
French, Miss Caroline L. W.....	1911	Merrill, Miss F. E.....	1913
*Frothingham, Howard P.....	1905	Mershon, W. B.....	1914
Frothingham, John W.....	1913	Meyer, Miss Heloise.....	1910
Gallatin, F., Jr.....	1908	Moore, Clarence B.....	1909
Garneau, Joseph.....	1913	Morton, Miss Mary.....	1906
Gazzam, Mrs. Antoinette E.....	1908	Murphy, Franklin.....	1909
Gifford, Mrs. Robert L.....	1908	New Jersey Audubon Society.....	1913
Gladding, Mrs. John Russell.....	1914	Newman, Mrs. R. A.....	1914
Goodwin, Walter L., Jr.....	1914	Nichols, Mrs. William G.....	1915
Grant, W. W.....	1910	North Carolina Audubon Society.....	1905
Graydon, Mrs. Clendeny.....	1913	*Osborn, Mrs. Eliza W.....	1906
Greenway, Mrs. James C.....	1912	Palmer, Mrs. Wm. H.....	1912
Grew, Mrs. H. S.....	1913	*Palmer, William J.....	1906
Griswold, Mrs. Wm. E. S.....	1915	Parker, A. H.....	1908
Haehnle, Reinhold.....	1912	Parker, Edward L.....	1909
Harrah, Mrs. Charles J.....	1913	Parsons, Miss Mary W.....	1913
Harral, Mrs. Ellen W.....	1914	Peabody, George A.....	1914
Harrison, Alfred C.....	1914	Pearson, T. Gilbert.....	1905
Havemeyer, Mrs. H. O., Jr.....	1907	Peck, Mrs. Walter L.....	1909
Hawkins, Rush C.....	1913	Perkins, Miss Ellen G.....	1914
Hearst, Mrs. Phoebe A.....	1909	Perkins, Mrs. George C.....	1913
Hemenway, Augustus.....	1915	Phelps, Mrs. J. W.....	1914
Hemenway, Mrs Augustus.....	1915	Phillips, Mrs. Eleanor H.....	1908
Hentz, Leonard L.....	1914	Phillips, Mrs John C.....	1905
Hitch, Mrs. Frederic D.....	1915	Phillips, John C.....	1905
Hoff, Mrs. Grace W.....	1915	Pickman, Mrs. Dudley L.....	1907
Hoffman, Samuel V.....	1907	Pierrepont, Miss Anna J.....	1905
Hopewell, Frank.....	1911	Pierrepont, John J.....	1905
Hornbrooke, Mrs. Frances B.....	1913	Pierrepont, Mrs. R. Stuyvesant.....	1914
Hostetter, D. Herbert.....	1907	*Pinchot, Mrs. J. W.....	1906
Houghton, Miss Elizabeth G.....	1914	Poland, James P.....	1909
Hubbard, Joshua C., Jr.....	1915	Potts, Thomas.....	1905
Hubbard, Richard.....	1915	Pratt, George D.....	1911
Hunnewell, H. S.....	1905	Prime, Miss Cornelia.....	1909
Huntington, Archer M.....	1905	Rainsford, Dr. W. S.....	1913
Jackson, Mrs. James.....	1908	Reed, Mrs. William H.....	1905
Jamison, Margaret A.....	1914	Renwick, Mrs Ilka H.....	1914
Kettle, Mrs. L. N.....	1913	Reynolds, R. J.....	1908
Kidder, Nathaniel T.....	1905	Roberts, Miss Frances A.....	1914
Kilmer, Willis Sharpe.....	1907	Rockefeller, William G.....	1912
King, Miss Ellen.....	1915	Rogers, Charles H.....	1912
Kinney, Morris.....	1913	Rogers, Dudley P.....	1914
Kittredge, Miss Sarah N.....	1914	Ropes, Mrs. Mary G.....	1913
Knight, Miss A. C.....	1913	Russell, Mrs. Gordon W.....	1914

*Deceased.

LIFE MEMBERS, continued

Sage, Mrs Russell.....	1905	Tufts, Leonard.....	1907
Saltonstall, John L.....	1908	Tyson, Mrs. George.....	1915
Satterlee, Mrs Herbert L.....	1906	Van Brunt, Mrs. Charles.....	1912
Schley, Grant B.....	1914	Vanderbilt, Mrs. French.....	1914
Schroeder, Miss Lizzie H.....	1911	Van Name, Willard G.....	1905
Seabury, Miss Sarah E.....	1915	Vaux, George, Jr.....	1905
Seaman, L. W.....	1912	Wade, Mrs. J. H.....	1914
Sears, William R.....	1915	Wadsworth, Clarence S.....	1911
Shattuck, Mrs. F. C.....	1906	Wallace, Mrs. Augusta H.....	1914
Sherman, Miss Althea R.....	1909	Ward, Marcus L.....	1908
Sibley, Hiram W.....	1915	Watson, Mrs. James S.....	1911
*Smith, Miss Alice Weston.....	1911	Webb, J. Griswold.....	1913
Spalding, Mrs. Amanda M.....	1912	Webster, F. G.....	1905
Stewart, Mrs. Edith A.....	1913	Webster, Mrs. Sidney.....	1913
Stickney, Charles D.....	1910	Weeks, Henry deForest.....	1909
*Stokes, Miss Caroline Phelps.....	1908	Wells, Mrs. Frederick L.....	1911
Stone, Miss Ellen J.....	1914	Westcott, Miss Margery D.....	1912
Taft, Elihu B.....	1911	Wetmore, George Peabody.....	1914
Taylor, Charles H., Jr.....	1908	White, Mrs. Charles T.....	1909
Thayer, Mrs. Ezra R.....	1909	Williams, John D.....	1909
Thayer, John E.....	1909	Wood, Mrs. Antoinette Eno.....	1913
Thompson, Mrs. Frederick F.....	1908	Woodman, Miss Mary.....	1914
*Thorn, Mrs. Augusta C.....	1913	Woodward, Mrs. George.....	1908
Tingley, S. H.....	1914	Wyman, Mrs. Alfred E.....	1914
Torrey, Mrs. Alice W.....	1913		

*Deceased.

ANNUAL MEMBERS AND CONTRIBUTORS TO THE GENERAL FUND

Abbe, Miss H. C.....	\$5 00	Alee, Miss Jean H.....	\$5 00	Arnold, Mrs. G. C.....	\$5 00
Abbey, Mrs. F. R.....	5 00	Allen, Miss A. E.....	2 00	Arnold, Miss Mittie.....	5 00
Abbot, Miss M. S.....	30 00	Allen, Atkinson.....	5 00	Arnold, W. D. I.....	1 00
Abbott, Mrs. F. V.....	5 00	Allen, C. L.....	5 00	Arnold, Mrs. Wm. R.....	2 00
Abbott, Holker.....	1 00	Allen, Miss E. H.....	5 00	Aronstein, Mrs. S.....	5 00
Abbott, Mrs. T. J.....	5 00	Allen, Dr. J. W.....	5 00	Arrison, Mrs. Jas. M.....	5 00
Abrams, Mrs. A. E.....	2 00	Allen, Mrs. N. T.....	1 00	Ashley, Miss E. M.....	5 00
Achilles, Mrs. G. S.....	5 00	Allison, Mrs. M. D.....	1 00	Aspinwall, John.....	5 00
Ackley, Miss A. E.....	5 00	Allsop, Mrs. F. J. O.....	5 00	Astor, Vincent.....	5 00
Acton, Miss A. A.....	5 00	Althouse, H. W.....	10 00	Atkins, Mrs. E. F.....	5 00
Adams, Mrs. A. L.....	5 00	Alvord, George B.....	15 00	Atkinson, Miss M.....	1 00
Adams, Mrs. Brooks.....	5 00	Ames, Miss H. S.....	5 00	Atwater, Charles B.....	5 00
Adams, C. Q.....	10 00	Ames, Mrs. J. B.....	10 00	Atwater, Mrs. Wm. C.....	5 00
Adams, Edward B.....	5 00	Ames, John S.....	5 00	Auchincloss, J. W.....	5 00
Adams, Miss E. B.....	1 00	Ames, Miss Mary S.....	5 00	Audubon Bird Club	
Adams, H. W.....	5 00	Amory, John S.....	5 00	of Minneapolis.....	5 00
Adams, Mrs. J. D.....	5 00	Ams, Charles M.....	5 00	Audubon, Miss M. E.....	5 00
Adams, Wm. C.....	1 00	Anderson, Mrs B.....	5 00	Audubon Society of	
Adler, Max A.....	5 00	Anderson, J. C.....	5 00	Evansville, Ind.....	5 00
Adt, Albert A.....	1 00	Andrews, Mrs. H. E.....	5 00	Audubon Society of	
'A Friend'.....	31 00	Andrews, James M.....	5 00	Sewickley Valley.....	5 00
A Game Protector.....	400 00	Andrews, J. S.....	5 00	Audubon Society of	
Agassiz, R. L.....	5 00	Andrews, Miss K. R.....	5 00	Vermont.....	5 00
Ahruke, Carl J. R.....	5 00	Andrews, W. H.....	5 00	Auerbach, J. S.....	5 00
Aichel, Oskar G.....	5 00	Angstman, Mrs. C. S.....	5 00	Augustus, A. A.....	5 00
Aiken, John A.....	5 00	Anonymous.....	10 00	Ault, L. A.....	15 00
Aldrich, E. Frank.....	5 00	Anthony, Miss E. J.....	5 00	Austen, Mrs. I. V.....	5 00
Aldrich, Frank W.....	5 00	Anthony, Mrs. S. R.....	5 00	Austin, Francis B.....	5 00
Aldrich, Mrs. J. H.....	10 00	Appleton, Miss M. E.....	5 00	Averill, Miss F. M.....	1 00
Aldrich, N. W.....	5 00	Appleton, Wm. S.....	5 00	Avery, Samuel P.....	10 00
Aldrich, Spencer.....	5 00	Archbold, John D.....	5 00	Avis, Edward.....	5 00
Aldrich, Mrs. Wm. B.....	5 00	Archer, Mrs. G. A.....	5 00	Ayer, C. F.....	15 00
Aldridge, G. W.....	10 00	Armleder, Otto.....	5 00	Ayer, Mrs. E. E.....	5 00
Alexandre, Mrs. J. J.....	5 00	'From A Friend'.....	5 00	Ayer, F., Jr.....	5 00

ANNUAL MEMBERS AND CONTRIBUTORS, continued

Ayers, Harry M.....	\$10 00	Bartlett, Mrs C. T. .	\$5 00	Biological Labora-	
Ayers, Miss M. A. . .	10 00	Bartlett, the Misses.	15 00	tory Summer-	
Babcock, H. N.	50	Bartlett, Mrs. H. . . .	7 00	school	\$25 00
Babcock, W. I.	5 00	Bartlett, Wm. T. . . .	1 00	Birch, G. Howard. . .	5 00
Bachman, Mrs. J. R. .	5 00	Bartol, Miss E. H. . .	5 00	Birch, Hugh T.	5 00
Bacon, Miss E. S. . . .	5 00	Bartol, Mrs. J. W. . .	5 00	Bird, Miss Anna C. .	5 00
Bacon, Mrs. F. E. . . .	5 00	Barton, Mrs. F. O. . .	5 00	Bird, Charles S.	10 00
Bacon, Miss H. R. . . .	5 00	Bass, Mrs. Perkins. . .	5 00	Bird Club of Long	
Bacon, Misses (The)	2 00	Batchelor, Miss L. . .	5 00	Island.	5 00
Bacon, Miss M. P. . .	5 00	Bates, Mrs. Ella M. . .	5 00	Bird Club of Mich-	
Badger, Arthur C. . . .	5 00	Bates, Miss K. L. . . .	5 00	igan City.	5 00
Badger, Lester R. . . .	5 00	Bausch, W.	5 00	Birdlovers' Club of	
Bailey, Mrs A. T.	5 00	Beach, Mrs. H. H. A. .	5 00	Brooklyn.	5 00
Bailey, George, Jr. . .	5 00	Beadleston, A. N. . . .	5 00	Birmingham Public	
Bailey, Henry T.	8 00	Beal, Mrs. J. H.	5 00	Library.	5 00
Bailey, S. I.	1 00	Beattie, W. E.	10 00	Bishop, J. G.	5 00
Bailey, Theodore L. . .	5 00	Beckley, Mrs. J. N. . .	5 00	Bishop, Dr. L. B. . . .	2 50
Baird, Charles.	10 00	Beckwith, Mrs. D. . . .	5 00	Bishop, W. H.	5 00
Baker, Mrs. C. M. . . .	10 00	Beckwith, T., Jr. . . .	5 00	Black, R. Clifford. . .	5 00
Baker, George L.	5 00	Bedford Audubon		Blackinton, Mrs. R. . .	5 00
Baker, Miss M. K. . . .	5 00	Society.	5 00	Blackmer, Mrs. F. B. .	5 00
Baker, W. E.	5 00	Beer, Mrs. Edwin. . . .	5 00	Blake, Mrs. Francis. .	5 00
Balch, Henry G.	10 00	Beer, Mrs. G. L.	10 00	Blake, Mrs. S. P. . . .	5 00
Baldwin, Charles L. . .	5 00	Beer, Mrs. J.	10 00	Blakiston, Miss E. . .	5 00
Baldwin, Mrs. C. R. . .	5 00	Bell, Mrs. Gordon. . . .	5 00	Blanchard, John A. . .	5 00
Baldwin, George J. . . .	5 00	Beller, William F. . . .	5 00	Blashfield, Mrs. E. H. .	5 00
Baldwin, James.	5 00	Bellinger, Mrs. E. J. . .	5 00	Bliss, E. C.	5 00
Baldwin, Roger N. . . .	3 00	Bement, Mrs. G. F. . . .	5 00	Bliss, E. J.	5 00
Baldwin, S. P.	2 50	Bemis, Alfred F.	5 00	Bliss, Miss Ida E. . . .	5 00
Balkan, Mrs. W. F. . . .	5 00	Bemis, Mrs. F. B. . . .	5 00	Bliss, Mrs. M. B.	5 00
Ball, Miss Helen A. . . .	5 00	Bemis, Mrs. W. H. . . .	5 00	Bliss, Mrs. W. P.	5 00
Bamberger, Miss.	5 00	Benedict, Theo. H. . . .	5 00	Block, Dr. E. Bates. . .	5 00
Bancroft, Mrs. W. P. . .	5 00	Benet, Miss L.	5 00	Blood, Mrs. C. O. . . .	10 00
Bangs, F. R.	5 00	Benjamin, Mrs. A. B. . .	5 00	Bloomfield, Mrs. C. C. .	10 00
Banks, The Misses. . . .	5 00	Benjamin, Mrs John . .	5 00	Bloomington, Miss	
Banks, Miss M. B. . . .	5 00	Benjamin, Miss M. . . .	5 00	Laura A.	5 00
Banton, Mrs. E. H. . . .	5 00	Benard, J. P.	5 00	Blue, Mrs. C. E.	5 00
Barber, W. V.	1 00	Bennett, Mrs. C. G. . . .	5 00	Blunt, Miss Eliza S. . .	5 00
Barbour, Irene T. . . .	5 00	Benninghofen, Miss		Boardman, Miss E. . .	
Barclay, Miss Emily . .	5 00	Carrie.	5 00	D.	5 00
Barfield, Josiah.	5 00	Benson, E. N., Jr.	5 00	Boardman, Mrs. L. . . .	5 00
Barker, Miss E. L. . . .	5 00	Benson, Mrs. L. F. . . .	2 00	Boardman, Miss R. C. .	5 00
Barlow, Mrs. F. C. . . .	5 00	Benson, Miss Mary. . . .	5 00	Boardman, Miss S. . . .	1 00
Barnard, Hon. Job. . . .	5 00	Bent, Arthur C.	10 00	Boardman, Mrs.	
Barnes, Prof. H. T. . . .	5 00	Bentley, Mrs. S. M. . . .	1 00	Wm. D.	2 00
Barnes, J. Sanford. . . .	5 00	Bergen, George J.	5 00	Bogert, Miss Anna. . .	5 00
Barney, Mrs. C. T. . . .	5 00	Berlin, Mrs. D. B. . . .	1 00	Bogert, Miss A. M. . .	25 00
Barnum, Miss H. A. . . .	5 00	Berry, Mrs. G. T.	1 00	Bogert, Prof. M. T. . .	5 00
Barnum, W. M.	5 00	Berry, Miss L. D.	5 00	Boggs, Miss M. A. . . .	5 00
Barnum, Mrs. W. M. . .	5 00	Betts, Samuel R.	5 00	Bole, Ben P.	10 00
Barr, Miss C. F.	5 00	Beveridge, Mrs. A. J. . .	5 00	Bole, Mrs. R. B.	5 00
Barr, Mrs. C. B.	5 00	Bevier, Miss K.	1 00	Bolles, Miss D. F. . . .	5 00
Barr, James H.	5 00	Bevin, L. A.	10 00	Bolling, R. C.	10 00
Barr, Mrs. T. F.	1 00	Biddle, Miss E. W. . . .	5 00	Boiling, Stanhope. . .	10 00
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and G.	1 00	Bigelow, Dr. Wm. S. . . .	50 00	Bond, Henry.	5 00
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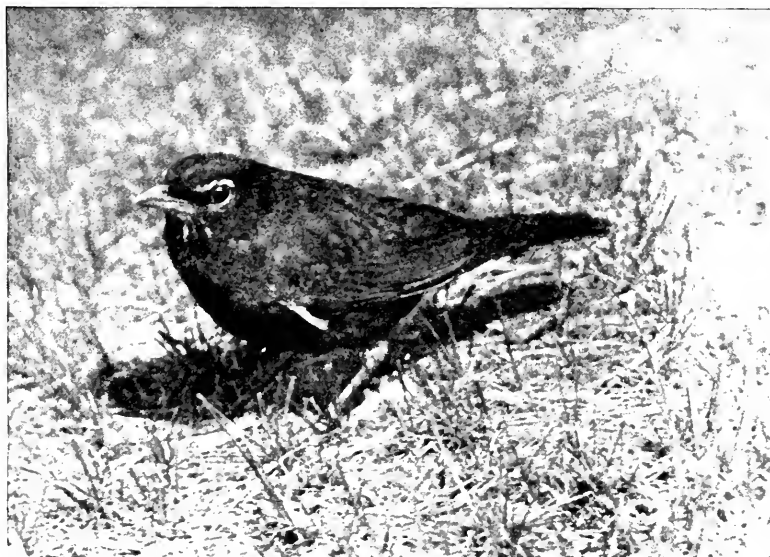
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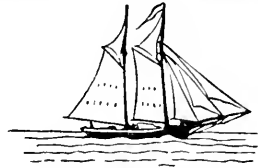
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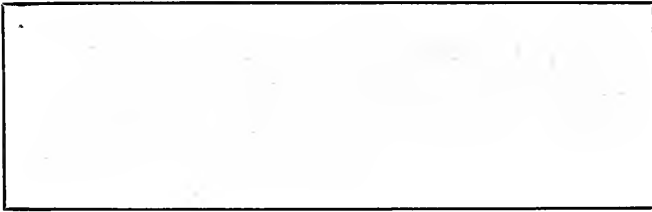
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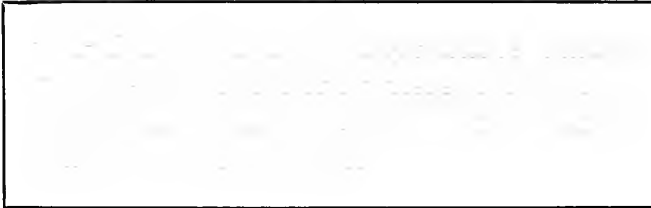
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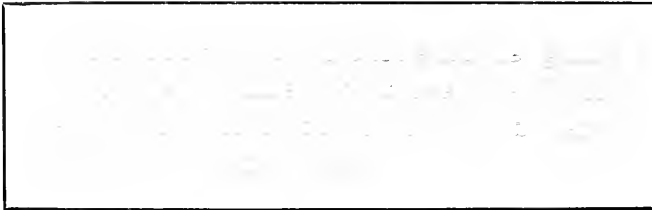
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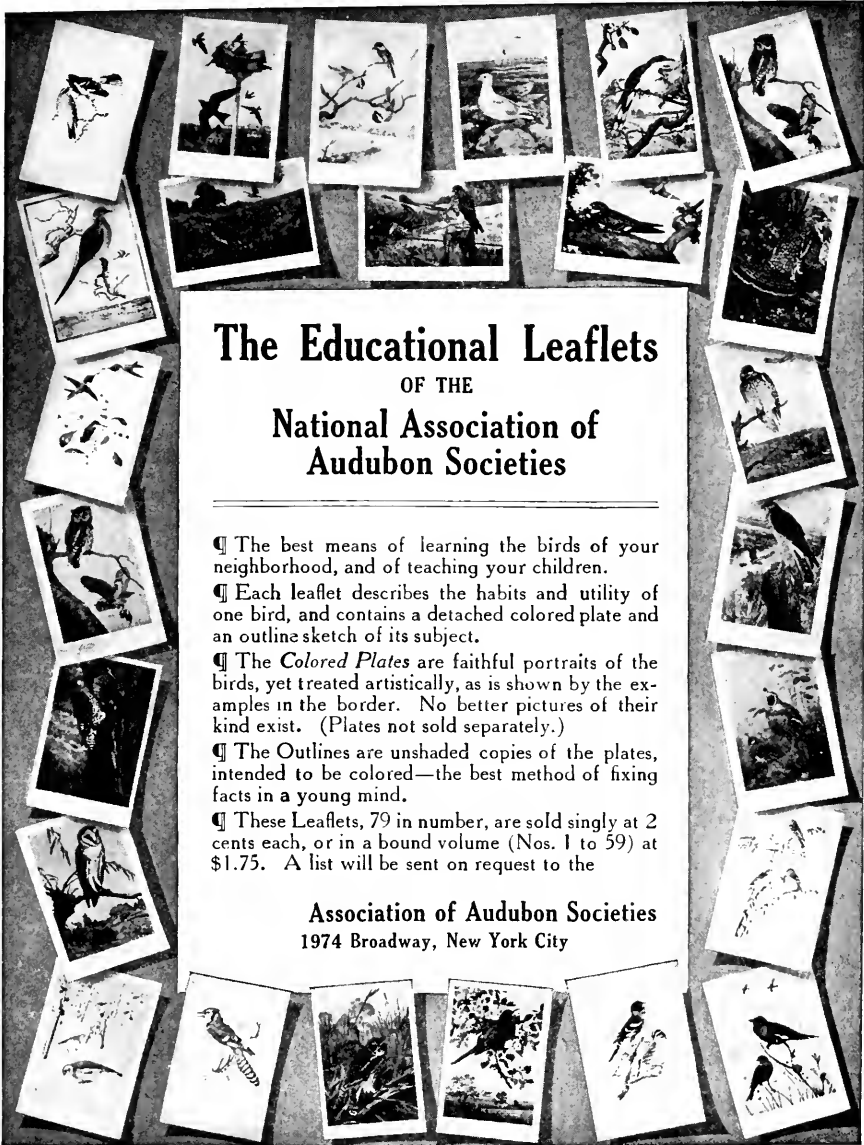
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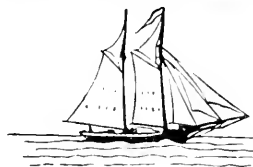
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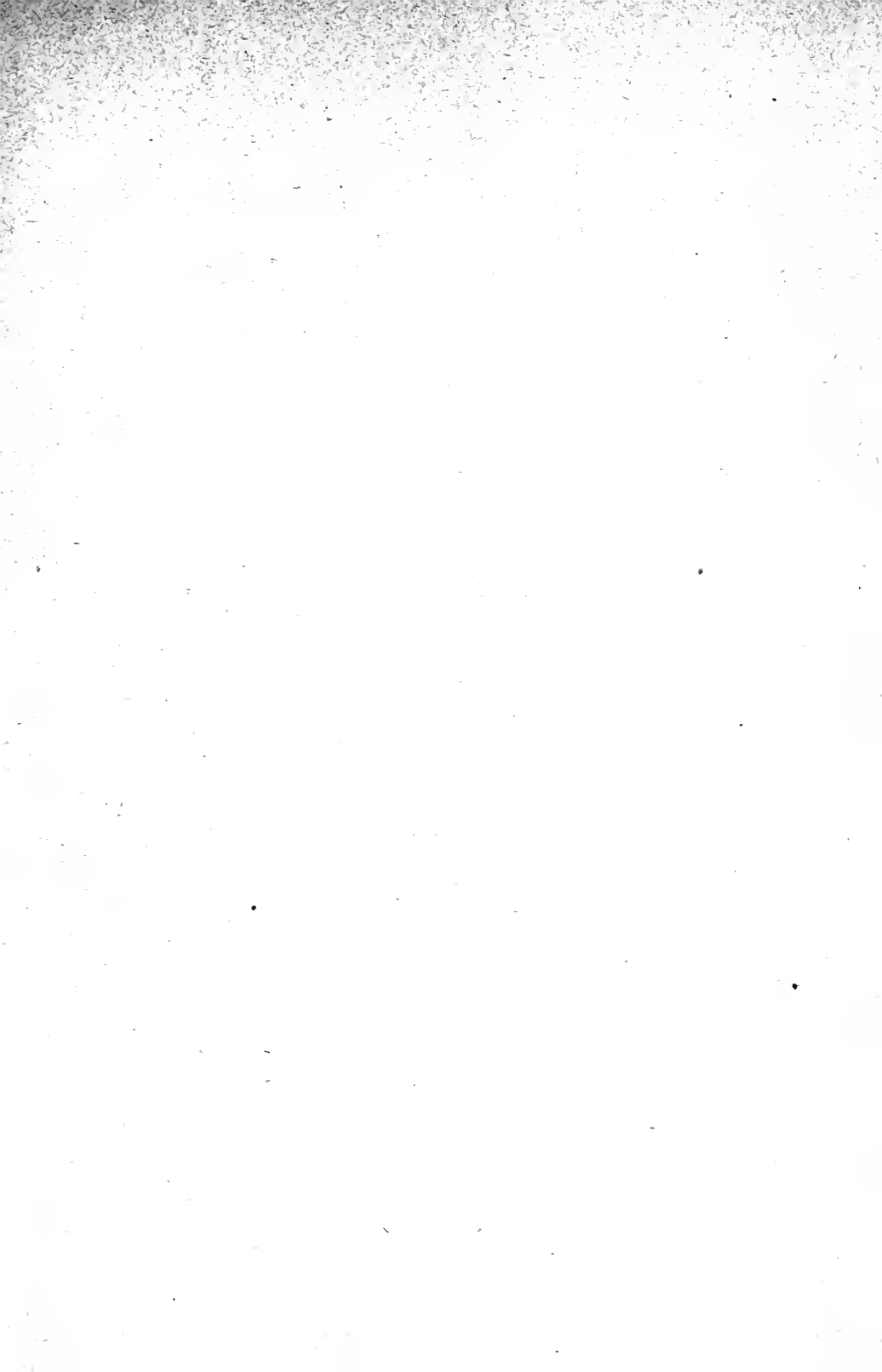
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