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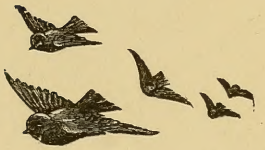
The Wilson Bulletin

Official Organ of the Wilson Ornithological Club

An Illustrated Quarterly Magazine
Devoted to the Study
of Birds

Edited by Lynds Jones



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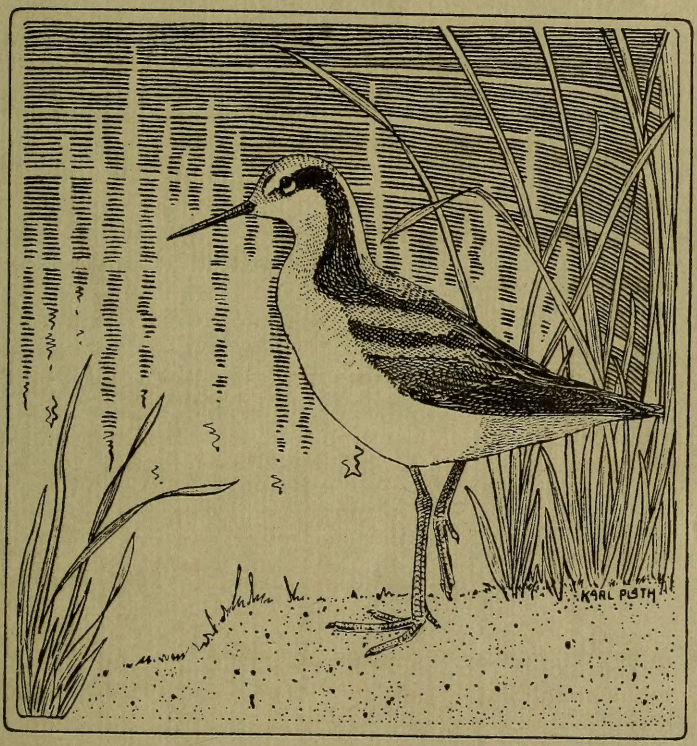

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No. 94

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THE WILSON BULLETIN

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Nest of Ferruginous Rough-leg.
Photo by Mr. Peck.

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NORTH DAKOTA.

BY GERARD ALAN ABBOTT.

North Dakota, as far back as I can remember, has never been boosted as some of our states have. It is one of the most wonderful states in the Union, one becomes convinced of this after spending a few days traveling through some of the counties. No saloons, few spots with "bright lights," and almost void of manufacturing plants.

Lacking in artificial play grounds, navigable streams, and automobile highways, it is a land of plenty for those who live the simple life.

For the bird lover it is matchless. No unsurmountable obstacles are to be encountered, such as unseasonable weather, vermine, treacherous quagmires, vast forests, high mountains, malaria, or poverty.

True it is, that many species of birds are becoming rarer, but relatively speaking I believe this state will continue indefinitely to attract and retain its large per cent of the feathered tribe.

Prior to my first North Dakota invasion I received advices to the effect that the region was not the paradise it used to be. I could see that in more respects than one, notably the vast number of buffalo skulls lying about on the prairie. For the ornithologist, wishing to do any field work, the opportunities

are so favorable, that subsequent visits to other sections of our country seem insignificant by comparison.

The vicious hawks, like the Sharp-shin, Cooper's and Goshawk, are of infrequent occurrence. The same may be said of the Horned Owl.

Probably the artist would find little to rave about, were he to visit North Dakota. Too much of a sameness in the land and its dwellings.

I imagine the geologist and botanist would both revel about the glacial formations, coulees, and disappearing lakes. The latter are without inlet or outlet, and evaporation is transforming into penninsulas, what were until a few years ago islands on which large colonies of gulls nested.

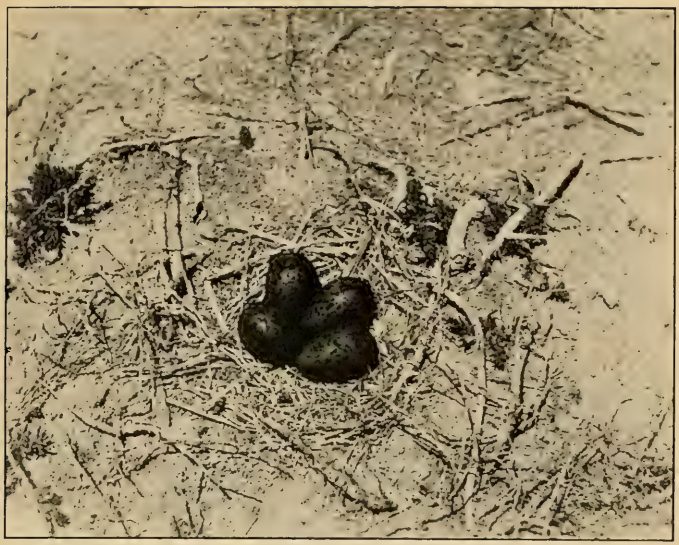
Today these "pot holes" hold countless millions of small aquatic animal life where graceful Avocets and the retiring Piping Plovers are lured to the edges of this green stagnant water.

In the bayous the Wilson's Phalarope, stately Godwit and many ducks accumulate. Upland Plovers and Willets roll their notes from the virgin prairie heights. Pinnated and Prairie Sharp-tail Grouse abound in many places, which clearly illustrates the temperament of the Dakota settlers, who allow such splendid resident game birds as those to thrive and propagate in cultivated sections.

The Crane dance is rarely heard or seen today—a performance of regular and common occurrence a score of years ago, when the sloughs were quite remote from habitation. This grand bird seems to require isolation.

That silent and timid king of hawks, the Ferruginous Rough-leg, still patrols the uninhabited sections of the state. The nest is usually situated near a colony of ground dwelling rodents, which is subject to extermination through the raids of this raptore.

In 1900 I was attacked by a pair of Canada Geese when I attempted to capture the goslings. Only those who have visited the nesting place of this wary fowl can realize its bold and aggressive nature while the young are in the down.



Nest of Avocet.

Avocets Just Hatched.

Driving over the uneven, but hard, and well formed, wagon roads, one is impressed at the buntings that sing along the roadways.

The Chestnut-collared Longspur was encountered everywhere through Pierce and Benson Counties.

The song flight is sweet, delicate and subdued. McCowan's Longspur is less common, but its song is even more pleasing than that of its brown-naped relative.

The most gushing display of vocal ability is poured forth by the handsome Lark Bunting as he launches into space from the bushy highways.

In the bunch grass of virgin prairie, Mallards, Shovellers and Pintail retire to nest. The Gadwalls, Baldpates and White-winged Scoters may be startled from their nest among rose bushes, buck brush, etc., usually near a fair sized lake. The Scoters appear late in June, to breed, coming presumably from the North, for they are known in the middle states as late fall and winter visitors.

Blue and Green-wing Teals, Lesser Scaups and Ring-necks are partial to damp grassy places, bordering coulees or marshy areas.

Canvasbacks, Red-heads and Ruddies construct substantial floating nests, midst rank vegetation, and frequently the nesting site is completely surrounded by deep open water. As you approach this cover the female paddles gracefully away, after cleverly covering the eggs with down.

The products of the little stiff-tailed Ruddy are remarkable. The nine or ten eggs deposited, are considerably larger than those of any other species of duck mentioned, except the Scoter. In one respect the Ruddy's eggs differ from all other American Wild Duck eggs, because the surface of the shell is granulated, instead of possessing the glossy or oily finish, typical of our other ducks.

In the groves of poplar and other Dakota timber, Golden-eyes come early to seek a cavity suitable for a setting of ten light blue eggs.

I found one Hooded Merganser breeding, the only "Fish

Duck" I observed. This variety also nests in hollow stumps and stubs.

The last, but most fascinating spot to visit, took me across a weedy stretch of prairie, full of hummocks. This was the one place where Baird's Sparrow was common. A dozen "trilling" males in a space of forty acres. Descending from this table land, we see and hear the little Clay-colored Sparrow, where the cover might remind us of genuine Field Sparrow under bush.

Before me is a vast expanse of green meadow, low, damp and mossy. Many voices are familiar and remind us of visits to Illinois marshes. We recognize the Bittern, Coot, Redwing and Yellow-headed Blackbird, Bobolink, Yellow Warbler, Maryland Yellow-throat, Savannah Sparrow, Marsh Hawk, and Short-eared Owl.

You eliminate these and there are other sounds, less, or wholly unfamiliar, to the average observer.

Conspicuous among them is a low wheezy song, vibrating in waves through the still air of a June sunset. So appropriate a song for this desolate, but awe-inspiring landscape. The vesper recital of Nelson's Sharp-tail Sparrow, a fairly common summer resident, away out here on the big coulee marsh.

I stand in the midst of that paradise, where in 1896 one of Dakota's pioneer ornithologists noted Swans, Cranes, Geese, Curlew, Pelicans and Comorants all dwelling unmolestedly. What a sight it must have been, for today it seems to me to be enchanted.

Resting against a boulder, reveling in the prolonged sunset, a metallic "click" penetrates the verdure directly in front. The author has several imitators. The birds are ventriloquists and you can't disturb nor dislodge them. Take two stones the size of black walnuts and bring them together squarely. This will convey to you a proper interpretation of the notes. They issue from throats of the little yellow Rail, the feathered mouse of the Northern swales.

Chicago, Ill.

NOTES ON BIRDS OF REGIONS WITH PRIMITIVE PRAIRIE CONDITIONS.[1]

BY T. L. HANKINSON.

The birds of the prairies of the Central United States appear to have been given little attention with reference to their relations to the conditions that existed in these prairies before they were broken by the plow and before their ponds or sloughs were drained. But a few remnants of these old prairie features now exist, and these are chiefly along railroads, and streams, in short strips or in small patches, or they are found in small undrained areas in the midst of cultivated fields. These latter are commonly spoken of as prairie ponds or sloughs. It is their bird life that will be treated in this paper.

Three of these ponds are located in the writer's tramping ground and are within five miles of Charleston, Coles County, Illinois. Another one, near Hillsboro, Montgomery County, Illinois, was visited last May. These four are the only prairie ponds whose bird life the writer has examined. They vary in size from about one to ten acres. All have the following conditions in them: standing water during wet seasons and an almost complete covering of vegetation, usually with a marked zonal arrangement. In each pond there are one or more growths of the willow and cottonwood trees, the latter commonly predominating. The tree growths form centers about which are very distinct zones of thick willow bushes. Outside of these, in the two largest of the four ponds, are irregular and broken zones characterized by rushes (*Scirpus robustus*) and flags (both *Acorus* and *Iris*) in separate patches in the zone. The outermost zone of each pond is of thick grass and other low herbage with scattered growths, in some of the larger ponds, of low buttonbushes (*Cephalanthus*). Four distinct regions can, therefore, be distinguished in these ponds, which are: (1) the cottonwood-willow center, (2) the

[1] Read before the Wilson Ornithological Club, Dec. 29, 1915, Columbus, Ohio.

willow-shrub zone, (3) the rush-flag zone, and (4) the grass-buttonbush zone.

Not only are the plants of each of these areas different, but also their animals and physical features. They vary as to the amount of water present. This never is deep. In the largest pond, near Charleston, it is seldom much more than a foot. The bottom soil of the Charleston ponds is everywhere of hard, stiff, black clay. Since these four zones are fairly distinct bird habitats, the birds of each will be considered separately. The data will be collected in annotated lists.

BIRDS OF THE COTTONWOOD-WILLOW CENTER.

Butorides virescens virescens—Green Heron. Noted on May 27, 1912, when a nest was found nine feet up in a cottonwood. It was composed of sticks mostly about a foot in length and put together in a loose manner, making the nest a flimsy structure. It contained three eggs.

Zenaidura macroura—Mourning Dove. Frequently seen in this wooded area.

Melanerpes erythrocephalus—Red-headed Woodpecker. Seen on one occasion about the cottonwoods.

Colaptes auratus luteus—Northern Flicker. A nest found seven feet up in a willow stub on May 21, 1914.

Corvus brachyrhynchos brachyrhynchos—Crow. One seen on a nest about thirty feet up in a large cottonwood on April 15, 1915.

Agelaius phoeniceus phoeniceus—Red-winged Blackbird. The birds frequently alight in the trees, and in the early spring companies of males, sometimes large with a hundred or more birds, sing from the treetops.

Sturnella magna magna—Meadowlark. One noted singing from the top of a cottonwood on April 15, 1914.

Euphagus carolinus—Rusty Blackbird. A small company of them was singing from the cottonwoods on April 16, 1913.

Quiscalus quiscula aeneus—Bronzed Grackle. Frequently seen in the trees.

Planesticus migratorius migratorius—Robin. A large company of robins seen about the cottonwoods on April 15, 1915.

Sialia sialis sialis—Bluebird. A few noted about the trees, and an old nest, in all probability that of the bluebird, was found in a tree cavity.

BIRDS OF THE WILLOW SHRUB ZONE

Tyrannus tyrannus—Kingbird. Seen May 21, 1914.

Agelaius phoeniceus phoeniceus—Red-winged Blackbird. Seven nests of this species were found in the willow zone of a small pond near Charleston on May 21, 1914. This had but three of the plant areas, a cottonwood-willow center, the willow bush zone, and a grass zone without buttonbushes upon it. The latter might have furnished good concealment for nests of redwings, but there was no evidence of nests there. The seven nests were all situated in the thickest part of the willow growth and were from about five feet to eight feet up. They were very similar in size, approximating 5x5 inches on the outside and 3x3 inches on the inside. The contents of five examined contained from three to six eggs. Dead grass and plant fibres were the chief materials in their composition.

Icterus spurius—Orchard Oriole. One seen in the willow zone on May 21, 1915.

Quiscalus quiscula aeneus—Bronzed Grackle. A nest found in one of the willows on May 27, 1912, about seven feet up. It was a bulky structure seven inches high and contained two half grown young birds.

Spizella monticola monticola—Tree sparrow. A few seen among the willows in January, 1914.

Spizella pusilla pusilla—Field Sparrow. Several seen September 4, 1914.

Dumetella carolinensis—Catbird. One seen here September 4, 1914.

Toxostoma rufum—Brown Thrasher. Noted May 21, 1914, and September 4, 1914, in this zone.

BIRDS OF THE RUSH-FLAG ZONE

Ixobrychus exilis—Least Bittern. One flushed May 23, 1915, in the pond near Hillsboro.

Tympanuchus americanus americanus—Prairie Chicken. One flushed from the dead rushes April 15, 1915. At this time the ground in the rush area was dry.

Agelaius phoeniceus phoeniceus—Red-winged Blackbird. Rushes were used to some extent by this species for nesting, but they prefer to place their nests in bushes. On May 27, 1912, much searching revealed only one nest in the rush region. This was about a foot above the shallow water and contained three eggs.

BIRDS OF THE GRASS-BUTTONBUSH ZONE

Botaurus lentiginosus—American Bittern. One flushed from this zone on April 23, 1911.

Rallus elegans—King Rail. A nest found in this zone on May 23, 1915, in the form of a pile of dead grass on the ground about ten inches in diameter and five inches high. It contained twelve eggs. The nest was poorly concealed by grass and a few small buttonbushes.

Rallus virginianus—Virginia Rail. One flushed from the grass of one of the ponds near Charleston on April 16, 1913.

Agelaius phoeniceus phoeniceus—Red-winged Blackbird. The buttonbushes that grow in this zone are favorite nesting places for these birds, and when these plants are present in one of these ponds, few nests can be found elsewhere in it. On May 27, 1912, eight nests were found in these bushes, placed from one to three feet up in them, and each contained from one to four eggs or young birds. On May 23, 1915, a number of nests were found in buttonbushes of the grassy area of the pond near Hillsboro; they were from two to four feet up and each had from one to four eggs or young.

Besides the species above listed, there were a number seen about these ponds that appeared to have been attracted by their features, but according to my observations, they were not intimately associated with any set of conditions in them, and hence could not be referred to any one of these zones or sub-habitats. An annotated list of these species will here be given.

Pisobia maculata—Pectoral Sandpiper. A few were seen about a pool in a cultivated field a few feet from one of the ponds near Charleston on April 16, 1913.

Helodromas solitarius solitarius—Solitary Sandpiper. One of these also seen about the pool close to the margin of one of the ponds on April 16, 1913.

Oxyechus vociferus—Killdeer. Seen in field close to the margin of one of the Charleston ponds.

Colinus virginianus virginianus—Bob-white. Flushed close to the margin of one of these ponds. No doubt they obtain shelter in them at times.

Accipiter cooperi—Cooper's Hawk. One flew over the pond apparently attracted by the many red-wing blackbirds there at the time.

Circus hudsonius—Marsh Hawk. One flushed from one of the ponds near Charleston on October 30, 1912.

Junco hyemalis hyemalis—Slate-colored Junco. Many close to one of the ponds in a hedge fence.

Geothlypis trichas trichas—Maryland Yellow-throat. Frequently heard about these prairie ponds.

The observations recorded in this paper were obtained during about a dozen short visits to these prairie ponds, and it is hoped that they are adequate to give those unfamiliar with these habitats a general idea of their bird life and to stimulate field work in these regions by those who find them accessible, for they constitute a type of habitat that is rapidly disappearing. In the Charleston region, one was destroyed during the last few months, and corn was raised this last summer where it existed. Many of the trees and bushes have been cut from the others and the grass zones much narrowed on account of their being dry during ploughing time this last spring.

It is regrettable that there were not bird students among the pioneers of the prairie region of the Central United States, who studied the birds of the old and extensive prairie ponds or sloughs, not only in a faunistic way, but in an ecological way, describing in detail the bird habitats and the relation of the birds to the various features in them, and who recorded these observations in scientific publications. The only literature the writer has yet been able to find on the old prairie region near Charleston is in a popular account of the History of Coles County, Illinois, by C. E. Wilson.[1] He tells of many sloughs found in the region just north of Charleston about 1861, some of which were a quarter of a mile across, with water three to five feet in depth. Brief references to their plant life make it appear that they had vegetal features quite similar to their small remnants, but the fauna of the old prairies certainly was very different from these little areas with similar vegetal and hydrographic conditions that we now find. He writes of "migratory water fowl" that came in "count-

[1] Munsell Publishing Co., Chicago.

less thousands," some remaining to breed, namely several species of ducks, wild geese, cranes, and swans. From Robert Ridgway's account in 1873 (American Naturalist, Vol. 7, pages 197-203) of the birds of a piece of prairie near Olney, Illinois, one gets an impression of the large and wonderful bird fauna that parts, at least, of the prairie area of Central Illinois must have had. He recorded ninety-five species of birds in a short time, including some species that are very scarce or apparently absent in the part of the country at the present time, such as black terns, Mississippi kites, swallow-tailed kites, ravens, yellow-headed blackbirds, and the two marsh wrens.

SUMMARY AND CONCLUSIONS

The plants of these prairie ponds have a more or less evident zonal arrangement, and each zone has a distinct bird fauna, but many more observations than those recorded in this paper are needed, before their faunas are well understood.

The writer, during some dozen visits to these areas during the last five years, found twenty-five species of birds in them and five others in their immediate vicinity.

Some other species, very probably found in these regions, are: short-eared owl (*Asio flammeus*), screech owl (*Otus asio asio*), cowbird (*Molothrus ater ater*), migrant shrike (*Lanius ludovicianus migrans*), myrtle warbler (*Dendroica coronata*), and other warblers. People living near these ponds say that wild ducks and geese come to them, often in large numbers, during some springs when there is considerable water in the ponds.

Six species of birds were found breeding in these places, and there is plenty of evidence that others were breeding there also. Red-wing blackbirds found conditions for nesting especially favorable there. They showed a strong preference for bushes instead of high grass or rushes or other herbaceous plants for nesting purposes. Buttonbushes were evidently preferred to willows. Water birds seem to use these ponds little for nesting, although they visit them freely during their migrations.

The birds that were found in these small unbroken prairie areas are chiefly of species that live in woodlands, including shrubby growths, but only a small proportion of the species of the woodland birds of the Charleston region appear to visit the prairie ponds. Some marsh birds are found in them. The true open field birds treat these areas as they do woodlands, avoiding them almost entirely. Upland plovers, horned larks, dickcissels, savanna sparrows, and grasshopper sparrows, all of which are common in the Charleston region, gave no indication of being attracted by these ponds.

Since these areas of undrained prairie land constitute a distinct type of bird habitat with a fauna having some semblance to that of the old prairie sloughs and since they are rapidly being destroyed, ornithologists, who find them accessible for field work, should strive to preserve data on the bird inhabitants of these and other remnants of the primitive prairies.

Charleston, Ill.

THE TERNS OF WEEPECKET ISLANDS, MASSACHUSETTS.

BY ALVIN R. CAHN.

DURING the summer of 1903 and 1904, Professor Lynds Jones had the opportunity of watching and studying the colony of terns (*Sterna hirundo* and *S. dougalli*) in the vicinity of Woods Hole, Massachusetts, and the results of this study were given to the public a couple of years later.[1] As Professor Jones does not confine his remarks to any one special colony, it may be taken for granted that his observations will hold for one island he investigated as well as for another. Among the islands he visited was the small group of three known as the Weepeckets, located about four miles off the coast of Woods Hole. Eleven years have elapsed since Professor Jones investigated these islands, and it is evident from obser-

[1] Jones, L., "A Contribution to the Life History of the Common (*Sterna hirundo*) and Roseate (*Sterna dougalli*) Terns." Wilson Bull., Vol. XVIII, No. 2, June 1906, pp. 35–47.

vations made by the writer during his brief opportunity to survey the islands in 1915, that marked changes have occurred in this particular colony, which may be worthy of notation. A large colony, as accessible to scientists as that on the Weepecket islands, should be carefully watched and all possible data accumulated which will lead to a fuller understanding of the natural history of the species. The writer wishes to express his sincere appreciation to the staff of the Marine Biological Laboratory, which made his visit to the islands possible, and especially to Mr. George Gray, who arranged for his transportation to and from the islands.

The Weepeckets, as a group, comprise three islands—two very small, being probably less than half a mile in circumference at high tide—and a larger one, approximately a mile in extent. All three are treeless, margined by a wide, gently sloping sand beach, the monotony of which is broken by areas of boulders, and covered by a knee-high growth of vegetation, of which poison ivy (*Rhus toxicodendron L.*) forms no small per centage. High-water mark is clearly indicated by a nearly continuous line of sea weed, interspersed with occasional old skate (*Raja crinacea*) egg-cases. The beach is practically devoid of life,—as would be expected in the case of an exposed flat of this character,—with an occasional razor clam (*Ensis directus*) stranded in some tide pool behind the boulders, the inevitable "sand-flea" (*Orchestia agilis*), the Acorn shell barnacle (*Balanus balanus*), and the commonest of the marine molluscs (*Littorina littoria*).

As I neared the island (the time being limited, I confined myself to the larger island, with only a very hasty look at the smaller two), there was considerable doubt in my mind as to what would be found there, as very few birds were in evidence. Some two dozen terns sailed leisurely overhead, and paid little or no attention to the approaching boat. It seemed hardly possible that as early as June 28 nesting should be over, as the spring had been very cool and backward, and it seemed hard to believe that so ideal a breeding site would be abandoned without good cause. However, with the first

Fig. 1, Common Tern. Type I, A Simple Depression in the Sand.

Fig. 2, Common Tern. Type II, A Well Constructed Grass Nest on the Beach.

grating of the boat on the beach, all doubts were forcibly expelled, for instantly it seemed as if the entire island had burst into life and was about to rise bodily out of the water and soar away. In an instant the quiet green was transformed into a blaze of dazzling white, as hundreds upon hundreds of long-winged, long-tailed birds sprang from their nests and swung into graceful flight overhead. Like a great, slow-moving wave the birds rose, until it seemed quite certain that very nearly all the birds were a-wing. The air was alive with them, each screaming and calling in what seemed to be an honest effort to out-scream and out-call his neighbor. The birds at either end of the island, seeing that the cause of the confusion was not to their immediate concern, soon returned to their nests, but wherever I went I was accompanied by protesting birds, so that for two days I had hardly any peace.

As the object of the trip was a survey of the colony, and as photographs were desired, some few minutes were spent in selecting a suitable position for the umbrella blind, after which it was speedily erected. For nearly half an hour after I was safely inside, the birds wheeled and screamed overhead; then one by one they dropped to the ground, and waddled to their respective nests. As luck would have it, I chose well in selecting the individual for photographic purposes, and in the nest three hours she was shot no less than sixty times. After a short time it became necessary, in order to get a variety of poses, to resort to radical treatment to make the bird leave the nest, and in the end it was necessary to thrust a leg out suddenly from under the blind, or actually to prod the bird with a stick.

For nearly seven hours I sat in the blind, photographing at intervals, and watching the actions of the birds about me. In approaching the nests the birds never settle directly on the eggs, but alight near,—often within five feet of them,—and then waddle over the intervening distance. Often the birds stand for some minutes over the eggs, shading them from the hot sun: again, they approach, and without any ado, settle upon the eggs. Usually the birds find it necessary to remodel the

nest to a greater or less extent, depending upon the character of the nest, each time they return to it. This usually consists of scratching a slight depression first with one leg, then with the other, and these holes seem to function as the resting place for the legs. It will be remembered that these nests are essentially shallow depressions in the sand, with but a thin lining of "legal" nesting material. The sand, being very dry, is jarred out of place every time the bird springs from the nest: hence, probably, the necessity, or at least the desirability of hollowing out the nest again. In the cases where a considerable amount of lining is used this scratching is omitted, but when there is little lining, as in the case of the bird most photographed, scratching almost invariably occurs.

Both sexes incubate—as pointed out by Dr. Jones, and the process of changing off is as he describes. Evidently the female does a large part of the incubating; in the case of the photographic subject the male did not put in an appearance during the seven hours I was in the blind; the female had a broken primary that made it certain that it was always the same bird that returned to the nest. She never called for her mate, nor did she in any way show signs of expecting his appearance. It is possible that owing to some tragedy, he had not materialized for some time, and the female had given up hopes of his arrival and had consoled herself to the task ahead of her. As an incubator the male is very restless, and evidently does his share under protest. Often he does not sit upon the eggs at all, but stands over them, calling continually, and fidgeting about nervously. Whereas the female waits until the male is nearly at her side before leaving the nest, the male seems to stand the strain of incubating as long as possible—usually not more than fifteen minutes—then, after an outburst of complaints, leaves the nest as if he could endure it no longer. The female usually appears within a minute or two to take his place.

What impressed me most during my vigil was the marvelous amount and variety of noise the birds were capable of making. While on the wing the birds have their well known

Fig. 3, Common Tern. Type III, A Depression in the Seaweed Drift.

Fig. 4, Common Tern. Type IV, Grass-lined Nest in Vegetation; Egg Just Hatched.

call-note, varied somewhat as the bird sallies at the intruder's head. While incubating, especially during the minutes immediately following their return to the nests, the birds cackle for all the world like a hen announcing the arrival of an egg, until at times the island sounded like a prosperous poultry farm. This cackling is varied occasionally by a "chip," which when first heard calls instantly to mind the song sparrow, but is of rather rare occurrence. When quietly incubating, often a neighbor will approach too closely, or some overhead bird will fly too low, whereupon the bird raises its head and utters a squawk not unlike that of the little green heron. Another note, and one that seems to be given at almost any time the bird is on the ground, is comparable to that made by a mallard "rinsing" its mouth. This was heard a number of times while the birds stood over the eggs prior to sitting upon them, a sort of chattering, as it were. As a whole, the ventriloquial powers of the tern were a big surprise, and I was kept busy jumping from one peep hole to another in order to find out which bird was performing the particular notes I desired to locate.

At four o'clock, the sun being no longer suited for photographic purposes, I left the blind, and wandered about the island with the idea of estimating the number of nests, and thereby getting at some idea as to the number of birds using the island. It was out of the question to count the nests, both because of the great numbers, and because of the fact that they were scattered over the entire island, not only on the beaches, but through the poison ivy sections, where I did not care to follow. If possible, the nests were more abundant in the vegetation than on the open sand beaches: but whether in the grass or on the beach, it was always a difficult task to walk without stepping upon a nest full of eggs. By counting the number of nests in different places, averaging them, and estimating the ratio of the areas counted to the entire island, a rough estimate was secured as to the number of nests on the island. I conclude from this estimate that there were probably not fewer than two thousand nests, thus accounting for about four thousand birds.

A few words should be said about the nests themselves, of which four general types were noted, with gradations, of course, from one to the other. The simplest nest was no nest at all: merely a slight depression in the sand, with no lining. This type was found quite commonly along the beaches, and such nests contained eggs differing in incubation from practically fresh to nearly ready to hatch. This is at variance with the observations of Professor Jones. More than a hundred such nests were noted. The second type was a nest in the sand, with a grass lining; this was the dominant beach nest. Third, a depression in the seaweed drift just above the high water mark, either with or without a small amount of grass lining. It is but a short step from this to the fourth type,—grass-lined nests in the grass, poison-ivy, and other vegetation, protected from the blazing sun and the full blast of the ocean winds.

In an estimate as to the number of eggs to a nest, I should say that fully 50% contained but a single eggs; 40% contained two; the remaining 10%, three. Not a single nest was found with more than three eggs, a rather curious fact. As incubation was in general well along, these facts would seem to be significant, and point to the conclusion that the colony is in poor condition, if not actually on the decline. This condition may, perhaps, be explained: there was ample evidence on the island to show that the colony had been raided by egg-gatherers, despite the warning of the conspicuous sign of Massachusetts Audubon Society posted on the highest point of the island. It was possible at the northwest corner of the island to trace an area of over half an acre, through the fact that *all* the nests contained but one egg, and this one in a very early stage of development, where the gathering had taken place. I was confirmed in these suspicions by information gathered at the Marine Laboratory to the effect that the islands are raided by parties from New Bedford, who use the old method of clearing every egg from a given area, and return in a few days and gather in the fresh stock.

During the summer of 1915 there was but a single brood

Fig. 5, Common Tern. A Type IV Nest at the Edge of the Vegetation.

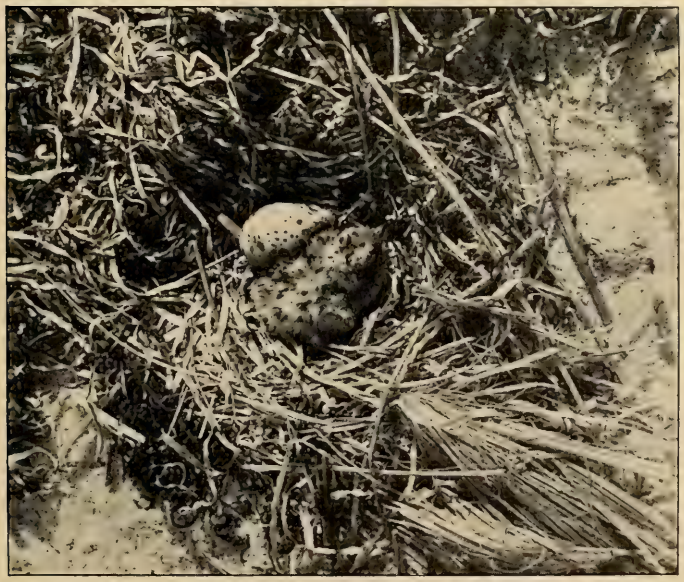


Fig. 6, Common Tern. As Incubation Begins when the First Egg is Laid; the Eggs Hatched a Day Apart.

raided after June 28, and as incubation was quite well along at that date, it seems hardly likely that a previous brood had been raised, and there was no sign of young birds. A party visiting the island from the Laboratory on July 10 reported but a few nesting birds, and innumerable young, still in the down, running about the island. On July 28 no nesting birds were seen, and the young were rapidly maturing. August 7 found the island entirely deserted. This should not be taken to mean that in a healthy, flourishing colony, free from interference, two broods are not raised during a season.

The activity in the colony was incessant, and there was hardly a time during the two days of my visit that one section or another of the island was not in commotion. This activity lasted well into the night, and those few birds which had already hatched their young were bringing in fish as late as 8:20 in the evening, and as early as 3:28 in the morning, so far as I could see. Most of these fish, by the way, are caught around the neighboring islands, and are even brought from the shore of the mainland. In the harbor at Woods Hole the birds were watched diving for fish (*Fundulus heteroclitus* and *Ammodytes americanus* largely), the birds remaining completely under the water for a second or a trifle longer.

The fact that the island was so crowded with nests suggested one or two little experiments, which were tried before leaving, to see if the bird recognized its own nest, and the results seem to point to the conclusion that the bird returns to the *spot,* rather than to the nest itself. The eggs from two nests were interchanged, and the bird on returning, settled without noticeable hesitation on the new set of eggs, though her own were in another nest, fully exposed to her view, less than three feet from her. In the case of a grass-lined nest with a single egg, the rude lining was removed, and the complement increased to four eggs by temporarily robbing neighboring nests, and the bird did not hesitate over the remarkable increase and change. The reverse of this proved equally true; a complement of three reduced to one did not seem to

worry the parent in the least. However, if the eggs were moved more than about thirty inches from their rightful location, there was apt to be trouble before the bird realized that her eggs had moved away, and it would only settle after wandering about rather aimlessly when all the birds in the immediate vicinity had taken their places. and there were no other nests empty. Curious to know how many eggs a bird would cover, a nest was selected containing one egg, and the complement increased during the bird's absence, until in less than two hours the bird was sitting—not exactly comfortably, but sitting—upon seven eggs, evidently with the best of intentions. After she had become thoroughly used to this large complement, six of the eggs were removed at once: the disappearance of so large a part of her charge was taken, apparently, as a matter of course, for, with barely a second's inspection, she settled upon the nest, and began preening her feathers. Hence the statement that the bird returns to the spot rather than to the nest.

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A STUDY OF A WHITE-BREASTED NUTHATCH.[1]

BY WINSOR M. TYLER, M.D.

IN regions where the White-breasted Nuthatch (*Sitta carolinensis carolinensis*) is a common resident bird, such as the country about Boston, Mass., I think it must often have been noticed how closely a bird of this species, or a pair of birds, remains in one restricted locality for weeks at a time. This habit is most noticeable in winter. Wherever the birds elect to settle for the cold season, they can generally be found within a few hundred yards of their chosen station. The chief requisites for their winter quarters are a food supply, crannies of rough bark in which to store food, or into which to wedge such food as has to be broken before being eaten, and

[1] Read on Jan. 17, 1916, at a meeting of the Nuttall Ornithological Club.

lastly (perhaps the greatest factor in holding the birds to one locality) a hole to sleep in.

All these advantages are to be found in the center of the town of Lexington, Mass.; the broad Common is bordered by ancient elms and white ash trees and on some of the adjoining lawns stand trees of these species whose history extends back nearly to Colonial times. Some of the oldest trees, notably the white ash, are slowly dying, and in many of their dead branches Downy Woodpeckers have drilled nesting holes. One of these holes, forty feet up in a gigantic ash tree, was, until last spring, within sight of our window and to the position of this cavity we owe much of our acquaintance with a White-breasted Nuthatch during the past year.

Nuthatches have to my knowledge made the vicinity of Lexington Common their headquarters in spring, autumn and winter for seven years. I have often seen two birds together here, but never more; occasionally a pair has nested so near that we have heard the song of the male during the summer.

In late August, 1913, a pair of Nuthatches visited our place daily. The Robins, Orioles and Rose-breasted Grosbeaks were rapidly stripping the cherry tree of its fruit, but as the Orioles and Grosbeaks did not swallow the stones, many had fallen to the roof of the piazza. The Nuthatches came for these discarded cherry stones. They flew with them either to the cherry tree or to one of the big white ash trees in the next yard. In the cherry tree they placed the stones on a horizontal surface, in the ash tree they wedged them into a crevice and hammered them with their beaks, sometimes adding force to the blows with a flap of the wings. They cracked the stones and swallowed the kernel. When they fixed a stone on an upright branch they always stood head downward on the bark above the stone. Returning to the roof of the porch, they often passed within arm's reach of us, so near indeed that the sharp whistle of their wings reminded us of a flushed Woodcock. We became so attached to the little birds that after the cherry stones had been exhausted we determined to induce the birds to remain near us. I fastened a

shelf to a second-story window-sill, and, ever since, Mrs. Tyler and I have kept it supplied with food,—suet and meat in winter, nuts in summer. Excepting the interval between June 6th and 16th, 1914, the male Nuthatch has come to the shelf practically every day for over a year. At the first trial he fed from our hands; he allows us to gaze at him from a distance of a foot or two; he seems as much at home on the food-shelf as on his native bark; he appears to consider the shelf as his own and he allows no other bird to use it in his presence.

Our male Nuthatch is a bird of decided character. He always impresses us with his independence and self-reliance. Although he feeds from our hands readily, he has apparently not the slightest confidence in us,—he comes near us solely because his appetite is stronger than his distrust. Unlike the Chickadees, he spent the whole winter alone; unlike the Juncos, he will not allow another bird to feed near him. He drives off Chickadees, Juncos, a Downy Woodpecker and a female Nuthatch. He will not allow the House Sparrows on the shelf;—indeed when they come near, he stands guard upon the shelf until they leave the vicinity. However, he never attacks a Hairy Woodpecker.

The Nuthatch comes to the shelf several times a day. He arrives at full speed apparently and alights clinging upright to the edge, then, resting on his toe-nails, hops to the food and attacks the nuts. All his motions are rapid,—so rapid that they appear jerky—but with all their quickness there is the certainty and precision of an expert. At each lightning-like dart of his beak a morsel of nut is picked up and swallowed. The smallest bits disappear as if by magic, the medium-sized pieces are swallowed more slowly,—one of small-pea-size, for instance, is fitted carefully into the throat before being allowed to slip down; larger pieces are generally carried to the corner of the shelf (as to a crevice of bark) and there broken apart. He strikes a vertical blow with his *closed* bill. The nut, as a rule, flies apart in two pieces, but if his bill has not pierced the nut, the bird appears to perceive it at once, and before withdrawing his bill, turns his head side-

ways and exerts a prying action on the nut, much as a man who has driven a pick-axe into the ground, raises the tip of the handle to free the pick and pry open the earth. Should a bit of the splintered nut fall over the edge of the shelf, the Nuthatch follows it like a flash, overtakes it in the air and catches it in his bill.

Until the latter part of December both Nuthatches came several times a day to the food-shelf. The female was distinctly larger and broader than her mate, but in spite of her greater size she seemed afraid of him; she always left the shelf when he approached and never attempted to return until he had gone.

The two birds, however, paid very little attention to each other,—they came to the shelf separately, ate what food they wanted, but rarely took any away. The female bird was last seen on December 26th, 1913. The male continued his regular visits throughout the winter. Until April 7th, 1914, his behavior was the same as it had been all winter;—he came to the shelf for food, ate what food he wanted, and flew off. On April 7th, however, his manner changed completely; he became all at once very busy and seemed full of importance. As soon as we put out a cracked nut he appeared on the shelf, snatched up and swallowed the smaller pieces of the meat and carried off the larger ones. These he wedged into crannies of bark and came back for more. As fast as we put out nuts, he transferred them to near by trees. The next day we discovered the reason for his change in actions,—a female Nuthatch was nonchalantly hopping about the branches near the window.

The male was all devotion; he carried bits of nut to her and placed them in her bill; he stored dozens of pieces in branches near at hand; he sang continually. Several times also he posed before her in courting attitude. This position, while rather awkward to human eyes, did reveal his plumage wonderfully. The full courting display is accompanied by song. The male bird, with the feathers of his nape puffed out so that they resemble a rough black mane, takes a stiff pose

with his back to the female. His head is set squarely back on his shoulders, with the beak parallel to the axis of the body. His whole body is raised and bent backward a little, the wings slightly open, with the tips dropped below the expanded tail. During the song, he slowly tilts the forepart of his body downward and the hinder part upward. If perched on a small branch, he may turn almost upside down. He straightens up to the erect position in silence, then tilts slowly forward while he repeats his song. He continues the deliberate tilting over and over again, always singing as he lowers his head and shoulders. The songs follow each other very regularly, with an interval between each one about equal to the duration of the song. The courting song can be recognized by this feature of regular, *ad libitum* repetition.

On other occasions the male approaches the female and, facing her, struts before her silently or with a low "chuck"; his neck is elongated, his crown feathers are flattened. This attitude is apparently identical to that used to intimidate the Sparrows.

Besides the courting song, our Nuthatch has two songs which are perfectly distinct. One of these, the more common one, is very similar in form to the song of the Flicker. It consists of eight or ten notes, all on one pitch (often the D next but one above middle C), each with a slight upward inflection; from a distance it suggests a man whistling to a dog; when heard near at hand, however, the notes have a deep, rich, woodeny resonance, with no whistle quality. These notes have been rendered by various syllables, for example, "hah-hah-hah," etc. (Chapman), "tway," etc. (Langille), "what," etc. (F. H. Allen, Bird-Lore, Vol. XIV, p. 317), "too," etc. (Hoffman). Although these syllables do not bear the slightest resemblance to each other, they are all, nevertheless, good renderings of the White-breasted Nuthatch's song, for the reason that they represent the song heard from different distances. Hoffman's "too" ("whoot," I think is still better) suggests the song heard near by, Langille's "tway" from far off, while the two other renderings recall

the song heard from intermediate distances. I have noted two modifications of this song: in one the pitch falls slightly at the end; in the other (the rarer) the pitch undulates up and down resembling, in change of pitch (but not at all in tone of voice) a common variation of the Black and White Warbler's song. In both forms the individual notes are delivered with the usual slight upward inflection.

The second main song is in every way like the common first song, except the number of notes and the rapidity with which they are delivered. In this rarely heard song about thirty notes are crowded into the same space of time as the eight or ten occupy in the ordinary song. I have noted no variation in this song and, as I have never heard any intermediate form between the two songs, I judge them to be distinct.

The Nuthatch sings every month in the year; even on the coldest days of January he occasionally sings a few times in the early morning—I have heard the song when the temperature was zero;—in February songs are more frequently heard, but singing during this month is still irregular. The chief singing period is from the first of March until the last of May; during these three months the male sings continually. June is a month of comparative silence (I have only five records of song); in July and August songs are heard almost as infrequently as in winter, and during the last four months of the year singing is still rarer. In winter, singing is confined to the early morning hours,—soon after sunrise—and even during the spring it is rare, before the first of April, to hear a Nuthatch sing in the afternoon. In autumn an occasional song is heard in the warmest part of the day.

In addition to his songs, our Nuthatch utters five different notes: (1) The simplest of these, and by far the most frequently used note of his vocabulary, is a high, short syllable, quietly pronounced, much aspirated, sounding like "hit." This note is given when the bird is perched and when he is in the air, both by a solitary bird and by the pair when they are together. It is both a soliloquising and a conversational

note and is associated as a rule with a calm mood. (2) The well known ejaculation "quank," a call at certain distances remarkably suggestive of the human voice, is often employed when the bird seems excited. At such times the note is delivered with much vigor; on other occasions it is apparently used as a call between a pair of birds. This note and the "hit" are the only notes I have heard from the female bird. The "quank" call is very often doubled and is frequently extended into a loud, rattling chatter. As in the case of the song, the "quank" appears very much rounder, fuller and more resonant when heard near at hand. At short range it has a rolling "r" sound. (3) A low-toned "chuck" is sometimes addressed to the female. (4) On several occasions I have heard the male bird utter a growl (deep in tone for a bird) as he dashed in attack at a Sparrow. (5) A note which I have heard but rarely is a long, high whistle with a rising, followed by a falling inflection. Our word "queer" recalls the note which bears a decided resemblance to one of the Pine Grosbeak's piping calls. The note has a ventriloquial property, appearing to come from a distance when, in reality, the bird is close by. I heard this note several times in late February and early March, generally between songs in the early morning.

Mr. H. W. Wright has shown (Auk, Vol. XXX, p. 531) that at morning awakening, the voice of the White-breasted Nuthatch is first heard among the latest bird-notes. He also demonstrates that the late-rising birds retire early. My experience with our bird is in accord with Mr. Wright's findings. Each afternoon he retired in broad daylight,—on fair days while the sun shone full on the roosting-hole,—oftenest about forty minutes before sunset. The time of retiring depended somewhat on the weather and temperature. In the most severe winter weather the bird sometimes used the hole during the daytime, but generally between his visits to the food-shelf he sat head-downward in a sunny hollow on the ash tree. On the one morning when I actually saw the bird leave the hole, he came out nineteen minutes after sunrise.

As the breeding-season drew near, the Nuthatch's roosting-hole became an attraction for a pair of Bluebirds and numerous House Sparrows. The male Nuthatch paid little attention to these invaders during the daytime, but toward sunset he remained near the hole and asserted his rights by excited "quanking." On April 16th, 1914, a cold, dark day, with snow blowing in from the East in the afternoon, an amusing incident occurred. The female Nuthatch retired to the hole soon after four o'clock. Half an hour later the male bird came to the shelf and, after eating plentifully of the nuts, as was his custom before retiring, flew to the hole. He looked in and, seeing the female, evidently, did not enter, but climbed about the branches near and scolded, acting as he did when the Bluebirds appeared. He soon moved off and did not return until the next day. Lack of room could not have prevented his entering, for this same cavity accommodated a brood of Bluebirds later in the season.

During the next week the great ash tree was taken down; its trunk was so far decayed that the tree was in danger of being blown down by the wind. The loss of this tree and the subsequent cutting away of other trees and shrubs in the vicinity were evidently not to the Nuthatch's liking, for during the following autumn he visited us rarely. That the pair of Nuthatches bred in the neighborhood is probable, however, for Mrs. Tyler saw on July 30th, 1914, an adult bird on the cherry tree feeding two young ones.

Lexington, Mass.

NOVEMBER BIRD-LIFE AT REELFOOT LAKE, TENN.

BY A. F. GANIER.

THANKSGIVING, 1915, and the three days following, November 26, 27 and 28, were spent at Reelfoot Lake, Tenn., by Prof. A. C. Webb, Dr. Geo. R. Mayfield, and the writer. The exact location of our headquarters was two miles east of Phillippy, the R. R. station, on the west bank of the lake, about ten miles south of the Kentucky line.

The object of the trip was to determine the status of the bird-life of the region at this season in connection with the work of listing the birds of the state being done by the Tennessee Ornithological Society. The results of the trip were very satisfactory, a total of 59 species being observed, besides a collection of 35 skins was made up, among which are represented most of the species not commonly found. The season was well advanced and the birds noted were no doubt typical of what can be found there throughout the winter. The only disappointing feature of the trip was the fact that most of the ducks had left the lake, or as the natives put it, the "first flight" had just left and the second had not come in. We were told that ten days before our arrival hundreds of flocks of ducks and geese had visited the lake; during our stay we saw only about twenty flocks of the former. The weather was temperate, with a bit of wind and rain, but not enough of the latter to interfere with field work.

Reelfoot Lake is located in the extreme northwest corner of Tennessee, the northern end extending across the Kentucky line and its western margin lying about five miles from the Mississippi river. The lake proper is from two to three miles wide and about twenty miles long, although its marshes and sloughs extended over a considerably larger area. This fine body of water is the result of an earthquake which occurred in 1811, and the thousands of submerged and partly submerged cypress snags still stand mute witness to this fact. The depth of the water at some points is thirty feet or more, and where such depths are met the surface is free from snags. The entire lake is bordered with "saw grass," in fact it is encountered wherever a depth of three feet or less is met. Since many of the arms of the lake are shallow, this grass is found in immense areas and it affords fine shelter for water birds. Hill country comes to within a half mile of the east shore of the lake, being separated by low damp woods. The country on the west bank, extending to the Mississippi river, is low swampy woodland, a comparatively small portion of which has recently been cleared up and put into cultivation. The timber is of great variety, sweet gum, oak,

elm and cypress predominating, with a considerable growth of switch cane and vines. In spite of the latter, however, the woods are fairly open. At this season of the year bird-life fairly teems in this woodland, due doubtless to plentiful food supply and the protection the extensive forests afford against the winds.

Before going into the annotated list a few general observations may prove of interest.

The fact that Brown Thrashers, Red-headed Woodpeckers and Florida Gallinule were present was a matter of some surprise. The last named is not regularly found in middle Tennessee, but the two preceding species had migrated from that region six weeks before. This probably is due to the fact that the Reelfoot region is typically Austroriparian, while middle Tennessee is of the Carolinian fauna.

The unlooked-for species were of no more interest than those we expected to find, but did not. Of the latter class the most notable absences were the Hairy Woodpecker, Towhee, and Bewick's Wren, and to a lesser degree, the Screech Owl and White-crowned Sparrow. Other species which were probably present, but were not found on account of their scarcity or inaccessibility, were King and Sora Rails, Woodcock, Wilson's Snipe, Wild Turkey, Marsh Hawk and Long-eared Owl. The hill country adjoining the lake would probably have shown some of these; also the Bob-white and Killdeer but we did not include these hills in our tramps. The scarcity of the following species was a matter of comment: all Ducks, Geese, Dove, Black Vulture, all Hawks, Kingfisher and Song Sparrow.

Below follows the annotated list of species observed, those marked with an asterisk being represented by specimens in the collection made.

ANNOTATED LIST.

(1) Pied-billed Grebe * (*Podilymbus podiceps*). Common, feeding from the edge of saw-grass out into deep water among the snags. If closely pursued it dives and on returning to the surface shows only its head above the water.

(2) Double-crested Cormorant * (*Phalacrocorax auritus auritus*).

A flock of about one hundred remained on the deep water or perched themselves on the dead trees and snags in the lake. They frequently fly for long distances just a foot or two above the water's surface.

(3) Mallard (*Anas platyrhynchos*). Eight were noted which had been killed by hunters who claim this to be the commonest duck on the lake. About twenty flocks of ducks in flight were noted, but identity of course was impossible.

(4) Black Duck (*Anas rubripes*). Two specimens killed by hunters during our stay.

(5) Pintail (*Dafila Acuta*). One specimen killed.

(6) Lesser Scaup (*Marila affinis*). One specimen killed.

(7) Canada Goose (*Branta c. canadensis*). A flock of twenty seen on the Mississippi river at Hickman, a few miles from the lake.

(8) Florida Gallinule* (*Gallinula g. galeata*). Two specimens caught in steel traps were brought in.

(9) Coot* (*Fulica americana*). Two noted on the lake swimming at edge of the reeds. A number of dead ones noted on bank which had been killed and cut up for bait.

(10) Mourning Dove (*Zenaidura macroura carolinensis*). A few seen in a clearing near the lake.

(11) Turkey Vultures (*Cathartes aura septentrionalis*). Fairly common. Nine seen together on one occasion.

(12) Black Vulture (*Catharista u. uruba*). One only was noted.

(13) Sharp-shinned Hawk (*Accipiter velox*). A small hawk, which bore every evidence of being this species, was noted.

(14) Large Hawk (*Species ?*). Two noted, not able to secure or make satisfactory identification.

(15) Sparrow Hawk (*Falco s. sparverius*). Several seen in clearings near the lake.

(16) Bald Eagle (*Haliæatus l. leucocephalus*). Two or three were noted every day on the lake and flying over the adjoining forests. Two were mature and one was still in the black phase. They frequently perched on the dead trees or snags out in the lake. Hunters state that owing to their wariness, none have been shot in several years. We were further told that they made their nests a mile or more from the lake in the dense woods.

(17) Great Horned Owl* (*Bubo v. virginianus*). A female, caught in a steel trap, was brought to us on November 28th.

(18) Barred Owl (*Strix v. varia*). One noted near the lake on November 28th. Heard calling on two other occasions.

(19) Belted Kingfisher (*Ceryle alcyon*). One seen November 27th, feeding on a small tributary stream at the lake's edge.

(20) Southern Downy Woodpecker* (*Dryobates p. pubescens*).

Common. Four specimens taken appear to be intermediate between this and the northern form.

(21) Yellow-bellied Sapsucker* (*Sphyrapicus v. varius*). Common.

(22) Red-headed Woodpecker* (*Melanerpes erythrocephalus*). Six noted, in clearings among deadened trees.

(23) Pileated Woodpecker* (*Phlœotomus p. pileatus*). Ten noted and four skins secured. Probably fairly common in the vicinity, which is well suited to its habits. Those we saw were comparatively unsuspicious.

(24) Red-bellied Woodpecker* (*Centurus carolinus*). Abundant. As usual was busy hoarding away his winter supply of nuts.

(25) Flicker (*Colaptes a. auratus*). Fairly common. Noted chiefly in the clearings. No specimens were secured from which to positively identify this as the southern form.

(26) Phœbe (*Sayornis phœbe*). Three noted; one on the lake.

(27) Blue Jay (*Cyanocitta c. cristata*). Fairly common.

(28) Crow (*Corvus b. brachyrhynchos*). A flock of one hundred and several smaller flocks were noted.

(29) Meadow Lark (*Sturnella m. magna*). Several seen on an alfalfa meadow near the lake. It is not improbable that these were the southern form.

(30) Cowbird* (*Molothrus a. ater*). Abundant, roosting in the saw-grass with other blackbirds.

(31) Redwing* (*Agelaius p. phœniceus*). Flocks feeding in the clearings. Millions roosting in the saw-grass at night.

(32) Rusty Blackbird* (*Euphagus carolinus*). Several noted feeding at the lake's edge among the bushes. Of twelve blackbirds shot at random, from among the mixed flocks flying to roost at dusk, three were of this species, three were cowbirds, and six were redwings.

(33) Bronzed Grackle* (*Quiscalus q. æneus*). Millions passed by to their roosting place every evening, gathering, doubtless, from a radius of many miles.

(34) Purple Finch* (*Carpodacus p. purpureus*). Two small flocks noted and a male secured; others heard.

(35) English Sparrow (*Passer d. domesticus*). A few noted at the railroad station two miles from the lake.

(36) Goldfinch (*Astragalinus t. tristis*). Several flocks seen and others heard.

(37) White-throated Sparrow* (*Zonotrichia albicollis*). Very abundant, forming the bulk of the flocks of small birds noted in the woods.

(38) Field Sparrow (*Spizella p. pusilla*). A few noted in a clearing some distance from the lake.

(39) Slate-colored Junco (*Junco h. hyemalis*). Common, always associated with the white-throats.

(40) Song Sparrow (*Melospiza m. melodia*). A few noted along the lake's edge and on ditches in the clearings.

(41) Swamp Sparrow* (*Melospiza georgiana*). Common, frequenting chiefly the lake's edge and low wet places.

(42) Fox Sparrow* (*Passerella i. iliaca*). Fairly common in the woods, frequenting the brush piles and fallen trees.

(43) Cardinal (*Cardinalis c. cardinalis*). Common, mostly along the lake's edge.

(44) Cedar Waxwing* (*Bombycilla cedrorum*). A number of small flocks noted in the woods, keeping to the tree tops.

(45) Migrant Shrike (*Lanius ludovicianus migrans*). Two noted among cultivated fields a few miles from the lake.

(46) Myrtle Warbler* (*Dendroica coronata*). Abundant, feeding from the ground to the tops of the trees in the woods, and among the bushes along the lake just above the water.

(47) Mockingbird (*Mimus p. polyglottos*). One noted at the lake and two at the railroad station, two miles west.

(48) Brown Thrasher (*Toxostoma rufum*). Two noted in brush at edge of lake and another among briars at edge of a clearing.

(49) Carolina Wren (*Thryothorus l. ludovicianus*). Common everywhere.

(50) Winter Wren* (*Hannus h. hiemalis*). Common, found on the logs in the woods.

(51) Brown Creeper* (*Certhia familiaris americana*). Fairly common, a half dozen could be seen in an hour's walk.

(52) White-breasted Nuthatch* (*Sitta c. carolinensis*). Perhaps a dozen noted in all.

(53) Carolina Chickadee (*Penthestes c. carolinensis*). Common, always associated with the kinglets, myrtle warblers and woodpeckers.

(54) Tufted Titmouse (*Bœolophus bicolor*). About a dozen in all were noted.

(55) Golden-crowned Kinglet* (*Regulus s. satrapa*). Abundant.

(56) Ruby-crowned Kinglet (*Regulus c. calendula*). Common, but apparently outnumbered four to one by the preceding species.

(57) Hermit Thrush* (*Hylocichla guttata pallasi*). Fairly common, the fallen trees and thick brush piles offering ideal winter quarters.

(58) Robin* (*Planesticus m. migratorius*). Common, in large and small flocks, feeding chiefly in the tree tops.

(59) Bluebird (*Sialia s. sialis*). Perhaps half a dozen flocks were noted in the woodland.

Nashville, Tenn.

THE WILSON BULLETIN

A Quarterly Magazine Devoted to the Study of Birds. Official Organ of the Wilson Ornithological Club

Edited by **LYNDS JONES**

PUBLISHED BY THE WILSON ORNITHOLOGICAL CLUB, AT CHICAGO, ILL.

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OFFICERS FOR THE CURRENT YEAR

President: Dr. T. C. Stephens, Morningside, Sioux City, Iowa.

Vice-President: Geo. L. Fordyce, Youngstown, Ohio.

Secretary: Thos. L. Hankinson, Charleston, Ill.

Treasurer: P. B. Coffin, 3232 Groveland Ave., Chicago, Ill.

Editor "The Wilson Bulletin": Lynds Jones, Spear Laboratory, Oberlin, Ohio.

Business Manager: Gerard Alan Abbott, 1543 East 61st, St., Chicago, Ill.

EDITORIAL

The new cover design is from the pen of Karl Plath of Chicago. It was hoped that in some way a likeness of Alexander Wilson, the "Father of American Ornithology," might be used in an appropriate design, but this proved not feasible. Wilson's Phalarope is well adapted both in form and coloration for the purpose, and its range, even if covering the whole of America, is more particularly in the interior of North America in summer—the field which the Wilson Ornithological Club essays to cover.

The editor dared to hope, last year, that there would be generous response to his call for May horizons or even censuses. Those which reached him were so few that there was hesitation about publishing them. But in the hope that their publication may be the means of stimulating many to undertake the work for this coming May these lists are presented elsewhere in this issue. If it is desired to make the largest possible list the time chosen for the region of Oberlin should be near May 20. The best time will vary with the locality. Can we not have a large number of May lists for 1916?

Elsewhere in this issue there appears the Secretary's account of the Columbus meeting of our Club. Those who were in attend-

ance at that meeting need no assurances that it was worth the while of those who could attend. If no program of papers were presented it would yet be well worth while for us to get together for the personal acquaintance and the interchance of experiences and viewpoints. We of the central districts have all along lacked the impetus which has been gained by the people of both coasts through the personal acquaintance which has obtained there to so considerable a degree. While our distances are greater we may, and we expect, to largely offset this handicap by holding successive meetings at places which can be easily reached by practically all in the central districts, in the course of a four-year period.

Minutes of Third Annual Meeting of the Wilson Ornithological Club

(Columbus, Ohio, December 28 and 29, 1916.)

President, T. C. Stephens.
Secretary, T. L. Hankinson.

(Archæological and Historical Museum.)

Business.

Treasurer's report read and accepted and an auditing committee appointed.

Names of fifty applicants for membership were read, and these were elected to membership by vote of the members present.

The overtures of the Nebraska Ornithological Union resulting in the affiliation of this organization with the Wilson Ornithological Club were accepted by a vote of the members present. The articles of agreement that were read are here publishd:—

ARTICLES OF AGREEMENT
for an
AFFILIATION
between the
NEBRASKA ORNITHOLOGISTS' UNION
and the
WILSON ORNITHOLOGICAL CLUB

The following Articles of Agreement, looking toward an affiliation between the Nebraska Ornithologists' Union and the Wilson Ornithological Club, are to be presented to the N. O. U. at its Annual Meeting at Omaha, May 7, 1915, and to the W. O. C. at its Third Annual Meeting at Columbus, Ohio, December 28, 1915.

In the event of their constitutional adoption by both Societies,

these Articles of Agreement are to go into effect at the time of the Seventeenth Annual Meeting of the N. O. U. in May, 1916.

These Articles of Agreement are made in duplicate, one signed copy to remain in the Archives of each Society concerned.

ARTICLES OF AGREEMENT.

Article I.

The Nebraska Ornithologists' Union shall continue as an autonomous organization, with the same local meetings and field days and the same membership limitations as in the past, but it shall in the future be regarded in addition as an auxiliary of the Wilson Ornithological Club, in the sense that the Wilson Bulletin shall become its official organ and that every member of the N. O. U. becomes automatically an active member, with voting privileges, of the W. O. C.

Article II.

An appropriate statement of the relation of the Wilson Bulletin to the N. O. U. shall appear on the title page and the editorial page of the Wilson Bulletin, so long as such relationship exists. The publication of the "Proceedings" of the N. O. U. shall be discontinued at the close of Volume 6, before May 1, 1916, after which the Wilson Bulletin shall print brief proceedings of the Annual Meetings of the N. O. U.

Article III.

A clear and detailed statement of the affiliation of the N. O. U. with the W. O. C., together with a brief historical sketch of the N. O. U. and its "Proceedings," shall be published in the first issue of the Wilson Bulletin after the affiliation is consummated.

Article IV.

The Secretary-Treasurer of the N. O. U. shall collect from the members of that organization $2.00 annual dues, and shall pay to the Treasurer of the W. O. C., at the beginning of the fiscal year of the N. O. U., $1.50 as dues in the W. O. C. for each member of the N. O. U. in good standing, at the same time transmitting to the Treasurer, or other proper officer, of the W. O. C., a corresponding list of the members of the N. O. U. in good standing. The 50 cents collected by the N. O. U. above its obligation to the W. O. C. shall be used for the general expenses of the N. O. U. and to assist in the publication of independent (not serial) monographic papers on the birds of Nebraska, and such publications shall bear the imprint of both the N. O. U. and the W. O. C. Such papers shall be sold by the N. O. U. to its members and to members of the W. O. C., who may desire them, at cost.

Article V.

It shall be agreed between the N. O. U. and the W. O. C. that the former organization shall be under no financial, or other, obligation to the W. O. C. beyond the payment of the $1.50 annual dues of its members, and that the W. O. C. shall not be responsible for any debts incurred by the N. O. U.

Article VI.

If the affiliation be effected, then such persons as are, at the time, members both of the N. O. U. and W. O. C., may continue to hold both such memberships by the payment of regular annual dues to the N. O. U.

We Hereby Certify, that the above Articles of Agreement were adopted by an affirmative vote of two-thirds of the members of the N. O. U. present at the Sixteenth Annual Meeting held at Omaha, Nebraska, May 7, 1915, as required in Sec. 1, Art. IX, of the Constitution of the N. O. U.

T. C. STEPHENS, President,
LILLIAN S. LOVELAND, Vice-President,
R. W. DAWSON, Secretary-Treasurer,
Executive Committee of the N. O. U.

We Hereby Certify, that the above Articles of Agreement were adopted by the W. O. C. at the regular meeting of the Club held at Columbus, Ohio, December 28, 1915.

T. C. STEPHENS, President,
PERCIVAL BROOKS COFFIN, Treasurer,
T. L. HANKINSON, Secretary,
Council of the W. O. C.

An Amendment of the Constitution was proposed. This was that the word "Society" in line 2, Art. I. Sec. 1 of the Constitution be changed to the word "Club."

This amendment, according to the Constitution, was laid on the table till the next Annual Meeting.

PROGRAM.

Tuesday, December 28

4:00 P. M.

Business Session

8:00 P. M.

Illustrated Lectures

Illustrations of Cyclical Instincts in Birds, Francis H. Herrick, Western Reserve University, Cleveland, Ohio.

The Bird Reservations of the Coast of Washington, Lynds Jones, Spear Laboratory, Oberlin, Ohio.

Wednesday, December 29

9:00 A. M.

Business

10:00 A. M.

President's Address. Some Problems Connected with the Feeding of Nestling Birds, T. C. Stephens, Morningside College, Sioux City, Iowa.

Discussion by Miss Sherman, Dr. Jones, Mr. Henninger.

Papers

2:00 P. M.

Papers

General Notes

4:00 P. M.

Social Hour

6:00 P. M.

Dinner

8:00 P. M.

Illustrated Lectures

Birds of the Mid-Pacific; an Account of the Expedition to the Laysan Islands, H. R. Dill, University of Iowa, Iowa City, Iowa.

Bird Sculptures from the Mounds, W. C. Mills, Curator of Archæological and Historical Museum, Columbus, Ohio.

List of Papers

The Relation of Patterns in the Varieties of Domestic Pigeons to Natural Pigment Areas (Illustrated), Leon J. Cole, Department of Experimental Breeding, Madison, Wisconsin.

Discussion by Messrs. Jones and Stephens.

Sapsuckers and Adirondack Trees, C. C. Adams, New York College of Forestry, Syracuse, N. Y.

Discussion by Messrs. Swope, Herrick, Abbott, Metcalf, Nichols, Wallace, Kellogg, Jones, Fordyce.

Additional Report on the Birds of Mahoning County, Ohio, George L. Fordyce, Youngstown, Ohio.

Notes on Birds of Regions with Primitive Prairie Conditions (Illustrated), T. L. Hankinson, State Normal School, Charleston, Illinois.

The Birds of my Boyhood, Howard Jones, Circleville, Ohio.

Nest Life of the Western House Wren, Althea R. Sherman, National, Iowa.

The Extension of Ornithological Information Among the Masses, Albert L. Stephenson, Chicago, Illinois.

Shore Birds and Marsh Birds (Illustrated), Gerard Alan Abbott, Chicago, Illinois.

Some Notes on Ohio Birds, W. F. Henninger, New Bremen, Ohio.
Greetings from the Audubon Societies, Eugene Swope, Cincinnati, Ohio.

Discussion of the other papers was omitted on account of lack of time.

Four papers with titles on the printed programme were not read, owing to the lack of time or to the absence of the author. These are the following:—

Ornithological Work at the Iowa Lakeside Laboratory (Illustrated), T. C. Stephens.
Notes on the Red-tailed Hawk, B. H. Bailey, Cedar Rapids, Iowa.
Relative Abundance of Birds as Noted on an Overland Journey, Lynds Jones.
Completion of a Warbler Collection, Gerard Alan Abbott, Chicago, Illinois.

T. L. HANKINSON, Secretary.

FIELD NOTES

THE BLACK RAIL (*Creciscus jamaicensis*) AT ST. MARKS, FLA.

DURING the severe hurricane and accompanying high water on September 4, 1915, two of these birds were picked up exhausted and soon died, and two or three others were seen on the borders of an extensive river marsh at that time entirely submerged. One of the captured birds had been drifted up onto the railroad embankment in our village, where it borders the broad marsh.

JOHN WILLIAMS.

LAUGHING GULL (*Larus atricilla*) NESTING NEAR ST. MARKS, FLA.

IN Bulletin No. 292 of Bureau of Biological Survey, published October 25, 1915, pages 51-53, no breeding colony of this species is given between Cape Sable and Passage Key and the coast of Louisiana. For many years there has been a nesting colony of these birds about eight miles west of St. Marks' lighthouse—usually on one of two or three small islands about a half-mile off shore. On June 24, 1914, fifteen birds were seen flying near the island. No nests seen. June 6, 1915, fifteen pairs were nesting and on that date nests contained two and three eggs mostly. Two nests had each two very small chicks. June 19, 1915, nests seen June 6 had all been washed away by a high tide and other nests were found about 300 yards distant from former nests, the newly-made nests containing one, two and three eggs; one nest with a single very young bird.

JOHN WILLIAMS.

PINE GROSBEAK AT YOUNGSTOWN, OHIO.

On February 15, 1916, while at the residence of Mrs. C. E. Felton, Cohasset Road, near the edge of Mill Creek Park, I observed a Pine Grosbeak feeding on the lawn. The same morning I saw two of the same species feeding on hawthorne buds in another locality of the park.

The individual Pine Grosbeak has remained in the vicinity of Mrs. Felton's home up to the present date. It may be interesting to know that upon investigation we learned it was feeding on ash seeds, which had blown on to the lawn from ash trees located in the park. It also feeds on apple buds.

This is our first definite record of the Pine Grosbeak for the vicinity of Youngstown.

GEORGE L. FORDYCE.

Youngstown, Ohio.

THE KENTUCKY WARBLER AT SALEM, OHIO.

A year ago I had an article in this magazine on the "Kentucky Warbler in Northern Columbiana County." Perhaps some of my readers imagined that this station was the only place in the county where the bird was to be found; and I thought so myself. And so far as the reports of the Biological Survey show, this is the only station in northeastern Ohio where it is found breeding.

This year (1915) was the third season that I had found a breeding pair in the same woodland, and so far the only place near home where they have been found.

But after this summer's experience and reports I do not think that the Kentucky Warbler is so very rare in this county, although it is still uncommon. In early June, Mr. J. F. Machwart, a Salem high school teacher and bird student, found a pair at Shelton's Grove, a local picnic ground five miles south of Salem. And about the same time Mr. Volney Rogers, a Youngstown bird student, found a bird on his brother's farm some miles east of here near the state line. And on the fifth of July I spent part of the day at Round Knob, five miles north of Wellsville, the highest point (1447 feet) in the county. While exploring an oak wood on one of its slopes I was greeted by the familiar alarm-notes of a Kentucky, but I failed to get sight of the bird. And a couple of hours later, when homeward bound and on the opposite side of the mount in a dense thicket that bordered a drainage "run" I again heard the familiar notes and was rewarded by getting a momentary glimpse of a Kentucky Warbler; and more, for there were two birds. The second, however, had no markings of black on face or head and I concluded that it was one of the young from this season's brood.

This, then, makes four stations at which breeding birds have been located in the county in one summer, that I know of. I consider this a good showing for a county that is far beyond this bird's regular breeding range.

H. W. WEISGERBER.

OCCURRENCE OF *Elanoides forficatus*, SWALLOW-TAILED KITE AND *Ictinia mississippiensis*, MISSISSIPPI KITE IN WAKULLA COUNTY, FLA.

BOTH of these species seem to be regular summer residents in the vicinity of St. Marks. *E. forficatus*, while perhaps more regular has not been observed as numerous as *I. mississippiensis*. Last year a pair of Swallow-tails or "Fork-tail Fishing Hawks," in local parlance, nested in the heavy-timbered hammock adjacent to the river two miles above our village. Both old birds were seen from about May 1st and frequently throughout May and June in the same immediate neighborhood, and on July 21 five birds were seen in rather close company. March 11, 1914, is the earliest date noted for their arrival.

Mississippi Kites have never been noted earlier than May 2 (1914), and the latest date is September 10 (1915). Four were seen in company circling over a river marsh May 27, 1912. On May 10, 1914, seven were in company at a small rain-water pond, darting down to the water's edge from small pine trees—presumably catching frogs. August 14, 1915, three were perched near together, but in separate pine trees in high dry pine woods.

During the past two years my notes show six observations on the Swallow-tailed Kite, with twelve individuals seen, and during the same time there were eleven observations on the Mississippi Kite and twenty-two individuals noted.

JOHN WILLIAMS.

Salem, Ohio.

MIGRATION OF THE BAY-BREASTED WARBLER AT YOUNGSTOWN, OHIO.

On August 11th, 1915, we saw three Bay-breasted Warblers, one of which was a male, apparently in full breeding plumage. The next birds of this species were seen August 23d, and after that they became more numerous, until on September 6th we listed them as common. On September 1st one bird was seen which had a sprinkling of brown feathers on its breast, giving it quite a mottled appearance.

After the sixth of September fewer Bay-breasted Warblers were seen, until on September 18th we listed none at all.

From that time on until October 10th, when the last record was made, these birds were quite scarce, one or two at a time being seen about every third day.

There is so much resemblance between the fall birds of the Bay-breasted and Black-poll Warblers and they are both so numerous that a comparison of migration dates is interesting.

Practically all of these birds seen by the writer up to September 6th were Bay-breasts. Then for about two weeks the two species were about equally well represented.

After September 20th the Bay-breasts were scarce, while the Black-polls were numerous. The last Bay-breast was seen October 10th; the last Blackpoll October 19th, though in some years the Blackpolls stay about ten days later than that.

It is therefore probable that the bulk of the Bay-breasts are gone before the main body of Black-polls appear.

JOHN P. YOUNG.

Youngstown, Ohio.

WAS THIS BIRD FIGHTING VERMIN?

SOME time ago, when out for a stroll, I came across an Indigo Bunting going through maneuvers new to me.

I stopped and watched the bird closely. He was on a small mound, bare of vegetation, and perhaps thirty or forty feet from me. He would pick up a mouthful of dirt, stand erect, drop his mouthful on his body, loosen up his feathers and shake himself. This operation was rapidly repeated for a minute or so. He then flew away.

I examined the mound and found it to be an ant-hill. The material was rather fine and compact, and a few small ants were racing across it.

The thought struck me that perhaps the bird was troubled with vermin, as birds often are, and that he was trying to put ants in among his feathers to devour them. I never had heard of anything of the kind, though I had seen birds and fowls wallow in the dust to eradicate vermin, as I supposed.

My curiosity was aroused. I wrote to the Pennsylvania State Zoölogist about it, but gave no intimation as to what I had mistrusted. In a few days a reply came saying he had no solution of the problem; that he had sent my letter to some authority in Philadelphia or Washington, and that the answer gave no light.

Lately, in perusing a copy of Mumford's "Birds and Nature," I saw an article on "The Wild Turkey," by John James Audubon. The article is not dated, but it is doubtless from the pen of the great ornithologist, who died in 1851.

In speaking of young turkeys, he says: "They roll themselves in deserted ants' nests to clear their growing feathers of loose scales, and to prevent ticks and other vermin from attacking them, these insects being unable to bear the odor of earth in which ants have been."

Here seems to be ground for my theory, only that the purpose of the Indigo Bunting was to put earth, not ants, among its feathers to rid itself of vermin. I remember that the bird, in filling its beak, seemed not to be particular as to where it struck the ground, only so that it got a mouthful.

Others may have seen birds do the same thing. If so, I have failed to see any record of it.

L. B. CUSHMAN.

North East, Pa.

NORTHERN PILEATED WOODPECKER IN ASHTABULA COUNTY, OHIO.

THIS year I spent a few days in October in Wayne Township, Ashtabula County, Ohio. On the morning of the twenty-seventh I heard a great commotion among the birds—Robins, Grackles, Red-wings, Bluebirds, Cowbirds, and Sparrows—at one side of a clearing in the woods, and made my way there to see what caused the uproar. An Owl, I thought most likely. But lo! at the edge of the woods, flying from tree to tree and only a few feet above the ground, a pair of *Northern Pileated Woodpeckers*. But the dead leaves' rustle betrayed me. The birds went deeper and deeper into the woods and higher into the trees, till at last I abandoned pursuit. I have spent many hours in the woods of this locality in the past ten years, but have never before seen nor heard these Woodpeckers, though they have been reported from Jefferson a few miles away.

It was while listening to the calls of the Woodpeckers, as I leaned over the fence by the "sugar-house," that I became aware of a fine female Grouse in a small apple tree near by. It seemed such a friendly bird, though the fence crashed down as I went over, not twenty feet away. A faint, rather hen-like clucking of protest and I stood right under her perch. It was the buds of the tree she sought, clambering through the smaller branches, and I left her undisturbed.

In September a Sandhill Crane was seen in the pasture by the creek.

HARRY J. GINTHER.

Cleveland, Ohio.

THE MAGPIE AT SIOUX CITY, IOWA.

ON December 5, as I was returning home from a field trip, I had the pleasure of seeing a rather uncommon bird for this locality, the Magpie (*Pica pica hudsonia*). The first indication of its presence came when I heard it give its loud, harsh call. This was such an unusual sound that I hurried in its direction and arrived on the scene just in time to see a large black bird, with conspicuous white markings, fly off through the trees. It soon alighted, however, and then I was able to call Dr. T. C. Stephens, and together we watched the bird. It was alone, but the plumage was in such splendid condition that it was probably not an escaped cage bird.

An interesting fact in this case is that the Magpie here referred to had invaded the very center of the city. It was finding an abundance of food in the back yards, and was observed to visit and feed from several garbage cans. In one back yard it seemed to find a supply of food on the ground; but a dog annoyed the bird repeatedly. The Magpie, however, simply flew to a nearby post, and returned to the ground as soon as the dog retreated. This game was kept up for some time.

The presence of the Magpie at Sioux City may be explained by the theory advanced by Bruner, Wolcott and Swenk in "Birds of Nebraska"; that the Magpies move eastward, in the winter, through the Niobrara Valley, which would bring them within a short distance of Sioux City. Anderson, in his "Birds of Iowa," quotes Coues as fixing Sioux City as the eastern limit of the Magpie's range.

This is not the only record of the Magpie's occurrence in Sioux City, but they are of sufficient rareness to make publication worth while.

ARTHUR R. ABEL.

Sioux City, Ia.

THE WHISPER SONGS OF BIRDS.

DURING the spring and fall migration of 1915, the writer had the pleasure of hearing several species of birds sing the whisper song.

One evening in May, a Brown Thrasher that had just succeeded in getting a mate, and had selected a place to build a nest in an elderberry patch near the house, was seen with his mate near the nesting site, and a few minutes later was heard singing very softly, not half as loud as a Thrasher usually sings. When first heard singing in this manner, and before becoming aware that it was the Thrasher in the elderberry patch, I thought it was

another Thrasher singing farther away. On May 9, while taking a bird walk, a Song Sparrow was seen sitting on the top of a fence post about ten yards away. I imitated its song, and it immediately answered. I again imitated, and it again answered, but this time very softly, hardly half as loud as the first time. After that it would not answer any more of my calls.

About half an hour later, on the same day, while going through a thicket of hazel brush, briars and vines, a bird was heard singing so softly that it was some time before I could locate the exact place where the song came from. After listening a short time I recognized the song to be that of a Catbird, but to make sure of the identity of the singer, it was driven from its hiding place. A few minutes later this same Catbird again disappeared in the brush, and again sang its beautiful whisper song. Another Catbird was seen near by, which probably was the singer's mate. On September 22 a Robin was heard scolding at short intervals in the front yard. At the same time I also heard, what I thought was a small bird singing very softly. After trying for some time to see the supposed small bird, I became aware that it was the Robin singing a whisper song and scolding alternately. The Robin's repertoire was the same as sung during the spring and summer months, but the singing was so faint that it was scarcely audible at a distance of ten yards. The scolding notes were given as loud as usual. Another Robin was heard singing in the same manner on September 29.

Every year a pair of Catbirds breed in our house-yard and garden, and one of them was heard singing the whisper song in the elderberry patch near the house on September 25 and 30.

On September 26, while taking a bird walk, another Catbird was heard singing the whisper song in some hazel brush beside a fence. The singer was not more than six feet away, and was scarcely audible at that distance.

Other birds that were heard singing the whisper song during the fall migration were the White-throated Sparrow, Field Sparrow, Indigo Bunting, Warbling Vireo, and House Wren.

The whisper songs of the Catbird and House Wren were the softest of any of the birds heard singing in this manner, and one had to be very close to them to hear it.

Port Byron, Ill.

J. J. SCHAFER.

May, 1915, Bird Census

A year ago the editor asked for May lists of birds. It was hoped that by this means some better idea might be gained about the crest of the greatest of the migration waves in the central districts particularly. The responses to this request were so few that it was not deemed worth while to publish them in the September issue. They are given below as an example of what can be done, and in the hope that May, 1916, will be a month in which many lists will be made and reported for publication:

St. Johnsburg, Vt., May 15, 1915.—Time, 5 a. m. to 9 a. m. Temperature, 30° at 5 a. m. Weather clear, with cool north wind.

A. O. U.			A. O. U.		
No. 761,	American Robin,	12	No. 612,	Cliff Swallow,	10
No. 759b,	Hermit Thrush,	2	No. 581,	Song Sparrow,	13
No. 756,	Wilson Thrush,	1	No. 560,	Chipping Sparrow,	4
No. 722,	Winter Wren,	1	No. 529,	Goldfinch,	9
No. 687,	Redstart,	3	No. 517,	Purple Finch,	4
No. 681,	Maryland Yellow-throat,	3	No. 511b,	Grackle,	5
No. 662,	Blackburnian W.,	1	No. 507,	Baltimore Oriole,	4
No. 659,	Chestnut-sided Warbler,	1	No. 495,	Cowbird,	1
No. 654,	Black-throated Blue Warbler,	1	No. 494,	Bobolink,	1
No. 652,	Yellow Warbler,	7	No. 467,	Chebec,	2
No. 636,	Black and white W.,	1	No. 456,	Phœbe,	6
No. 628,	Yellow-throated Vireo,	2	No. 444,	Kingbird,	1
No. 627,	Warbling Vireo,	3	No. 423,	Chimney Swift,	25
No. 616,	Bank Swallow,	50	No. 402,	Sapsucker,	2
No. 614,	Tree Swallow,	11	No. 390,	Kingfisher,	3
No. 613,	Barn Swallow,	2	No. 365,	Osprey,	4
			No. 526.	Solitary Sandpiper,	2

Total—Species, 33; Individuals, 197.

Inez Addie Howe.
Mabel A. Shields.
W. E. Balch,
Taxidermist for Museum.

Marco, Greene County, Ind., May 15, 1:45 to 4:45 p. m.—Clear, brisk southwest breeze; temp. 89°. Mourning Dove, 2; Yellow-billed Cuckoo, 2; Downy, 1; Red-headed Woodpecker, 3; Flicker, 4; Chimney Swift, 2; Crested Flycatcher, 2; Wood Pewee, 3; Blue

Jay, 3; American Crow, 6; Cowbird, 2; Red-winged Blackbird, 1; Meadowlark, 1; Bronzed Grackle, 1; Field Sparrow, 6; Song Sparrow, 4; Towhee, 1; Cardinal, 2; Indigo Bunting, 8; Dickcissel, 2; Summer Tanager, 1; Red-eyed Vireo, 3; Worm-eating Warbler, 1; Ovenbird (?), 1; Maryland Yellow-throat, 7; Yellow-breasted Chat, 1; Catbird, 1; Carolina Wren, 1; Tufted Titmouse, 2; Chickadee, 2; Robin, 5; Bluebird, 4. Total, 32 species, 85 individuals.

Other species previously seen since April 1 are: House Wren, Chipping Sparrow, Hermit Thrush, Vesper Sparrow, Mockingbird, White-crowned and White-throated Sparrows, Prairie Horned Lark, Great Blue Heron, Bartramian Sandpiper, Kingbird, Grasshopper Sparrow, Scarlet Tanager, Yellow Warbler, Whip-poor-will, Baltimore Oriole, Bobolink, Black and White Warbler, Night-hawk, Kentucky Warbler, Water Thrush and Rose-breasted Grosbeak.

(MRS.) STELLA CHAMBERS.

Mt. Bethel, Somerset County, N. J., May 16, 1915, 4:30 a. m. to 4:00 p. m., intermittently.—Actual time in the field, 8 hours, 25 minutes. Early morning fine, becoming cloudy around 6:00 a. m., heavy rain between 6:30 and 9:30; sprinkling most of morning; afternoon cloudy. Entire day very cold. Brisk east wind.

Green Heron, 1; Bittern, 1; Greater Yellow-legs, 1; Spotted Sandpiper, 3; Killdeer, 1; Mourning Dove, 7; Red-shouldered (?) Hawk, 1; Sparrow Hawk, 1; Yellow-billed Cuckoo, 3; Belted Kingfisher, 1; Downy Woodpecker, 1; Red-headed Woodpecker, 2; Flicker, 2; Whip-poor-will, several heard; Chimney Swift, 2; Kingbird, 11; Crested Flycatcher, 6; Phœbe, 6; Least Flycatcher, 1; Blue Jay, 9; Crow, 10; Starling, 17; Bobolink, 4♂; Cowbird, 5; Red-winged Blackbird, 32; Meadowlark, 6; Baltimore Oriole, 5♂, 1♀; Purple Grackle, 14; Goldfinch, 18; House Sparrow, 3; Vesper Sparrow, 5; Grasshopper Sparrow, 7; White-throated Sparrow, 10; White-crowned Sparrow, 1♂; Chipping Sparrow, 30; Field Sparrow, 14; Song Sparrow, 31; Lincoln's Sparrow, 2; Swamp Sparrow, 10; Towhee, 4♂, 2♀; Cardinal, 1♂; Indigo Bunting, 4♂; Scarlet Tanager, 1♂, 2♀; Barn Swallow, 32; Tree Swallow, 1; Red-eyed Vireo, 8; Warbling Vireo, 1; Yellow-throated Vireo, 1; Blue-headed Vireo, 1; Black and White Warbler, 5; Blue-winged Warbler, 2♂; Parula Warbler, 1♂; Cape May Warbler, 1♂; Yellow Warbler, 2; Black-throated Blue Warbler, 2♂; Myrtle Warbler, 2♂, 1♀; Magnolia Warbler, 1♂; Chestnut-sided Warbler, 1; Bay-breasted Warbler, 1♂; Black-poll Warbler, 1♀; Black-throated Green Warbler, 4♂; Ovenbird, 11; Maryland Yellow-throat, 6♂; Redstart, 1 brown; Catbird, 13; Brown Thrasher, 3; House Wren, 1; Tufted Titmouse, 1; Chickadee, 1; Wood Thrush, 8; Veery, 1; Olive-backed Thrush, 1; Robin,

42; Bluebird, 5. 74 species. Nighthawk and Orchard Oriole were seen the previous afternoon. The few Warblers seen is remakable.

EDWIN DESVERNINE.
GEORGE E. HIX.

Port Byron, Ill., May 16, all day.—Partly cloudy a. m., cloudy p. m.; light shower on previous evening, ground moist; wind west, shifting to northwest towards evening, high, and very chilly; temp. 60° to 50°. Bobwhite, 6; Mourning Dove, 6; Red-tailed Hawk, 1; Great Horned Owl, 1; Yellow-billed Cuckoo, 5; Hairy Woodpecker, 1; Downy Woodpecker, 2; Red-headed Woodpecker, 27; Flicker, 16; Whip-poor-will, 1; Kingbird, 6; Crested Flycatcher, 8; Phœbe, 2; Wood Pewee, 9; Acadian Flycatcher, 2; Least Flycatcher, 1; Prairie Horned Lark, 4; Blue Jay, 13; Crow, 7; Cowbird, 10; Red-winged Blackbird, 4; Meadowlark, 12; Orchard Oriole, 2; Baltimore Oriole, 4; Bronzed Grackle, 6; Goldfinch, 10; Vesper Sparrow 8; Grasshopper Sparrow, 3; White-throated Sparrow, 2; Chipping Sparrow, 4; Field Sparrow, 20; Song Sparrow, 1; Towhee, 12; Cardinal, 2; Rose-breasted Grosbeak, 4; Indigo Bunting, 7; Dickcissel, 6; Scarlet Tanager, 5; Purple Martin, 10; Red-eyed Vireo, 6; Yellow-throated Vireo, 4; Warbling Vireo, 2; Blue-winged Warbler, 1; Nashville Warbler, 4; Orange-crowned Warbler, 2; Yellow Warbler, 2; Magnolia Warbler, 3; Chestnut-sided Warbler, 1; Ovenbird, 1; Maryland Yellow-throat, 1; Redstart, 20; Catbird, 8; Brown Thrasher, 20; House Wren, 30; White-breasted Nuthatch, 1; Chickadee, 7; Gray-cheeked Thrush, 1; Olive-backed Thrush, 5; Robin, 12; Bluebird, 20. Total, 59 species, 394 individuals. Additional species seen during the preceding week and following day: May 9, Red-bellied Woodpecker, 1; Olive-sided Flycatcher, 1; Pine Siskin, 1; Harris's Sparrow, 1; Migrant Shrike, 1; Tufted Titmouse, 2; Ruby-crowned Kinglet, 2 (last seen). May 10, Cliff Swallow, 2; Myrtle Warbler, 2 (last seen). May 15, Marsh Hawk, 1; Sharp-shinned Hawk, 1; Nighthawk, 30. May 17, Chimney Swift, 2; Barn Swallow, 2; Black-poll Warbler, 3 (first seen).

J. J. SCHAFER.

Organization of the Tennessee Ornithological Association

THE Tennessee Ornithological Society has recently been organized at Nashville, Tenn., for the purpose of making a scientific study of the birds found in that state.

The initial meeting was held October 7, 1915, and was attended by Dr. Geo. M. Curtis, A. F. Ganier, Dr. Geo. R. Mayfield, Dixon L.

Merritt, and Prof. A. C. Webb of Nashville, and Judge H. Y. Hughes of Tazewell, Tenn. Organization was at once determined upon and a survey made of the work that should at first be undertaken. A constitution has since been adopted, frequent meetings and outings held, and steps taken to extend the membership to all parts of the state. The initial work was the preparation of a preliminary or theoretical list of birds of the state, which includes all species that should be looked for and their probable distribution at the different seasons. It is planned to supplement this list about a year hence, with one showing the species actually found and listed by members of the organization. Other supplements will be issued from time to time as new material accumulates.

The Society has a fertile field for its investigations, the state being very poorly represented in literature relating to its bird-life. West and Middle Tennessee are covered by no published papers except for a list of species found by S. N. Rhoads during a trip in 1895 extending from April 27 to May 24.

The fact that this region is on the dividing line between the northern and southern forms of many species has probably led those in search of typical specimens to seek a more southern latitude in which to collect them.

All of the members are active field workers, and this fact has encouraged them to believe that the Society has a future before it and that much earnest work will be accomplished.

A. F. GANIER.

Nashville, Tenn.

PUBLICATIONS REVIEWED

The Ornithological Magazines. *The Auk.* Since the last notice of this magazine there have been received the April, July, and October numbers for 1914, and the entire volume of 1915. We shall here summarize only the faunal and ecological papers which these numbers contain, with mention of such others as seem of more general interest.

Faunal papers. John C. Phillips has two interesting papers which relate to the birds of Eastern Sudan, April, 1914, and Sinai and Palestine, July, 1915. These papers are based upon collections made in the regions, and upon such observations as were possible.

Messrs. Lewis S. Golsan and Ernest G. Holt present a well annotated list of 184 species of birds of Autauga and Montgomery Counties, Alabama, in the April, 1914, number.

R. B. Stockwell and Alex. Wetmore present an annotated and illustrated list of the birds from the vicinity of Golden, Colorado, in the July, 1914, number.

Wells W. Cooke gives a list of 110 winter birds of Oklahoma in the October, 1914, number, the annotations including records of migration. In the same number R. W. Williams presents a third supplement to the birds of Leon County, Florida. There are 22 species noted.

In the January, 1915, number, H. H. Kopman presents Part VI, and in the April number Part VII of his "List of the Birds of Louisiana." In this number Robert Cushman Murphy gives the results of a ten-hour visit at Fernando Noronha, and in the July number "The Bird Life of Trinidad Islet."

The remaining faunal paper in the July number is "Summer Birds of Forrester Island, Alaska," by George Wilett.

In the October, 1915, number, S. F. Rathbun gives a "List of Water and Shore Birds of the Puget Sound Region in the Vicinity of Seattle."

Ecological papers, considered in the broadest sense. The paper by E. S. Cameron in the April, 1914, number, on the Ferruginous Rough-leg in Montana, is well illustrated and gives an account of an excellent piece of field work. In the same number Aretas A. Saunders gives "An Ecological Study of the Breeding Birds of an Area near Choteau, Montana."

George Finlay Simmons gives a study of the Clapper Rail in Texas in the July, 1914, number, and a study of the nesting of certain birds in Texas in the July, 1915, number.

In the January, 1915, number, Alvin R. Cahn writes of a captive Virginia Rail.

In the April, 1915, number, Frederick H. Kennard has a paper on "The Okaloacoochee Slough," which is more than usually interesting.

"The Plum Island Night Herons" is an interesting paper in the October, 1915, number by S. Waldo Bailey.

Mr. A. H. Wright continues his series of papers on "Early Records of the Wild Turkeys" in several numbers.

BIRD-LORE.—Since the last notice of this magazine in these columns there have been received Volumes 16 and 17, except the first number of Vol. 16, which was the last number reviewed.

The series of colored pictures of the Fringillidæ has been completed, and the Sylviidæ and Paridæ also completed. These colored illustrations of our native birds possess a peculiar value and make this magazine worth many times its subscription price alone. One of the delightful new features is the series of papers from the pen of Louis Agassiz Fuertes, accompanied with his inimitable sketches on "Impressions of the Voices of Tropical Birds." "A

Coöperative Study of Bird Migration," under the direction of Charles H. Rogers, ought to receive more support that has been given it. It is necessary to have a large number of records from the whole region which it is desired to cover if safe conclusions are to be drawn. Three articles from the pen of Robert Ridgway on "Bird Life in Southern Illinois," beginning in the November-December, 1914, number, is descriptive of "Bird Haven." The reproduction of photographs of the new bird sanctuary gives the impression of a well chosen and well kept place for both Mr. and Mrs. Ridgway and their bird guests.

The two Christmas censuses show a growing interest in this phase of bird study the country over. There are articles of interest besides those which have been selected for mention, besides many field notes.

Each number contains a considerable amount of matter directly relating to the rapidly growing Audubon Society movement.

THE CONDOR.—The last number noticed was January-February, 1914. Time and space forbid a detailed treatment of the twelve numbers which have been accumulated. This magazine continues its high standard of published matter, devoted largely to the Pacific Coast. Valuable faunal lists are here found, careful ecological studies presented, and critical notes on new or suspected new forms of birds. One receives the impression that while much excellent work has been and is being done constantly the field is well-nigh an inexhaustible one for the bird student.

THE ORIOLE.—The official organ of the Somerset Hills Bird Club, Bernardsville, N. J. In its third volume in 1915. Among the many interesting contents a "Decoration Day Census" appears in the August number. Such a census should give all of the breeding birds and the laggards of the migrations. This young member of the all too small group of ornithological publications is presented in most attractive form and contents.

BLUE-BIRD.—It has already been announced that this magazine has changed hands and is now being published by Mrs. Elizabeth C. T. Miller in coöperation with the Cleveland Bird Lovers' Association, at Cleveland, Ohio. The high standard of excellence which was established by Dr. Swope is being maintained. The matter which is published is frankly of a popular type, and especially designed as an aid to the protection of our wild birds. It is well illustrated and should make a strong appeal to bird lovers generally.

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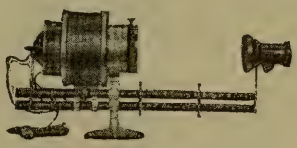

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Yellow-billed Tropic-Bird

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JUN 26 1916
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NO. 95.

A QUARTERLY JOURNAL OF ORNITHOLOGY

VOL. XXVIII JUNE, 1916 NO. 2

OLD SERIES VOL. XXVIII. NEW SERIES VOL. XXIII.

THE YELLOW-BILLED TROPIC-BIRD.
(*Phaëthon americana.*)

BY KARL PLATH, CHICAGO, ILL.

To observe this bird of elegant form and plumage, Bermuda offers the ideal locality. It breeds there abundantly and is much in evidence from February to October. Locally it is known as "Bo'sun bird" or "long-tail."

The Bermudas are the most northern breeding ranges of these birds and it is a common sight to see small flocks of them gracefully wheeling in the air, uttering their cries of "tik-tik," or "click-et-click-et." Occasionally, one will drop in a spiral to the water, where it rests with tail erect, bobbing like a cork.

Their nesting sites may be found in varied localities from Somerset Island, along the South Shore up to Castle Harbor and also on the islands in Great Sound. They may be in holes in the faces of cliffs, on flat ledges of rock, in the deep grass which grows on some of the outer islands, in fissures or under cedar-bushes. In fact, it may be said, that the Tropic-Bird has more varied nesting places than any other bird. Some writers claim that it also breeds in hollow trees, but this does not apply to the Bermuda Tropic-Birds. The nests have no lining and the one egg, which is about 1½ x 2¼ inches, is alternately brooded by both parents, incubation lasting 28 days.

The breeding season is from April to August and some pairs rear two broods in that time. They are fearless while on their nests and may be handled without any attempt at escape. It must not be gathered from this, that they are meek in disposition; they are not, and as soon as an intruder is discovered, they set up a harsh, peevish cry and peck viciously with their powerful bills, which can inflict considerable injury.

The young birds are covered with a fine white down, with dark skin between the eyes. They are fed on partly digested food regurgitated by the parents, consisting of small minnows, flying fish, squids, etc. After the young bird is a few weeks old, the parents leave it to itself, visiting it only at feeding time. It remains in the nest until strong enough to fly, a period of about two months.

The air is truly the proper environment of the Topic-Bird, where it is a marvel of grace and beauty; the long tail feathers adding much to the effect. On land it is very awkward, and owing to the very small feet and the fact that they are placed so far back, it is unable to walk or stand. It usually crawls on its breast aided by its wings, and as flight from a flat surface is impossible, it gains a suitable elevation before launching in the air.

There are only two other American species of these birds, the Red-billed Tropic-Bird (*Phaëthon aethereous*) found in the West Indies and the Red-Tailed Tropic-Bird (*Phaëthon rubricauda*) of the western coast of Tropical America, both considerably larger than the Yellow-billed. The former has fourteen tail feathers and the latter sixteen, the two central feathers being very much attenuated and of a rich crimson color.

The Tropic-Birds inhabit the warm seas of both Hemispheres and are often seen hundreds of miles from any land.

DESCRIPTION—SEXES SIMILAR.

General color—snowy white. A crescent-shaped black mark in front of and passing through the eye, extending

about one inch beyond. First six primaries of wing, black with inner edge and tips white.

Tertials, black, with tips—white. A narrow black line extending from them forward to bend of wing.

Several grayish streaks on flanks.

Larger quills of wings and tail—black with white tips.

The two central feathers of the twelve forming the tail are very much elongated and usually are tinted with salmon pink, except at the tip where the color fades into white.

Bill may be either yellow or orange-red. In the latter case the plumage is (strongly) tinted with a beautiful salmon pink—this tint is strongest on sides of neck and breast and on the two central tail feathers. In birds having the yellow bill, the pink is confined to the tail and is sometimes wanting there. The red billed birds are fully adult in plumage, though breeding pairs may consist of both varieties.

Legs—pale bluish-flesh, this color extending almost to first joint of toes. The four toes are connected in one web and these and the webs are black.

Eyes—bluish or brownish-black.

Egg—purplish brown with blotches of darker brown, thickest at larger end.

DIMENSIONS.

Total length—31 inches.

Long tail feathers averaging 18 inches, sometimes 22 inches.

Wing—11¼ inches, extent 38 inches.

Bill—along ridge, 2 inches; tip to gape, 2½ inches.

Tarsus—1 inch, middle toe 1⅝ inches.

A BREWER BLACKBIRD ROOST IN REDLANDS.

BY FLORENCE MERRIAM BAILEY.

The Brewer Blackbird is a handsome bird, with glossy, greenish black body, of purplish black head and neck, and strikingly pale yellow eyes. He moves with a dove-like motion of the head and the sideways swing of a strong, habitual

walker, but in bearing maintains the characteristic dignity and self-possession of his family.

My acquaintance with him began in the field, where he was found on the ranches and in the mountain valleys and also about the alkaline lakes of California and New Mexico. Besides watching him catch small crabs between incoming waves on the Pacific and little crustaceans on alkaline lake borders in the interior, we had seen migrating flocks swing in to roost in the tules of a remote New Mexico lake, at times overlooked by the tepees of the Apaches. Associating him with such wilds, it was a surprise to find him a familiar lawn bird in the cities of southern California, a bird as tame or tamer than the eastern Robin, sometimes hardly caring to move out of the way of passers-by. A still more surprising exhibition of municipal domesticity was vouchsafed us in Redlands.

We were walking down Cajon Street at sunset on September 6, 1907, when in passing a row of narrow Italian cypresses about the height of the telephone poles, we were startled by a horde of the Blackbirds bursting out of the trees over our heads. When we had walked on, many of them flew back, lighting on the telephone cables in front of the trees, where their black forms were silhouetted against the yellow sunset sky. With my mind preoccupied by meetings in the field, in distant parts of the Sierra Nevada and of New Mexico, it was little less than astonishing to find a roost inside a populous city. Had the birds been Chimney Swifts flying over the housetops to the mouth of a lofty chimney where they could drop down inside protecting brick walls, as they do in some eastern cities, it would not have seemed so surprising, but here was a multitude of large, conspicuous Blackbirds congregating in low trees close over a city sidewalk! Still, although men, women, and children, automobiles, and trolley cars were continually going by, the roost was in a comparatively quiet part of town where the houses were spaced by orange groves, and the nearest residences were across the street.

To an easterner, however, it was a most interesting assembly, and three days later—on September 9—I returned to the place before six o'clock in order to see the birds come into the roost. Blocks away, Blackbird notes were heard, individuals were seen flying high overhead, and small squads were passed perched on telephone poles. When I reached the seven narrow spired cypresses the voices became louder. Some of the birds were already in the trees, while bands were in the street and on the telephone wires. I had not come early enough. Others, mostly in small squads, kept coming from up street, from down street, and from across the orange groves, while approaching black flocks crossed a patch of sunset sky.

Some of the birds that lit on the telephone wires would find it hard to keep their balance, tipping up their tails to steady themselves; but others, better acrobats, would sit and calmly preen their feathers. If a newcomer tried to light too near one already there, he was sometimes pecked at, sometimes merely repelled by an inhospitable reception. On going to the cypresses the birds would light on the projecting tips of the branches and gradually work their way back into the dense evergreen mass. A puffing automobile sent a few flying, and a rattling trolley car sent a large number from the cypresses down into the orange grove behind them. The numbers entering the roost began to fall off after 6:15, and about 6:25 I started home.

While the birds were flying about men, women, and even boys went by without apparently noticing the presence of the roost, though now and then some one casually glanced that way. This was doubtless because it was an old story, for as I was informed later by Judge Warren, who lived across the street, the Blackbirds had occupied the roost for three or four years, coming in large numbers, spring and fall, so regularly that he looked for them every year. A few, he said, remained through the summer and also through the winter.

Wanting to see the Blackbirds come out of the cypresses

in the morning, on September 14 I started for the roost at 5:10 a. m. As it was a foggy morning it had been dark at 4:30, so I had delayed starting, and as I left the house two or three Blackbirds flew over, coming from the direction of the roost. As I walked up Cajon Street I heard an occasional chip from an Anthony Towhee, one faint song from a San Diego Song Sparrow, and a few blackbird notes that made me fear that the birds were leaving the roost, but in each case the notes were traced to a grevillia tree that I was passing. A block away from the roost, however, the sound of many voices told me that I really was too late, and on reaching the roost the wires were already black with birds all talking at once, a mixed medley, surely.

As nearly as I could count them—and except as they moved about the beaded lines of black forms against the gray sky made counting easy—there were about 300 at 5:20, and more were still coming out of the trees. At 5:25 a few were flying away—singly, in twos, or in squads of about half a dozen. At 5:30, while some had gone, enough more had come to the roost to again bring the count up to 300; but at this time they began to leave in appreciable numbers, some of them stopping at the telephone wires farther down the street, but most of them flying on down town, going just about high enough to clear the orange groves and bungalows, not as high as if going to a distance.

At 5:35 their numbers were reduced to about 125, and at 5:40 to about 75. At this time the first wagon came along, flushing a few, and at the second wagon more flew, so that at 5:45 only about 25 were left. Nearly all of them flew during the next few minutes, and at 5:50 only three were left on the wires by the roost and two on wires across the street. In a word, in twenty minutes—5:30-5:50—the entire 300 had dispersed. In the main they had straggled off as if to scatter over the city. As Redlands at that time contained five thousand acres of orange groves and the Blackbirds seemed to be generally distributed over its orchards and lawns, there was abundant territory for feeding ground inside the city limits.

As I went down the street, besides the notes of Anthony Towhees and Goldfinches, of which two small flocks and several individuals were on the telephone wires, I heard the note of a Phainopepla. The Blackbirds, having flown ahead of me, were found walking over the green lawns as usual.

But while I had been greatly interested in what I had already seen, I had failed to reach the roost early enough to see the first birds leave the cypresses in the morning, or to see the first birds come to the roost at night. So, on the following afternoon, September 16, I made an early start, reaching the roost at 4:30 p. m. No birds were to be seen. I was in time, at last. At 4:35 a flock of about a dozen came flying in from up street as if intending to stop, but as something was going on in the street below they flew a few poles down the line and finally disappeared, after which none came for half an hour. Meanwhile I went into the yard of a woman living opposite the roost, where I could get a good view of the birds as they approached, and found her so much interested in the Blackbirds that she and a neighbor had sat out watching them, as she said, "going to bed."

At 5:07 one Blackbird flew over, but no more were seen until 5:25, when four flew straight in to the roost. After this they came straggling along at intervals of from half a minute to four minutes, mostly in small squads—from one to sixteen at a time.

At 5:40 about 100 were scattered along the wires, the males looking very black and the females brown in the full western light. After this the birds continued to straggle in. Nearly all of them came from the northwest, flying in from the roost side of the street. Part of them flew directly to the roost, but more flew first to the telephone wires. Some flew from the roost down into the orchard as a car passed.

By this time a pink haze was growing over the mountains and San Bernardino Peak was flushing. Perching on the green ends of the branches the Blackbirds looked strikingly black. As a particularly noisy automobile passed, a large number flew out, but circled around and lit in the tops of

some eucalyptus and pepper trees, afterwards returning to the roost.

A boy who came along, exclaimed, "They can make an awful fuss about four o'clock in the morning," and said he had been scaring them out. A cat must have climbed the roost trees, he said, "for feathers were all around."

At 5:45 when, almost simultaneously, 15, 11, 2, and 1 came in, the birds were scattered along the cable between six telephone poles and along the wires across the street. At 5:50 the birds were jabbering noisily as they entered the roost, and four minutes later, though 15 more had come, there were only about 75 on the wires. At 6:05 only about 10 were on the wires, and the trees were nearly bare of black forms. After going in, a few would come out, perhaps driven out by neighbors they disturbed or crowded, but after circling around their own tree or going to another down the line of the roost, they would quickly disappear. At 6:12 the last three came, and at 6:14 one was still flying around, though it soon disappeared in the roost. At 6:15 a trolley car came thundering by, but not a bird flew, the trees remaining as silent as though empty. Then a bat came wavering along, and I started home, facing the deep orange red western sky.

The next morning I left the house at 4:40 when the stars were still bright, though it was rapidly getting light. When I reached the roost the row of fan palms bordering the sidewalk were dark against the sky and the peak of San Bernardino and the range beyond stood out black, while the eastern sky was flushed with the same soft mauve light that comes at sunset. As the bell in the church tower struck five I heard the first bird note, the chip of an Anthony Towhee, which was followed by a single *t'chack* from the roost. But not a bird was in sight. I looked about delightedly. The seven tall cypresses pointed to the sky noncommittally. Who could believe that their smug green forms concealed a mob of Blackbirds? I sat down on the curbstone under a fan palm, with an electric light burning above me, a star still shining in the sky overhead.

At 5:07, from the roost came a *twee-dle* and *kwee*, after which the voices piped up with a variety of notes, some harsh, but others soft and liquid as running water, while some were clear and surprisingly musical. Altogether it made a delightful, mysterious concert from the invisible choir within the cypresses. The first movement apparently began with a few birds which had roosted in some grevillia trees back of the row of cypresses.

At 5:10 the first Blackbird was seen flying between the trees. At 5:11 the first bird lit on the telephone cable, but he quickly went back into a tree. At 5:13 three birds appeared on the wires and the first black forms came out on the tips of the cypress branches. At 5:18—five minutes later—over 150 birds were on the cable. As they came up out of the depths of the trees some stopped to sit on the tips of the branches a few moments as if to get waked up more thoroughly, but most of them flew directly to the cables. Occasionally a bird lit on a single wire and tipped and tilted until it decided to fly to a more stable perch. On the big steady cables the birds sat and preened their feathers as if getting ready for breakfast in comfort.

At 5:19 the first stragglers started off, quickly followed by larger bands. At 5:21 about 100 were on the wires, and bands of 14 and 18 left. One small flock crossed the street and swung off to the northeast, but almost all the rest went northwest as they had come. At 5:25 flocks of 20, 17, and 12 left. At 5:27 there were about 90 on the wires. At 5:28 there were again about 100 on the wires and in sight on the cypresses and an adjoining grevillia tree. During the next twelve minutes the birds left rapidly, the number of those on the wires dropping by intervals of from one to four minutes from 100 to 80, 50, 40, 25, 9, and 5. At 5:35 a Western Lark Sparrow sang. At 5:40, when only five Blackbirds were in sight, the first wagon passed and no birds flew. At 5:42 the one bird left on the wires went, flying off by himself toward the east. In other words, from the time of the first note at

5:07, it had taken the birds just thirty-five minutes to wake up and leave the roost.

At Pasadena, later in the month, I got hints of several roosts, one in two Italian cypresses and an unusually spreading, dense umbrella tree. As the migrating hordes take such calm possession of the cities they pass through, roosts could doubtless be found all along their southern California route.

Washington, D. C.

THE GOLDFINCH IN CAPTIVITY.

BY J. CLAIRE WOOD.

As I must lie abed nearly seventeen hours a day, with no prospects of early improvement, what more natural than that my nature-loving temperament should crave a bit of animated nature to relieve the monotony of lonely hours, and what more appropriate than a goldfinch?

With this in mind I explored some promising bushland in Oakwood village on August 8, 1915, and found a nest about three feet above the ground in the vertical fork of a swamp oak branch. The total height of this oak was about seven feet and concealed in weeds eight to ten feet high. The nest contained four young and an egg about to hatch. Twelve days later the five young stood up in the nest alert and ready to flutter into the weeds at too near an approach. The sexes being separable in all plumages I selected one of the two males, and by a combination of strategy and quickness secured it.

With a bird in a small cage at my bedside I could give it the attention necessary to carry it through the critical stage and later transferred it to a large cage on the back porch. All went well until the morning of September 21 when, suddenly and for the first time, the bird developed a desire to escape, fluttering from place to place and pouring forth a volume of excited call notes. The disturbing factor was an adult female on a sunflower head in a cluster of a rare red variety growing in the yard, and henceforth this bird will be

known as B and the former as A. The evident desire of A for the company of his kind induced me to capture B and place her in his cage and at once he relapsed into former contentment, failing to be influenced by her frantic endeavors to escape. A was in passable plumage, but I had seen better examples in general plumage shade, depth of black on wings as in adults and amount of cinnamon edging on wing-coverts, and so I decided to examine more specimens. To accomplish this I used B for a decoy on September 27 and trapped thirteen among the wild sunflowers in Oakwood village. Twelve were immature birds, and of these I selected the two best appearing males, which become C and D.

I released B on October 15, but instead of leaving the premises she divided her time between the sunflowers, a cherry tree near the cage, the cage itself and the English sparrows. These pests kept her busy evading their attacks. Soon after regaining her liberty one drove her from sight among the trees in a westerly direction and she no sooner returned than another chased her around the house; in fact, the cage was the only sure haven of rest, for the sparrows regarded it with suspicion—an innate wariness that assures their preservation. She frequently tried to get inside the cage and remained so tame I could almost catch her in my hand and, despite all discouragements, remained two days, or until the food supply was exhausted, which consisted of the red sunflower seeds, those of the common yellow variety averaging so large and hard that a goldfinch can not crack them. On the last day I watched her go over the empty heads, looking carefully for stray seeds overlooked by the sparrows. When we remember that she was an adult bird, at least a year old, and that she was caught and released at the same place, her reluctance to leave can not be attributed to confusion, and considering the fact that for several days following their capture all goldfinches make frantic efforts to escape, and then the tension declines so rapidly as to be noticeable, until it is lost in apparent indifference, the probable solution is that any latent desire for freedom was dom-

inated by the strong social temperament so characteristic of her kind.

On October 21 a stray junior male was called down from the sky by the combined efforts of the trio in the cage. He was quickly trapped, examined and released and showed a total loss of all local interest by the rapidity of his disappearance into space.

In November the temperature began to average at steadily lowering levels, and it was becoming too cold for the birds, so I decided to bring them indoors, and having but two small cages I thought it better to release D than endanger the health of two birds by placing them in one small cage. D differed from B in that he would not leave at all, though there was no available food in the vicinity, and during his three days of liberty occasionally examined the sunflowers, but spent most of his time on the cage trying to reach the seed dish. Finally he became so weak and indifferent as to remain impassive while I stroked him with my hand, and it being evident that he would perish unless replaced in the cage, I put him there, but he died the following day. His conduct did not surprise me after my experience with B, for at the time of his capture he was probably less than two months old and had experienced little of the wild life, while his release took place in a season of gloom and cold, when no birds were left except the unfriendly English sparrows, nor any food supply visible outside the cage. Had I liberated B and D within sight or hearing of a flock of the species they would not have returned to the cage.

It is now early January, 1916, and I still have A and C. Their cages are beside each other in a window overlooking the cherry tree, but not once have the birds evinced a desire to get outdoors, probably owing to the winter drear. A being nest reared, is very tame and whenever he catches my eye tries to get to me by flying from perch to perch close to the wires to which he now and then clings with head protruding between them. He is teasing for cracked sunflower seeds, of which both are very fond and which he eagerly

takes from between my fingers. I never saw him try to leave the cage except to reach C or myself, while C has only tried to reach him. They spend the most time upon their perches nearest each other, where they frequently sit and sing together, but while playing about their cages and often while feeding they utter warbling calls and numerous conversational notes intermixed with fragments of song. After careful attention I can find nothing in the voice or action of either bird that expresses the least discontent with cage life.

There are emotional people who endow a captive bird with all the mental anguish of a human being torn from loved ones and thrust into prison and there are greater numbers who, at least, proclaim it wicked to imprison wild birds because they are constantly pining for freedom, but I do not think any of these people have kept and studied wild birds in captivity, and unless they have done so it is evident that they are merely straining their imaginations. I believe that under proper treatment certain birds fare better in captivity. A wild bird is menaced with death from all sides from such sources as weather uncertainty, food supply, accidents, mammals, birds, reptiles, etc., while in captivity it is protected from all this and the attending hardships, and so it remains only to determine how the bird feels its imprisonment. Instead of venturing what some would consider a biased opinion I will let the reader draw his own conclusions from the facts just presented.

About September 25 I began a series of experiments in an endeavor to get an approximate idea of the percentage of insects consumed by goldfinches, but the birds refused to touch insect food of any kind.

Immature plumages are not so near alike as one would suppose, for where a dozen males are kept together you soon know each individual, mainly through plumage differences, though aided by voice and action.

As might be expected, undersized goldfinches are lacking in vitality and are liable to succumb to exposure in a temper-

ture below freezing, and probably only the more hardy can survive the winter here.

I once found a dead goldfinch strangled by a horse hair that had become entangled in an American thistle.

Nestling goldfinches appear comparatively free from molestation and usually rear their young. As an illustration there was a swale where the three pairs of goldfinches were undisturbed, while the young in all the other nests were destroyed, consisting of two nests of Song and one of Field Sparrow and one of Cedar Waxwing.

I once trapped some two dozen goldfinches in September and released them the following May and shall always remember them as the embodiment of activity, noise and joyous sociability. They were not released direct from the cage, but confined in a box and carried into the country. In May of another year I liberated a mixture of Indigo Buntings and goldfinches from a cage on the roof of an office building in the business section of the city, and when I retired with the cage they were still in sight perched upon the surrounding buildings. It never occurred to me that perhaps some of them might return to the cage.

I never kept a number of goldfinches through the nesting season, but believe in such a case the birds would develop the natural tendency to mate and breed, or in other words, I doubt that confinement retards the radical changes of the reproduction period as shown by the enlargement of the sexual organs, etc.; anyhow, the male American Goldfinch has been exported to Europe, where the bird fanciers have produced hybrids by crossing it with the domestic canary, while so common are European Goldfinch-canary hybrids, that specimens are always on the market. They have also crossed the Indigo Bunting with the domestic canary, but the resultant hybrids are said to be of plain plumage, somewhat resembling the female Indigo.

From what I have said the reader must not be misled into believing that I sanction the indiscriminate caging of birds. One must have a natural interest in them and thoroughly un-

derstand their ways. He should begin with the seed-eaters, but not at all unless he feels possessed of the necessary qualifications, and then if the mortality among them exceeds one to a dozen in six months he should abandon further efforts, for this indicates improper management. If successful he is then entitled to try what aviculturists term the soft-bills, though he is advised not to do so, for they require much more care and must be constantly guarded against stale food, which results in disease and death. We have plenty of sweet singers among the seed-eaters, though the two most noted vocalists of America and Europe belong to the other class, namely, the mockingbird and nightingale. I have learned that the best results are not attained by duplicating the food eaten by a bird while in the wild state. For example, about half the food of the Indigo Bunting is of an insect nature, but in captivity he does better on an entire seed diet. While at liberty the goldfinch thrives on sunflower seeds of both the wild and the smaller headed cultivated varieties, but in confinement it must be deprived of such food which is too fattening where loss of liberty has curtailed the proper exercise and causes several fatal diseases, of which, perhaps, apoplexy is the most common. To keep a caged goldfinch in perfect health feed it the mixed German rape and Cicily canary, and nothing else, except a cuttle-bone fastened to the wires and gravel in the bottom of the cage. Change the water and gravel paper daily and clean the perches twice a week. See that the seed is free from dust and the cage dry and kept in an even temperature away from draught, but where the air is not impure. Each bird should have a square foot of space and does best in a cage by itself.

THE ANNALS OF THREE TAME HERMIT THRUSHES.

BY CORDELIA J. STANWOOD.

When I took the nest in Linscott's Meadow containing the three young Thrushes, and was about to put it in my basket, the bottom of the nest fell out (Aug. 17, 1909, 9 a. m.). After a hasty examination of the nest, which was abnormal in some respects, I tossed the rim away, covered the little birds in the basket, and hurried from the neighborhood. The mother bird still called softly in the distance, *chuck!chuck!* Her remonstrances were few and gentle, however.

I had come to the conclusion that in order to make a successful study of young birds, a person needed to take two, at least. One would serve as a companion and mirror for the other. They would be less timid of their kind when returned to the woods, and less inclined to become pets; I hoped, also, to secure a singer.

The birds were small, and the third, a particularly fragile little thing. The fact that they were a second or third brood of the season may have accounted for their apparent lack of vitality.

It was a hard journey of six miles or more from my home to the nest and back again. The nest, as I intimated in the beginning, was peculiar. I felt that I would like to examine it, and yet that I could not return for that purpose. The smallest bird I would like to have dispensed with, but he was too immature to drive from the nest. I decided to take all the birds and the nest for further study, when the nest collapsed. Thus it was that I set out from Linscott's Meadow with three little Thrushes in my basket.

The nestlings showed no signs of fear. I was adopted for a mother by them from the time of my interference. They ate grasshoppers ravenously, and went to sleep on being fed. On the way home they partook of from twelve to fifteen grasshoppers and twelve blueberries.

The tail feathers were started, many bits of quill casings

Nest of Hermit Thrush

still remained on the feathers, and much natal down still clung to the tips of the feathers. I decided that they were about eight days old.

Although my examination of the dwelling place of these little Thrushes had been so cursory, I saw that the foundation of the nest was made almost entirely of sphagnum moss (*Sphagnum acutifolium*), which had been gathered and modelled while wet. The nest when dry was almost as firm and brittle as the mud cup of the Robin. The lining consisted of the orange setae of hair cap moss (*Polytrichum commune*) and hair cap moss itself, and yet a white pine grew within three or four yards of the nest; this was the first structure made by a Hermit Thrush that I had ever found without white pine needles in its lining. By 11 a. m. I was at home with the Thrush family. The birds took readily to ants' eggs, and bread and milk, as well as grasshoppers. They required a great deal more water than the Olive-backed Thrush would take.

The same large packing box that I used for the Olive-backed Thrush served as a bird house. In one end soft cotton wadding afforded a comfortable bed, in the other, a lilac branch met the requirements of a perch, and still a corner large enough was left to contain a fresh garden of earth and plants in a platter.

The birds were still in the nest stage and preferred to snuggle in a heap on the soft batting to sitting on a branch. They could not perch or stand for any length of time. They soon became so accustomed to the house that my footsteps on the hard floor did not awaken them.

The second day, at 4:30 a. m., the Thrushes called for food for the first time. I gave them a fresh linen towel to nestle on. Toward night they seemed nearly as active as the Olive-backed Thrush when ten days old. One lifted his foot and scratched his ear twice.

On the third day, when the little Hermits were really ten days old, they began to perch and fly. They also began to raise and lower their little stub-like tails.

The fourth day I left a little Hermit in the window sunning himself. When I returned a few moments later he was standing on the mantle in the shade.

I closed both shutters of one window, left the window up, and covered the ledge with fresh towels. The sun shone on the outside of the blind, and the birds nestled on the linen in blissful content. They fluttered and twittered for food, but were really too lazy to eat much. I learned for the first time that a bird sleeps a great deal with one eye open.

Before I brought the birds home I laid in a supply of food [1] for them, such as pin cherries, blueberries, grasshoppers, and ants' eggs.

From the fourth to the ninth day the Thrushes developed rapidly. It had occurred to me to give them a platter of earth from an abandoned ant hill for a dust bath. They spent much time snuggled down in the dust or in the moss of the garden. During the fifth and sixth days I fed the Thrushes three ounces of steak, or one and one-half ounces a day. In this time they had also eaten considerable bread and milk, fifteen helpings of banana as large as a good-sized gooseberry, eighteen grasshoppers, two earthworms, three spiders, eighteen blueberries, twelve flies, two wild pears, four pin cherries, ten blackberries, and one-hundred-and-twenty ants' eggs. In addition to this I found that some of the birds were picking up blueberries and blackberries for themselves. They were perfectly healthy young birds.

As time passed I was more and more astonished to see how birds in the same nest differ in ability to fly, grasp food with the beak, pick up food, timidity and friendliness. One of the young birds seemed very independent, often seeking a perch by himself. The others generally cuddled down together and flew to the same perch. The smallest, up to the eighth day, was almost powerless to grasp anything with his beak; he relied

[1] At this season ants' eggs were scarce. I found them in but one hill. At this date, however, the female grasshopper is very nourishing, being full of eggs. See "Nature Study and Life." By Hodge.

Hermit Thrush, about seven days old
Photo by Embert C. Osgood

Hermit Thrush, about ten days old

on me entirely to put food almost down his throat, but he was a most gentle, affectionate little bird. The strongest would catch a fly on the window, or spring into the air after it. One bird ate so many blueberries from the cup that they made him ill, and one bird was always in the box picking up ants' eggs. The largest bird ate more or less earth from the dust bath.

All the birds were peculiarly winsome. They were sensitive to the slightest caress, and constantly expressed their affection by snuggling down in my lap, my hand, or against my throat. They alighted on my head and shoulders.

When I took the Thrushes I determined to study their characteristics thoroughly, but I realized that I must avoid petting them too much if I were to return them to the woods in an independent condition. For this reason I avoided caressing them.

When one Thrush called in a clear, sweet whistle, *p-e-e-p! p-e-e-p!* another would answer with a soft, husky, breathing sound, *phee, phee.* Occasionally one would call *pit! pit! pit!* an almost inaudible, ventriloquial call. They also used the call note *chuck!*

The ninth day after I brought the Thrushes home I put one in the woods for a short time. He seemed dazed, at first, at his outdoor surroundings. He listened to the murmuring of the leaves, the sighing of the breeze among the tree tops; he noticed the swaying of the ferns and grasses. Once in a while he snapped at a mosquito or an ant, but he was so well fed that mostly he was content to snuggle down among the dry leaves and just look.

At the end of two-and-one-half hours I returned to the woods for him. I called, "Come Pet!" A silvery little *peep!* came in answer. The young Thrush had moved but a few feet. The next four days I carried all the Thrushes to the woods for all or part of the day.

At this age a young Hermit Thrush is olive-brown above, speckled with golden-buffy. The tail is rufous, and the tail coverts, a very bright rufous. The throat is slightly buffy, the up-

per breast is buffy and the lower breast and belly are silvery white. The breast is heavily spotted with black. The black scollaps on the buffy sides of the young are so lightly penciled on the feathers that they have the effect of a gray tinge. The throat is lined with yellow. The eye is hazel in the light, and black in shadow. The legs and feet are a mixture of flesh-color and brown-gray. The upper mandible is gray-brown, the lower mandible flesh-colored, save the tip, which is gray-brown. The tail is about one inch long. The whole effect of the coloring is soft, rich, and elegant.

When the three Thrushes went to the woods for the first time, they were at first attracted by the sounds of nature and the motions of the foliage. Soon one went to the boiling spring and walked into a little pool. Evidently the water was not fresh enough for he threaded the rill that issued from the spring almost to its source before he took a bath between the rocks. His crest stood erect with delight as he splashed the water about. He had such fun that he came back to bathe several times. Another Thrush circled around and perched high in a tree, but the baby did nothing, just stood still.

At last I put him in a shallow pool and rippled the water with my hand. He shook his feathers as if taking a bath, and dipped his beak, but was afraid to sit down in the water. He went on taking imaginary baths on every little mudbank, but refused to wet a feather.

Later in the afternoon the Thrushes were feeding around the spring, when suddenly the cows came running down the path. Two of the Thrushes disappeared like a flash into the underbrush, but the baby sat on a log. A cow came up and smelled of him, and for aught I know would have eaten him, had I not run at her brandishing a long stick.

In a few hours we were in the house again. The Thrushes were ravenously hungry and very active on the wing. It was a joy to see them move. They floated around the room like bits of thistle down. One Thrush flew from the box of ants' eggs, when I went to feed the birds, and pecked at the

Hermit Thrush, twenty days old
Photo by Embert C. Osgood

paper containing the steak. Another pecked at the cup that held the water.

The thirteenth day after I took them, I put them in an evergreen woods above the spring for the day. When they returned to the house, they ate so fast that I no longer dared to feed them with the scissors. They pinched my fingers in their beaks several times in spite of my efforts to be dexterous. Their beaks were so sensitive that although I thought the floor was immaculate, the Thrushes constantly found dust and hairs. They were not very hungry after their day out-of-doors. I decided that they were ready to go to the woods. Accordingly, the next morning, August 30, at 7 o'clock, I carried a basin of fresh water to the wooded pasture above the house where persons were not likely to find it, and freed the little birds there. Beside the basin I put a supply of ants' eggs and grasshoppers.

The following morning I renewed the water, and the supply of food. I saw nothing of the young Thrushes and refrained from calling them. Each day I renewed the supply of food and changed the water. On the fourth day after the return of the birds to the woods, a little Thrush alighted on a bracken near me as I changed the water. He flew away from me, but I think that I could have caught him, in time, had not the undergrowth been so dense. September 14 I came upon two Thrushes by the boiling spring that kept together. They flew up onto a high branch and called *chuck!* as all Hermit Thrushes do. They seemed to haunt the locality where the tame Thrushes were freed the first time. There was a third bird near. I was unable to see him distinctly. I do not know whether he was a Thrush or not.

Although persons came and went at this spring all day where the Thrushes and Robins came to drink and bathe, no one boasted of having seen a tame Thrush that perched on his shoulder and begged for food. I thought that this fact proved that my experiment was a success.

A BRIEF HISTORY OF THE NEBRASKA ORNITHOLOGISTS' UNION.

BY MYRON H. SWENK.

It is fitting at this time, when an affiliation between the Nebraska Ornithologists' Union and the Wilson Ornithological Club has just been consummated, that a brief historical summary of the former organization be presented to the readers of the Wilson Bulletin. The writer will, therefore, attempt to briefly sketch the circumstances which brought about the organization of the N. O. U., and some of the subsequent activities of that society.

Following the pioneer work with Nebraska birds, which began in 1804 and 1806 with the voyage of Lewis and Clarke up and down the Missouri River, followed by the observations of Thomas Say in 1819 and 1820, of Maxmilian in 1833 and 1834, of Townsend and Nuttall in 1834 and ending with those of Audubon in 1843, there was a hiatus in ornithological activity in Nebraska until the work of Professor Samuel Aughey of the University of Nebraska, from 1864 to 1887, enabled the publication in 1878 of the first state list of Nebraska birds, in which 252 kinds were enumerated. During this same period of years Professor Lawrence Bruner, first as a boy at Omaha and later a young man at West Point, was also observing the birds in Nebraska, and when he later became associated with the University in 1888 he was in an even better position to gather information along this line. Consequently, in 1896 appeared his "Notes on Nebraska Birds," in which he listed some 400 kinds and summarized not only his information based on personal observation, but that generously furnished him by several other ornithological workers in Nebraska during the 80's and 90's, notably Messrs. I. S. Trostler, J. M. Bates, L. Skow, D. H. Talbot, and others. This work at once stimulated a great general interest in Nebraska birds, and the demand for it was so heavy that it was soon entirely out of print.

A year or two prior to the appearance of Prof. Bruner's

booklet, Dr. R. H. Wolcott came to the University of Nebraska, enthusiastic in his interest in ornithology and possessed of a comprehensive knowledge of bird life gained through years of field work in Michigan. Mostly through his influence an informal organization known as the "Lincoln Bird Club" came into existence. The writer remembers that the club had semi-monthly meetings at which matters of interest concerning birds were discussed and migration notes compared. At about the same time a similar club was organized in Omaha under the leadership of I. S. Trostler. In the spring of 1899 committees from these two bird clubs began negotiations for consolidation as a state organization, with the result that on December 26, 1899, the Nebraska Ornithologists' Union was formally organized and held its first meeting at Lincoln.

The progress of ornithology in Nebraska from this time forth has been almost wholly identified with this organization. The second meeting was held at Omaha, January 12, 1901, and the six subsequent meetings were held in December or January at either Lincoln or Omaha. Beginning in 1903, an annual field day was held in May in addition to the winter program meeting until the two sessions were combined on the May date in 1908, which has since been the regular time of meeting. Altogether, seventeen program meetings and fourteen field days have been held. The composite lists of the field parties on some of these excursions have been as follows: Lincoln, 104, 103, 94, 91, 85; Omaha, 79, 78, 76, 75; Peru, 75; Weeping Water, 93; and Dunbar, 69.

The publications of the N. O. U. have been in the form of "Proceedings," of which volume 1 (44 pp.) was issued in 1900, volume 2 (101 pp.) in 1901, and volume 3 (108 pp.) in 1902. The financial resources of the society not proving adequate to continue publication on this scale, in 1908 and 1909 the publication of volume 4 was accomplished in two parts (55 pp.), in 1910-1913 that of volume 5 in five parts (104 pp.), while volume 6 was completed in 1915 in three parts (68 pp.). These six volumes, with their indexes, in-

clude all of the publications of the society except a "Field Check-list of Nebraska Birds" issued in 1908 and a "Preliminary Review of the Birds of Nebraska" (116 pp.) prepared by a committee of the N. O. U., Messrs. L. Bruner, R. H. Wolcott and M. H. Swenk, and issued in 1904.

The men who have served as President of the N. O. U. since its organization are: L. Bruner (1899), I. S. Trostler (1900), E. H. Barbour (1901), J. M. Bates (1902), F. H. Shoemaker (1903), R. H. Wolcott (1904), Wilson Tout (1905), S. R. Towne (1906), M. H. Swenk (1907), August Eiche (1908), H. B. Duncanson (1909), L. Sessions (1910), H. B. Lowry (1911), D. C. Hilton (1912), L. Bruner (1913), T. C. Stephens (1914), and R. W. Dawson (1915).

A RECENT INSTANCE OF THE NESTING OF BARN SWALLOWS ON CLIFFS.

NORMAN DE W. BETTS.

It is generally accepted that the breeding places of Barn Swallows before the white men built their hospitable barns were in caves and overhanging cliffs. Definite records of recent reversions to their old haunts are not very numerous and I have not run across photographs of nests so placed. A recent instance of nests built on cliffs near the city of Madison, Wisconsin, seems, therefore, worthy of record.

In the Auk, volume XIV, Dawson describes a visit to the headwaters of Lake Chelan in Washington, where he found several nests of the Barn Swallow in a cave hollowed out by the waves to a depth of some twenty feet. Two of the nests contained eggs (July 9, 1895). These birds, however, had probably never had any choice in the matter—no chance to take advantage of modern opportunities. In the report of the Geological Survey of Michigan, 1908, Peet describes the finding of a nest of this species at Menagerie Island, Isle Royale, in Lake Superior. It contained four young, nearly able to fly, on August 17, 1905, and was "built against the base of a cliff about twenty feet above the waves. A shelv-

Barn Swallow Nests on Cliff at Lake Mendota, Madison, Wis.
Photo by N. de W. Betts

ing rock a few feet above protected it from the rain. . . . An old nest was placed a little ways from this one and in a like location."

An interesting observation on the conditions found in the vicinity of Philadelphia 150 years ago is contained in *Kalm's Ornithological Observations*—Trotter in the Auk, 1903. The following is quoted from this article:

> "They (Barn Swallows) build their nests in houses, and under the roofs on the outside; I likewise found their nests built on mountains and rocks whose top projected beyond the bottom; they build, too, under the corners of perpendicular rocks; and this shows where the *Swallows* made their nests, before the *Europeans* settled and built houses here; for it is well known that the huts of the *Indians* could not serve the purpose of the *swallows*."

The accompanying photograph of two Barn Swallows' nests was taken at Maple Bluff on Lake Mendota, Madison, Wisconsin, in 1915. Nesting of the swallows at this place was observed on July 11, when a nest containing three young was found. Another visit was made the following day to secure a photograph, but the young had left the nest. Two more nests were found during this visit. The nests were placed about eight feet above the water and were well protected from above by the overhanging sandstone cliff. The photograph was made during the winter—when the ice gave better opportunities to set up a tripod.

The nest shown on the left in the picture contained seven eggs when found. The usual clutch of the Barn Swallow appears to consist of only four or five eggs. Perhaps, along with its preference for a lake shore home-site, this bird may have inherited some old fashioned notions in regard to the size of its family.

THE MAY BIRD CENSUS.

Particular interest attaches to the 1916 May census because, throughout the central states, the weather conditions favored the halting of many of the smaller birds as well as many of the larger ones during the last week in April and the first half of May. In the vicinity of Oberlin vegetation was backward, the weather prevailingly cold, with occasional warm days, and the precipitation, while not excessive, was spread over many days. The appended list for the first of May shows that the warblers as well as other small birds, were ahead of the season as well as being ahead of schedule. The list for May 8 and 15 shows that there had been little change in the bird population except the arrival of more species—only eight species having left, the rest of those not seen on the 8th as well as the 15th being breeding birds.

Oberlin, Ohio, May 1st, 1916. Chilly morning, warming to about 80 by noon. Cloudy early, clearing until about 1:00 p. m., then clouding again to showers and a steady rain by mid-afternoon. Wind strong S. W. About Oberlin early morning, Berlin Heights to Lake Erie via Old-woman's Creek 8:00 to 10:15 a. m., Rye Beach to Cedar Point 10:30 to 3:30. Lynds Jones, Max. de Laubenfels, and James Watson, until 10:15 a. m., Jones leaving the party then.

Pied-billed Grebe, 1; Horned Grebe, 1; Herring Gull, C; Bonaparte Gull, 2; Common Tern, 10; Black Duck, 10; Lesser Scaup Duck, 4; Solitary Sandpiper, 1; Woodcock, 1; Spotted Sandpiper, 25; Killdeer, 10; Coot, 25; Florida Gallinule, 3; Sora, 5; Virginia Rail, 1; Bittern, 3; Great Blue Heron, 1; Green Heron, 2; Bobwhite, 3; Mourning Dove, 10; Turkey Vulture, 3; Marsh Hawk, 10; Sharp-shinned Hawk, 15; Red-tailed Hawk, 2; Red-shouldered Hawk, 5; Broad-winged Hawk, 2; Bald Eagle, 2; Sparrow Hawk, 10; Barred Owl, 2; Screech Owl, 1; Belted Kingfisher, 3; Hairy Woodpecker, 2; Downy Woodpecker, 5; Yellow-bellied Sapsucker, 2; Red-headed Woodpecker, C; Red-bellied Woodpecker, 4; Northern Flicker, C; Whip-poor-will, 3; Chimney Swift, C; Kingbird, 3; Crested Flycatcher, 2; Phœbe, 1; Least Flycatcher, 3; Blue Jay, C; Crow, C; Bobolink, 5; Cowbird, C; Red-winged Blackbird, C; Meadowlark, C; Baltimore Oriole, 4; Rusty Blackbird, 2; Bronzed Grackle, C; Goldfinch, 3; Vesper Sparrow, C; Grasshopper Sparrow, 3; White-throated Sparrow, C; Tree Sparrow, 1; Chipping Sparrow, C; Field Sparrow, C; Slate-colored Junco, 1; Song Sparrow, C; Lincoln's Sparrow, 2; Swamp Sparrow, 3; Towhee, C; Cardinal, 10; Rose-breasted Grosbeak, 3; Indigo Bunting, 3; Scarlet Tanager, 1; Pur-

ple Martin, C; Cliff Swallow, 3; Barn Swallow, C; Tree Swallow, 1; Bank Swallow, C; Rough-winged Swallow, 10; Cedar Waxwing, 12; Migrant Shrike, 1; Warbling Vireo, 4; Blue-headed Vireo, 5; Yellow-throated Vireo, 1; Black and White Warbler, 5; Blue-winged Warbler, 3; Golden-winged Warbler, 1; Worm-eating Warbler, 1; Nashville Warbler, 10; Orange-crowned Warbler, 1; Yellow Warbler, C; Black-throated Blue Warbler, 5; Myrtle Warbler, 10; Magnolia Warbler, 1; Chestnut-sided Warbler, 3; Blackburnian Warbler, 3; Black-throated Green Warbler, 10; Palm Warbler, 15; Oven-bird, 5; Water-Thrush, 1; Louisiana Water-Thrush, 1; Maryland Yellow-throat, 3; Redstart, 1; Pipit, 5; Catbird, 5; Brown Thrasher, 5; House Wren, 5; Winter Wren, 2; Long-billed Marsh Wren, 2; White-breasted Nuthatch, 5; Red-breasted Nuthatch, 1; Tufted Titmouse, 10; Chickadee, 3; Golden-crowned Kinglet, 3; Ruby-crowned Kinglet, C; Blue-gray Gnatcatcher, 5; Wood Thrush, 10; Veery, 2; Olive-backed Thrush, 5; Hermit Thrush, 15; Robin, C.; Bluebird, C. Total species, 117.

At Oberlin, on May 8, another study was made by H. W. Baker, Lynds Jones, Max de Laubenfels, and Lester Strong, covering much the same ground as on the first, but extending the studies to the east end of the Marblehead peninsula across the bay from Sandusky. The time spent was from 3:30 a. m. to darkness. The day was fair but with a brisk south-west wind.

Another all day study was made on May 15 in the same general region, by Mr. George L. Fordyce and John Young of Youngstown, Lynds Jones and Max de Laugenfels, and Harry G. Morse and James Watson, who worked only in the vicinity of Oberlin. The first four named spent the early morning at Vermilion, Mr. Morse the early morning at Huron, and the five then worked together at Rye Beach for a half hour, then crossed to the Marblehead peninsula and worked there until 3 p. m. There was a thunder-shower in the early morning, then a clearing and warm day, with little wind.

It seems best to arrange the species in tabular form, including those found at Youngstown on May 12, when an all day study was made by Messrs. Fordyce, Jones, de Laubenfels, Leedy, Murie, Rogers, Todd, Warner, and Young. In this study the parks, woods and artificial lakes in the region of Youngstown were visited. The day was fair, with little wind.

	Oberlin May 8	Oberlin May 15	Youngstown May 12
Pied-billed Grebe	1		1
Loon			3
Herring Gull	c	c	
Ring-billed Gull	3	3	

	Oberlin May 8	Oberlin May 15	Youngstown May 12
Bonaparte Gull	3	2	
Caspian Tern	2	1	
Common Tern	c	c	
Black Tern	6	20+	7
Merganser			1
Mallard			1
Black Duck		2	1
Lesser Scaup Duck	7	20+	50+
Old-Squaw			1
Ruddy Duck	1		1
Bittern	1	1	1
Least Bittern	3	7	1
Great Blue Heron	1	1	
Green Heron	5	3	10+
Black-Crowned Night Heron	1		
Virginia Rail	1		1
Sora	3	3	1
Florida Gallinule	3	4	1
Coot	3	1	2
Woodcock	1	1	
Least Sandpiper		10+	2
Baird's Sandpiper			3
Red-backed Sandpiper		3	
Semipalmated Sandpiper		1	6
Sanderling		1	
Greater Yellow-legs	2		16
Yellow-legs		1	1
Solitary Sandpiper	10	4	5
Upland Plover	4		1
Spotted Sandpiper	c	c	c
Killdeer	4	7	10+
Semipalmated Plover		7	
Piping Plover	4	4	
Bob-white	4	3	2
Ruffed Grouse			1
Mourning Dove	c	c	10+
Turkey Vulture	3	1	1
Marsh Hawk	4	3	4
Sharp-shinned Hawk	3	c	
Cooper Hawk		1	
Red-tailed Hawk	2		2
Red-shouldered Hawk	3	1	4
Broad-winged Hawk			3
Bald Eagle	1	1	
Sparrow Hawk	1	2	2
Osprey	1		1
Barred Owl	2	2	
Screech Owl	1	1	1
Yellow-billed Cuckoo		3	
Black-billed Cuckoo		2	
Belted Kingfisher	2	3	3
Hairy Woodpecker	2		4

	Oberlin May 8	Oberlin May 15	Youngstown May 12
Downy Woodpecker	6	2	c
Yellow-bellied Sapsucker			3
Red-headed Woodpecker	c	c	c
Red-bellied Woodpecker	2		4
Northern Flicker	c	c	c
Whip-poor-will	3	1	3
Nighthawk	1	3	3
Chimney Swift	c	c	c
Ruby-throated Hummingbird	3	3	
Kingbird	10+	10+	10+
Crested Flycatcher	5	7	10+
Phœbe	7	9	5
Wood Pewee	1	4	5
Acadian Flycatcher			4
Alder Flycatcher		2	
Least Flycatcher	c	c	c
Prairie Horned Lark	3	2	2
Blue Jay	c	c	10+
Crow	c	c	c
Bobolink	c	c	c
Cowbird	c	c	10+
Red-winged Blackbird	c	c	c
Meadowlark	c	c	c
Orchard Oriole	c	c	1
Baltimore Oriole	c	c	c
Rusty Blackbird	3		
Bronzed Grackle	c	c	c
Purple Finch	10+	7	2
Goldfinch	c	c	c
Pine Siskin	2		
Vesper Sparrow	c	c	c
Savanna Sparrow	3	1	2
Grasshopper Sparrow	3	2	1
Lark Sparrow	1		
White-crowned Sparrow	10+	10+	3
White-throated Sparrow	c	c	c
Chipping Sparrow	c	c	5+
Field Sparrow	c	c	c
Slate-colored Junco		1	1
Song Sparrow	c	c	c
Lincoln's Sparrow	2	1	
Swamp Sparrow	3	7	3
Towhee	c	c	c
Cardinal	c	c	10+
Rose-breasted Grosbeak	10+	1	c
Indigo Bunting	5+	10+	2
Scarlet Tanager	10+	10+	20+
Purple Martin	c	c	c
Cliff Swallow	3	2	2
Barn Swallow	c	c	c
Tree Swallow	10+	5+	4
Bank Swallow	c	c	c

	Oberlin May 8	Oberlin May 15	Youngstown May 12
Rough-winged Swallow	c	c	20+
Cedar Waxwing	10	7	
Migrant Shrike	1	1	1
Red-eyed Vireo	c	c	10+
Philadelphia Vireo		1	
Warbling Vireo	c	c	10+
Yellow-throated Vireo	6	7	10+
Blue-headed Vireo	7	5	5
Black and White Warbler	c	1	10+
Prothonotary Warbler		1	
Blue-winged Warbler	4	1	4
Golden-winged Warbler		1	
Nashville Warbler	c	c	c
Orange-crowned Warbler	1		4
Tennessee Warbler	4	c	c
Northern Parula Warbler	1	1	5
Cape May Warbler		10+	10+
Yellow Warbler	c	c	c
Black-throated Blue Warbler	c	c	10+
Myrtle Warbler	c	5+	10+
Magnolia Warbler	c	c	c
Cerulean Warbler	10+	1	10+
Chestnut-sided Warbler	c	c	c
Bay-breasted Warbler		c	2
Black-poll Warbler	1	1	
Blackburnian Warbler	c	c	c
Black-throated Green Warbler	c	c	10+
Palm Warbler	3	3	
Prairie Warbler	2	2	
Yellow-breasted Chat			1
Oven-bird	c	c	c
Water-Thrush	10+	10+	5
Louisiana Water-Thrush	2	3	5+
Mourning Warbler		1	
Maryland Yellow-throat	c	c	10+
Hooded Warbler	1		
Wilson's Warbler		4	
Canada Warbler		10+	4
Redstart	c	c	c
Pipit	50+		
Catbird	c	c	c
Brown Thrasher	c	c	10+
House Wren	c	c	10+
Winter Wren	1		
Long-billed Marsh Wren	4	10+	1
Brown Creeper	1		
White-breasted Nuthatch	3	2	10+
Red-breasted Nuthatch	7	1	10+
Tufted Titmouse	5+	5+	10+
Chickadee	3	2	4
Golden-crowned Kinglet			1
Ruby-crowned Kinglet	c	2	10+

	Oberlin May 8	Oberlin May 15	Youngstown May 12
Blue-gray Gnatcatcher	3	2	3
Wood Thrush	c	c	c
Veery	c	c	c
Gray-cheeked Thrush	1	4	10+
Olive-backed Thrush	c	c	c
Hermit Thrush	1	1	
Robin	c	c	c
Bluebird	c	c	10+
	137	138	130

Nordhoff and Tea Neck (Phelps Estate), N. J., and Nyack and Hook Mountain, N. Y., May 14, 1916, 7:30 a. m. to 5:30 p. m. Cloudy, with occasional light showers; wind, southwest and light. Temperature 60° to 70°. Companion in field, B. S. Taubenhaus, New York City.

Green Heron, 1; Wilson Snipe, 1; Spotted Sandpiper, 1; Marsh Hawk, 1; Broad-winged Hawk, 1; Yellow-billed Cuckoo, 5; Black-billed Cuckoo, 1; Belted Kingfiisher, 1; Downy Woodpecker, 3; Flicker, 40; Chimney Swift, 350; Kingbird, 20; Crested Flycatcher, 12; Phœbe, 2; Wood Pewee, 2; Least Flycatcher, 5; Blue Jay, 10; American Crow, 75; Fish Crow, 1; Starling, 150; Bobolink, 15; Cowbird, 13; Redwings, 75; Meadowlark, 8; Orchard Oriole, 2; Baltimore Oriole, 50; Purple Grackle, 150; Bronzed Grackle, 25; Purple Finch, 1; American Goldfinch, 150; Vesper Sparrow, 1; Grasshopper Sparrow, 5; White-crowned Sparrow, 3; White-throated Sparrow, 25; Chipping Sparrow, 75; Field Sparrow, 15; Song Sparrow, 250; Swamp Sparrow, 10; Towhee, 8; Rose-Breasted Grosbeak, 40; Indigo Bunting, 1; Scarlet Tanager, 75; Cliff Swallow, 10; Barn Swallow, 150; Tree Swallow, 700; Bank Swallow, 15; Red-eyed Vireo, 6; Warbling Vireo, 2; Yellow-throated Vireo, 5; Black and White Warbler, 25; Blue-winged Warbler, 5; Parula Warbler, 15; Yellow Warbler, 50; Black-throated Blue Warbler, 7; Myrtle Warbler, 75; Chestnut-sided Warbler, 10; Blackpoll Warbler, 1; Black-throated Green Warbler, 15; Ovenbird, 75; Maryland Yellowthroat, 15; Yellow-breasted Chat, 4; Hooded Warbler, 4; American Redstart, 40; Brown Thrasher, 5; Catbird, 40; House Wren, 10; Long-billed Marsh Wren, 25; Wood Thrush, 15; Wilson Thrush, 10; Grey-cheeked Thrush, 6; Olive-backed Thrush, 5; Robin, 400; and Bluebird, 2. Seventy-three species.

LOUIS S. KOHLER.

Bloomfield, N. J.

PLAINFIELD, N. J., MID-MAY BIRD CENSUS, 1916.

W. DEW. MILLER AND CHARLES H. ROGERS.

Will the reader please turn to his copy of the WILSON BULLETIN for September, 1915, and make the following additions to our article beginning on page 403: Insert "May 17, 1914; May 16, 1915," between the title and our names; add "Nighthawk, 9" to the 1914 column; and prefix "Black-capped" to "Chickadee" toward the end of the list. Plainfield is but a few miles north of the Black-capped-Carolina Chickadee boundary.

On May 14, 1916, we started at 3:45 a. m. from East 7th Street and followed the same route as in the two previous years (northward across the city and deviously through and over the Watchung Mountains via Union Village to the Passaic River and up its south bank) to a point about three quarters of a mile below the Dead River; it was then about 7:30 p. m. and rapidly becoming so dark that we took a short cut by road to the road by which we have regularly returned through Mt. Bethel to North Plainfield, which we reached in time for the 9:30 car. The distance covered, not counting the more intricate of our windings, was about eighteen and one half miles, as against about twenty miles in 1914. Weather fine the first three and one half hours, cloudy from 7:30 a. m., brief light showers after dark; moderate southeast wind; 47° at start, 53° at return.

Our list of birds was 99 fully identified species, but if we did not break our record for the total (104 in 1914), we did for *Mniotiltidæ*, as we noted every species found the two previous years, and two more, Golden-winged and Prairie, making 26. This was in spite of the fact that only 265 of the 1090 individuals listed were warblers, compared with 334 out of 1112 in 1914. The unusual abundance of Solitary and Spotted Sandpipers, Rose-breasted Grosbeaks, Scarlet Tanagers and Northern Water-Thrushes helped swell our total. The most noteworthy species was the Mockingbird, W. DeW. M's. second record for the region. The number of Tennessee Warblers was greater than the number of those either of us had observed in all our previous springs' bird study. The Woodcock was singing, an unusually late record. Each of us noted every species mentioned; individuals recorded as before.

While several species are on our list by sheer good luck, poor luck contributed to our not breaking our record, especially in not seeing a Green Heron or a Kingfisher, although we were following water courses nearly all day. The entire absence each of the three years of the Green Heron and the White-eyed Vireo from the several miles of Passaic Valley covered is remarkable.

Black-crowned Night Heron, 2; American Woodcock, 1; Least Sandpiper, 1; Solitary Sandpiper, 28; Spotted Sandpiper, 31; Killdeer, 2; Mourning Dove, 5; Cooper's Hawk, 1; Red-shouldered Hawk, 1; American Sparrow Hawk, 3; American Osprey, 1; Yellow-billed Cuckoo, 1; Hairy Woodpecker, 1; Downy Woodpecker, 9; Northern Flicker, 11; Whip-poor-will, 4; Chimney Swift, 58; Kingbird, 9; Crested Flycatcher, 6; Phœbe, 12; Wood Pewee, 7; Yellow-bellied Flycatcher, 2; Chebec, 5; Blue Jay, 24; American Crow, 22; Starling, 11; Bobolink, 3; Cowbird, 3; Red-winged Blackbird, 5; Meadowlark, 10; Baltimore Oriole, 12; Orchard Oriole, 2; Purple Grackle, 11; Purple Finch, 3; House Sparrow, 34; American Gildfinch, 25; Vesper Sparrow, 3; Grasshopper Sparrow, 4; Henslow's Sparrow, 1; White-throated Sparrow, 9; Chipping Sparrow, 22; Field Sparrow, 23; Song Sparrow, 66; Swamp Sparrow, 8; Towhee, 13; Cardinal, 1; Rose-breasted Grosbeak, 18; Indigo Bunting, 7; Scarlet Tanager, 20; Purple Martin, 3; Barn Swallow, 25; Tree Swallow, 3; Rough-winged Swallow, 10; Cedar Waxwing, 11; Red-eyed Vireo, 19; Warbling Vireo, 3; Yellow-throated Vireo, 3; Solitary Vireo, 2; White-eyed Vireo, 1; Black and White Warbler, 12; Worm-eating Warbler, 4; Blue-winged Warbler, 12; Golden-winged Warbler, 3; Nashville Warbler, 3; Tennessee Warbler, 6; Northern Parula Warbler, 12; Cape May Warbler, 2; Yellow Warbler, 2; Black-throated Blue Warbler, 10; Myrtle Warbler, 16; Magnolia Warbler, 12; Chestnut-sided Warbler, 10; Bay-breasted Warbler, 9; Black-poll Warbler, 15; Blackburnian Warbler, 5; Black-throated Green Warbler, 3; Prairie Warbler, 1; Ovenbird, 34; Northern Waterthrush, 23; Louisiana Waterthrush, 1; Maryland Yellowthroat, 38; Yellow-breasted Chat, 1; Wilson's Warbler, 2; Canada Warbler, 13; American Redstart, 16; Mockingbird, 1; Catbird, 21; Brown Thrasher, 1; House Wren, 4; Long-billed Marsh Wren, 1; White-breasted Nuthatch, 5; Tufted Tit, 3; Black-capped Chickadee, 3; Wood Thrush, 12; Veery, 17; Gray-cheeked Thrush, 2; Olive-backed Thrush, 5; American Robin, 103; Bluebird, 4.

Hillsboro, O., May 15, 1916.

Five to eight-thirty a. m. Early morning clear, becoming cloudy about seven o'clock. Pleasant, with a very slight wind. Wood Thrush, 6; Hermit Thrush, 1; Robin, 25; Bluebird, 8; Tufted Titmice, 4; Black-capped Chickadee, 6; Catbird, 8; Brown Thrasher, 16; Carolina Wren, 1; Black and White Warbler, 1; Warbling Vireo, 1; Cedar Waxwing, 6; Bank Swallow, 1; Tree Swallow, 1; Indigo Bunting, 3; Cardinal, 5; Towhee, 7; Song Sparrow, 12; Field Sparrow, 20; Chipping Sparrow, 2; White-throated Sparrow, 1; Vesper Sparrow, 2; Goldfinch, 7; Bronzed Grackle, 15; Baltimore

Oriole, 2; Meadowlark, 10; Red-winged Blackbird, 15; Cowbird, 10; Red-headed Woodpewee, 8; Phœbe, 2; Crested Flycatcher, 6; Kingbird, 2; Crow, 10; Blue Jay, 15; Red-headed Woodpecker, 16; Red-bellied Woodpecker, 2; Flicker, 15; Yellow-billed Cuckoo, 2; Black-billed Cuckoo, 1; Sharp-shinned Hawk, 1; Turkey Vulture, 1; Mourning Dove, 15; Bobwhite, 3; Kildeer, 3. 44 species, 298 individuals.

KATIE M. ROADS.

LaGrange, Ill., May 6, 1916.

Temperature 65-75. Fair, with wind in the morning, cloudy; light rain and no wind in the afternoon. Time, 4:00-7:00+ 7:30-9:00+1:00-2:00+4:00-6:00. Eight hours. Places visited in order named: North woods, Hinsdale swamp, Riverside, and Jackson Park.

Pied-billed Grebe, 4; Herring Gull, 5; Bonaparte Gull, 6; Forster Tern, 1; Black Tern, 3; Blue-winged Teal, 4; Lesser Scaup Duck, 5; Old-squaw, 1; Bittern, 2; Green Heron, 1; King Rail, 2; Sora, 15; Coot, 10; Wilson Snipe, 1; Spotted Sandpiper, 2; Solitary Sandpiper, 2; Killdeer, 1; Mourning Dove, 4; Sparrow Hawk, 1; Belted Kingfisher, 4; Hairy Woodpecker, 1; Downy Woodpecker, 6; Red-headed Woodpecker, 10; Flicker, 25; Chimney Swift, 35; Kingbird, 1; Crested Flycatcher, 1; Phœbe, 1; Prairie Horned Lark, 12; Blue Jay, 20; Crow, 30; Bobolink, 12; Cowbird, 18; Red-winged Blackbird, 200; Meadowlark, 20; Baltimore Oriole, 10; Bronzed Grackle, 100; Goldfinch, 20; Vesper Sparrow, 2; White-Crowned Sparrow, 1; White-throated Sparrow, 50; Chipping Sparrow, 5; Field Sparrow, 15; Song Sparrow, 18; Swamp Sparrow, 1; Towhee, 15; Cardinal, 6; Rose-breasted Grosbeak, 8; Scarlet Tanager, 2; Purple Martin, 50; Cliff Swallow, 2; Barn Swallow, 3; Tree Swallow, 17; Bank Swallow, 12; Cedar Waxwing, 35; Red-eyed Vireo, 3; Warbling Vireo, 1; Black and White Warbler, 50; Prothonotary Warbler, 1; Golden-winged Warbler, 2; Nashville Warbler, 1; Parula Warbler, 6; Yellow Warbler, 10; Black-throated Blue Warbler, 2; Myrtle Warbler, 50; Magnolia Warbler, 20; Chestnut-sided Warbler, 15; Bay-breasted Warbler, 1; Blackburnian Warbler, 12; Black-throated Green Warbler, 35; Pine Warbler, 3; Palm Warbler, 40; Oven-bird, 1; Maryland Yellow-throat, 2; Redstart, 8; Catbird, 15; Brown Thrasher, 50; House Wren, 20; Long-billed Marsh Wren, 5; Red-breasted Nuthatch, 20; Brown Creeper, 2; Chickadee, 10; Golden-crowned Kinglet, 5; Ruby-crowned Kinglet, 8; Wood Thrush, 10; Veery, 5; Gray-cheeked Thrush, 6; Olive-backed Thrush, 4; Hermit Thrush, 10; Robin, 30; Bluebird, 5. Total, 91 species, 1291 individuals.

LaGrange, Ill. SIDNEY WADE.

Hinsdale, Ill., May 26, 1916.

Time, 10 a. m. to 1 p. m., in the woods. A drive of ten miles through prairie country to a swamp, 2:30 p. m. to 5 p.m. Weather clear, no wind, very warm, 80° to 85°. Robins, Bronzed Grackles, Meadow Larks, Bobolinks and Red-winged Blackbirds, too abundant to count. Have counted them as fifty each, which is underestimated if anything, especially the Red-wing Blackbirds.

Pied-billed Grebe, 1; Bittern, 1; Least Bittern, 4; Green Heron, 1; Black-crowned Night-Heron, 1; Virginia Rail, 2; Sora Rail, 1; Florida Gallinule, 2; Coot, 8; Upland Plover, 1; Spotted Sandpiper, 2; Black-bellied Plover, 2; Killdeer, 4; Bob-white, 2; Mourning Dove, 8; Marsh Hawk, 1; Yellow-billed Cuckoo, 4; Black-billed Cuckoo, 4; Belted Kingfisher, 2; Hairy Woodpecker, 1; Red-headed Woodpecker, 12; Flicker, 14; Nighthawk, 1; Chimney Swift, 15; Kingbird, 24; Crested Flycatcher, 1; Phœbe, 2; Olive-sided Flycatcher, 3; Wood Pewee, 4; Yellow-bellied Flycatcher, 3; Acadian Flycatcher, 2; Traills Flycatcher, 3; Least Flycatcher, 6; Prairie Horned Lark, 4; Blue Jay, 2; Crow, 7; Bobolink, 50; Cowbird, 24; Red-wing Blackbird, 50; Meadow Lark, 50; Baltimore Oriole, 6; Bronzed Grackle, 50; Goldfinch, 4; Vesper Sparrow, 6; Grasshopper Sparrow, 6; Field Sparrow, 1; Song Sparrow, 20; Lincoln's Sparrow, 2; Swamp Sparrow, 2; Cardinal, 2; Rose-breasted Grosbeak, 4; Indigo Bunting, 2; Dickcissel, 8; Scarlet Tanager, 2; Purple Martin, 20; Barn Swallow, 7; Cedar Waxwing, 50; Red-eyed Vireo, 20; Warbling Vireo, 1; Black and White Warbler, 1; Yellow Warbler, 4; Black-throated Blue Warbler, 1; Magnolia Warbler, 12; Chestnut-sided Warbler, 2; Bay-breasted Warbler, 8; Black-poll Warbler, 24; Black-throated Green Warbler, 1; Oven Bird, 2; Water Thrush, 2; Connecticut Warbler, 2; Mourning Warbler, 4; Northern Yellow-throat, 10; Wilson's Warbler, 4; Canada Warbler, 6; Redstart, 15; Catbird, 16; Brown Thrush, 2; House Wren, 15; Short-billed Marsh Wren, 10; Long-billed Marsh Wren, 18; Wood Thrush, 4; Veery, 2; Gray-cheeked Thrush, 1; Olive-backed Thrush, 8; Robin, 50; Blue Bird, 8. 86 species, 777 individuals.

MRS. C. E. RAYMOND.

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Editor "The Wilson Bulletin": Lynds Jones, Spear Laboratory, Oberlin, Ohio.

EDITORIAL

As a result of negotiations begun in the early part of 1915 word has recently been received by officers of the Wilson Club that this organization has been accepted as one of the scientific societies in affiliation with the American Association for the Advancement of Science. The value and significance of this relation will be appreciated by all of our members. When meetings of the American Association occur within the territory of the Wilson Club it will be well for us to endeavor to hold our meeting in conjunction with them. The advantage at such a time and place was shown to those who attended the Columbus meeting last December. From one to two thousand scientific men coming together affords an inspiration and stimulus of the greatest value.

The editor will leave Oberlin on June 15 with a class of students for the purpose of studying the northern half of the coast of the state of Washington. He will return about the first of Septem-

ber. Mail should be addressed to the Oberlin office during this time, and will receive attention there.

Several May lists of birds arrived too late to be included among those which appear in this number. They will be published in the September number. These lists give evidence that there was an unusual warbler movement in the central districts during the first half of May.

We are pleased to notice that the University of Michigan will conduct a Biological Station at Douglas Lake, some seventeen miles south of the Straits of Mackinac, during the eight weeks from July 3 to August 25, inclusive. The work will cover the Natural History of the region. Dr. Reuben Myron Strong, of the University of Mississippi, will have charge of Ornithology. Dr. Otto Charles Glaser, of the University of Michigan, Ann Arbor, is the Director. The Station is fully equipped for the work which it undertakes, and will prove unusually attractive to those who wish to acquaint themselves with the living things in their natural environment.

We know all too little about the food and food habits of birds, less even about the food and feeding habits of nestlings, and still less about the percentage of mortality of nests, eggs, and adults during the season of nesting. These are problems which can be best worked out in the late spring and summer seasons. Every season should witness progress along these lines. We hope that this season may be more than usually fruitful of facts gathered.

GENERAL NOTES

NOTES ON SOME OHIO BIRDS.

(Read before the Wilson Ornith. Club meeting, Dec. 29, 1915.)

From my notebooks I want to give the following records, which may prove interesting to Ornithologists, not only to those residing in Ohio, but also to others living in the Middle West.

Hesperiphona vespertina (Evening Grosbeak). This bird was observed on March 7th and March the 10th, 1912. It was seen at the same place where a few years previous I noticed the Bohemian Waxwing. Records for this species are scarce as far as Ohio is concerned, as it seems to come to the state about once in twenty years, and although in 1912 it was seen at various places in the state, New Bremen adds a new station for Ohio.

Nutallornis borealis (Olive-sided Flycatcher). A similar observation as that recorded in the Oölogist for December, 1914, was experienced by the writer on October 11th, 1911, about five miles west of New Bremen. In the dry tops of two large trees about 17 meters apart from another, there were two specimens of this species. While the one sat perfectly motionless preening its feathers occasionally, the other one began to fly upward in very short spirals and then to descend in a number of jerky drops with quickly expanded and closed wings. After doing this a number of times it finally flew so high that it disappeared from sight altogether and it did not return at all.

Archibuteo l. sancti-johannis (Rough-legged Hawk). This Hawk was observed on February 18th, 1914. It seems to come to Ohio only in years with a very heavy snowfall.

Helmitheros vermivorus (Worm-eating Warbler). On May 16th, 1914, I saw a specimen of this species about a block away from my house. It was under observation for half an hour and sang briskly during all this time. This is the first record for Western Ohio.

Circus hudsonius (Marsh Hawk). For the first time I am able to record the breeding of this hawk in this region. A nest with five young and one egg was run over by a mowing machine in a clover field on June 16th, 1914, near the St. Mary's Reservoir. The young were cut to pieces and the egg crushed, but there was enough there to identify it after my return from Wyoming, June 23.

Pandion haliaëtus carolinensis (Osprey). On June 6th, 1913, I saw a fine specimen of this species catching a fish at the Grand or St. Mary's Reservoir and flying to a large tree on the east side of the reservoir I saw the nest there too, but it was too dangerous for me to climb up to it and as I saw the nest contained young it was useless anyhow. This is the first time to my knowledge that

the Osprey has ever bred here, while on the south side of the reservoir a pair of Bald Eagles has its nest most every year.

Somewhat peculiar conditions exist in this region anyhow. Thus the Chat (*Icteria virens*), the Catbird (*Dumetella carolinensis*), and the Yellow Warbler (*Dendroica æstiva*) are very rare as breeders and not common as migrants in the Grand Reservoir region, while at the Loramie Reservoir, 13 miles from the Grand in a southeasterly direction, the Catbird is fairly common. In the year 1915, in the spring, there was almost no water in the reservoirs and consequently not a Least Bittern, King Rail or Marsh Wren nested there, the only nest of the King Rail being found almost at the edge of town near the canal. It contained eleven eggs. In the fall the water was higher than for years and the shorebirds found no mudflats and sandbanks to rest and to feed on, most of the species recorded being found in wet or marshy fields scattered all over the territory.

Larus delawarensis (Ring-billed Gull). A solitary individual of this species was seen at the Grand Reservoir on May 11th, 1915. It is rarely seen in Ohio.

Creciscus jamaicensis (Black Rail). On June 23, 1915, at the Grand Reservoir, near the outlet of the Chickasaw creek, at the same place where a Mr. McGill of St. Mary's claimed to have seen this species a few years ago, I kicked an individual of this species out of the dense grass. I tried to follow it and caught two more glimpses of it, but it was too quick to place a shot and crept through the grass with the agility of a mouse. I have followed the various species of Sparrows through the grass and cloverfields many a time, but I believe this rail has them all beaten. While it is true that I was not able to shoot a specimen there is no doubt in my mind that I had the Black Rail before me. As it is, however, I give the record for what it is worth and hope to be able in the future to secure a specimen.

Coturnicops noveboracensis (Yellow Rail). While at the Grand Reservoir on September 1st, 1915, two farmer boys at my stopping-place asked me: "What kind of a bird looks like a female Bobolink and has longer legs? While turning over some newly mown clover yesterday we would chase out some of these birds from under the clover heaps. They did not care to fly, but would run under the next heap." They claimed they had seen at least 6-8 of them. The weather had been raw and chilly for three days. I immediately went down to the field and turned over, with their help, every heap of clover, but not a bird was seen. But I finally was lucky enough to find a few feathers, a piece of the bill and piece of a leg of an unfortunate one who had fallen a victim to some hawk. I took them along home and could identify the re-

mains there as those of the Yellow Rail. The weather had evidently sent them forth on their migration.

Dolichonyx oryzivorus (Bobolink). On June 23, 1915, at the same place as recorded under the Yellow Rail, one of the boys asked me whether the Bobolink always nested down in the clover. I said no, they often nest in clumps of ragweeds such as this one. With these words I poked the barrel of my gun through the wire fence into a clump of ragweeds, when up went a bird. It seemed too little for a Bobolink, so I quickly collected the only male that was hovering around, with one barrel and the female with the other one. Both specimens are small birds, as the following measurements show: ♂, length 158mm, bill 11mm, wing 94mm, tarsus 22mm, tail 61mm; ♀, length 147mm, bill 11mm, wing 85mm, tarsus 21mm, tail 57mm. The nest was abnormal. Mr. Gerald Alan Abbott, the well known Oölogist, says it reminds him of the nest of the Lazuli Bunting and that he has seen one nest of the Dickcissel similar to it. The eggs are still more abnormal. At a first glance it looks as if you had four rather large Field Sparrow eggs before you and it is only after a close examination that you begin to see that there is still some of the characteristic Bobolink coloration to be found. Professor Lynds Jones says they are all four runts. When blown the eggs showed a little blood, thus proving that these eggs were fertile. The measurement is 18.5x13.5; 17.5x13; 17x13.5; 17.5x14.

It is to me the most perfect and interesting case of abnormality of individual aberration. However, the members of the Wilson Club may think differently and have here at this, their third annual meeting, a splendid opportunity to distinguish themselves by creating a new sub-species. (The birds, nest and eggs were placed on exhibition for the members of the club and they all agreed that it was one of the most peculiar things they had ever seen, and Dr. Swope of Cincinnati, President of The Ohio Audubon Societies, stated that the killing of the birds, the taking of nest and eggs was certainly most justifiable under the circumstances.)

W. F. HENNINGER.

NOTES ON THE BARN SWALLOW.

DURING the spring and summer of 1915, three pairs of Barn Swallows nested in the farm buildings of our home, and all three pairs failed to raise any young.

The first pair that arrived occupied an old nest in a cow stable on May 23. This pair was driven away by House Wrens which, on June 25, occupied the swallow's nest, and afterwards raised a brood of young. Another pair patched up an old nest in a scale

shed, and I hoped they would raise a brood of young, but for some reason, after occupying their nest a short time, they abandoned it. A pair of House Wrens nested in a box on the outside of the shed, and they might have punctured some of the swallow's eggs, causing them to leave, or they might have been frightened away, as there was much weighing done on the scales below their nest. After the swallows had left, their nest was examined and one unfertile egg was found in it.

The third pair arrived about the middle of June, and for several days were seen examining all the buildings about the place, looking for a nesting site. They finally selected an old chicken house in which to build their nest. Over the door of the chicken house there is a large opening, which is left open during the summer, and through which the swallows passed. The site of the nest was in the top where the rafters meet, about fifteen feet from the ground. Every evening, when gathering the chicken eggs, I would look up to see how the swallows were progressing with the building of their nest. On June 29 I saw that the nest was done. The next evening, when looking up at the nest, it appeared as if one of the swallows was clinging to the under side of the nest, but on looking closer I saw that the swallow was free from the nest and dangling in the air below it. I then knew that the swallow was tangled up in the nesting material, but hoped that it might yet be alive. I quickly procured a ladder and on it climbed to the nest. My hopes were in vain, as when the nest was reached the swallow, a beautiful male, was already dead. In building their nest the swallows had used much horse hair for nesting material, and with one of these the swallow had accidentally hung itself. One end of a long hair was wrapped around its neck twice, and also around one wing; the other end was plastered into the nest, a strong pull being necessary to get it loose. I thought surely the female swallow would leave after such a tragedy, but a few days later was surprised to see her sitting on the nest. I also saw her flying about with another swallow, but do not know whether it was a new mate, or if the one that hung itself belonged to another pair. Every evening, when I entered the chicken house, she would leave her nest and fly out. This was kept up until July 24, after which date she was never seen on her nest, or in the chicken house. The nest was examined on August 19, when one unfertile egg was found in it.

The swallows, after leaving, or being driven from their nests, could be seen nearly every day flying over the fields and meadows catching flies. During September, a few weeks before departing for their winter homes, they would come into the barn yard every

day and fly about the buildings in which their nests were located, but would never enter them. The weather for this vicinity on October 7 and 8, was cold and blustery. There was a high northwest wind and the temperature was near the freezing point. On these two days a flock of about 100 Tree Swallows stayed here, flying low over the pastures which, on account of the excessive rains we had during the summer, were grown up with ragweeds. Sometimes the swallows would settle down into the weeds and could be seen fluttering about as if catching flies and other insects, which were probably benumbed by the cold. In flying about the swallows would come very close to where I was working, giving me a good opportunity to identify them.

With this flock of Tree Swallows were seen on each day two Barn Swallows, which was quite a surprise to me, as my record of the last ones seen for 1914, was nearly a month earlier. Following is my record of the migration of the Barn Swallow for the last two years:

1914, first seen April 30; becomes common May 2; last seen September 9. 1915, first seen April 26; becomes common May 8; last seen October 8.

J. J. SCHAFER.

Port Byron, Ill.

ONE HUNDRED AND THIRTY-TWO VERNACULAR NAMES FOR THE FLICKER.

IN my former compilation (Wilson Bulletin, No. 31, pp. 4-12) I have included 123 local names, many being "very local or very slight orthographical or cacographical varients"; and for convenience of reference I now bring the nine additional aliases together. My former list included all of Ernest Ingersoll's Forest and Stream enumeration, and I am pleased to have conformation of the late W. W. Colburn's contribution, "Willcrisson," cited for the Dismal Smamp region, by W. L. McAtee, who has found it used on Church Island, N. C., and to quote his words: "Such instances renew one's faith in the accuracy of observation and the reliability of spoken words of unlettered people."

Dishwasher, Maryland (Barton's Fragments of Natural History of Pennsylvania, p. 15). This name is also applied to the Pied Wagtail in some parts of England, according to Montagu and Newton.

Cotton-backed Yellowhammer, Florida, "The prefix to distinguish it from the Red-bellied Woodpecker, which is sometimes called the 'Yellowhammer,'" (Wil. Bul. No. 71, p. 127).

Flecker, Pennsylvania (Barton's Frag. Nat. Hist. Pa., p. 1).

Flicca (Stone, Bird Migration Records of William Bartram, Auk, xxx, 1913, 341).

Flying Auger, Martha's Vineyard, Mass. (McAtee, Local Names of Water Fowl and Other Birds, p. 19).

Golden-Headed Woodpecker or Yellowhammer (Hurst's New Nuttall's Dictionary, Suppli., p. 871). Citation by Miller, Oologist, xxxi, p. 10. A book name that I was inclined to reject as a typographical error, but after all, it is no more ridiculous than some other names in current use.

Graywacker, Eastern Shore of Maryland (Oberholser), (McAtee, *Ibid.*).

Looping Bird, Church's Island, N. C. (McAtee, *Ibid.*).

Rampike, Newfoundland (Montreal Family Herald and Weekly Star, Oct. 18, 1911). For which I am under obligations to Mr. McAtee. F. L. Burns.

Berwyn, Pa.

THE NEST LIFE OF THE WESTERN HOUSE WREN.

(Abstract.)

Read before Wilson Ornithological Club, third annual meeting, Columbus, Ohio, 1915.

BY ALTHEA R. SHERMAN.

Studies of the behavior outside of the nest of *Troglodytes aëdon parkmani* were made for the most part from birds nesting in boxes in various places in the yard, and the inner activities of its home were studied through peepholes that commanded views of the inside of nests, situated in a barn. From these vantage points was watched the progress of the nests from their building, until they were deserted by the young. The duration of the nest period, as is the case with other species, is subject to considerable variation, the average time for nest occupation, counting from the depositing of the first egg, has been found to be thirty-two days.

There has existed among ornithologists a general misconception relating to the amount of light the nest receives through the hole. A mere glance into the boxes provided with peep-holes is sufficient to convince any one that the illumination of the nest is ample, and differs little in intensity from the lighting of most of our living-rooms.

To feed and care for all the nestlings alike is the normal conduct of a bird, and the abnormal happens, when a portion of a brood thrives vigorously, while others die from starvation. Deaths from starving in the nest of the Western House Wren were noted to result from causes very different from those that brought death to the young of the Northern Flicker.

THE NORTHERN PILEATED WOODPECKER AND PINE GROSBEAK IN NORTHWESTERN OHIO.

The Pileated Woodpecker is quite common in Ashtabula County, Ohio. I have also found it in the adjoining counties of Lake and Trumbull. In Ashtabula County I have found it nesting in the townships of Harpersfield, Morgan and Austinburg. In the heavily timbered portions of the county the bird is more plentiful. I have never known of one using the same nesting site in two successive years. The nests I have found have all been near the top of tall stubs. This season there is one in an old beach about thirty-five feet high. At least three weeks were required to excavate the site. On still mornings I have heard them drumming at a distance of over half a mile.

On April 21, in the woods in Austinburg, I saw a flock of twelve Pine Grosbeaks. They seemed to be feeding on the seeds of a tulip tree. On the 23 I again saw five more. This is the first time I have seen this bird in the county.

Austinburg, O. S V. WARREN.

RED PHALAROPE IN SOUTH DAKOTA.

(A Correction.)

In the Wilson Bulletin, XXVI, June, 1914, page 103, the Red Phalarope (*P. fulicarius*) was reported as having been taken on a sandbar in the Missouri river a short distance below Sioux City, thus making the first record for Iowa. This was the first statement given to me by Mr. Anderson, and although he had corrected it before I sent the note for publication, the mistake was made through an error on my part. The fact is, the specimen was taken near McCook Lake, a few miles in the opposite direction, but across the line, in South Dakota. The record, then, belongs to the latter state. So far as I have been able to examine the literature relating to the birds of South Dakota, I find but one instance of the Red Phalarope having been taken; and this is recorded by Visher (1909) as having been taken near Rapid City, May 27, 1904, by Henry Behrens, in whose collection the specimen probably still remains.

Sioux City, Iowa. T. C. STEPHENS.

WREN NOTES.

The first item which I wish to record has to do with a peculiar assortment of nest material used by a pair of Western House Wrens; or rather, which was offered by the male to the female.

Miss Mabel Hoyt ,of Sioux City, made the observation, and has been kind enough to give me the facts.

In 1913 the wrens reared a brood in wren houses without any unusual incident. In 1914 a pair of wrens came to the same place and reared the first brood. At about this time the people put up a new swinging wren house, and a bluebird house in the back yard. The female selected the swinging house and began to carry nest material into it, which the male as promptly removed. The male also, in the meantime, had chosen the bluebird house, which he speedily filled to the door.

Finally the female gave up her efforts with the swinging box and departed, declining to accept the nest built by the male in the bluebird box. Late in August the owner cleaned out the bluebird house and found a strange assortment of hardware among the usual twigs of the nest. Such a curious assemblage of material in a nest was considered worthy of being photographed. Following is a list of material as sorted out:

1 hat pin, six and a half inches long.
1 buckle.
10 bits of chicken wire fence.
2 stays.
3 fasteners.
1 unidentified.
3 paper clips.
1 staple.
1 brass ring.
2 toilet wires.
6 collar stays.
2 oyster bucket handles.
1 part of mouse trap.
67 hair pins.
38 bits of wire.
5 safety pins.
3 steel pins.
22 nails.
3 brads.

Thus making a total of 172 pieces of metal used in the construction of this nest.

Another series of observations on the Western House Wren (*T. ae. parkmani*) was made by Miss Maude Merritt, of Ottumwa, Iowa, and may contain some points of interest. The account which follows is largely in her own words.

Two broods of wrens were raised in a bird house we had placed

on our house a short distance from a window. The first brood never appeared again after leaving the nest. A few days before the second brood left, something happened to the male parent, for he disappeared; and the female worked incessantly feeding the young ones.

On the second evening after their departure from the nest we were greatly surprised at the return of the mother bird with her brood of four young ones. Very near to the wren house there is a Syringa bush, which contained an empty catbird's nest, vacated earlier in the summer. So this evening, about sundown, when the wren family returned the little birds got into the catbird's nest and there spent the night. The next evening, much to our delight, they returned and spent the night in the catbird's nest as before. The entire family of four young ones returned with the mother each evening for fourteen days. On the fifteenth evening one of the young wrens was missing; on the next evening two did not return. And on the evening of the seventeenth day, after leaving the nest, the mother wren brought her one remaining young one back to the Syringa bush, and induced it to get into the catbird's nest. But the young bird seemed restless, and in a few minutes hopped out into the bush and flew away. The mother called repeatedly, hopping about in the bush and into the nest. Finally she seemed to realize the futility of her efforts and she left the bush not to return again.

The catbird's nest was not much over four feet from the window, so that it was possible for us to see very clearly what went on.

During the day nothing was seen of the brood. Back of the house there is a wooded ravine, and we believe that they followed this and flew some distance away. When they returned in the evening the mother bird would fly ahead from tree to tree, constantly calling to the young ones as they followed her. When they arrived at the bush, she would get down into the nest, and as soon as the young birds reached it, she would leave. Sometimes she would return to feed the young ones, but we never learned where she roosted.

MISS MAUDE MERRITT.

Ottumwa, Ia.

A PECULIAR HABIT OF THE HOUSE WREN.

That important discoveries in the sciences and eminent inventive ideas have occurred simultaneously in widely separated portions of the world is a well known fact. If a certain habit of

the House Wren has been described in ornithological literature prior to 1915, it has escaped my attention. When early in July of last year one of my neighbors related her observations of the previous evening they seemed to be quite unusual. A little before nightfall she saw a mother Wren carrying food into a hitherto untenanted box, that was filled with English Sparrow trash, and from which a narrow board was missing at the back. Moving noiselessly up to the box she found snuggled down for the night a brood of Wrens that had recently left their natal home in a nearby box. Following in point of time these observations were those of Miss Maude Merritt that are described in this number of the Wilson Bulletin. An examination of the pages of the "Annual of the Nature Study Society of Rockford, Illinois" shows that Mr. Paul B. Riis had made observations similar to those of the two Iowa ladies, which antedated theirs by one year at least. the following excerpts from his account have been taken:

"June 9th. Young hatched in split log. Papa Wren coming in for a great deal of scolding, apparently too clumsy to assist in feeding of young, although he had been permitted to feed Mamma Wren previous to the hatching. Sheepishly and somewhat nettled, he keeps guard over the Chickadee box, possibly for a want of better employment.

"June 26th. Three tiny Wrens emerge from split log, sleeping in bungalow-shaped house for several nights.

"July 1st. Mother Wren takes her babies to the country in the day time, bringing them home to sleep in the Chickadee box just before dark. . . ."

The roosting habits of the second brood of Wrens, under date of August 5th, Mr. Riis describes thus: "In four days after leaving the nest, the young ones were able to go to the country daily for an all day's outing, returning regularly at 7:00 p. m. for a week. The shelter selected by them for the night was a saucer-shaped robin box well under the eaves of the summer house and entirely hidden by vines. A sight it was, indeed, to see this flock of Wrens in their home coming."

Althea R. Sherman.

National, Iowa.

Minutes of the Seventeenth Annual Meeting of the Nebraska Ornithological Union

The seventeenth annual meeting of the Nebraska Ornithologists' Union was held at Omaha, Nebraska, Friday and Saturday, May 5 and 6, 1916. The annual banquet took place on May 5 at the Castle Hotel at 6:30 p. m., with over fifty members and their guests present. After the banquet a short business session was held, with President R. W. Dawson in the chair. The reports of the officers were received, and an Auditing Committee and a Nominating Committee were appointed, the former committee consiting of Miss Joy Higgins and Mrs. A. E. Sheldon, and the latter committee of Professor Lawrence Bruner and Miss Jeanette McDonald. Four new members were elected, namely, Miss Mary E. Foster, of Union; Mrs. Chas. W. McCaskill, of University Place; Miss E. Ruth Pyrtle and Mr. C. E. Mickel, of Lincoln. Miss Alice Hitte, a former member, who resigned in 1912, was, at her request, also reinstated to membership in the society, bringing the present total membership to forty.

The business session adjourned at 8:00 p. m. to allow the members to meet a few minutes later in the Council Chamber of the City Hall, where the public program of the evening was given before a large and interested audience. The program follows:

President's Address (illustrated)—A Review of Recent Studies of Bird Migration, Prof. R. W. Dawson, Lincoln.

Experiences with Teaching Bird Study to Small Children, Miss Laura M. Evans, Blue Springs.

The Fontenelle Forest Reserve—A Probable Future Bird Sanctuary, Dr. S. R. Towne, Omaha.

The Most Effective Methods of Protecting Birds, Mrs. G. A. Loveland, Lincoln.

After this program the reports of the Auditing and Nominating Committees were received. The following members were nominated and elected as officers for 1916:

President—Dr. R. H. Wolcott, Lincoln.

Vice-President—Miss Laura M. Evans, Blue Springs.

Secretary-Treasurer—Prof. M. H. Swenk, Lincoln.

Seventeen members were present at this session of the N. O. U., as follows: Mesdames W. F. Baxter, Joy Higgins, Alice Hitte, Jeanette McDonald, H. D. Neely, Elizabeth Rooney and Elizabeth Van Sant, and Mr. L. O. Horsky, of Omaha; Mesdames G. A. Loveland and A. E. Sheldon and Messrs. L. Bruner, R. W. Dawson, C. E. Mickel, M. H. Swenk and R. H. Wolcott, of Lincoln; Mrs. Lily

R. Button, of Fremont; Miss Laura M. Evans, of Blue Springs. Adjournment at 10:30 p. m.

On Saturday, May 6, the fourteenth annual field day of the N. O. U. was held in the Fontenelle Forest near Child's Point, south of Omaha. This excursion was participated in by about seventy persons, including the members of the N. O. U. and Nebraska Audubon Society and their guests. Starts were made by two principal groups of observers at 7:00 and 8:00 a. m., each of these groups subdividing into smaller parties of about a dozen each, and all of the parties meeting for a picnic dinner at "Coffin Springs" at 1:00 p. m. The total list of the day included seventy-five birds, as follows:

Bluebird, Robin, Olive-backed Thrush, Gray-cheeked Thrush, Willow Thrush, Wood Thrush, Blue-gray Gnatcatcher, Long-tailed Chickadee, White-breasted Nuthatch, Western House Wren, Carolina Wren, Brown Thrasher, Catbird, Redstart, Yellow-breasted Chat, Maryland Yellow-throat, Ovenbird, Cerulean Warbler, Myrtle Warbler, Yellow Warbler, Tennessee Warbler, Orange-crowned Warbler, Bell's Vireo, White-eyed Vireo, Yellow-throated Vireo, Warbling Vireo, Red-eyed Vireo, Bank Swallow, Tree Swallow, Barn Swallow, Purple Martin, Scarlet Tanager, Dickcissel, Indigo Bunting, Rose-breasted Grosbeak, Cardinal, Towhee, Lincoln's Sparrow, Field Sparrow, Clay-colored Sparrow, Chipping Sparrow, Harris' Sparrow, Lark Sparrow, Western Henslow's Sparrow, Goldfinch, Bronzed Grackle, Baltimore Oriole, Orchard Oriole, Western Meadowlark, Red-winged Blackbird, Yellow-headed Blackbird, Cowbird, Crow, Blue Jay, Prairie Horned Lark, Least Flycatcher, Phœbe, Great-crested Flycatcher, Arkansas Kingbird, Kingbird, Ruby-throated Hummingbird, Chimney Swift, Northern Flicker, Red-bellied Woodpecker, Red-headed Woodpecker, Northern Downy Woodpecker, Hairy Woodpecker, Belted Kingfisher, Barred Owl, Barn Owl, Broad-winged Hawk, Sharp-shinned Hawk, Western Mourning Dove, Solitary Sandpiper, and Blue-winged Teal. Nests were also found of the Robin, Western Field Sparrow, Crow, and Phœbe.

REPORT OF TREASURER, 1915-1916.

Receipts.

Cash on hand, May 7, 1915	$ 95.43
Annual dues collected	114.00
Sale of Checklists	5.28
	$214.71

Expenditures.

Printing	$ 23.00
Postage	3.33
Telephone	.25
Balance on hand, May 5, 1916	188.13
	$214.71

MYRON H. SWENK,
Secretary-Treasurer N. O. U.

PUBLICATIONS REVIEWED

REICHENOW'S VOGEL, VOL. II.
(A Review.)

Having reviewed the first volume of this work in the pages of the Bulletin some time ago the reviewer had hoped to finish his task soon after that, but the second volume was held back in Liverpool, England, for more than a year, evidently as contraband or for fear it might contain a bomb or picric acid, or what not. But at last it has arrived and we are now able to finish the review. Since the essential points of Reichenow's classification have been disposed of in the previous review, there is no need to go over them again. The second volume begins with the second half of the fifth row Fibulatores, the Musophagidæ, Cuckoos, Woodpeckers, etc., and then takes up the last row the Arboricolæ, running from the Bucerotidæ to the Nightingale. Some of the families seem a little out of place in this system as it stands, for instance the Pycnonotidæ should certainly have been placed nearer to the Turdidæ than they are placed in the work.

The work at large fills a great want and has many points to commend it. The reviewer has tried to do justice to it in every way, although personally we prefer a phylogenetic system, and if there is anything better than that which Ridgway has produced we have failed to see it. And even then one is sometimes inclined to wonder whether some time in the future, as Dr. Gill suggested in the Osprey some years since, there will not be a system that will take a still different viewpoint and arrive at still different conclusions. For instance the Fringillidæ and Tanagridæ, both nine primaried conirostral birds are separated really only by relative points of difference—as are the Corvidæ and Paridæ,—while the Ploceidæ are certainly conirostral, as anyone may see who will place specimens of Pyrenestes albifrons and Hesperiphona vespertina side by side, but have 10 primaries, and again the Icteridæ are nineprimaried conirostral birds, which in

turn seem to be connected with the 10 primaried Sturnidæ through the nineprimaried form Paramythia montium from New Guinea. One feels like creating a Superfamily of all the conirostral Oscines, separating them into nineprimaried and tenprimaried subfamilies, taking into consideration and emphasizing the points they have in common more than the points of differentiation. We remember that in our boyhood days in our parochial school in Missouri we were taught out of some ancient German Natural History that the Songbirds were divided into 6 families: dentirostral, conirostral, fissirostral, pegbilled, thinbilled birds and the Corvidæ, and are we after all so very far removed from these viewpoints in these days of modern classification? However, it behooves us to strive for the truth and for accuracy in science to the best of *our* ability and *our* understanding and we do *well* if we do *this*, no matter what our name may be.

As far as the treatment of North and Middle American birds is concerned we understand Dr. Reichenow when he says it would be impossible to treat all the forms, still some omissions and errors could have been avoided. The placing of Myiadestes and Bombycilla among the Muscicapidæ might be forgiven, but not the placing of certain Tanagerforms among the Mniotiltidæ and to put Vireosylva in the same family is nonsense! Among the Tyrannidæ the Genus Empidonax should have come in for at least 10 to 20 lines and similar remarks hold true in other cases, as for instance, the Troglodytinæ. The whole Sylviidæ group of Dr. Reichenow is rather an unfortunate one anyhow. The description of Oporornis formosa is wrong and could only apply to the female of the Wilson's Warbler. The name of the Chat must read Icteria virens and so we might go on and find more errors. But all these minor errors will not detract from the value of the work, which certainly is what it set out to be a "Handbook" a handy manual. That we find such errors and misstatements in regard to North American birds is due to the fact that in the Berlin Museum and practically all the German Museums our birds are but poorly represented and I can show the proof for this statement in writing from the hands of the Dir. of the Royal Zoölogical Museum. Hence we must bear with them in a spirit of kindness and hope that these conditions will improve so that in the future we Americans can receive our just dues. W. F. H.

THE WINTER BIRD LIFE OF MINNESOTA. By Thomas S. Roberts. Fins-Feathers and Fur. Official Bulletin of the Minnesota Game and Fish Department. No. 4. December, 1915.

This is the title of a very complete list of the birds which have

been authentically recorded as winter birds within the state. The list includes 85 species and 5 subspecies, and they are listed in four groups, as follows:

Permanent Residents—32 species, 3 subspecies.

Winter Visitants—16 species, 1 subspecies.

"Half Hardy"—10 species, 1 subspecies.

Accidental—27 species.

Forty-one are marked as common in the vicinity of St. Paul and Minneapolis.

Copious annotations accompany each species referring to their differential characters, status, etc. Notwithstanding the rather long list, it seems to be very conservatively compiled; in all unusual records data as to time and place are offered, and in most cases the observer is also named. The list will be of value to students in the adjacent states as well.—T. C. Stephens.

The Status of Harris's Sparrow in Wisconsin and Neighboring States. By Alvin R. Cahn. From Bulletin of the Wisconsin Natural History Society, Vol. XIII (New Series), No. 2. Pp. 102-108.

The summary which the author makes of the published occurrences of this large and handsome sparrow in the regions in which it is uncommon—from eastern Iowa eastward—is a valuable piece of work. Sixteen new records are here published. No attempt is made to give specific references in the regions where the species is common, or of regular occurrence. We miss the following references from the list given by Mr. Cahn: Ekblau, Geo., at Rantoul, Ill. March 15, 1914. "An even dozen." Bird-Lore, Vol. XV. Schafer, J. J., Port Byron, Ill. March 15, 1914. One bird. Ibid. Vol. XVI, p. 190. Simpson, Mrs. Mark, Milwaukee, Wis. May 12, 1914. One. Ibid. Vol. XVI, p. 282. Schafer, J. J. Port Byron, Ill. April 26, one; May 3, two; May 5 and 7, one. 1914. Ibid. Vol. XVI, p. 283. Saunders, W. E. London, Ont. March 18, 1907, one. Auk. Vol. XXX, p. 114. L. J.

Birds of Porto Rico, by Alex. Wetmore, Assistant Biologist. U. S. Department of Agriculture, Bulletin No. 326. March 24, 1916. 140 pages.

There is a colored frontispiece of the Porto Rican Tody by Louis Agassiz Fuertes, a map of the island of Porto Rico and adjacent islands which were visited, and eight black and white full-page pictures of birds and stomach contents. The scope of this paper is given in the Introduction: "The following report on the Birds of Porto Rico is the result of investigations made by the Biolog-

ical Survey in coöperation with the government of the island. Because of the damage to crops by insect pests and the resulting pecuniary loss, the Board of Commissioners of Agriculture of the island in 1911 requested the aid of the United States Department of Agriculture in an effort to determine the relations of the island birds to the insect fauna." "Investigations were begun in December, 1911, and continuous field work was carried on until September, 1912, permitting nine months of consecutive observation. All the principal regions of Porto Rico were visited, short trips were made to adjacent islands of Vieques and Culebra, and four days were spent on Desecheo Island in Mona Passage."

In addition to extended treatment of each of the 162 species found on the islands the report is divided into the following parts: "Birds found in cane fields." "Birds found in coffee plantations." "Birds frequenting citrus groves." "Bird enemies of the mole cricket." "Bird enemies of the sugar-cane root-borer." "Bird enemies of the may beetle." Under the heading, "Economic considerations," the statement is made that none of the species can be considered wholly pernicious. It was found that many of the insect eating birds consumed considerable quantities of vegetable matter.

This paper is valuable both from the standpoint of a local list and for its contribution to the literature of economic ornithology.

L. J.

The Domestic Cat. By Edward Howe Forbush, State Ornithologist. The Commonwealth of Massachusetts, State Board of Agriculture, Economic Biology, Bulletin No. 2. 1916.

This paper is an able presentation of the cat problem. It gives convincing proof that the common house cat is a real menace to the wild bird life of the more settled districts, and that the compensations resulting from the destruction of rats and mice by cats come far short of balancing the account. A further indictment of the cat is the proven fact that cats may carry such infections as small-pox and scarlet fever. Since the house cat is an introduced animal it is altogether likely that restrictive legislation not less severe than that for dogs will have to be resorted to in order to keep the numbers within reasonable bounds. L. J.

Proceedings of the Nebraska Ornithologists' Union. Vol. VI, Parts 2 and 3. February 27 and July 10, 1915. Pages 25 to 68.

Part 2 is concerned with "The Eskimo Curlew and its Disappearance," by Myron H. Swenk, and "Some bird notes from Lincoln and vicinity," by R. W. Dawson, and "Three records from the Ne-

braska Experimental (sub-station at North Platte," by Wilson Tout. A review of the occurrences of the Eskimo Curlew is followed by the cheering statement that "Although the Eskimo Curlew is reduced to the point of extinction, it is probably not yet absolutely extinct." This species and the Trumpeter Swan seem to be the species which are doomed to extinction even before some others which it was thought would disappear before them. L. J.

The Birds of Green Lake County, Wisconsin. By John N. Lowe. From the Bulletin of the Wisconsin Natural History Society, Vol. XXXI (New Series), No. 2. June, 1915.

This is a briefly annotated list of 211 species.

PUBLICATIONS RECEIVED

Suggestions for Ornithological Work in Canada. By P. A. Taverner. Reprinted from The Ottawa Naturalist, Vol. XXIX, April, May, 1915. PPp. 14-28.

The Double-crested Cormorant (*Phalacrocorax Auritus*) and its Relation to the Salmon Industries on the Gulf of St. Lawrence. By P. A. Taverner. Geological Survey, Canada, Department of Mines, Museum Bulletin No. 13. April 30, 1915. Pp. 1-24.

Mortality Among Waterfowl Around Great Salt Lake, Utah. Bulletin No. 217, U. S. Dep't Agriculture. May 26, 1915. (Preliminary Report.) By Alex. Wetmore. Pp. 1-10.

The National Zoölogical Park and Its Inhabitants. By Dr. Frank Baker, Superintendent of National Zoölogical Park. From the Smithsonian Report for 1814, pages 445-478 (with 41 plates).

The Starling. By Edward Howe Forbush. Revised and enlarged from the fifty-eighth annual report of the Massachusetts State Board of Agriculture. Circular No. 45, May, 1915. Pp. 1-23.

Seventh Annual Report of the State Ornithologist. For the Year 1914. January 13, 1915. The Commonwealth of Massachusetts, State Board of Agriculture. Edward Howe Forbush. Pp. 1-31.

Bird Houses and Nesting Boxes. By Edward Howe Forbush. Circular No. 47, April, 1915. The Commonwealth of Massachusetts, State Board of Agriculture. Pp. 1-24.

Eleven Important Wild Duck Foods. By W. L. McAtee, Assistant Biologist. Bulletin No. 205, of the U. S. Department of Agriculture. Professional Paper. September 27, 1915. Pp. 1-23.

Our Shorebirds and Their Future. By Wells W. Cooke, Assistant Biologist, Bureau of Biological Survey. From Yearbook of Department of Agriculture for 1914. Pp. 273-294.

Distribution and Migration of North American Gulls and Their

Allies. By Wells W. Cooke, Assistant Biologist. Bulletin No. 292, U. S. Department of Agriculture, Professional Paper. October 25, 1915. Pp. 1-70.

On the Comparative Osteology of Orthorhamphus magnirostris (the Long-billed Stone-Plover). By Dr. R. W. Shufeldt, F.A.O.U., Hon.Member R.A.O.U., etc. From The Emu, Vol. XV, Part 1, 1st July, 1915. Pp. 1-25.

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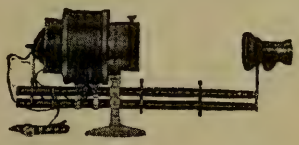

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Side view showing Owl stub on left and Hawk nest at the right.

Double Nesting of Barred Owl and Red-shouldered Hawk in same tree. Owl nest in stub in background of picture.

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SEP 29 1916
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A STRANGE NESTING OF THE BARRED OWL AND RED-SHOULDERED HAWK.

BY WALTER A. GOELITZ.

(With Photographs by the Author.)

We often read of Bluebirds, Sparrow Hawks, Screech Owls, and various Woodpeckers living congenially together, but it is seldom that we find the larger birds of prey nesting in the same tree. Several years ago I noticed an article, in which it was stated that there is a continual feud between the Red-tailed Hawk and the Great Horned Owl and one would naturally expect this relation to exist, to a certain extent, between other members of nocturnal and diurnal birds of prey. The following data may be of interest upon this subject:

On April 9, 1916, as I was walking through a large patch of timber along Camp Creek, about half way between Monticello and White Heath, Piatt County, Illinois, I was attracted by the call notes of a Red-shouldered Hawk (*Buteo l. linneatus*). I soon found an old dilapidated-looking nest, which was surrounded by the usual white breast down of nesting hawks. It was situated thirty-five feet up in a crotch against the trunk of a large, leaning white oak. I commenced climbing the tree and had hardly touched it when, on looking upward, I saw a Barred Owl (*Syrnium v. varium*) launch itself from a hollow stub near the hawk nest.

The nest of the hawk was composed of a few sticks laid upon an old squirrel nest and was lined with a small pad of leaves and white feathers. It contained four slightly incu-

bated eggs. Just five feet away and on the same level was the owl nest, it being in a stub of the same tree, as can be seen from the accompanying photographs. The cavity was a foot in diameter, four feet in depth, and nearly perpendicular. The single white egg, which rested on fairly rotted wood and a few large owl feathers, seemed to have been incubated for some time.

On account of the peculiarity of the situation and conditions I collected the Red-shoulder eggs and visited the tree again a week later to obtain photographs and a full set of Barred Owl eggs, if possible, but the original egg was broken and the nest deserted. I have often wished that I had left the birds undisturbed, and instead, had watched to see the natural outcome of this strange community.

Ravinia, Ill., July 11, 1916.

BIRDS BY THE WAYSIDE.

BY ALTHEA R. SHERMAN.

Copyrighted by Althea R. Sherman, 1916.

IN PALESTINE.

Our departure from Egypt for Palestine was in advance of the migrating hosts of birds from the south and after many of the winter residents had started north. As a result of these conditions there was a dearth of bird life in the Holy Land during the first half of March, more pronounced than one would expect in this region, to which H. B. Tristram has ascribed 348 species. It has been said in a previous chapter that the popular routes of travel in the Old World are marked not so much by the birds seen thereon as by failures to see some of the commonest species, whose names have been made familiar by the literature of foreign lands. These failures are due to several causes; the prime one must always be inherent in an itinerary planned to please the majority of sight-seeing travelers, whose stops are generally made in those man-infested, bird-shunned portions of the journey,—

the large cities. Even when birds are found in cities, they may be strange birds, requiring time for their identification. It is at such times in a conducted party that one feels as if jerked along by a string. There has been a pause, the guide starts on, the string is jerked, one must follow fast, and instantly or be lost, and the strange bird whose points of identification are being taken drops into the class of the unknown.

Possibly an uplift in religious faith may be the portion of some American visitors to the Holy Land, but more likely they experience a sickening disgust, produced by the ubiquitous parade of fake relics, antiquities, and historical sites. We landed at Jaffa, the port in which Jonah took ship for a voyage that included a remarkable adventure with a "big fish." The immense brown rocks that dot the waters of the bay probably withstood tempestous waves for countless ages before the days of Jonah or those in which Phœnician "floats" came there, ladened with cedars from Lebanon for the temple of Solomon. These rocks offered the sole opportunity, that we saw in Palestine, that had escaped the fakir's wand. On none was mounted a giant cedar reputed to have been left there in Solomon's time; nor was anywhere exposed the skeleton of the "big fish"; nor was any rock singled out as a spot where Jonah sunned himself after a sea bath. One such blessed exemption as this cannot be prized too highly.

Some years ago, while a Scottish guide pointed out to American tourists the window from which was lowered the infant son of Mary, Queen of Scots, one visitor exclaimed: "Do you mean to tell us that this is the identical window? That these very stones were in place here then?" The guide hastening to uphold the tradition answered: "The stones may have been changed, but *the hole* certainly is the same." Realizing the changes, ruin, and decay that three thousand or nineteen hundred years are sure to work everywhere, the intelligent visitors to Palestine can expect to find no more than "the hole" remaining: The bay of ancient Joppa, with its steep, encircling hills, the plains, the mountains, the rivers, the seas, the flowers, the trees, and the birds are much the

same as in the days of Christ, or David, or Abraham. To have seen more of these and less of the filth and beggary of Jerusalem along with its preposterous shams and make-believe antiquities would have been more to my taste.

The antiquities that Jaffa exhibits to visitors are "the house of Simon the Tanner," and "the tomb of Tabitha." The guide-books state that the house bears evidences of an existence no greater than a century. It has a well with a curious windlass, and a fine view may be obtained from the house-top, making some slight reward for a visit to it. Without peradventure "the tomb of Tabitha" is a genuine tomb, and it may have been the final resting-place of a woman, whose good works rivaled those of Dorcas of old. Death has claimed many such women in various lands though the paths to their tombs may not lie between rows of beautiful cypress trees, and past a Russian church that shows a clean and inviting interior. During a drive among the orange groves of Jaffa we saw some of its far-famed fruit hanging in very small trees; at least they were small when compared with American orange trees. These oranges, very large and of most delicious sweetness and flavor, were sold in baskets, that held about a peck, for the small sum of twenty-five cents. Bird life, however, appeared very scarce, with only the Fantail Warbler in the trees and Swallows overhead. But the harbor of Jaffa a week later afforded us the single ornithological thrill felt in Palestine. We were taking our places in a row-boat preparatory to embarkation on a steamer going north, when there flew directly over us a great flock of Common Herons (*Ardea cinerea*) in three groups. There were from six hundred to eight hundred birds according to the estimate of several of our party.

Nearly half of the fifty-three miles of railway journey from Jaffa to Jerusalem lies in a southwestern direction across the Plains of Sharon. For a short distance the road runs amidst orchards, whose trees were then in full bloom. The orchards were succeeded by grain-fields, in some of which the grain was coming up, while in others it had at-

tained a height of six to ten inches. These fields, as well as the roadside, were dotted with crimson poppies of a rich velvety texture. Besides the poppies there were delicately tinted cyclamen, yellow flowers resembling dandelions, and small blue flowers. Fertile fields and bright-colored flowers made a gladsome sight, while over them skimmed a former acquaintance, the Oriental Swallow (*Hirundo savignii*), the same species that is called by Shelley the Egyptian Swallow. We had noted its southern limit at the First Cataract of the Nile, and now we saw it near the boundary of its northern range, according to Tristram, who says it is not met with north of the Lebanon. Singly and in pairs Larks were startled into the air. Some belonged to the Crested Lark (*Alauda cristata*), while others, no doubt, would have been identified as Calandra Larks (*Melanocorypha calandra*) had train-stops afforded sufficient time for the desired certainty. The fields of the plains are the places in which it abounds in spring. Two Hawks completed the bird list for that day.

Gradually the plains gave place to the hill-country, suitable for grazing only, where a few flocks of sheep and goats were seen before we mounted into a wilder, more stony region and passed within sight of a structure said to mark the birthplace of Samson. A little farther on a hill-top was pointed out as the place called Ramath-lehi by Samson. Whatever shortcomings this ancient athlete displayed in his escapades before his hair-cut, he evinced good judgment in two respects: He chose for Ramath-lehi a site that would be in full view of future railway trains, and in slaying there a thousand men with the jaw-bone of an ass he did not muss up a spot that was of any value for agricultural purposes.

Over the half mile or more that intervened between the railway station and the Jaffa Gate of Jerusalem our carriages were whirled along at a breakneck speed, that fixed the conviction that every driver was a descendant of Jehu, son of Nimshi. That reckless teamster seems to have been the progenitor of all drivers in the Orient from India westward. All

bear the ancestral earmarks—"for he driveth furiously." Progress toward lands with higher civilization was marked by a more humane treatment of the horse. At Assiut there were not enough teams to transfer the passengers from boat to train without the making of a second trip. We saw one of the returning carriages lose a hind wheel, but the driver lashed on his galloping horses utterly oblivious of any loss.

A magnificent panoramic view of Jerusalem and its environs is obtainable from the tower of the German church. From that height the city is a fascinating sight, due in part to its many dome-shaped roofs and the beautiful colorings of the stone used in building. It is the common stone of the region, appearing in garden walls as well as in the buildings; and its warm, many-colored shadings makes it one of the most pleasing sights about Jerusalem. It gives a touch of warmth to the otherwise cold, bleak, desolate landscape: A cheerless expanse to which olive groves once may have afforded some relief. Olive trees are not plentiful now; we were told that the owners had been forced to cut down their trees because the Turkish tax on them exceeded the revenue they could be made to yield. From the church tower a birds-eye view of all we were to see later was obtained. Places concerning which much has been written from the days of Isaiah down to those of Robert Hichens. From this vantage point a Sabbath-day's journey had ocular demonstration, for there stood the Mount of Olives something more than a mile away as the crow flies. The temple area on Mount Moriah was spread out like a map below us; and the encircling valleys of Biblical fame dropped down into the blue middle-distance of the picture. It seems a pity to have had this fine impression soon overlaid by others produced by contact with the humbugs and the shamefully absurd pretensions made in a parade of sacred relics and ruins.

The first rain encountered in several months began to fall while we were aloft in the church tower. The storm continued for two days and probably kept some birds in hiding; at the same time it did not enhance our enjoyment of the

street scenes, though it did add deeper pathos to the ceremonial of prayer in the Wailing Place of the Jews. The rain poured down during our visit to the Garden Tomb, but it did not dampen the cheerfulness of a Great Titmouse (*Parus major*) that chirped softly in one of the trees. It rained during most of our visit to the Temple Area, where no birds were seen, though it is the roosting place for Ravens, Hooded Crows, Jackdaws and Rooks. The Ravens were seen on all other days and in other places in the neighborhood of Jerusalem in small numbers. Pigeons were not seen in any abundance. It was these birds, not Ravens, that were seen in the deep, narrow gorge through which flows the brook Cherith, where high up against the face of a nearly vertical cliff on the spot supposed to have been the refuge of Elijah stands St. George's Convent; about it a flock of Pigeons kept company with the anchorites in their lonely retreat.

Only a few of *Turtur senegalensis* were seen, though the species is sedentary in Palestine as well as in Egypt. The several common names of Palm, Egyptian, and Collared Turtledove are all applied to this species. Unfortunately our visit was in advance of the arrival of the Turtledove (*Turtur auritus*), whose coming has for centuries been counted a harbinger of spring. In inimitable verse nature-loving Solomon did honor to this season, that captivates man's senses of feeling, seeing, hearing and smelling, when he wrote:—

"For lo, the winter is past, the rain is over and gone;

"The flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in the land;

"The fig-tree putteth forth her green figs, and the vines with the tender grape give a good smell."

That the ancients did not leave the entire subject of migration for modern investigations is revealed by this comment of Jeremiah upon the punctual arrival of certain birds: "Yea, the stork in the heavens knoweth her appointed times; and the turtle, and the crane, and the swallow, observe the

time of their coming." From investigations made by Canon Tristram it has been ascertained that the word translated "swallow" should read "swift," meaning the Common Swift (*Cypselus apus*). Their appointed time came after our departure, but a few Sand Martins (*Cotile riparia*) were seen daily in Palestine, and a large influx of the species was noted two days before we left. In the valley of the Jordan a single individual of the Alpine or White-bellied Swift (*Cypselus melba*) was observed.

Very little was seen of our former daily companion the White Wagtail (*Motacilla alba*), and not much better was the record of the Egyptian Vulture (*Neophron pernopterus*). About twoscore of them were counted in the morning of our return trip from Jericho. Fully half of the number was found in the vicinity of a slaughter-pen in the outskirts of Jerusalem. This species outnumbered all others seen that day. For a drive of twenty-five miles the number of birds to be seen was very small. There were a few Ravens, Crested Larks, and Sand Martins, two Kestrels, a Shrike and two Mourning (or Pied) Chats (*Saxicola lugens*). The last named were seen when we stopped to rest the horses at the Good Samaritan Inn. While the others bought a fresh supply of beads I walked outside. Over the barren ground were crawling very many hairy caterpillars that bore a strong resemblance to the tent-caterpillars seen at home. The Chats were collecting these, and evidently were feeding them to their nestlings, for they frequently entered a certain hole between the rocks that were built into the roadway.

From the outskirts of Bethany to the village of Eriha (which is the name given to modern Jericho) the Inn of the Good Samaritan was the only human habitation we passed. If it had not been for the many pilgrims, afoot or on horseback, who were making the journey, the road would have been as lonesome as it was on the day when a certain man in going to Jericho fell among thieves. The landscape then must have been much the same as now. The steep hillsides, devoid of shrubs or trees, are a network of miniature terraces, the

horizontal face of each terrace, being a foot or two in width, "switch-backs" into its nearest neighbors above and below, from which it is separated in the widest places by a space of a few feet only. An explanation, which may be the true one, comes to mind: It is that the tops of the terraces are the paths beaten by the feet of the flocks that have fed upon these hillsides for thousands of years, and the space between the terraces is measured by the distance a sheep or goat can reach while grazing.

There is a suggestion of punitive measures in the expression "to send him to Jericho." Why this journey should be considered a punishment is a puzzle to me, especially since Jericho was the only place in Palestine that I was sorry to leave. Its antiquities do not tax our credulity. There is the recently excavated mound, in which are uncovered portions of the ruined walls of ancient Jericho, and nearby is a spring, from which gushes a great volume of water, that is called Elisha's Fountain. The great depression, wherein lies the Jordan Valley and the Dead Sea, is nearly a quarter of a mile below the level of the sea and three-quarters of a mile lower than Jerusalem. This has a marked influence on the temperature of the valley in March, and unquestionably the same thing is true in July and August, but in March the advantage lies in favor of the valley. Of this advantage the birds had not been slow to avail themselves, as their twitterings on all sides abundantly proved. Deciduous trees were not in full-leaf, yet the foliage was well advanced, sufficiently so to conceal the birds from view as we were jerked rapidly along. In fact, on no other part of the whole trip was the string jerked so frequently and with such violence. In an afternoon devoted to a trip to the banks of the Jordan and the shores of the Dead Sea there was a stop of about twenty minutes at the former place, and half that time at the latter: merely time enough to dip one's fingers in the waters of the Sea and to pick up a few bean-shaped pebbles from its shore. How two men of our party secured their plunge into the

briny waters is their own story, and reflects credit on their business acumen.

Notwithstanding the vast amount that has been written concerning Palestine, few writers make mention of the feast of colors set forth toward nightfall in the Jordan Valley. Possibly our evening there was an exceptional one. It certainly was a very exceptional experience to view a landscape abounding in such richness and beauty of coloring. To the eastward rose the Mountains of Moab, wrapped in the gold and purple trappings of the approaching night, holding our attention to the utter exclusion of the desolate plain we were crossing. In the west the Mount of Olives was distinctly marked by the lofty tower of the Russian Church that stands on its summit. Though the day had been a long one and full of hard driving, we came all too soon in the gloaming to the cleanly little inn, where we were to spend the night; and all too early in the morning we left it and the many singing birds, still hidden in the trees, to return to the filth and fakes of Jerusalem.

When portions of the old Roman wall many feet below the present ground surface of Jerusalem are shown to visitors it is reasonable to believe that relics belonging to the time of Christ must be buried under debris a score or more feet in depth; when the guidebooks very plainly state that the Stone of Unction has frequently been replaced by a new one, the American mind fails to comprehend how even the most ignorant of European peasants can accept as genuine the "holy relics" before which they prostrate themselves. Some of the spurious show-places are so grotesquely ridiculous in their pretensions that the memory of them calls up a smile. Of this class is the "Milk Grotto" in Bethlehem. The claim is made that the rock-hewn floor of this grotto was blessed with therapeutic qualities, when on it fell a few drops from the breast of the Virgin Mary; so that to this day any mother of any religion or nation, who is deficient in lacteal fluid, will be benefited by a dose of the stone. Furthermore, that the blessing may be universal, little "milk cakes," bearing

in bas-relief a portrait of the Madonna, are sold for foreign consumption. These furnish an opportunity for souvenirs that probably no American lets escape. It was noticed that the young bachelor of our party was the heaviest buyer, however, his thoughtfulness and generosity seemed limitless. It was he who found that homemade American pie could be ordered from the American Colony store, and who at three dinners treated us to pie, the only pie seen during ten months of travel. It was he who at Smyrna remembered to buy toys for two fretful babies on ship-board, though there were fathers and grandfathers in our party, to whom the thought did not occur.

Our visit to Bethlehem was made on Sunday afternoon. Those of us of Puritan blood had fortified our souls against the pomp of ceremonials by attending the morning service at the American Mission. There within plain walls was a simple form of worship "in spirit and in truth," quite as appropriate to the wilds of Africa or America as to the sacred city of Jerusalem.

FROM JAFFA TO CONSTANTINOPLE.

The steamer that carried us to Constantinople was engaged in coastwise transportation and made stops at Haifa, Beyrout, Vathy on the island of Samos, and at Smyrna. The voyage occupied a little more than a week. Passengers were discouraged from going ashore at Haifa so we staid with the ship. The birds seen from its decks were Terns and two species of Gulls: a species of the Herring Gulls and a species of the Black-headed Gulls. These were seen in all the other harbors, except at Vathy the latter species was missing.

It was on the drive to Dog River to see the rock-hewn tablets of ancient conquerors that most of the birds about Beyrout were seen, and these were not many: A few old acquaintances in the form of Hooded Crows, Swallows, Sand Martin, a Fantail Warbler and a Raven were noted. While we were passing through a Greek settlement, one of Beyrout's suburbs, a boy offered for sale a string of bright-

colored, small birds. Although this is said to be a common practice in foreign lands, this instance was the sole one witnessed by me. Two days later, while yet many miles from Rhodes and the mainland, there came to our steamer's deck two Wagtails and a Redbreast. The last named hopped about quite fearlessly in its search for food.

We awoke the next morning to find our vessel anchored at Vathy, which is situated at the lower end of a pear-shaped bay, whose waters were of deepest blue. The rugged hills of this isle of Greece did not look fertile, but they must nurture the vine in abundance, and there must still be people who "fill high the bowl with Samian wine," for throughout the entire day our ship was taking on board a seemingly endless number of casks of it. But the most impressive thing at Vathy was its stone-paved, scrupulously clean water-front. Probably a cleaner quay can nowhere be found, certainly not in America. After three months' experience with the filth and poverty of the Orient the tidiness of Vathy was a most pleasing surprise. Its children looked robust, comfortably clad, and did not beg. It was not far to the open country, in which two of us took a long walk, at first through very narrow stone-walled lanes, which at last brought us out upon a well-paved road. Nowhere did animal life seem abundant: two goats, four pigs, and a few donkeys completed the list of quadrupeds. Aside from many Swallows flying above the market-place, no more than a hundred individual birds were seen. This number included a Kestrel, a score of Gulls in the harbor, two dozen Hooded Crows, and about ten species of small birds. One bird, about the size of our Robin, was seen for an instant on the ground. Excepting the Crows it was rare to see a bird upon the ground, most of them hid themselves amid the foliage of the trees, where even the briefest glimpses of them were difficult to secure. The two or three species of Warblers were as elusive as elsewhere; but persevering effort was crowned with success in the cases of the Greenfinch, and of the females of the

Chaffinch (*Fringilla coelebs coelebs*). These were the first of these species to be identified by me.

Although at Smyrna we enjoyed a long and delightful drive, that took us without the city, the bird sights differed little from those seen at Beyrout. The natural history interests of our party were not entirely extinguished when we left the land. Someone in exploring the ship found a goat among the fifth-class passengers. A string of beads decorated Nannie's neck, and it was feared that she had been prepared for the sacrifice. Since we had strong suspicions that at times our beef had been horse and our mutton had been goat, it was deemed advisable to keep an eye on Nannie: therefore several times each day some member or other of our party wandered into the fifth-class quarters to make sure that she was alive and well. By this means we obtained a better knowledge of the accommodations furnished to this class of travelers along the coast of Asia Minor. While making friends with the goat a glance could now and then be cast upon her brightly-dressed human neighbors, who were crowded about her. On either side of narrow aisles the ship's space was divided into compartments that measured about thirty inches in height, four feet in width, and six or seven feet in length. These evidently were two-storied berths for the reception of bedding, some of which were thus occupied. The goat occupied the lower one nearest the entrance and in neighboring pens women sat crouched over fires, attending to their cooking, or in other ways relieving the tedium of a sea voyage.

Seemingly no spot in the Old World is without its story of the past in the form of authentic history, tradition, or the creation of the poetic imagination, half-forgotten memories of which come to mind, while we are occupied with present scenes and experiences. Probably it is well that tourists do not question overmuch about the exact scene of this or that ancient happening, since if they did, sham relics, such as abound in Palestine, would be prepared for them. The plains of ancient Troy cannot easily be passed unnoted by those of

us whose classical course in college required five years' study of Greek; who enjoyed translating from the original the *Iliad* and the *Odyssey* of Homer and the *Ajax* of Sophocles. The morning was still very young, the island of Tenedos scarcely more than passed, when I was out on deck to watch our approach to the Hellespont, and to see the shore upon which the Greeks drew up their thousand ships, where Achilles sulked, when crossed in love or ambition; to view the plains that stretched toward lofty Ilium on which the Greeks fought so long in vain with Agamemnon ruling, the silver-tongued Nestor persuading, the crafty Odysseus planning, and Telamonian Ajax, gone mad, dying on his own sword. As we passed up the Dardanelles we found the birds were going our way. There were Gulls, Cormorants, and Common Heron, besides many flocks of shorebirds, too far away for identification. It took until night for our heavily loaded steamer to make the run to Constantinople.

One should not expect the best of things at all times, but I was glad that my turn for the best room came at Constantinople. It was No. 161 in the Pera-Palace Hotel, a corner room in the top story, with its windows commanding most magnificent views. Pera and the Golden Horn lay below. Across the waters of the latter rose the hills of Stamboul, beautified by the domes and minarets of its many mosques: a fanciful, fascinating picture; nevertheless a bit of nightmare always intrudes itself into the memory dreams of those scenes: the vision of the conflagration that would sweep Stamboul should a fire be started among its old, unpainted, wooden houses.

With only six days for sightseeing in Constantinople and its environs too much time could not be spent in window-gazing, so near views of the city were soon being taken under the efficient guidance of a most gentlemanly dragoman, a native of Cephalonia. The usual places of interest were seen, together with some of the unusual people. Among the latter were the dervishes, whose strange exhibitions, probably, are inspired less by religious zeal than by hope of financial re-

ward. The seances of the Whirling Dervishes were given in the day time, and those of the Howling Dervishes in the evening: from 8:45 o'clock until nearly midnight. At one of these we staid until the last spectacular performance had been given. The show began tamely enough, with sixty devotees sitting closely packed on the floor, swaying back and forth, bending double, yelping or coughing "Allah! Allah!" in concert whenever single individuals ceased chanting. An hour and a half of this sufficed to incite them to stunts, some of which were far from misleading, while others were real and some were deceptive. Of such were the thrusting of swords through their bodies; the taking of three raw eggs into the mouth and there cooking them with a red-hot iron; the nailing of a man to a post with an awl-shaped instrument driven through his cheek. In order that we might see and believe the man was brought to the post against which two of us were leaning.

On another day we formed part of a crowd, numbering many hundred people, that for an hour stood or sat waiting to see a man go to his noonday prayers. The man was the Sultan of Turkey, and as he rode slowly along the bird glasses served well in making observations. This was the largest "Turkey bird" upon whom they were used, but one that proved less interesting than some of the feathered bipeds. Some Turtle Doves were noted while we awaited the Sultan's coming. They were seen on following days in Constantinople, which was the last place in which I saw them. In the afternoon of that day the Mosque of Eyoub was visited, after which a walk was taken up the hill that overlooks this mosque and the Golden Horn. The path keeps close to the edge of the nearly vertical face of the bluff, and is lined with rows of cypress trees, under which rest the Moslem dead. Many other hillsides about Constantinople are covered with their gravestones, but lack the ornamentation furnished by trees. The fine view from the brow of the hill included the waters and shores of the Golden Horn; and the picturesque valley through which flows the Sweet Waters of Europe

could be traced to the northeast. Below us were several marshy islands, on one of which I counted sixteen Common Herons. When hurrying down the hill an interesting sight faced us that was missed in the ascent: There stands in the courtyard of the Mosque of Eyoub an immense plane tree, measuring about eight feet in diameter, in whose topmost branches were several Common Herons and their nests. It was one of those times when the string was being jerked forcibly, and there was no more than an instant for identifying the Herons. That evening, at the hotel, some ladies of our party were told by other tourists of their visit to a certain mosque where they saw Storks nesting in a large tree; moreover, their dragoman had said that they were Storks. By that time I had seen the Common Heron often enough to feel fairly confident of my identification; but because of the haste in which it was made I resolved to return, though I was obliged to go alone one forenoon while the others shopped.

The Mosque of Eyoub is one of the most sacred of Moslem shrines; and until quite recent years it has been closed to the Christian dog. It is in this most holy place that each new sultan must be girded with the sword of Osman, a ceremony similar in importance to the crowning of kings in other lands. The mosque is said to have been built over the long-lost grave of Eyoub Ansari, one of the faithful followers of Mohammed, who set out with forty men to capture Constantinople for the prophet. We were admitted to the court-yard and to the vestibule of the mosque, but only the faithful Moslems are permitted to see the turbeh of the saint, which is viewed through a small opening in the wall. Upon my second visit it was not necessary to enter any part of the mosque's enclosure. A short climb up the hill brought me to the level of the tree tops, the birds, and their nests, which were distant perhaps a hundred feet. There were fourteen nests, in four of which birds were sitting. In a few other places two birds together were engaged in demonstrations that in human estimation would be termed "fussing over

each other." There were counted fifteen birds in the trees and ten on the island, in a description of which one would make mention of a long, black, occipital plume; of a broad, black streak over the eye; of black primaries and gray on wing coverts and the upper parts of body; in short it would be noticed that the birds had all the identification marks of the Common Heron, and none of those of the White Stork. There were numerous holes in the large branches of the old tree which Jackdaws were entering, and several Starlings were on a ledge of one of the minarets. Turtledoves and Rock Doves were about the mosque. Many of the latter were fed in its court-yard, as is the case in that of the Bayazid Mosque, in consequence of which it is known as the Pigeon Mosque. A Common Kite (*Milvus ictinius*) was among the birds seen. About the cypress trees on the hillside were many Hooded Crows, one of which was carrying nesting material, while overhead four screaming Magpies flew back and forth. The Magpie (*Pica rustica*) was seen for the first time in Constantinople. It is a species easily recognized on the wing, and the infrequency with which it was met in Europe was rather surprising. From the foliage of the cypress trees issued much twittering of small birds, but glimpses of the singers were rarely caught; however, the Great Titmouse was a trifle bolder and came into view several times. From the ferry-boat on the return trip to the city were seen thirty-eight Cormorants, and the three species of Gulls that frequented the harbor.

One morning at eight o'clock three of us started for Bebek and Robert College; the others spent the forenoon buying beads and similarly necessary articles. We met them on the steamboat that touched at Bebek at two o'clock and completed with them the trip up the Bosphorus to the waters of the Black Sea. That was a day among days to hold in memory, with perfect weather lending its charm to the pleasures of a boat-ride that probably does not have its equal on this earth in alluring, picturesque, suburban scenery. It was the human touches added to natural beauty that made the shift-

ing scenes so bewitching. Each bend in the shore (and bends were the rule, not the exception) seemed to present a more beautiful picture than the last. The finest view of all appeared to be the one directly above Bebek, with its ancient defensive walls and towers and the handsome, new buildings of Robert College crowning the summit of the hill. Only a few birds were seen during the morning hours spent on the college grounds. Flocks of noisy Jackdaws frequently flew overhead. There were seen my first Common Wren (*Troglodytes parvulus*) and my first Blue Titmouse (*Parus cæruleus*) besides the Great Titmouse and female Chaffinch, which were fast becoming old acquaintances. While on the Bosphorus excursion there were seen the Hooded Crow, an Alpine Swift and the Gulls as usual; also more shorebirds than on previous days. Several sizes of them could be distinguished, and they were in flocks numbering from thirty to one hundred, making in the aggregate a thousand or more birds; nearly that number were counted.

Our last contact with the soil of Asia was made upon the trip to Scutari. In a cemetery in which are buried eight thousand soldiers, who died in the Crimean War, a bird was singing blithely his vernal song. It proved to be a male Chaffinch, the first one I had noted. As we sailed into the Sea of Mamora late that day the graceful outlines of Constantinople were tenderly enfolded in the violet-hues of evening, touched here and there by the afterglow of sunset.

FALL MIGRATION RECORDS (1906-1915) AT ANN ARBOR, MICHIGAN.

BY A. D. TINKER AND N. A. WOOD.

The following series of tabulated records represents the combined field-work of Mr. F. O. Novy, the authors and other observers in the vicinity of Ann Arbor, Michigan, during the fall migrations of the years 1906-1915 inclusive. The immediate vicinity of Ann Arbor has been pretty thoroughly worked, but the outlying districts have not received the atten-

tion that they deserve. Washtenaw County, of which Ann Arbor is the county seat, with its large areas of woodland, marsh, cultivated fields and numerous lakes, is rich in bird-life of varied character. However, the various habitats are so scattered that it is very difficult to cover them all during the limited periods of the migrations. For this reason many of our fall records are very incomplete and misleading as to the comparative abundance of certain species. A large number of the lakes in the county are known to swarm with wild-fowl during the fall migration, but as these lakes are seldom visited by others than hunters and fishermen it has been hard to secure reliable data on the various species frequenting them at that time.

Some species, the majority of which breed outside of the county, are known to nest here occasionally. Such species have been indicated in the list by an asterisk (*). Records of first arrivals of these irregular breeders are consequently open to error owing to the difficulty of determining which are summer residents and which transients. It will also be noticed that species have been included which in reality are occasional winter visitants and not regular migrants. Of these the Snowy Owl, Saw-whet Owl, Evening Grosbeak, Pine Grosbeaks, Redpoll, Crossbills, Snowflake and Bohemian Waxwing are the most noteworthy. Gannets, Double-crested Cormorant and Caspian Tern are merely occasional visitants, although it is possible that more extensive field-work would show some of these to be more regular in their occurrence than the records would indicate.

In the tabulated list the dates given are for first arrivals. For some species these will be seen to vary considerably for the different years. No doubt more thorough observations would show greater uniformity in the records. The order of the species is that followed in the A. O. U. Check List (1910 Edition).

TABULATED RECORDS

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
Horned Grebe		Oct. 25	Sept. 3		Sept. 2	Sept. 15	Oct. 3	Oct. 5		
* Pied-billed Grebe		Sept. 8	Sept. 4	Aug. 5	Aug. 3	Sept. 4	Sept. 29	Aug. 21	Sept. 21	Sept. 9
Loon		Sept. 20	Oct. 5		Sept. 1	Oct. 14	Oct. 1	Sept. 29		Oct. 15
Herring Gull			Sept. 13		Sept. 7	Sept. 10		Sept. 15		Aug. 22
Bonaparte's Gull			Oct. 5	Aug. 20	Aug. 25	Aug. 26			Aug. 10	Aug' 9
Caspian Tern										Sept. 5
Common Tern			Sept. 1	Sept. 5	July 7	Aug. 3	Nov. 15		Aug. 27	Aug 13
Black Tern				Aug. 14	Aug. 7		Sept. 7			
Gannet						Oct. 19				
Double-crested Cormorant						Oct. 20				Nov. 13
Merganser					Dec. 18	Dec. 1	Nov. 30		Dec. 1	
Red-breasted Merganser							Nov. 23			
Mallard		Sept. 22		Oct. 16	Nov. 5	Oct. 22	Nov. 10	Oct. 18	Sept. 15	Nov. 28
* Black Duck	Sept. 2	Sept. 2	Sept. 2.	Aug. 30	Aug. 23	Aug. 10	Aug. 1	Aug. 1	Oct. 25	Nov.25
Baldpate					Sept. 24	Nov. 4				
Green-winged Teal			Oct. 10	Sept. 23				Oct. 18		
Blue-winged Teal			Sept. 13		Oct. 29			Sept. 1		Oct. 17
Shoveller		Oct. 1				Sept. 30				
Pintail						Nov. 4			Oct. 15	Oct. 23
* Wood Duck		Oct. 25	Sept. 2	Aug. 14	Aug. 11	Aug. 4	Aug. 20	Aug. 21		Oct. 30
Redhead	Oct. 11		Oct. 10							
Canvas-back	Nov. 10			Dec. 3						
Scaup				Nov. 7	Nov. 5					
Lesser Scaup			Oct. 3	Dec. 3	Oct. 22	Oct. 28	Oct. 27			Oct. 30
Golden-eye			Nov. 28		Nov. 26		Nov. 30		Dec. 1	Nov. 20
Buffle-head	Nov. 10	Sept. 17	Nov. 7			Oct. 28	Nov. 16			Oct. 23
Ruddy Duck	Nov. 14	Sept. 2							Oct. 12	Oct. 23
Snow Goose		Oct. 20			Nov. 6	Nov. 1				Oct. 20

TABULATED RECORDS—Continued

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
Canada Goose		Oct. 20	Oct. 3	Oct. 24	Nov. 5	Oct. 30	Nov. 1	Oct. 5	Oct. 23	Oct. 18
Black-crowned Night Heron			Oct. 26							
King Rail		Sept. 14							Sept. 13	
Yellow Rail			Sept. 30							
*Coot	Sept. 10	Sept. 22	Sept. 19	Oct. 9	Sept. 30	Sept. 15	Oct. 6	Sept. 26	Sept. 13	Sept. 1
Wilson Snipe			Sept. 26	July 17	July 16	Nov. 15	Oct. 31			
Pectoral Sandpiper		Sept. 2	Aug. 19							
Least Sandpiper			July 21	July 21	July 24	Aug. 20	Aug. 4	Sept. 26		
Red-backed Sandpiper		Sept. 21	Oct. 10							
Semipalmated Sandpiper			Aug. 9							
Greater Yellow-legs	Oct. 9	Sept. 21	Oct. 10	Oct. 16				Sept. 26		Oct. 21
Lesser Yellow-legs		Aug. 1	July 14	July 21	July 26	Sept. 17		Sept. 26		
Solitary Sandpiper		Aug. 13	Aug. 9	July 17	July 15	Aug. 20	July 26			Aug. 1
Semipalmated Plover			Aug. 17	Aug. 24						
*Turkey Vulture			Oct. 15	July 21	July 20	Sept. 15	Sept. 13	Sept. 14	Oct. 25	
Sharp-shinned Hawk		Oct. 6	Oct. 14	Aug. 28	Sept. 17	Sept. 30	Sept. 20	Sept. 20		
*Cooper's Hawk	Dec. 15		Sept. 1	Aug. 20	July 20		Aug. 17	Sept. 15		Oct. 30
Broad-winged Hawk								Sept. 8		
Rough-legged Hawk			Oct. 5	Oct. 30						
Bald Eagle	Sept. 3				Nov. 20	Sept. 30	Sept. 25			
Osprey	Sept. 10	Sept. 22	Sept. 2	Aug. 31	Sept. 3	Sept. 17	Sept. 15	Sept. 8	Sept. 1	Sept. 28
Barn Owl				Oct. 21						Nov. 21
*Short-eared Owl			Nov. 10		Dec. 12			Jan. 5		
Saw-whet Owl				Dec. 1	Nov. 30					Nov. 20
Snowy Owl	Dec. 18			Dec. 2		Dec. 20				
Yellow-bellied Woodpecker	Sept. 20	Oct. 6	Sept. 8	July 21	July 20	Sept. 22	Sept. 29	Sept. 19	Sept. 20	Sept. 6
*Nighthawk		Sept. 15	Sept. 5	Sept. 5	Aug. 16	Sept. 2	Oct. 8	Aug. 17	Aug. 21	Aug. 25
Olive-sided Flycatcher			Oct. 7							

TABULATED RECORDS—Continued

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
Yellow-bellied Flycatcher					Sept. 6					
Prairie Horned Lark		Oct. 6	Oct. 4	Oct. 3		Oct. 8	Oct. 13			
Rusty Blackbird	Oct. 12	Oct. 6	Oct. 9	Oct. 16	Oct 23	Oct 25	Oct. 19	Oct. 19		
Evening Grosbeak	Nov. 25		Nov. 28			Jan. 19				
Pine Grosbeak		Jan. 1								
Purple Finch	Oct. 7	Sept. 22	Oct. 4	Oct. 3	Oct. 9	Oct. 15	Oct. 27			
Crossbill			Nov. 7							
White-winged Crossbill		Jan. 19								
Redpoll	Dec. 15	Jan. 27	Dec. 19	Jan. 1			Jan. 17			Dec. 25
Pine Siskin	Nov. 18		Sept. 26	Jan. 23		Oct. 8		Oct. 17		Oct. 30
Snowflake		Dec. 25	Jan. 16		Dec. 24	Feb. 10	Feb. 1	Mar. 3		Nov. 13
Savanna Sparrow				Nov. 1	Sept. 17	Oct. 8		Oct. 4		
Lark Sparrow			Oct. 11							
White-crowned Sparrow	Oct. 3		Oct. 4	Sept. 26	Oct. 9	Oct. 15	Sept. 27	Oct. 4		
White-throated Sparrow	Sept. 23	Oct. 6	Oct. 4	Sept. 18	Sept. 25	Sept. 10	Sept. 15	Sept. 14		Oct. 15
Tree Sparrow	Sept. 23	Sept. 20	Oct. 25	Oct. 24	Oct. 23	Oct. 22	Oct. 27	Oct. 31		Oct. 16
Slate-colored Junco	Sept. 23	Oct. 6	Sept. 20	Sept 30	Sept. 29	Aug. 20	Sept 29	Sept. 25	Oct. 15	Oct. 3
Fox Sparrow	Oct. 12	Oct. 13	Oct. 4	Oct. 24	Oct. 2	Oct. 7	Oct. 27	Oct. 6		Oct. 21
Bohemian Waxwing										Oct. 23
Northern Shrike				Nov. 25						
Blue-headed Vireo	Sept. 26		Oct. 7	Sept. 26	Oct. 2	Sept. 24	Sept. 29	Sept. 25		
Black and White Warbler		Sept. 8	Aug. 23	Aug. 29	Aug. 22	Aug. 20	Aug. 28	Aug. 27		Aug. 15
*Golden-winged Warbler				July 20			Sept. 1			
Nashville Warbler	Sept. 20		Sept. 9	Sept. 18	Sept. 7	Sept. 3	Sept. 15	Aug. 28	Sept. 25	Aug. 14
Orange-crowned Warbler	Oct. 3							Oct. 19		
Tennessee Warbler	Oct. 14	Sept. 22	Sept. 4	Sept. 30	Sept. 7	Sept. 3	Sept. 22	Aug. 27	Sept. 13	Sept. 22
Northern Parula Warbler			Sept. 27		Sept. 15	Sept. 17		Sept. 8		
Cape May Warbler		Sept. 15	Sept. 9	Sept. 11	Sept. 11	Aug. 28	Sept. 22	Aug. 30	Oct. 11	

TABULATED RECORDS—Continued

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
Black-throated Blue Warbler		Sept. 24	Sept. 24	Sept. 6	Aug. 30	Sept. 3	Sept. 3	Sept. 4		
Myrtle Warbler	Sept. 9	Oct. 6	Sept. 4	Sept. 26	Oct. 2	Sept. 16	Sept. 22	Sept. 4	Sept. 11	Oct. 15
Magnolia Warbler	Sept. 17	Sept. 6	Aug. 23	Aug. 29	Sept. 7	Aug. 20	Sept. 3	Aug. 27	Sept. 12	
Cerulean Warbler				July 20	July 20					
Chestnut-sided Warbler			Sept. 11	Sept. 3		Aug. 25	Sept. 3	Aug. 28		
Bay-breasted Warbler	Sept. 27		Sept. 4	Sept. 6	Sept. 7	Aug. 20	Sept. 3	Aug. 28	Sept. 11	Sept. 5
Black-poll Warbler	Sept. 27	Sept. 28	Sept. 9	Aug. 29	Sept. 7	Sept. 3	Sept. 1	Aug. 30	Sept. 11	Sept. 29
Blackburnian Warbler		Sept. 8	Aug. 23	Sept. 11	Aug. 30	Aug. 25	Aug. 28	Aug. 25	Sept. 11	Sept. 22
Blk-throated Green Warbler		Sept. 8	Sept. 9	Sept. 6	Aug. 30	Aug. 25	Sept. 3	Aug. 30	Sept. 11	Sept. 22
Pine Warbler			Oct. 25					Sept. 12		
Palm Warbler			Sept. 16		Sept. 15	Sept. 22	Sept. 3	Sept. 19		
Grinnel's Water-thrush		Sept. 1	Aug. 24	Sept. 26		Aug. 20				
* Louisiana Water-thrush					Aug. 3	Sept. 3		Sept. 7		
Connecticut Warbler						Sept. 20		Sept. 14		
Mourning Warbler						Sept. 3				
Wilson's Warbler		Sept. 8	Oct. 1		Aug. 30	Sept. 10				
Canadian Warbler			Aug. 23	Sept. 3	Aug. 29	Aug. 30	Aug. 23	Sept. 4		
Pipit	Oct. 21		Oct. 10			Oct. 8		Nov. 5		Oct. 16
Winter Wren	Sept. 21	Oct. 6	Oct. 4	Oct. 24	Oct. 7	Sept. 20		Oct. 13		Sept. 22
* Short-billed Marsh Wren						Sept. 10				
Brown Creeper	Oct. 7	Sept. 26	Oct. 7	Oct. 17	Sept. 16	Sept. 28	Sept. 29	Sept. 12		Sept. 22
Red-breasted Nuthatch	Sept. 2	Oct. 21	Sept. 10	Sept. 26	Sept. 7	Aug. 31	Aug. 27	Aug. 27		Sept. 22
* Tufted Titmouse			Oct. 21							Jan. 2
Golden-crowned Kinglet	Sept. 23	Oct. 6	Oct. 2	Sept. 26	Sept. 21	Sept. 20	Sept. 29	Sept. 14	Oct. 11	Oct. 21
Ruby-crowned Kinglet	Sept. 30	Oct. 13	Sept. 27	Sept. 28	Sept. 21	Sept. 22	Oct. 13	Sept. 9	Oct. 12	Oct. 16
* Veery	Sept. 5							Sept. 7		
Gray-cheeked Thrush	Sept. 23	Sept. 19	Sept. 9	Sept. 7	Sept. 7	Sept. 3	Sept. 15	Aug. 30		
Olive-backed Thrush		Sept. 15	Sept. 9	Sept. 6	Sept. 11	Sept. 13	Sept. 27	Sept. 5	Sept. 1	
Hermit Thrush	Sept. 5	Oct. 2	Sept. 27	Oct. 3	Sept. 25	Sept. 28		Oct. 5		Oct. 16

AN APRIL DAY'S MIGRATION IN THE DAKOTA VALLEY.

BY STEPHEN S. VISHER, PH.D.

The northward flight of water-fowl always attracts attention. The northern Mississippi Basin is noted for great flights. Fifty years ago perhaps Illinois and Iowa were favored in this regard, but now it appears that eastern South Dakota excels.

Many of the myriads of water-fowl which nest in the lakes and marshes of northeastern South Dakota, North Dakota and Canada apparently follow the Missouri Valley to the junction of the Dakota (James) Valley, which many ascend to its beginning near Devil's Lake, N. D. The Dakota Valley, though almost flat in its general features, has thousands of small, shallow, glacial lakes and ponds which afford much used stopping-places. Corresponding depressions in the more populous states are either drained or so intensively hunted as to be comparatively unavailable for large numbers of game-birds.

It was my good fortune to spend a few days, early in a recent April, at the family home, which is situated on a bluff between, and overlooking, the Dakota Valley and a pair of fair-sized glacial lakes. April 4 was such a notable day that I am tempted to endeavor to describe it.

The winter had been long and severe. Birds did not come in abundance until March 30. By April 4 ice had almost disappeared; a little green grass could be seen; the earliest prairie flowers (*Peucednum* and pasque flower) were just appearing; wheat-seeding had commenced; a warm south wind prevailed.

Throughout the day, from sunrise to well into the night, flocks of Ducks, Geese and Cranes passed. Only for short intervals would an examination of the sky not reveal one or more northward-flying bands.

The Sandhill Crane is one of the most conspicuous birds of the prairie region, and most country boys know its unsur-

passed call of rich bugle-like notes. Flocks, ordinarily of about twenty individuals, were seen, soaring at great heights and drifting northward, or flying lower in a more or less direct line. During the day more than a dozen flocks were seen, and in the evening several were heard to pass in rapid succession, indicating that in the darkness soaring is replaced by direct flight.

Four flocks of scores of silent, silvery Snow Geese were seen; three were of the Lesser, and one of the Greater. In two of the flocks a few dark, immature birds contrasted sharply with the white adults. A half-dozen flocks of honking Canadas were seen, and one flock of Hutchins' passed as did geese intermediate in size, the White-fronted Geese.

Many flights of Ducks were seen, but from the usual distance only a few sorts (Mallards, Pintail, Teal and Scaup) could be recognized. At a near-by lake I identified with the help of binoculars the following species: Hooded Merganser, Mallard, Gadwall, Baldpate, Green-winged Teal, Shoveller, Pintail, Redhead, Canvasback, Lesser Scaup Duck, Ring-necked Duck, Golden-eye and Buffle-head.

Only a few of the land birds enjoyed on that memorable day will be mentioned. Western Meadowlarks proclaimed in matchless tones from every side that they were "at home." During the early morning their songs had the distant drumming of the prairie chicken as an accompaniment. During most of the day the meadowlarks supplied the accompaniment for the songs of tourists. Flocks of Chestnut-collared Longspurs passed at frequent intervals, singing loudly as they flew. Many great bunches of Thick-billed Redwings passed with jingled commotion. Fully a dozen loose groups of large hawks were seen making good headway northward. The Swainson's Hawk appeared most numerous, but the Western Red-tailed and Marsh Hawk were scarcely less plentiful.

PRELIMINARY LIST OF THE BIRDS OF FLOYD COUNTY, IOWA.

CARROLL LANE FENTON, CHARLES CITY, IOWA.

The county in which these observations were made is located in the north central portion of Iowa, and might be taken as a type of the "Iowan plain," and is in reality typical of the counties lying in that belt which McGee classes as the "Rolling Iowan" prairies. It possesses but few really large wooded areas, the largest in the county being about fifteen hundred acres in extent, and not particularly rich in bird life. The country is well cultivated; the banks of the streams low, with none of the miniature "badlands" found in southern and western Iowa; and the whole area one which would present but average attractions for birds, and if compared with some of the districts along the Mississippi, it is very unfavorable.

Notwithstanding this, the list of birds found within the county during 1914, 1915, and the portion of 1916 which has elapsed, shows a large number of species, some of which are so rare as to deserve special mentiol.

The following list is a compilation, largely from lists given in the first Annual Report, and Bulletin No. 1 of the Califor Naturalist Club; notes given in the "History of Floyd County" by Clement L. Webster, M.Sc.; private lists, and state lists. It represents observations covering a period of more than fifty years, and gives what is probably an almost complete list of the birds noted in the county during that time. Some are omitted, for lack of reliable data, which probably occur in Floyd county, or at least may have occurred here. The larger portion of the data, however, has been collected in the years 1913-1916, including the past months of the latter year. The bird life of Floyd county was once really rich, both in species and in numbers. Ducks, grebes, loons, and geese nested within the county and the gallinaceous birds were common. All this is now changed. Tiling had destroyed the marshes, and promiscuous shooting has

done the rest for the water-birds, and most game birds. The cover has been cut away, and now, though we have a considerable number of species, their numbers are greatly depleted, while many formerly abundant ones have disappeared entirely from the county.

LIST OF SPECIES AND SUB-SPECIES.

1. *Colymbus holbœlli*—Holbœll's Grebe. In 1862 this species was quite common in Floyd county, nesting near Charles City (M. A. Dalton). It is now rare, evn as a migrant. Flock of six seen in an adjoining county March 24th, 1916, by Mr. C. L. Webster. I saw a single specimen May 26th, 1916, within the limits of Charles City, but could not distinguish sex.

2. *Colymbus auritus*.—Horned Grebe. Up to 1880 this species was common. Webster, in 1897, mentions it as uncommon. I saw one specimen on September 21st, 1915. Mr. J. H. Wadell reports a pair as having nested near Floyd in 1913, the latest and only nesting record for many years.

3. *Podilymbus podiceps*—Pied-billed Grebe. Formerly very common, often nesting in swamps near Charles City, and along the Cedar and Shell Rock rivers. Even now it is fairly common, nesting regularly within the county. In 1915 a pair nested well within the limits of Charles City.

4. *Gavia immer*—Loon. Formerly common, regularly nesting within the county. Webster, in 1897, states that they were rarely found nesting, and it has now disappeared, except as a rare migrant. Last observation, March 23, 1916; W. T. Swartz.

5. *Gavia arctica*—Black-throated Loon. This species disappeared previous to 1897. Up to 1870, according to Mr. John R. Waller, it was a fairly common migrant, but after that decreased very rapidly. I have no late data.

6. *Larus argentatus*—Herring Gull. This species has never been common, as there are no large lakes to attract it. My last date for the species is March 12, 1916, in a Charles City park.

7. *Larus franklini*—Franklin's Gull, has been seen occasionally. What I think to be the latest reliable record is April, 1898, W. C. Miles.

8. *Hydrochelidon nigra surinamensis*—Black Tern. I have but one record; Nora Springs, March 28th, 1916.

9. *Pelecanus erythrorhynchos*—White Pelican. This species was formerly fairly common. The High School Museum at Charles City possesses a specimen taken in 1890. I think that this is the latest record for the county.

10. *Mergus americanus*—Merganser. This species has now disappeared except as a probable migrant. I have no data since 1906. The High School Museum possesses a specimen taken in 1904.

11. *Lophodytes cucullatus*—Hooded Merganser. Never very common, this species has now entirely disappeared from the county. Two mounted specimens, taken in 1894, are in the Charles City High School Museum.

12. *Anas platyhrynchos*—Mallard. This species formerly nested within the county (Webster). Even now it is a common migrant passing over on its way north in the latter part of March.

13. *Anas rubripes*—Black Duck. I have but one record of the occurrence of this species in Floyd county. One specimen, taken near Floyd, in the spring of 1896, is now in the Charles City High School Museum.

14. *Nettion carolinense*—Green-winged Teal. Formerly common (Webster) but at present a rather uncommon migrant. Last reported observation is April 3, 1916. My first date in 1914 was April 24th.

15. *Querquedula discors*—Blue-winged Teal. A rather uncommon migration. Latest observations: November 26, 1915, and March 27, 1916.

16. *Spatula clypeata*—Shoveller. A rare migrant. One was killed near Nora Springs, May, 1914.

17. *Dafila acuta*—Pintail. A fairly common migrant. I observed a small flock near Charles City, April 1, 1916, my latest date.

18. *Aix sponsa*—Wood Duck. Webster states that this species formerly occurred in Floyd county in large flocks, but is now almost extinct. Last observation, March, 1915; C. L. Webster.

19. *Marila americana*—Redhead. An uncommon migrant. A small flock was observed near Charles City in March, 1915, by John R. Waller.

20. *Marila marila*—Scaup Duck. Formerly common (Webster); now rare migrant. My last observation was March 23, 1910.

21. *Marila affinis*—Lesser Scaup Duck. A rare migrant. Last observation, Floyd, March, 1915; John R. Waller.

22. *Charitonetta albeola*—Buffle-head. Webster states that this species was at one time fairly common. It is now quite rare. My latest observation is April 2, 1916, two specimens, near Charles City.

23. *Oidemia deglandi*—White-winged Scoter. A rare migrant.

I observed four specimens, within the limits of Charles City, on April 25, 1915.

24. *Chen cæruescens*—Blue Goose. A rare migrant, though Mr. Waller states that it was formerly common. His last observation is March, 1915. I have no later date.

25. *Anser albifrons gambeli*—White-fronted Goose.. A rare migrant. Latest observation, Floyd, October, 1915, Mr. John R. Waller.

26. *Branta canadensis canadensis*—Canada Goose. A not uncommon migrant. Mr. Webster states that this species nested to a slight extent in the county during the '60 s. My latest record is March 17th, 1916.

27. *Branta vernicla glaucogastra*—Brant. A rather uncommon migrant, though Mr. Webster states that the species was, during the days of the early settlements, a very common migrant. My latest record is March 17th, 1916.

28. *Branta nigricans*—Black Brant. A rare migrant. Latest date, March, 1915; near Charles City; John R. Waller.

29. *Olor columbianus*—Whistling Swan. Webster states that these birds were, during the "early days," common, though rare in 1897. They have now disappeared from the county's fauna.

30. *Olor buccinator*—Trumpeter Swan. Webster states that this species was at one time, during the latter '50's, not uncommon. One was killed near Charles City in 1887.

31. *Botaurus lentiginosus*—Bittern. A fairly common summer resident, often nesting within the county. I have frequently come upon them within the limits of Charles City.

32. *Ixobrychus exilis*—Least Bittern. A not uncommon summer resident, though rarer than the preceding species. Nests within the county, but on account of its plumage and habits is rarely seen.

33. *Ardea herodias herodias*—Great Blue Heron. A rather uncommon summer resident. A pair nested near Floyd in 1914, and probably in 1915, as young herons were seen by Mr. J. H. Waddell, shortly after the nesting season. Mr. Webster observed one in December of 1914. My first date for 1916 is April 3.

34. *Butorides virescens virescens*—Green Heron. A common summer resident, often nesting close to the towns. First observation in 1916; Charles City, March 30th.

35. *Nycticorax nycticorax nævius*—Black-crowned Night Heron. In 1897, and for some years later this species commonly nested within the county. (Webster). The latest nesting record which I have is in 1913. They are now uncommon.

36. *Grus americana*—Wooping Crane. Webster states that

during the early settlement this species was very common, and large numbers were shot as game. However, it does not now occur, except as an occasional migrant, and even this is doubtful.

37. *Grus mexicana*—Sandhill Crane. Webster and others, including Mr. Waller, state that this species formerly occurred in flocks of many hundreds within Floyd county. They are not now found within the county except, perhaps, as occasional migrants. I have no late data.

38. *Grus canadensis*—Little Brown Crane. A rare species in Floyd county. Last observed, by Webster, in March, 1916.

39. *Rallus elegans*—King Rail. A rare species in Floyd county. My latest observation is at Charles City, April 24th, 1916. The bird was in a small swamp, north of the thickly settled portion of the city, and south of the plant of the Charles City Engine Company.

40. *Rallus virginianus*—Virginia Rail. This species, according to Mr. John R. Waller, and Mr. Webster, was quite common in the '60's and '70's, though it is now rare. My latest observation is May 3, 1916, in nearly the same locality as the preceding.

41. *Prozana carolina*—Sora. Mr. Webster recorded this species as commonly nesting in Floyd county, though it is now rare. Latest record, Floyd, 1914, nest (?).

42. *Prozana noveboracensis*—Yellow Rail. In a note attached to a specimen taken in 1885 by W. C. Miles, it is stated that the species was then uncommon. This note, in Mr. Miles' handwriting, and the specimen, is my only data.

43. *Ionornis martinicus*—Purple Gallinule. This species has been, so far as I know, observed but twice in Floyd county. A single specimen was taken by Mr. John R. Waller, in 1891. Mr. Waller states that he is positive that this specimen was not a Florida Gallinule. On September 9th, 1915, Mrs. Mary A. Dalton, and Miss Sydney Wetherbee, two members of the Califor Naturalist Club, reported one of these birds. It was seen less than one-half mile from the thickly settled portion of Charles City. As it allowed them to approach within fifteen feet of it, and as they carried glasses, a good view of it was obtained. (See Bulletin No. 1 of the Califor Naturalist Club).

44. *Gallinula galeata*—Florida Gallinule. A rare species in Floyd county. Mahlon Palmer observed two close to Charles City, April, 1916. This is the only definite data I have.

45. *Steganopus tricolor*—Wilson's Phalarope. Not uncommon. I have observed no nests but have seen numerous young. My last data is Charles City, August 12, 1915.

46. *Himantopus mexicanus*—Black-necked Stilt. I am told by

Mr. John R. Waller that this species sometimes occurs in the county. I have it on my "questionable" list for May 28th, 1916.

47. *Philohela minor*—Woodcock. In 1897, Webster classed this species as fairly common. Mr. John R. Waller took a specimen near Floyd in 1904, the latest data I have.

48. *Gallinago delicata*—Wilson's Snipe. Webster states, and Mr. Waller corroborates, that this species was very common during the early settlement, and uncommon in 1897. I observed a single specimen April 25th, 1914, but none in 1915. On May 3d of the present year I observed three specimens in practically the same locality as the King and Virginia Rails.

49. *Pisobia maculata*—Pectoral Sandpiper. A rare species in Floyd county. My last data is June, 1913, when I observed two specimens southeast of Charles City, but unfortunately lost the exact date.

50. *Totanus melanoleucus*—Greater Yellow-legs. A fairly common migrant. During the migratory season it is often encountered along ponds and small streams. My last observation is September 22d, 1915.

51. *Totanus flavipes*—Yellow-legs. Data same as of preceding species, though perhaps a little more common.

52. *Catoptrophorus semipalmatus inornatus*—Western Willet. Webster states that this species sometimes occurs in Floyd county, but gives no dates. I have no other records.

53. *Bartramia langicauda*—Upland Plover. Webster makes the same statement concerning this as concerning the Western Willet. I have it on my "questionable" list for June 6th, 1914.

54. *Tryngites subruficollis*—Buff-breasted Sandpiper. Uncommon. I have one specimen, taken September 9th, 1915.

55. *Actitis macularia*—Spotted Sandpiper. Not uncommon. During August of 1915, when there was a great deal of rain, I frequently saw these birds about ponds which had been formed in various places in Charles City by the excessive rainfall. The larger number of my observations come in the month of August.

56. *Numerius americanus*—Long-billed Curlew. Messrs. Webster and Waller both state that this species was fairly common in the '60s and '70s. I have no definite data.

57. *Charadrius dominicus*—Golden Plover. Webster states this species was formerly common. It is now rare, only two observations of it in Floyd county being recorded for 1915, and it is not at all improbable that the same specimens were the subjects in both cases.

58. *Oryechus vociferus*—Kildeer. A fairly common summer

resident. First observation in 1916, March 21st. This species seems more common than usual this year.

59. *Ægialitis semipalmata*—Semipalmated Plover. Webster states that this species occurs rarely in Floyd county, but mentions no dates. Mrs. F. May Tuttle saw one in an adjoining county in November 3rd, 1914.

60. *Colinus virginianus virginianus*—Bob-white. This species was very common during the early settlement. Mr. Will L. Swartz of Charles City, states that, when they were unmolested, they often came to the farm yards, and fed with the poultry. A pair nested in a Charles City park in 1913, though the species is now rare. My first observation for 1916 is January 6th.

61. *Bonasa umbellus umbellus*—Ruffed Grouse. Webster, in 1897, states that this species was rare except in deep woods. So far as I can find, it is now extinct in Floyd and adjoining counties.

62. *Tympanuchus americanus americanus*—Prairie Chicken. Webster states that this species was formerly common, though it is now rare. Mr. John R. Waller saw a small flock in January, 1916. Webster mentions two albino prairie chickens taken near Niles, Iowa, and gives a photograph of them, but no date.

63 and 64. *Phasianus torquatus*—Ring-necked Pheasant. A considerable number of these beautiful birds were placed in a game preserve northeast of Charles City. A small number of English pheasants were also placed here. They have done very poorly, however.

65. *Meleagris gallopavo silvestris*—Wild Turkey. In 1897 this species was classed as rare by Webster. I have one record, in 1898, from Mr. W. C. Miles of Charles City.

66. *Ectopistes migratorius*—Passenger Pigeon. Both Webster and Waller state that this species was very common during the "early days." The last authentic record is by Webster, in 1897.

67. *Zenaidura macroura carolinensis*—Mourning Dove. A quite common species, though the numbers were considerably reduced in 1912, for a reason which I cannot find. They have increased from 25 to 35 per cent since the Federal Migratory Bird Law went into effect.

68. *Cathartes aura septentrionalis*—Turkey Vulture. Classed as rare by Webster, in 1897; now extinct, so far as Floyd county is concerned.

69. *Elanoides forficatus*—Swallow-tailed Kite. Mr. Webster tells me that this species was formerly fairly common, but could give me no definite data. Mr. Waller also corroborates Mr. Webster's statement. So far as I know, it has not been seen in this county within the last twenty years.

70. *Circus hudsonius*—Marsh Hawk. Messrs. Webster and Waller state that this species was formerly quite common. It is hardly common at present, though this spring this species seems more plentiful than usual. My first observation in 1916 is March 25th.

71. *Accipiter velox*—Sharp-shinned Hawk. This species is fairly common, being commonly called "pigeon hawk." I have located several old nests, but none in use.

72. *Accipiter cooperi*—Cooper's Hawk. This hawk is more common than the preceding species. Its nests are not uncommon though as with *A. velox* I have found none in use.

73. *Buteo borealis borealis*—Red-tailed Hawk. This species might be safely termed uncommon. There are few nesting records within the county in recent years, and none, I think, within the last five.

74. *Buteo lineatus lineatus*—Red-shouldered Hawk. This hawk is considerably more common than the preceding species. It nests to quite an extent in the county, although killed indiscriminately.

75. *Buteo platypterus*—Broad-winged Hawk. This species is fairly common, and nests within the county to a considerable extent. A pair nested within the limits of Charles City in 1913.

76. *Archibuteo lagopus sancti-johannis*—Rough-legged Hawk. Webster mentions this species as occurring in Floyd county, but gives no exact dates.

77. *Haliaetus leucocephalus leucocephalus*—Bald Eagle. This species, according to Webster was not very rare in 1897; now probably extinct in the county. Mrs. F. May Tuttle reports one near Osage, March 26th, 1914.

78. *Aquila chrysaëtos*—Golden Eagle. An uncommon winter resident. Specimens were taken near Charles City, November 18th, 1914, and Nova Springs, November 5th, 1915. I have no data for 1916.

79. *Falco mexicanus*—Prairie Falcon. Rare. E. G. Brown took a specimen near Charles City September 19th, 1914. Its diet seemed to have been largely garter snakes, as the stomach contents showed four of these, and one caterpillar.

80. *Falco columbarius columbarius*—Pigeon Hawk. This falcon is noted as an occasional migrant. My last observation is September 5th, 1913. A questionable nest record was given me for 1915.

81. *Falco sparverius*—Sparrow Hawk. Fairly common, nesting regularly within the county. It is seldom recognized as a hawk, so escapes persecution. My first date for 1916 is March 27th.

82. *Pandion haliaetus carolinensis*—Osprey. This species is

very rare in Floyd county. I have no late records of it here, though I saw a single specimen in southeastern Cerro Gordo county, May 28th.

83. *Strix pratincola*—Barn Owl. Rather uncommon of late years, though plentiful as late as 1881, according to a note made by Mr. W. C. Miles of Charles City. A pair nested in Charles City in 1914, and for a short time I had one of the young ones, which had fallen from the nest.

84. *Asio wilsonianus*—Long-eared Owl. An uncommon resident. The Charles City high school possesses a specimen taken near Rockford in 1904.

85. *Asio flammeus*—Short-eared Owl. Quite common, nesting in swampy districts near Floyd; north of Charles City, and in other parts of the county. Specimens are quite often taken, especially in autumn.

86. *Strix varia varia*—Barred Owl. This species is quite common. They are often shot, merely because they are owls. My last observation is March 27th, 1916.

87. *Cryptoglaux funerea richardsoni*—Richardson's Owl. I found one specimen of this owl north of Floyd, July 14th, 1915. The body had been crushed by an auto, but served for identification, though worthless as a specimen. A specimen was taken near Osage in 1914, and Mrs. F. May Tuttle saw a specimen in Osage March 25th, 1916.

88. *Megascops asio asio*—Screech Owl. A common resident. Both grey and red phases are common, though the former is somewhat the more plentiful of the two.

89. *Bubo virginianus virginianus*—Great Horned Owl. Uncommon in Floyd county. My last observation is September 23d, 1914. A specimen was taken near Charles City in October, 1915.

90. *Nyctea nyctea*—Snowy Owl. A rare winter resident. During the last five years I have seen this species but once, December 23d, 1913, south of Charles City.

NOTES ON THE BREEDING WARBLERS OF TENNESSEE.

BY A. F. GANIER.

It is a general supposition that our warblers, with few exceptions, pass through the south as migrants and to a northern clime in search of a place to breed. Hence the following notes on sixteen species of Mniotiltidæ found in middle Ten-

nessee during the breeding season should prove of interest.

Middle Tennessee is neither flat nor swampy like west Tennessee, nor is it mountainous and rugged like the eastern part of the state. Instead, it ranges from rolling to hilly, well watered and has an average sea level elevation of six or seven hundred feet. It is a bluegrass region, similar to that of central Kentucky, while its fauna and flora are that of the Carolinian zone.

Pending a more thorough investigation of the status of the warblers in this section I shall confine this paper principally to a four-day trip, made by Dr. G. R. Mayfield and the writer, to Sulphur Springs, about twenty miles west of Nashville, from June 4 to 8, 1916.

The location of our outing was chosen on account of the great diversity of its topography, including as it did the Cumberland River, with its valley a mile wide, overlooked by precipitous limestone cliffs, some two hundred feet higher than the valley, the altitude of the latter being about four hundred feet. Back of the bluffs were dense woodlands of hardwood, well watered by springs and an ideal breeding ground for most of the warblers noted. Marrowbone Creek, a gravel bottomed stream of fairly good proportions, flowed into the river here and its clear waters and sycamore lined banks were the principal home of the water-thrushes and sycamore warblers noted.

The annotated list follows, specimens of the least common species being collected and preserved in the shape of skins.

Black and White Warbler—*Mniotilta varia.*

Doubtless the commonest warbler we found and readily noted on account of its habit of feeding low about the tree trunks. Many young of the year were noted, there being usually a group of three or four together. An inhabitant of the denser woodland.

Prothonotary Warbler—*Protonotaria citrea.*

Five or six pairs were located on Marrowbone Creek from the railroad bridge to the mouth, a half mile below. A lock and dam built in the river nearby has caused the water on this stretch to remain constant except of course in time of floods, and the place is ideal for their requirements. A number of nest holes were ex-

amined but the young had taken leave and no second sets were found. Two other pair were noted on the river a mile farther up-stream. The birds are most unsuspicious, several approaching to within a few feet of our boat as they fed among the bushes just above the water's surface.

Worm-eating Warbler—*Helmitheros vermivorus*,

Fairly common in the dense woodland. All birds noted were on or near the ground and usually not far from the small brooklets. Young of the year were already abroad but were still being fed by the parents.

Northern Parula Warbler—*Compsothylpis americana usneæ*.

About half a dozen were seen and heard and two males secured. There is no hanging moss in Middle Tennessee in which these birds could nest, hence it would be of interest to know how they have adapted themselves to the situation.

Yellow Warbler—*Dendroica æstiva æstiva*.

Two males were seen and heard singing among the brush along the river bank. Their scarcity in the vicinity was a matter of comment since they were fairly common about Nashville.

Cerulean Warbler—*Dendroica cerulea*.

Common in the dense woods, keeping to the upper branches of the larger trees. On account of this habit and it's small size it could only be located by it's song.

Sycamore Warbler—*Dendroica dominica albilora*,

Some six or eight singing males were noted along the three mile stretch of Marrowbone Creek over which we tramped. The birds fed among the high branches of the sycamore trees, their notes reminding one much of the song of the indigo bunting. Their movements are deliberate and for this reason they are hard to locate.

Kentucky Warbler—*Oporonis formosus*.

Fairly common in the woodlands, chiefly near the edges and about the open places. A young of this species, which had recently left the nest, was located among some bushes and my observations caused the greatest anxiety among the parent birds.

Hooded Warbler—*Wilsonia citrina*.

A bit more common than the former, showing a preference for the thickest part of the woodland and usually found on or near the ground.

Oven-bird—*Seiurus aurocapillus*.

Three pair were located in the woodland, being the first we had

had the pleasure of recording here during the breeding season. Excepting in the higher altitudes of the southern Alleghenies, this is the furthest south this species has been recorded in summer.

Louisiana Water-Thrush—*Seiurus motacilla.*

Fairly common in the deep woods along the little rock bottom spring branches and along Marrowbone Creek wherever the stream comes in contact with steep wooded hillsides which offer a nesting site above flood water. A nest with four almost fresh eggs was found beautifully located on a ledge of rock and hidden by a spray of fern. The parent bird slipped off the nest when I had approached to within thirty feet and ran along the spring branch ahead of me. This was doubtless a second set, since a young of the year in almost mature plumage was taken on the same day.

Maryland Yellow-throat—*Geothylypis trichas trichas.*

Quite common here as elsewhere. Found along the ditches, in the briar patches, and by the barrow pits along the railroad track. A singing male was nearly always within earshot. One which had taken up it's headquartors within fifty feet of the house where we stayed, began his ditty at daybreak and proved such a menance to our morning sleep that we were sorely tempted to shoot him.

Yellow-breasted Chat—*Icteria virens virens.*

Fairly common among the briar patches. Late in the afternoon all the males mount to a conspicuous perch and sing till dusk. Their rich yellow breasts surmounting the pinnacle of some sapling makes them conspicuous for quite a distance.

Redstart—*Setophaga ruticilla.*

This little firebrand of the woodland was noted hardly often enough to be called fairly common. Always flitting from tree to tree, catching flies in midair, with somersaults and loop-the-loops, spreading his tail between times, this is a fascinating little bird to watch. They are unsuspicious and will approach at times to within a few feet of the observer.

The fourteen warblers above, noted at Sulpher Springs, include all but two which I have recorded in middle Tennessee during the breeding season. The two species below have been recorded at Kingston Springs, about ten miles south of the above locality and in a region whose topography was exactly the same.

Blue-winged Warbler—*Vermivora pinus.*

Three records made during 1916 may mean that this bird will prove to be fairly common. On June 24, an immature bird was taken from a group of three on a brushy hillside. On July 1st an

immature was taken and it was accompanied by another of the same species. These were in a small brush patch in an open field. On July 14, a single bird was noted in a sapling at the edge of a field.

Pine Warbler—*Dendroica vigorsi vigorsi.*

Quite a colony has been located in a small belt of scrub pine trees which fringe the cliffs overlooking Turnbull Creek near where it flows into Harpeth River. This pine grove is three-quarters of a mile long and from fifty to one hundred and fifty feet in width. It was first noted here on June 6, 1915, when a single specimen was seen and secured. The bird was a mature male and was much soiled with pitch. I visited the grove again on July 4, 1916, accompanied by Prof. A. C. Webb and Dr. Mayfield, and was agreeably surprised to find about twenty-five of the birds feeding among the pines. Three specimens were taken and all proved to be birds of the year. A thin fringe of pines along the cliffs at Sulphur Springs was examined, but no pine warblers were in evidence.

Other warblers which I hope to add to the above list of summer species are the Prairie, Swainson's, Bachman's, Black-throated Green, and possibly Cairn's. I shall not be surprised to find the first named fairly common, tho of local distribution. The Swainson's I have taken 65 miles west of here on Sept. 7, in a swamp in which I have every reason to believe is its summer home. Lack of time has prevented me from investigating earlier in the season. I have taken the Prairie as early as August 30th and the Black-throated Green as early as August 23, which might indicate breeding birds.

Before concluding this paper I shall add a list of the other birds noted at Sulphur Springs during the four days of our stay: Great Blue Heron 2, Green Heron 2, Killdeer 1, Bob-white, fairly common, Dove, common, Black Vulture c, Turkey Vulture f. c., Cooper's Hawk 1, Red-tailed Hawk 1, Sparrow Hawk 1, Screech Owl 3, Yellow-billed Cuckoo f. c., Belted Kingfisher 4, Southern (?) Hairy Woodpecker 3, Southern Downy Woodpecker f. c., Pileated Woodpecker 6, Red-bellied Woodpecker f. c., Northern Flicker c., Whip-poorwill 1, Chimney Swift f. c., Ruby-throated Hummingbird 6, Kingbird f. c., Crested Flycatcher c., Acadian Flycatcher f. c., Phoebe f. c., Wood Pewee, abund., Blue Jay c., Crow c., Red-winged Blackbird 6, Meadowlark 4, Baltimore Oriole 2, Orchard Oriole 5, Bronzed Grackle f. c., Goldfinch c., Chipping Sparrow c., Field Sparrow c., Towhee f. c., Cardinal a., Indigo Bunting a., Summer Tanager c., Purple Martin f. c., Rough-winged Swallow 6,

Red-eyed Vireo a., White-eyed Vireo c., Yellow-throated Vireo c., Warbling Vireo 1, Mockingbird c., Catbird f. c., Brown Thrasher f. c., Carolina Wren a., Bewick's Wren f. c., White-breasted Nuthatch f. c., Tufted Titmouse c., Carolina Chickadee c., Blue-gray Gnatcatcher f. c., Wood Thrush 4, Southern Robin 4, Bluebird c., Cedar Waxwing 20 (two flocks).

The above, added to the fourteen species of warblers already mentioned, brings the last up to seventy-three species, all of which, with the exception of the Cedar Waxwing, were breeding birds.

A. F. GANIER.

Nashville, Tenn.

THE MAY BIRD CENSUS FOR 1916

The following belated reports were not in the editor's hands time to appear in the June issue.

New Haven, Conn., May 20, 4:30 to 9 A. M. 11 A. M. to 4:30 P. M. Clear. Wind southwest, light, Temperature at 8 A. M. 50°. Green Heron, 4; Black-crowned Night Heron, 2; Spotted Sandpiper, 1; Red-shouldered Hawk, 1; Sparrow Hawk, 2; Black-billed Cuckoo, 3; Belted Kingfisher, 2; Downy Woodpecker, 5; Red-headed Woodpecker, 1; Flicker, 9; Nighthawk, 1; Chimney Swift, 27; Ruby-throated Hummingbird, 1; Kingbird, 6; Phoebe, 11; Wood Pewee, 1; Least Flycatcher, 4; Blue Jay, 10; Crow, 24; Fish Crow, 3; Bobolink, 6; Cowbird, 16; Red-winged Blackbird, 32; Meadowlark, 15; Baltimore Oriole, 14; Orchard Oriole, 4; Purple Grackle, 17; Goldfinch, 24; Grasshopper Sparrow, 1; Chipping Sparrow, 13; Field Sparrow, 18; Song Sparrow, 36; Swamp Sparrow, 1; Towhee, 21; Rose-breasted Grosbeak, 12; Indigo Bunting, 7; Scarlet Tanager, 6; Barn Swallow, 21; Tree Swallow, 1; Red-eyed Vireo, 6; Yellow-throated Vireo, 2; Black and White Warbler, 9; Chestnut-sided Warbler, 15; Bay-breasted Warbler, 12; Black-poll Warbler, 17; Blackburnian Warbler, 12; Black-throated Green Warbler, 10; Prairie Warbler, 6; Oven-bird, 19; Water-Thrush, 4; Louisiana Water-Thrush, 1; Maryland Yellow-throat, 22; Yellow-breasted Chat, 14; Hooded Warbler, 1; Wilson's Warbler, 4; Canada Warbler, 15; Redstart, 16; Catbird, 26; Brown Thrasher, 19; House Wren, 8; Wood Thrush, 10; Veery, 9; Gray-cheeked Thrush, 2; Olive-backed Thrush, 5; Robin, 36; Bluebird, 5. Total 74 species and 763 individuals. The following twenty species have also been seen within a week of this date, but not on this day; Loon, Herring Gull, Old-squaw, Least Sandpiper, Solitary Sandpiper, Broad-winged Hawk, Mourn-

ing Dove, Yellow-billed Cuckoo, Hairy Woodpecker, Crested Flycatcher, Purple Finch, Vesper Sparrow, Sharp-tailed Sparrow, Seaside Sparrow, White-throated Sparrow, Cliff Swallow, Rough-winged Swallow, Cedar Waxwing, Warbling Vireo, White-eyed Vireo, Nashville Warbler, Cape May Warbler, White-breasted Nuthatch and Chickadee. Eighty-two species were observed on May 13, but since the migration was not then at its height, and the number of individuals of many species was small, this list was less typical of usual conditions than the above. Bay-breasted Warblers are in unusually large numbers this spring.

ARETAS A. SAUNDERS.

BIRD CENSUS IN BRISTOL COUNTY

Taken 4:00 A. M. to 7:00 P. M., May 20, 1916, by Elbert E. Smith and Frank Bruen. Green Heron, 5; Black-crowned Night Heron, 1; Least Sandpiper, 2; Solitary Sandpiper, 4; Spotted Sandpiper, 9; Ruffed Grouse, 2; Sharp-shinned Hawk, 1; Red-tailed Hawk, 1; Red-shouldered Hawk, 1; Black-billed Cuckoo, 6. (some Yellow-billed Cuckoos probably heard); Kingfisher, 3; Hairy Woodpecker, 1; Downy Woodpecker, 4; Red-headed Woodpecker, (rare), 1; Flicker, 10; Whip-poor-will, 1; Nighthawk, 1; Chimney Swift, 52; Ruby-throated Hummingbird, 1; Kingbird, 12; Phoebe, 2; Wood Pewee, 2; Least Flycatcher, 17; Blue Jay, 6; Crow, 17; Starling, 55 +; Bobolink, 3; Cowbird, 2; Red-winged Blackbird, 21; Meadowlark, 4; Orchard Oriole, (rare), 2; Baltimore Oriole, 33; Bronzed Grackle, 11 (probably some Purple and intermediates); Purple Finch, 7; Am. Goldfinch, 77 +; English Sparrow, not counted; Vesper Sparrow, 2; Grasshopper Sparrow, 1; White-crowned Sparrow, 1; White-throated Sparrow, 2; Chipping Sparrow, 22; Field Sparrow, 17; Song Sparrow, 18; Swamp Sparrow, 1; Chewink, 13; Rose-breasted Grosbeak, 21; Indigo Bunting, 1; Scarlet Tanager, 3; Barn Swallow, 16; Tree Swallow, 7; Bank Swallow, 1; Red-eyed Vireo, 8; Yellow-throated Vireo, 8; Blue-headed Vireo, 2; White-eyed Vireo, 3; Black and White Warbler, 7; Nashville Warbler, 5; Parula Warbler, 27; Cape May Warbler, 2 (1st record); Yellow Warbler, 3; Myrtle Warbler, 28; Magnolia Warbler, 9; Chestnut-sided Warbler, 8; Bay-breasted Warbler, 11 (generally rare); Black-poll Warbler, 2; Blackburnian Warbler, 12 (generally rather rare); Black-throated Green Warbler, 19; Prairie Warbler, 1; Oven-bird, 36; Northern Water-Thrush, 1; Maryland Yellow-throat, 24; Canadian Warbler 12 (generally rare); Redstart, 15; Brown Thrasher, 24; Catbird, 10; House Wren, 10; White-breasted Nuthatch, 2; Chickadee, 3; Wood-Thrush, 9; Wilson's Thrush, 17; Olive-backed

Thrush, 1; Robin, 90 +; Bluebird, 7. 83 species, 919 individuals. Whippoorwill, Orchard Oriole, Cape May Warbler and Prairie Warbler were reported by E. E. Smith only.

NEW JERSEY CENSUS.

Mt. Bethel, N. J., May 13, 1916. The day was started by Hix at 4:30 a. m. in the immediate vicinity of the village of Mt. Bethel. Dr. Wiegmann started from the Millington railroad station, the two of us meeting near the junction of the Dead river with the Passaic. Our route was then up the Dead river and a brook which flows into it, then by road to Mt. Bethel which we reached at 7:15 p. m. and separated, Dr. Wiegmann returning to Millington for the train to New York, and Hix remaining in Mt. Bethel. The country covered was varied, open fields, some cultivated, woods, swamps, mud-flats and roads. The weather was cloudy and cold with sprinkling rain in the morning, becoming fine and warm around noon. A light west wind was blowing.

The number of shore-birds along the Read river was remarkable Warblers were very much in evidence, 22 species being observed. The following is our combined list, each of us having seen some species before we met which were not seen when we were together.

Green Heron, 2; Least Sandpiper, 6; Solitary Sandpiper, 11; Spotted Sandpiper, 12; Killdeer, 6; Semi-palmated Plover, 1; Mourning Dove, 4; Marsh Hawk, 2; Red-shouldered Hawk, 3; Yellow-billed Cuckoo, 2; Black-billed Cuckoo, 6; Downy Woodpecker, 5; Red-headed Woodpecker, 4; Flicker, 3; Whippoorwill, several heard; Chimney Swift, 48; Ruby-throated Hummingbird, 1; Kingbird, 9; Crested Flycatcher, 2; Phoebe, 9; Least Flycatcher, 1; Blue Jay, 7; Aemrican Crow, 34; Starling, 21; Bobolink 9 ♂; Cowbird, 4; Red-winged Blackbird, 26; Meadowlark, 5; Orchard Oriole, 1 ♂; Baltimore Oriole 12 ♂ 5 ♀; Purple Grackle, 13; Purple Finch, 1 brown; Goldfinch, 7; House Sparrow, 4; Vesper Sparrow, 1; Grasshopper Sparrow, 3; Henslow's Sparrow, 2; White-throated Sparrow, 6; Chipping Sparrow, 13; Field Sparrow, 13; Song Sparrow, 45; Swamp Sparrow, 7; Towhee, 3 ♂; Rose-breasted Grosbeak, 9 ♂, 1 ♀; Cardinal, 1 ♂; Scarlet Tanagar, 3 ♂, 1 ♀; Purple Martin, 1 ♂; Cliff Swallow, 14; Barn Swallow, 69; Cedar Waxwing, 2; Red-eyed Vireo, 3; Warbling Vireo, 6; Yellow-throated Vireo, 1; Blue-headed Vireo, 1; Black and White Warbler, 5; Blue-winged Warbler, 6; Nashville Warbler, 2; Orange-crowned Warbler, 1; Tennessee Warbler, 2; Parula Warbler, 5; Cape May Warbler, 4 ♂; Yellow Warbler, 5; Black-throated Blue Warbler, 4; Myrtle Warbler, 30; Magnolia Warbler,

6; Chestnut-sided Warbler, 2; Bay-breasted Warbler, 1 ♂; Blackburnian Warbler, 1 ♂; Black-poll Warbler, 2; Black-throated Green Warbler, 8; Oven-bird, 5; Northern Water-Thrush, 1; Maryland Yellow-throat, 16; Yellow-breasted Chat, 3; Wilson's Warbler, 1; Canada Warbler, 5; Redstart, 8; Catbird, 5; Brown Thrasher, 4; House Wren, 4; Winter Wren, 1; White-breasted Nuthatch, 1; Tufted Titmouse, 3; Black-capped Chickadee, 2; Wood Thrush, 5; Veery, 3; Robin, 54; Bluebird, 4. Total, 88 species.

The day previous, May 12, some Tree Swallows were seen, and on the following day, May 14, Sparrow Hawk, Osprey, White-crowned Sparrow, Gray-cheeked Thrush and Olive-backed Thrush were added making the total list for the two full days 94 species. As often happened some common birds usually found in the vicinity were not seen at all.

GEORGE E. HIX AND WM. H. WIEGMANN, M.D.

MASSACHUSETTS OBSERVATIONS.

May 25, 1916. Lexington, Mass., and immediate vicinity. Fair, light to moderate west wind, T. 60-80. All day in the field.

Virginia Rail, 1; Sora, 1; Ring-necked Pheasant, 6; Sharp-shinned Hawk, 1; Red-shouldered Hawk, 3; Sparrow Hawk, 1; Screech Owl, 1; Yellow-billed Cuckoo, 3; Black-billed Cuckoo, 2; Hairy Woodpecker, 2; Downy Woodpecker, 2; Flicker, 10; Whip-poor-will, 1; Nighthawk, 3; Chimney Swift, 100; Ruby-throated Hummingbird, 1; Kingbird, 15; Phoebe, 8; Wood Pewee, 2; Least Flycatcher, 12; Prairie Horned Lark, 1; Blue Jay, 12; Crow, 25; Bobolink, 50; Cowbird, 4; Red-winged Blackbird, 40; Meadowlark, 8; Starling, 5; Baltimore Oriole, 60; Bronzed Grackle, 8; House Sparrow, 20; Purple Finch, 3; Goldfinch, 15; Vesper Sparrow, 12; Chipping Sparrow, 75; Field Sparrow, 8; Song Sparrow, 60; Swamp Sparrow, 1; Towhee, 12; Rose-breasted Grosbeak, 20; Indigo Bunting, 15; Scarlet Tanager, 2; Purple Martin, 3; Cliff Swallow, 15; Barn Swallow, 150; Tree Swallow, 6; Bank Swallow, 12; Cedar Waxwing, 8; Red-eyed Vireo, 15; Warbling Vireo, 3; Yellow-throated Vireo, 1; Black and White Warbler, 12; Golden-winged Warbler, 1; Nashville Warbler, 5; Parula Warbler, 1; Yellow Warbler, 10; Magnolia Warbler, 4; Chestnut-sided Warbler, 25; Black-poll Warbler, 1; Blackburnian Warbler, 1; Black-throated Green Warbler, 10; Pine Warbler, 6; Prairie Warbler, 3; Oven-bird, 50; Water-Thrush, 1; Maryland Yellow-throat, 75; Canada Warbler, 1; Redstart, 10; Catbird, 12; Brown Thrasher, 6; House Wren, 1; Short-billed Marsh Wren, 1; Brown Creeper, 2; White-breasted Nuthatch, 1; Chicadee, 6; Veery, 2; Olive-backed

Thrush, 1; Hermit Thrush, 1; Robin, 250; Bluebird, 12. 80 species, 1355 individuals.

This list was made, unfortunately, *between* heavy flights of migrants, hence, with few exceptions, it represents breeding birds. For the most part the observers worked together.

MR. AND MRS. C. A. ROBBINS,
MR. WALTER FAXON,
MR. J. B. NORTON,
DR. W. M. TYLER.

Austinburg, Ashtabula County, Ohio, May 21, 1916. Clear and warm. Slight frost in early morning. Wind, S. E. Time, 8:00 to 12:00 a. m. and 1:00 to 4:30 p. m.—Barn Swallow, 18; Bobolink, 10; Bluebird, 11; Killdeer, 5; Red-winged Blackbird, 10; Red-shouldered Hawk, 9; Chipping Sparrow, 3; Goldfinch, 14; Kingbird, 6; Warbling Vireo, 2; Yellow Warbler, 4; Baltimore Oriole, 3; Wood Pewee, 2; Meadowlark, 2; Song Sparrow, 5; Red-eyed Vireo, 7; Yellow-breasted Chat, 2; Red-headed Woodpecker, 5; Ruffed Grouse, 1; Blue-headed Vireo, 3; Towhee, 7; Blue Jay, 3; Water-Thrush, 3; Redstart, 7; Olive-backed Thrush, 7; Black and White Warbler, 1; Hooded Warbler, 1; Wilson Thrush, 7; Wood Thrush, 4; House Wren, 5; Canada Warbler, 2; Black-throated Blue Warbler, 6; Black-throated Green Warbler, 4; Blackburnian Warbler, 3; Philadelphia Vireo, 2; Magnolia Warbler, 3; White-eyed Vireo, 2; Yellow-throated Vireo, 3; Blue-winged Warbler, 4; Gray-cheeked Thrush, 2; Maryland Yellow-throat, 8; Cowbird, 10; Flicker, 7; Field Sparrow, 15; Swamp Sparrow, 10; Catbird, 7; Mourning Dove, 1; Spotted Sandpiper, 5; Rough-winged Swallow, 2; Chestnut-sided Warbler, 2; Cape May Warbler, 2; Scarlet Tanager, 4; Hairy Woodpecker, 2; Cardinal, 1; Kirtland's Warbler, 1; Louisiana Water-Thrush, 2; Rose-breasted Grosbeak, 4; Palm Warbler, 2; Tufted Titmouse, 4; Myrtle Warbler, 2; Oven-bird, 3; Downy Woodpecker, 3; Lincoln's Sparrow, 1; Barred Owl, 1; Crow, 5; Chickadee, 2; Marsh Hawk, 3; Cedar Waxwing, 2; Crested Flycatcher, 3; Tennessee Warbler, 3; White-breasted Nuthatch, 2; Northern Pileated Woodpecker, 1; Red-bellied Woodpecker, 3; Mockingbird, 2; Osprey, 1; Least Flycatcher, 1; Bay-breasted Warbler, 3; Cerulean Warbler, 1; Great Blue Heron, 1; Chimney Swift, 5; Phœbe, 4; Gray Quail (intro. 1913), 2; Vesper Sparrow, 3; Sharp-shinned Hawk, 1; Bronzed Grackle, 1; Grasshopper Sparrow, 1; Ruby-throated Hummingbird, 1; Brown Thrasher, 1; Cliff Swallow, 9; Robin, 7. Ninety species and 360 birds observed.

S. V. WHARRAM.

THE WILSON BULLETIN

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Edited by LYNDS JONES

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EDITORIAL

The editor's summer on the coast of Washington and in the Yukon country was one full of pleasure. He escaped the heat of the interior in the east if he was not always warm enough for comfort. The most notable things about the summer were the extreme lateness of the season on the coast of Washington, and the paucity of birds in the Yukon valley. An account of the summer experiences will appear in a later number.

The treasurer wishes to call the attention of members who are in arrears for membership dues to the cost of sending out notices. In the aggregate the cost is so considerable that it is well worth calling attention to. Please attend to this matter and thus save money for the betterment of the magazine.

GENERAL NOTES

NIGHTHAWKS NESTING ON A CITY ROOF.

June 21, 1915, my attention was arrested by the peculiar actions of a pair of nighthawks as I was walking, in the early evening, down the principal street in the city of Nashua, N. H. The birds were persistently hanging about the roof of a certain flat-topped building, occasionally making a headlong dive and failing to reappear for several minutes. Then up they would sail again into the air, to resume their hawking. I became convinced that the birds were breeding there, and the next day made an investigation. Hardly had I lifted off the skylight and poked my head above the level of the roof, when one of the birds, whose white throat-patch and white tail-band proved it to be the male, fell fluttering a few feet away, apparently desperately hurt,—an old trick with the ground nesting birds. Careful search at last discovered two tiny young, completely covered with mottled gray and white down. There was no attempt at a nest. The flat roof was covered with tar and pebbles, and the eggs had been deposited directly upon these. So remarkable was the protective coloration that the young were wholly invisible except on close scrutiny. In fact, had I not been looking sharply, I might have stepped upon them unawares. The mottling exactly simulated the pebbles, or the granite rocks on which these birds ordinarily nest in pastures. The mottling extended even to the tips of the bills.

Here is a bird that has taken to modern improvements. A balustrade surrounded the roof, making it impossible for the young to fall. High up in the air, in the midst of the crowded city, safe from hawks, owls, cats and other predatory creatures, the nighthawk rears her young in perfect security.

Obliged to leave the city, I was unable to follow up the family history. This year (1916), however, the birds again nested on the same roof. June 2 I found two eggs, mottled very much like the young birds, and invisible except at close range. Both parent birds were on the roof, the female on the eggs while the male, by desperate fluttering, vainly sought to divert us from his treasures. Nine days later the eggs were seen to be in an advanced state of incubation. June 17, I found two feeble young, evidently just hatched. Long continued rains had soaked the roof, and it was wet underneath the young birds, but they were dry and warm under their father's protecting wings. And here I wish to offer a curious observation. While I invariably found the female on the eggs, I never found her in the daytime on the young. Always it

was the male. An orinthological friend who has studied the nesting of the nighthawk assures me that the male broods the young by day and the female by night. Certain it is that my experience goes to prove the truth of the first part of his contention.

June 24 the young were found to have grown considerably. The pin feathers were well out. June 27 they were much larger and had developed mottled feathers over their bodies. They squatted perfectly motionless, with closed eyes, while the male did his best to draw me away. Two days later a change had come over the young birds. They no longer squatted motionless, but watched my approach with bright eyes and suddenly, with outstretched wings, wide open mouths and fierce hissings, rushed at me, evidently warning me to keep my distance. The gape of the mouth was prodigious and gave an excellent illustration of the bird's natural fly-trap as he sweeps the atmosphere for flying insects. Finding intimidation vain, the little fellows raised their wings and ran swiftly across the roof. The wing spread was marvelous,—out of all proportion to the size of the body, and marked the bird as an aviator of the very first rank. The body measured four inches, but the wing spread was fully twelve inches. As the bird ran, with spread wings, elevated at a slight angle, the resemblance to an aeroplane skimming along the ground and about to rise was most striking.

I was obliged to be absent from the city for a week, and when I returned, July 8, the birds had flown. I cannot be sure of the exact day of the laying of the eggs or the flight of the birds, but the entire interval between must have been pretty close to thirty-six days.

MANLEY B. TOWNSEND,
Secretary Audubon Society of New Hampshire.

INCUBATION PERIOD OF KILLDEER.

May 25, 1916, I had the pleasure of seeing for the first time the Killdeer's nest and eggs, through the courtesy of Mr. Charles S. Ludlow, local weather reporter, who for several years has collaborated with me in reporting bird migration and taking the Bird Census. I have seen the downy young just able to run, once, many years ago. The nest is about a mile north of Red Cloud, in a fallow field that was sown last year broad-cast to cane, on a barren knoll, with absolutely no protection but that of innocence, which may be greater than we think. The dirt is scooped out the size of my hand and is inlaid with thin, flat scraps of magnesian sand shale averaging an inch long. While a few dead stems lie with the stones, there is no appearnce of design in their presence.

The soft stone satisfies the mother's instinct, and holds the heat while she is off the nest.

The eggs are three, remarkably large for the weight of the bird. We agreed that the ground color was greenish, uninfluenced by the books studied later. They say creamy or buffy. The markings are as described, shining blackish, with large blotches around the larger end. The small end is almost acute. The mother had probably heard us coming, and was running a few rods away, but after our examination, when we moved about four rods into the shelter of the trees, she came to the nest without hesitation, and hovered over it but would not settle. The male has not been seen, taking apparently no further interest in the proceedings.

The eggs were all laid by the twentieth of May, when the nest was first found. We were desirous of learning what we could of the period of incubation of this class of birds. June 15, one egg was hatched and the others pipped. A day or two later Mr. Ludlow found everything gone. A bull snake had been seen in the vicinity, and probably knew all about the matter. The nestling was well covered with down, as is the case with all birds that leave the nest young. Can anyone add more accurate data as to the period of incubation?

J. M. Bates.

Red Cloud, Neb.

LITTLE BLUE HERONS NEAR COLUMBUS, OHIO

On July 2, 1916, two Little Blue Herons (*Florida caerulea*) in the white plumage were seen and studied at close range for some time, at a swamp near Canal Winchester, about fifteen miles south-east of Columbus, Ohio.

Mrs. R. O. Ryder,

Columbus, Ohio.

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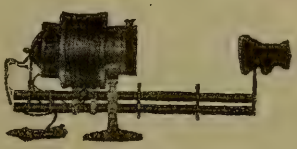

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VOL. XXVIII DECEMBER, 1916 NO. 4

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Bush Gannet—Sula piscator (Linn.).

The gannets are persistently chased by the man-o'-war birds and made to disgorge their hard-earned prey.

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THE MATING AND NESTING HABITS OF FREGATA AQUILA.

BY PROFESSOR HOMER R. DILL,
STATE UNIVERSITY OF IOWA.

Among the many interesting birds to be found on Laysan Island, perhaps one of the first to attract the attention of the visitor is the man-o'-war, *Fregata aquila* (Linn.). Floating gracefully a few feet over head it follows a new comer about with curious interest. One cannot fail to be impressed with the beauty and grace of these creatures. The male is especially distinctive with its jet-black body, iridescent scapulars, long forked tail that opens and closes at intervals like a pair of shears, and its unique gula-pouch, that, during the mating season, is inflated into a large sack-like affair, bright red in color, and for all the world like a toy balloon.

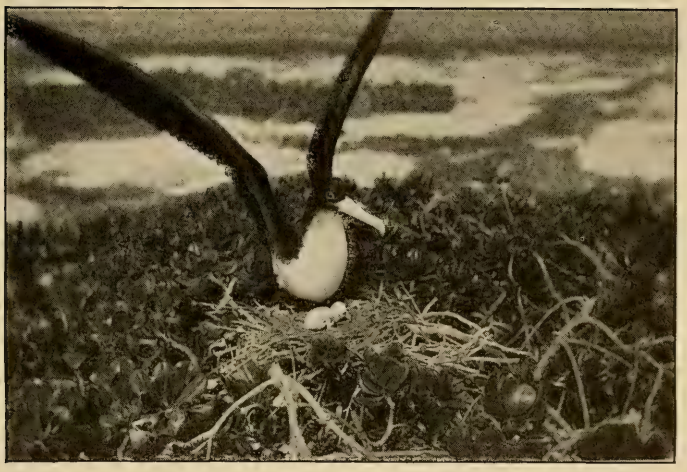
Naturalists have speculated long as to the use of this gula-pouch of the man-o'-war bird. During a several weeks' residence on Laysan, which fortunately fell at the season when the mating and nesting of these birds was at its height, a careful scrutiny of their habits convinced me, at least, that while it served primarily for the attraction of a mate, the gula-pouch may be used also as an aggressive feature with which to frighten an enemy.

Man-o'-war birds were found nesting in large colonies, many acres in extent, building their nests on the tops of low bushes. In some places their nests were so close together

that the occupant of one was often disturbed by the flopping wings of its neighbor. The male takes an active part in the nest building and in some instances builds a nest even before finding a mate. In such cases, after his work is finished he sits quietly holding down his claim. If by chance he is frightened from his post, thieving neighbors of the same species will carry away the nest stick by stick.

In the same buoyancy of spirit in which the pea-cock spreads its resplendent tail and the argus pheasant its gorgeous wings, this bird inflates the gula-sack to a size so large that it often conceals from the front the bird's entire body, save only the beak and eyes. Evidently Nature intended this embellishment to take the place of a song as the creature has only a hoarse cackle, far from winsome, which, nevertheless, is kept up incessantly while mating. When a female comes near the nest, the male becomes very much excited, bending back its head, swaying its pouch from side to side, partially spreading its wings and tail, and flopping about in the most ridiculous manner. At times it will rub its pouch against the female, who, true to the instincts of her sex, pretends not to be interested, unless by chance a rival appears, whereupon my lady not only takes an interest but proceeds to drive away the intruder. After the single egg is laid the male does not inflate the gula-sack, excepting on rare occasions.

The birds seem not to mind the presence of man in their rookeries, and will not leave their nests unless the intruder gets very near. One large male refused to leave the egg he was guarding until touched with a stick, whereupon, with gula-sack inflated and open mouth he came directly at the offender. His aspect was not unlike that of an angry sitting-hen, although much more formidable. This demonstration was so unexpected that it was impossible to make a photograph, but most fortunately the year following this incident, Mr. Alfred Bailey, who visited Laysan with a party sent out by the U. S. Department of Agriculture, in making a snap-shot of the man-o'-war rookery, caught one of the birds in the same act without being aware of it until the plate was



Female Man-o'-War and Young a Few Hours Old.

A band of thieving pirates watching for an opportunity to rob other sea birds of their prey.

While primarily for the attraction of a mate the gular-sac of the male man-o'-war may be used as an aggressive feature. Note the bird in the upper left-hand corner.

Young Man-o'-War About Ten Days Old.

developed. Through his courtesy the accompanying picture is reproduced.

Birds of this species are all cannibals, and will quickly devour any egg or young bird left unprotected; hence constant vigilance is necessary on the part of the parents, who take turns in protecting the nest. Despite this watchful care I more than once saw a youngster dragged from its nest, carried high in the air, and torn to pieces by his harpy relatives.

When suddenly disturbed the parent bird not infrequently disgorges a fish beside its offspring before taking flight. Some observers believe this is to provide food for the young during the parent's absence, but the fact that this fish is never eaten by the young bird would seem to indicate that the parent simply wished to relieve itself of an additional weight so that it could more readily get under way. This inference is supported by the fact that gannets and other sea-birds when disturbed on the beach, some distance from their nests, were observed to act in this same way before taking wing.

Man-o'-war birds are light and spongy in structure, the body, wings, and paper-like bones being filled with a series of air chambers. On comparatively calm days they sail with motionless wings on the air-currents hundreds of feet above the island when it would be necessary for an albatross to fly very swiftly and with much muscular effort in order to keep suspended. Although masters of the air, these birds are almost helpless on the ground, their tiny feet and weak legs affording insecure support for the bulk of their enormous wings; and again, although totipalmate, they never alight on the water. A member of our party once threw a light bamboo stick into the air, thinking that the playful creatures might try to catch it, but unfortunately it came in contact with one of the flyers, and so fragile was its texture that the blow broke both its wings. On another occasion a flying man-o'-war inadvertently collided with an albatross, breaking one of its own wings, while the albatross was apparently unharmed. They are fond of amusement, a fact particularly true of the immature birds that are easily recognizable by

their brown breasts. I saw several of these birds high in the air passing from one to the other a peculiar object, which later proved to be the dead and dried body of a petrel. With little effort they would repeatedly drop one hundred feet or more in a series of mighty swoops and catch the object before it reached the ground. On other occasions, passing close to the surface of the water, after the manner in which they so deftly pick up floating objects, the players would nip at the protruding dorsal-fins of the small sharks that are numerous in the shallow water about Laysan. Frequently I have seen them drink from a small fresh-water pond by scooping up a quantity of water with their long lower mandible as they dexteriously sweep across the surface. This inveterate fondness of play led to the partial destruction of our flag, which we were obliged to remove from its place over headquarters to prevent its complete annihilation. On one delightful occasion a member of the party was startled by having his white helmet, the pride of his heart, abruptly removed from his head. Looking up he saw it sailing swiftly away in the beak of a man-o'-war. They chase other sea-birds and make them disgorge their prey. The gannet especially, being a weak flyer, falls an easy victim to these thieves. I remember one evening observing a gannet that had just returned from fishing, with a crop full of fish, fleeing from one of these birds. At first it seemed as though the gannet would out-fly its pursuer and reach the beach, where it would be more than a match for its enemy; but its load was too heavy. The man-o'-war overtook the quarry, seized it by the tail, and then suddenly raising itself in the air, turned the gannet completely over. When the gannet, thus rudely overturned, lost control and disgorged the contents of its crop, the man-o'-war plunged and actually caught the fish, even as it came from the gannet's mouth.

From previous reports it appears that the man-o'-war birds were less abundant on Laysan formerly than today, the present number being estimated at about 12,500. It seemed strange to us that they should increase in numbers when we observed their wholesale slaughter of each other's offspring;

A courtship affair. The gular-pouch of the male, during the mating season, is inflated to an enormous sac-like affair, bright red in color, and for all the world like a toy balloon.

Holding Down the Claim.

This youngster objected to having his picture taken and twice it was necessary for the parent to drag its lively offspring back into the nest to prevent it from falling over the edge.

but I believe this slaughter would not be so extensive under normal conditions. Our visits to the rookery disturbing the birds more than was usual, resulted in many a youngster being left unprotected.

It is gratifying to know that these wonderful denizens of the air are not likely to become extinct. Despite their thieving habits they proved to be a constant source of interest, and their unique ways brought forth many a laugh from even the most undemonstrative member of our party.

BIRDS BY THE WAYSIDE.

IN GREECE.

BY ALTHEA R. SHERMAN.

We reached Greece by the way of Constantinople. Had the direction of the journey been reversed it would have followed the course of historic Grecian colonization and thus have better pleased those who wish to take everything in its chronological order; but when one has waited more than forty years to visit Greece, it matters little by what route he arrives, so long as a fond dream is realized. This for two score years had been a subject for my dreams, both waking and sleeping, with a difference: The dreams of sleep pictured the Acropolis of Athens in all its ancient splendor. Fulfillment found it, as so often and accurately portrayed by pen and brush of others, leaving little aside from personal sensations to be gained by a visit to it. These proved a surprise for me. It appears that one may know clearly how deeply time and "the unspeakable Turk" have fixed the stamp of death and destruction on this crowning glory of ancient art, and yet in the presence of it be filled with indescribable sadness: such as one may feel at the funeral of a young friend, beautiful, and transcendentally noble in character.

With a heart of mourning for the departed race, who wrought so wondrously in art, literature, and national life, one is drawn by a pathetic fascination to solitary wanderings

in certain rooms of the National Museum in Athens, where stands the sculptured grief of a past, long dead, yet not a buried and forgotten past. For there many unique gravestones are exhibited. Some of these steles are large, with life-size figures, in very high relief often, and not infrequently with the heads carved entirely "in the round." These, in a most dignified and impressive manner, did honor to memories of the dead and the sorrow of surviving friends, along with virginal vases for the memories of maidens: for the faithful Antigones and Electras, for the young and fair Iphigenias, who died unmarried. A count of the gravestones in one room was made, which showed that seventeen were for men and boys and twenty-four were for women. In the last named class it was always a young wife or mother that was portrayed, not infrequently with a child or two at her knee. The marble effigies of some of the warriors may have been erected in memory of the self-same heroes eulogized by Pericles in his ever-memorable funeral oration. In addition to all these there were sculptured likenesses of very human little boys with their pets, sometimes a dog, very often a bird, sons, perhaps they were, of some Xanthippe, who scolded them overmuch when they were alive, and was broken-hearted when they died. In our college days we were doubly dosed with Socrates, when we were given to translate both the *Memorabilia* of Xenophon and the *Phœdo* of Plato, and the suspicion took root that even a great philosopher may become tiresome and nerve-racking, when he does little except talk of demons and dialectics, therefore Xanthippe has her justifiers.

In another room of the National Museum were to be seen the articles collected by Dr. Heinrich Schliemann and his devoted wife from their excavations at Mycenae and its neighborhood. The debt was already great that we owed to this enthusiastic dreamer about ancient Hellas, because of his published accounts of his excavations. And now we were privileged to see the home he built for himself in Athens, as well as this rare collection of antiquies, which help to prove that a high degree of civilization existed in Greece as early as 1400

B.C., or thereabout, and that the Homeric legends were not altogether mythical. The near approach to perfection of the goldsmith's art is established by various examples in the collection. In it are swords inlaid with gold, on which are engraved figures of animals in action, superbly drawn. Of such are the running dogs and lions, cats chasing ducks, and sometimes there are fishes. There is a beautiful gold cup with a bird on each of its handles, which look like sparrows, though the authorities identify them as doves. Birds are frequently the motive in the designs. One of the most attractive of these articles is a necklace, the "repeat" in its design consisting of two birds in very dovelike attitude and outline. Perhaps of similar workmanship and design were the ornaments that filled the jewel-case of scandalous Helen, when she fled from Sparta; while the exquisite ornaments, here preserved, doubtlessly came from the tombs of true wives, whose existences were forgotten ages ago in the land where false Helen and wicked Clytemnestra were remembered.

A carriage drive of about fourteen miles from Athens to Eleusis was our first outing in the environs of the capital. The impenetrable Eleusian Mysteries lifted not the veil of secrecy while we walked about the ruined foundations of Demeter's temples. Afterward we visited a museum, containing sculptured marble relics, among which was one very beautiful little head. Robbed throughout the ages by thieving vandals of all nations, poor, old Hellas holds now small numbers of her art treasures, and we wonder how long it will be before righteous equity will rule the hearts of men, and they will return to her that which was once her own.

The road to Eleusis parallels the Sacred Way, when it is not coincident with it. For four or five miles out from Athens it lay across a valley between fertile fields of wheat and barley. Some deciduous trees were covered with the filmy garm of hazy green that is characteristic of a northern spring. The fig trees were putting forth their leaves and young figs, and other fruit trees were in bloom. Doubtlessly spring migration was at its full height. A drive of similar length at

home would discover for us hundreds of birds, whose songs would fill the air. But on this twenty-fifth day of March the bird sights along the Sacred Way were very few: There were several Hooded Crows and some black Crows, whose species were not determined. Two or three times flocks of small birds numbering from ten to twenty individuals were startled into the air. Earlier in the day Gulls, two Hawks and Swallows were seen. Having passed the valley before mentioned the road climbed a rocky spur of Mount Ægaleos, that bore a perennial crop of stones, then descended to cultivated fields and the margin of the Bay of Eleusis, from which a view could be obtained of "sea-born Salamis." But the rocky brow upon which Xerxes perched on a certain fateful day is supposed to be on the eastern side of Mount Ægaleos.

The noise from the street: the cries of the venders, and the clatter of hoofs on the pavements, awakening me with their familiar sounds the first morning in Athens, brought home the fact that the Orient had been left behind; that we were in a new city very similar to American cities, founded a century, or less, ago. For Athens numbered no more than two thousand wretchedly-housed inhabitants when Greece was freed from Turkish misrule less than a hundred years ago. Beyond question, since their release from thralldom, the Greeks have made most commendable progress. Of this Athens on all sides offers abundant evidence, over which one could tarry long in pleasureable study. But for me there was a lure in the land of historic Hellas: in the scenes that had smiled or frowned on her ancient worthies. Olympia, Argos, Mycenæ, Delphi, and Chæronea, all beckoned in vain, since a slender week of time would not permit the visiting of them, but it did suffice for trips to Thebes and Marathon.

The trip to Marathan by automobile was easily made in an afternoon. As attractions, aside from its battlefield and the famous run made by the messenger, who carried the news of victory to Athens, it offered a view of the countryside in the direction opposite to Eleusis, and seemed favorable for seeing the birds. When at last the city was left behind the course

of the road ran for a few miles over the cultivated plain. Beside it frequently there were buildings, that looked like road-houses, sometimes there were three or four houses near each other, with once or twice a church. For nearly two-thirds of the distance the road lay with innumerable serpentine twistings through a wooded district, at first about the eastern base of Mount Pentelicus, then near the sea, but not in sight of it. No homes appeared in the woods, and cultivated clearings were not numerous. In North America such a district would have been alive with woodland birds at a corresponding stage of spring migration. In the entire afternoon we saw one Hooded Crow, two Crested Larks, a few Swallows and Magpies, and a very few birds that were not identified. In a district so thinly inhabited there seemed to be scarcely enough people to catch all the birds, had that been their main business.

On the plains of Marathon we spent an hour or more about the tumulus, built over the graves of the fallen heroes who, with their more fortunate companions, saved Hellas from the Persian invaders. The soil of the plain appears to be very poor, judged from the scanty growth of its grain crops. Several species of plants were in bloom. On the way there we had passed patches, nearly a quarter acre in extent, that were completely covered as by a carpet with small purple flowers. At Marathon some very attractive blossoms were not recognized, but there was one that called for more than passing notice. Not since my childhood had I seen garden thyme; however, it is a plant, which once known is never forgotten. The wild thyme was blossoming there in abundance, and we gathered handfuls of it—roots and all—to carry to Athens for the eighty per cent of our party that had not cared to make the trip. All had been enjoying the unique flavor of Grecian honey, which the bees are said to gather largely from wild thyme. Whether we were served with the famed honey of Hymettus, or a superior quality produced in other portions of Greece, we could not learn.

There was another article of food of classical fame, which I had been anxious to see before I left the Orient. When

sacks of grain or seeds were brought to our steamer at Haifa some of us had wondered if some such sacks did not contain sesame. We talked sesame, longed for sesame, but did not see sesame (at least not to know it) until a gentleman of our party bought some in Constantinople. After it had been seen and tasted, I was of the opinion that it, served like rice along with fish, had been eaten at a dinner on one of the Egyptian railway trains. It did not look tempting, but proved to be the most delicious fish I ever ate. Ancient Athenian wedding cakes were said to have been made of roasted sesame seed, mixed with honey.

Customs and peoples are ever changing, but the more constant landscape, as well as subjects in natural history, vary little and help us in picturing the past of such countries, for whose ancient rather than recent history we care more. That Greece a few years ago was one of three European nations that refused to join the ornithological union for the protection of birds was known to me, yet the scarcity of birds exceeded my expectations. While deploring such conditions we have daily reminders of much we owe the ancient Greeks in our scientific nomenclature of ornithology: *Charadrius* for the lapwing or curlew, *Chelidon* for the swallow, *Philomela* for the nightingale, and *Halcyon* for the kingfisher are unchanged Greek names. *Diomedea* recalls the mythical story of the companions of Diomedes, who, inconsolable because of his death, were changed into birds. Likewise *Meleagris* for our turkey calls up the story of Meleager's ever-mourning sisters, who were transformed into guinea-hens.

Very naturally one becomes curious to know the ancient Greeks' attitude toward and knowledge of birds. The comedy of *"The Birds,"* written by Aristophanes about 414 B.C., throws a little light on these points. He mentions at least sixty-seven species, more birds, we dare say, than the average theater-goer of today can recognize. He pays tribute to the economic value of birds as insect destroyers: both those "that in the marshy glens snap up the sharp-stinging gnats," and those that prey upon the destructive pests of vineyard, or-

chard, and grain-field. He shows that the time for the performance of many annual duties was based on the migratory appearance of certain birds. That mercy was not shown the birds because of their beneficial services is made clear in his arraignment of mankind by a bird represented as speaking in this fashion: "and has exposed me to an impious race, which, from the time it existed, has been hostile to me." Again he has one of his characters, addressing the birds, describe in this wise the warfare made on them by men: "And they shoot at you, even like those who are mad; and every bird-catcher, sets snares, traps, limed twigs, springs, meshes, nets, and trap-cages for you in the temple; and then they take and sell you in heaps." The internal evidences of this comedy are that in the days of Aristophanes birds were more plentiful than now. Whatever degree of admiration tinges the mind toward things Hellenic, the friend of birds must admit that they have had a hard time for ages, and that it is small wonder that so few have escaped the fowler's net.

Nearly a century after Aristophanes wrote *"The Birds"* Aristotle was engaged in compiling his cyclopedia of human knowledge of natural history. He names about 150 species of birds, scarcely one-hundredth part of the world's species now known to science. There appears a great disparity between the knowledge of birds' anatomy and that of their habits. The Bee-eater is especially cited as the only family known to nest in burrows in the ground, while the myth concerning the Kingfisher is given due prominence as an ornithological statement. In truth, there were strange mingling of facts and fancies then as there are today. An illustration of this is furnished by Aristotle's story that "all birds with crooked talons, as soon as their young can fly well, beat them and drive them from the nest." This has a counterpart in the fancies of the people of today, who see parent birds dangling worms temptingly out of reach of their nestlings, and whose imaginations are so lively they can almost hear a parent bird say: "Come little ones, it is time three of you were out of the nest. All smart youngsters of our family

leave the nest on their fourteenth day. Come Tom, Dick, and Harry, you have now attained that age! But Susan, who is a day younger, may stay until tomorrow."

Only two of our party made the trip to Thebes, which now bears the name of Phiva. The trip had its origin in my desire to see the plains of Boeotia and the sites of Thebes and Platæa. For all true Americans there is unmistakable appeal in the story of any nation's resistence to a foreign invader or usurper. The battles of Marathon, Salamis, Platæa and Chæronea are the prototypes for us of all heroic stands for liberty; and what is better than liberty? The original plan was to go by train to Thebes, and from there take carriage to Platæa. Our Athenian guide was filled with anxiety because two women meditated such a journey, but he wrote for us a letter, addressed to the station-master at Thebes, asking him to engage the team and explain to the driver what was wanted. But before Thebes was reached a supposition came to mind that was deterrent. Suppose an accident should happen to carriage or team, and we were stranded in the lonely country, unable to understand the language or be understood. What should we do? The sequel showed that we need not have worried.

At an early hour one morning, with the aid of a lad from our hotel, we were provided with return tickets and started on the right train for an all-day excursion. It proved to be our happiest day in Greece. As we rode along we tried to recall all we had once known about Thebes. The legendary lore was best remembered. Both rejoiced, however, that we were not called upon to pass a searching examination on the Seven against Thebes, the Epigoni, or the Theban alliances. Teaching a subject, especially teaching it by lectures, is the best means of fixing it firmly in mind, yet I was frequently surprised, when our local guides would mention something that had been shelved in memory's chambers for many years. An experience of this sort happened, while we were on the Acropolis, and two gentlemen of our party were becoming quite disputatious with the guide over the point, which was

Taine's statement regarding the lines of the Parthenon, when the controversy was good-naturedly settled by my assurance that "it certainly must be true, since I had taught it many times to my classes studying the history of ancient art." Thus various questions, trivial and profound, enlivened our journey.

A cloudless sky, a very clean car, with rugs and comfortably upholstered seats were part of the enjoyable things of the day. Manifold were the styles of railway coaches used in the Old World, but only in Greece was the compartment entered from an open little porch or vestibule on the side of the car. A mountainous range separates the plains of Attica from those of Bœotia. On the latter vegetation was not so far advanced. Many fields were being plowed, sometimes by oxen, more often by horses or mules. Flocks of sheep or of goats were not infrequent, but no herds of cattle were seen. The landscape views were most charming, yet always with cold, snow-capped peaks to the north, perhaps Mount Olympus was one of them. Most of the people seen at the stations wore the commonplace European dress, but a few men were dressed in the fustanella, and a few women in homespun with long woolen aprons, woven in colored patterns. Some wore ugly, sleeveless cloaks of white wool with two dark stripes down the back.

Thebes, with an accredited population of three to four thousand, looks no larger than many American villages of eight or nine hundred people. The streets are lined with trees whose branches interlace overhead. Hydrants at intervals pour a never-ceasing flow of water into stone troughs, from which the overflow races down the hill in open gutters. At some of the troughs women were doing their washing. Interest in this water supply is increased by the statement that through a part of its course it is brought in an anciently built aqueduct supposed to date from prehistoric times. Thebes has an enthusiastic excavator, who is the curator of its archæological museum. He showed us its treasures, and explained them as well as his limited command of English per-

mitted. One of its gravestones was among the finest seen in Greece. The mother, with a new-born infant on her knee, is portrayed with all the grace and delicacy of the sculptor's art. Among relics of finely colored frescoes was outlined the profile of a woman of rare beauty. These relics are supposed to be very ancient, "perhaps from the palace of Cadmus," suggested the curator. Some gray stone slabs are unlike in decoration any other panels that have been found. The outline figures on them were done with excellent drawing. The museum possesses a copy of the famous Lion of Chæronea, which does honor to the memory of brave defenders "whose fortune was not equal to their valor."

The voices of the school-children, singing, led us to a building, which appeared to have been a dwelling-house, converted to school purposes. It would be well if all those fault-finding American school-teachers, who are furnished with all the conveniences that school money can reasonably supply, could visit that little two-roomed school-house in Thebes. In one room, measuring about 16x24 feet, there were counted one hundred and one little girls, ranging from five to eight or nine years. Most of them were seated on deskless forms, but these, with close packing, could not accommodate all, consequently about a half dozen were seated on stones and a few were standing. The second room was about eighteen feet square. It was supplied with very narrow desks and was occupied by an older grade of pupils, who numbered sixty-one. We heard the children sing, examined a few of their map-drawings and writing-books and regretted that we could not express our admiration for the devotion of the teachers who, under such cramped conditions, were working for their younger sisters, unsealing for them the fountains of knowledge in the land, whose ancient literature has been for ages a well-spring from which thirsty scholars have drunk; and on the very site of the city in which Pindar lived and sang the greatest lyrics of Greece.

The carriage drive to Platæa having been abandoned we walked south from Thebes until a commanding point was

reached and we could view with binoculars the country for several miles in the direction of Platæa. It looked cold, lonesome, uninhabited. When returning, we sought the lee of a steep hillside and sat down to eat the luncheon put up for us by the hotel in Athens. (This was one advantage of traveling with a conducted party. A want needed but mere mention and it was promptly met.) While we were eating, a goatherder with his flock came within ear-shot. As we arose from our meal I announced my intention of looking up the birds whose chirping had been heard. The wind had been making free with any loose articles of clothing, and soon Miss Smith was exclaiming: "Where is my scarf?" and "Thank you," as the goatherder pointed up the hill to it. As we climbed toward it she whispered: "I am pretty certain the goatherder said 'up there' when I asked about my scarf, and 'you are welcome' when I thanked him." When I returned from scouting after the birds (which were Chaffinches) I found her in animated conversation with two Greeks. The goatherder had worked in Kansas City and Seattle, and was doing any odd job he could find until he could return to America. He and his companion were but two of the many thousands who had been called home by the recent Balkan War. Soon after parting from them we met a man whose cheery greeting was, "How do you do?" and somewhat later, while I was giving lengthy attention to birds about the Frankish tower, a passing Greek inquired in the clearest accents of America, "Is there anything I can do for you?" Verily English-speaking Greeks seemed to be springing up on all sides, as if from the ground, like the mythical Thebans of yore. And the letter of the Athenian guide appeared unnecessary.

The Greeks everywhere appeared fond of America. On a steamer that was taking me to India I sat at table next to a learned gentleman and his bride, whose nationality was puzzling for a few days. He spoke seven or eight languages, but conversed mostly in French with the Belgian father and son who sat across the table from him. After learning that

he was a Greek I told him that I was an American, and his interest was immediately and acutely aroused. Evidently he had thought me to be English, as were the rest of the people at that table. When we spoke of the Greek classics, he hastened to tell me that he was educated at Robert College and learned his ancient Greek from an American. So in some small ways is America repaying her debt to ancient Hellas.

We became exceedingly popular in Thebes. A group of school-boys found delight in listening to our strange speech, and we wondered if they remarked that "the barbarians twittered like birds," as said their Dodonæan ancestors thousands of years ago. A bevy of children, among them a little girl carrying a baby, followed us about for several hours. They escorted us to the railway station and waited to see us off on the late afternoon train. We certainly made a host of friends that day.

I had hoped that for seeing birds the Thebes trip would be the best one taken. It was; but this is saying very little. There were seen Magpies, numbering about a dozen, a few Hooded Crows and one or two of their black cousins, a Crested Lark, a large Hawk, several female Chaffinches, a Greenfinch, Sand Martins, and a few Swallows. These were seen outside of Thebes. Within the village stands the ruins of an old Frankish tower. About this tower, flying in and out of its nooks and crannies, were several Jackdaws and at least sixteen Kestrels. Eleven of the last named were in the air at one time. A Christmas bird census for almost any place in the United States would show a better record, yet this was near the height of the spring migration, the distance traveled from Athens was forty-five miles, the time was the entire day, excepting the short periods spent within the museum and the school-house.

To mighty Zeus, the all-powerful, but a single bird, the eagle, was held sacred. While to some of the lesser deities a whole avian collection was sacred: to Hera the hawk, goose, cuckoo, and later the peacock; to Aphrodite the dove, swan, swallow and sparrow; to Phœbus-Apollo the hawk, raven,

and swan; but to Pallas-Athena, the goddess of wisdom, the owl alone among birds, was sacred. Her sculptured forms represent her frequently with the owl. Modern Greece is strong on the emblematic owl. In our dining-room in the Hotel D'Angleterre were counted twenty life-sized figures of the owl on the gilt cornice over mirrors and windows, and adjoining rooms were almost as richly adorned. Both moldings and owls were of an excellent quality of gold-gilt, so said one of our party whose business fitted him to judge. The school-boys seen in Greece wore a dark blue uniform. On the caps of those seen in Thebes, Athens, Corinth, and Corfu was a gilt ornament, having an owl in its center. It looked like an enlarged copy of the owl that used to decorate the backs of our classical text-books. Certain Greek coins, as for example the ten lepta pieces, are embellished with an owl. And it is interesting to learn from Aristophanes that in his day silver coins bore similar designs, of which he scoffingly wrote: "For in the first place, what every judge especially desires, Lauriotic owls shall never fail you, but shall dwell within and make their nests in your purses, and hatch small change." Finally, if at any time Greece should have failed to furnish things of interest in the owl line, we still had, as members of our party, Mr. and Mrs. Uhl of San Francisco.

The bird, sacred to Pallas-Athena, is said to have been the Little Owl (*Athene noctua*). I had no opportunity to hear or see this species, but was told by "the warrior," recently returned from Balkan battle-fields, that it was common on his native island of Syra, and another said the same of his native Cephalonia, while several reported that its notes were frequently heard in the outskirts of Athens. If not actually protected this owl appears not to have been persecuted by a race, that from remote antiquity has cared naught for song-birds—except to eat them. The status of the Little Owl should be kept in mind, when contemplating the scarcity of birds in Greece, and, if possible, a lesson should be learned from it relative to our treatment of the Screech Owl. In 1843 the Little Owl was introduced into England, and other importa-

tions have followed. It has proved a pest, and ornithologists loudly denounce it, though it appears to be no greater enemy of small birds than is our Screech Owl. I have been slow in forming an opinion of the Screech Owl, whose nesting habits and food supply I have studied at very close range for several years. The facts and figures against this species cannot be given here excepting this: In 1916 fifty per cent of the food found in a Screech Owl's nest consisted of birds. The nightly accumulation of feathers from victims, that were not seen, argued that birds formed half of the bill of fare throughout the nest season. Reluctantly the conviction came that in places where small birls are encouraged to stay the Screech Owl should be urged to depart, gently but firmly, by the chloroform route.

The railway ride from Athens to Patras consumed an afternoon, together with an hour or two of the evening. Very few birds were seen. Gulls for most part had left their winter resorts, and none was seen, though we were in sight of salt water during most of the journey. There were seen a few Crows, Magpies, Crested Larks and Swallows, and nothing else. One interesting sight was the canal cut through the Isthmus of Corinth. Though three miles in length, it looked much less, and far below its waters shown like a ribbon. A short stop at Corinth did not admit of a view of the ancient, ruined city even from a distance. If one were thirsty for refreshing colors he could have drunk his fill during the entire afternoon: There were the wondrously beautiful blues of the Gulf of Corinth, beyond which were the violet hues of shore and mountains. Mount Helicon came first and farther on Mount Parnassus raised its snow-capped head. The narrow strip of cultivated land, through which we rode, was devoted mainly to olive groves and vineyards. The grape-vines of the latter ought to have interested more the women than the men of the party. Wherever mince pies, fruit cake, or plum puddings are to be concocted we order for them currants or sometimes we say Zante currants, and there near the railway track were growing thousands of the grape-vines which bear these

currants, something like two hundred million pounds of them annually.

The steamer on which we embarked at Patras in the evening was far north among the Ionian Islands, when morning came. If we passed near storied Ithaca it was in the dead of night, when nothing could be seen of it. The charms of Corfu unfolded gradually as we passed between island and mainland, until we rode as if on an enchanted sea. If the scenery of yesterday had been thrillingly beautiful, that of today was most ravishingly so. To the splendor of color on land and sea were added the touches given it by the red sails of fishing boats. We had a half day on shore at Corfu and drove to the Achilleion, a palace of the German Emperor, who at that time was in residence there, in consequence of which we could not enrich him to the extent of forty cents per capita for the privilege of entering the palace, but we were allowed to walk through the grounds, which were beautified by a profusion of blooming plants and shrubs. The view was exquisite in form and color, but a birdless one. Except the singing of a single bird none other was heard. The ride of seven and a half miles to the palace was through rural scenes: between cultivated fields and olive groves, which were enlivened by very few birds.

For several hours the mountainous coast of Albania lay on our right. Bleak and desolate it looked, with scarcely a sign of inhabitancy. Just what sort of a turmoil was in progress there at that time we could not guess, but we did know that a certain royal weed, William of Wied by name, was trying to take root in that inhospitable soil, and we were glad that it was proving very inhospitable. The northern end of Corfu had been rounded and its shores had faded into distant blue, when night fell. One brief week had been spent in Greece, not much of it had been seen, yet enough to make impressive one fact: that the exceeding smallness of her territory was not at all commensurate with "the glory that was Greece."

THE ALBATROSS OF LAYSAN.

BY PROFESSOR HOMER R. DILL,
DIRECTOR OF THE VERTEBRATE MUSEUM,
STATE UNIVERSITY OF IOWA.

Hundreds of miles from the regular course of mail steamers, on a tiny sand-grit island in the middle of the Pacific Ocean, millions of birds have made their homes; here for countless generations they have lived, finding abundant food and suitable places in which to rear their young.

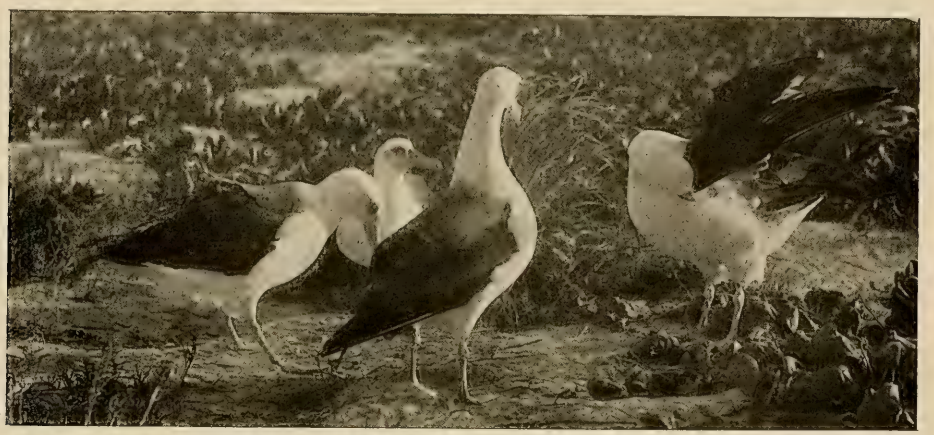
This primitive world, inhabited only by birds, is known as Laysan Island and is one of the Hawaiian group. The island has an area of two square miles, is low and flat, and although of volcanic origin has its upper surface to-day completely covered with coral sand and phosphate rock. The shores are of cream-white sand; the higher ground bordering the beach is covered with a rich growth of low bushes and sand grasses, among which are trailing vines. In the center lies a shallow lagoon unconnected with the sea, not far from the south end of which is a small fresh-water pond. From the central plane the sloping sides of the old coral atoll basin can be seen raising gently on all sides to the higher ground that borders the beach.

In the spring of 1911, I spent six weeks on this island with three assistants to collect the necessary material and data for making a cycloramic reproduction of the bird rookeries for the Museum of the State University of Iowa; and while there noted twenty-three species of birds, among the most notable being the Laysan albatross (*Diomedea immutabilis,* Rothschild).

The birds did not seem to mind the presence of man. As our party toiled up the beach through the loose coral sand, these beautiful creatures were seen on the higher ground, assembled in groups of twenty or more; as we drew nearer they came up to greet us, some of them bowing profoundly.

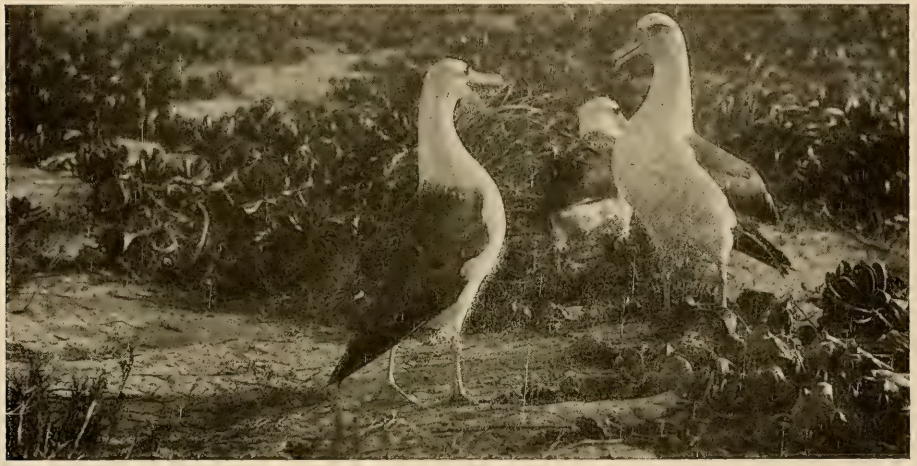
They walk about each other, stepping high like negro cake-walkers and bowing all the time.

They cross bills rapidly several times. The first stage in the strange "dance" of the Laysan albatross.



Second stage in "dance"— One bird quickly turns its head while lifting one wing; the other bird in the meantime snaps its bill.

The final stage in which each bird points its back straight up in air while rising on its toes, puffing out its breast and uttering a long-drawn groan.



Neighing like a horse. The albatross "dance" is repeated over and over again with slight variations.

They gathered about as we stopped to rest, even pulling at our clothing with their mandibles, and pecking at our luggage. If we offered to touch one of the birds they retreated somewhat, but soon returned, their curiosity getting the better of them.

About two years previous to our visit a party of foreign plume-hunters landed on Laysan and for several months made the slaughter of sea birds a business. Had they not been interrupted, they probably would have exterminated the entire colony. As it was, thousands of sea birds were destroyed, especially albatrosses. To-day there is about one-sixth of the original albatross colony left, numbering approximately 180,000—and to one who has never beheld such masses of birds, this colony is a wonderful sight. The level ground that surrounds the lagoon is wholly occupied by them; and nearly every other part of the island, also, with the exception of the beaches, supports small colonies.

The amount of guano deposited by the albatrosses and other sea birds on this island has been estimated to be about one hundred tons daily. For a number of years these guano deposits were leased to a company in Honolulu, but later the business was abandoned. A member of the company reports that while the supply of guano is abundant, it is of low grade, owing to the frequent rains that remove the ammonia.

The albatrosses are said to begin nesting about the middle of November. The one egg is laid on the ground, after which the parent bird draws the sand or earth about her, forming a platter-like nest, in which the young albatross, when hatched, spends the early part of its life; in fact, it does not stray far away even after it is able to walk about. I once carried a youngster some distance from its nest to see if it would find its way back; after it had recovered from its fit of anger at being disturbed, it slowly waddled home. During the morning hours, the old birds feed the young, the food consisting entirely of squid that have been partly digested by the parent.

When we landed on the island on April 24, the young alba-

trosses were wearing a downy coat of a dark brownish color, which gave way a few weeks later to one of white feathers on the breast and abdomen and dark feathers on the back and wings. When the down has nearly disappeared, the young bird begins to try its strength by spreading the wings and rising on its feet like the adult birds. It is laughable to see the youngsters tottering along and fanning their wings in a futile attempt at flight. At this stage they play and quarrel with one another a good deal, and frequently amuse themselves by gathering together any loose material that may be near the nest. One young bird had surrounded itself with a pile of the bleached bones of its dead ancestors.

In flight the albatross, like an aëroplane, must rise against the wind; with its wings fully extended the bird runs swiftly along the ground until it has gained headway enough to rise. If thrown into the air it cannot fly as do most birds, but instead falls heavily to the ground.

Much of the time of the Laysan albatross is spent in carrying out a very strange performance. This dance, as it has been called, varies, but usually proceeds in the following order: one bird approaches another with an indescribable squeaking sound, bowing all the time. If the one addressed feels like performing, as is usually the case, he bows in return. Thereupon they cross bills rapidly several times. Then one bird turns his head and lifts one wing in such a manner that the primaries point directly out at the side. In the meantime his partner keeps up a loud noise that sounds like the neighing of a horse. The bird taking the lead then walks around his companion, stepping high like a negro cake-walker. This part of the procedure is usually closed by one or both of the birds pointing their beaks straight up in the air while rising on their toes, puffing out their breasts and uttering a long-drawn groan. The same thing is repeated many times, with slight variations.

The black-footed albatross (*Diomedea nigripes,* Audubon) has taken almost complete possession of the beaches along the north, east, and south sides of the island. While an occasional

Laysan albatrosses are not afraid of man. They approach a visitor on the island as if to greet him, bowing profoundly.

The black-footed albatrosses occupy the beaches of Laysan. This species also has a "dance," more elaborate than that of the white albatross and at a slower pace. The notes are soft and the dance ends with a sound like the stroke of a bell under water.

With wings extended the albatross runs along the ground until it has headway enough to rise against the wind like an aëroplane.

Black footed albatross about to feed young. The food consists of squid partially digested by the parent.

Black footed albatross singing.

Young albatrosses totter along fanning their wings in a futile attempt to fly.

pair may be found nesting with the white species, as a rule they are found by themselves.

The black-footed albatross is somewhat larger than the white species, and when seen on the wing is instantly recognized as being far superior as an aviator. Birds of this species followed our ship all the way from the Hawaiian Islands to San Francisco. They nest like the Laysan albatross, and feed their young in the same manner. Likewise, they have a dance, as does the white species, but in their case it is much more elaborate, and the figures are more slowly and gracefully executed. Instead of lifting one wing they raise both, while the notes uttered are much softer, and the whole performance ends with a sound which seems to come from deep within the bird's body and suggests the stroke of a bell under water. Although they nest separately, black albatrosses are very neighborly with the white species. We often saw them visiting a white colony, and sometimes even trying to perform with them. On such occasions, however, the rapid pace set by the white bird was rather too much for his more deliberate cousin, and in each instance the affair ended disastrously.

During the latter part of August, when the young albatrosses are strong enough to fly and to feed themselves, they all leave the island and live on the sea until the return of the nesting season.

THE CEDAR WAXWING (*BOMBYCILLA CEDRORUM*) DURING JULY AND AUGUST, 1916.

BY KATHERINE C. POST.

A. INTRODUCTION.

This work was done at the University of Michigan Biological Station, Douglas Lake, Michigan, under the direction of Dr. R. M. Strong. Mr. R. F. Hussey gave me the facts regarding the building of the second nest and the dates for laying the eggs. Misses R. M. Hall, S. M. Moiles and M.

Boland also made observations. In this paper I have used Miss Hall's notes for August 6, 4:30–8:30 A. M., Miss Boland's for July 12, 8:15–9:15 A. M., July 22, 3:30–4:30 P. M., July 27, 4:30–5:30 P. M., and on July 30, 4:00–6:00 P. M.; Miss Moiles' for July 24, 1:30–2:30 P. M. July 26, 4:00–4:30 P. M., and August 6, 1:30–4:30 and 6:00–6:30 P. M.

Insect larvae and any other animals resembling a grub or worm are called "worms" indiscriminately in this paper as it was not practicable for me to distinguish them. Insect imagos are called "insects."

Three Waxwing's nests were found within the limits of the camp. One of these was in a pine tree at the edge of the lake, about nine feet high, and was not accessible for study. A second one in a Norway pine, at the edge of the lake was seven feet from the ground. My observations of nest building were made on this nest. The third nest was completed and the eggs laid before I personally observed it. (This paper deals with the nesting habits of two Cedar Waxwings, and the various activities connected with the rearing of the young birds.) As Cedar Waxwings show no difference in plumage for the sexes, I shall speak of the members of the pair as the first and second bird, I shall use the word "chirped" to describe the peculiar squeaking sound uttered by the young waxwings.

B. Periods of Nest Building.

On July 9, 1916, we noticed a cluster of needles and string on a pine limb so placed that we thought it the beginning of a nest. The next day we saw two waxwings carrying pine needles to the tree. The first bird flew upon the nest bringing more needles. It noticed us and flew away.

July 12, 8:15-9:15 A. M.

When we arrived the second bird was standing within the nest and seemed to be weaving the inside with its bill. The first bird was on a nearby limb and at 8:25 it chased away

a vireo which passed the nest, the waxwing flying at the vireo rapidly and uttering a single note. At 8:28 the waxwing flew back to the nest, whereupon the second bird left it, and two minutes later flew to a tree close by, and noticing a string caught around a tree about three yards from the nest, it pulled the string with its bill very vigorously for a minute. Two minutes later the first bird, which had returned to the nest, came to assist it. They both took holds and pulled repeatedly at different points. Three minutes later they had released the string and the first bird brought it to the nest. The string was over a yard long and there was some difficulty in getting it to the nest, as it was twisted around a small limb. The second bird was on the nest waiting for the string and when it was brought, wove it into place. At nine o'clock a third waxwing appeared, but was chased away by the first bird, which flew rapidly at it several times. Five minutes later both birds left the nest and the first bird tried to loosen a piece of string which had been brought to the tree at an earlier time and was caught around a limb. It took hold of the string at several points, but was unable to remove it. At 9:07 both birds flew off. The first one flew to a ten rope about thirty feet away. It stood on the rope and tried to seize the fibres and loosen them. The second bird left the nest and also tried to loosen fibres. Both flew then to the top of the rope, where it was frayed. They pulled out some fibres, which they took back to the nest, where the second bird wove the fibres into the nest. A hermit thrush approached and the first bird flew towards it rapidly, whereupon the thrush flew away.

We were at the nest from 11:30 until 12 A. M., but the birds did no work. It was rainy and warm. We were there again from 3:00-3:30 P. M. At 3:20 the second bird flew to the nest and turned around several times. It flew to the rope and pecked at the end, but flew away again.

July 14, 8:00-8:30 A. M.

The first waxwing flew to a tree about ten feet away. It

flew round the nest twice, then went to where the second bird was perched. The first bird held something in its beak, which it brought to the other bird. At 8:10 the second bird flew away, the other followed it and neither returned during our stay. On Saturday, July 15, we found one bird sitting upon the completed nest. The third nest was in a little maple tree, five feet, seven inches from the ground and on a horizontal branch a foot from the trunk. This tree was only about twelve feet from one of the laboratories, and as people were continually passing by the birds became accustomed to them. The nest was bulky and rough looking on the outside. It was made of grass, fibres, roots, and string not smoothly woven together. The inside of the nest was carefully and securely woven. It was built upon a forked branch. It measured six inches on the outside and three and a half on the inside and was a little longer than it was wide. The nest was begun on June 26, and finished on June 28.

C. Period of Incubation.

The five eggs were laid on July 1, 2, 4, 5 and 6. My observations were begun on July 9, when one of the waxwings was upon the nest. I watched for an hour in the morning and in the afternoon of July 10, 11, 12 and 14, but did not see the bird leave the nest unless I frightened it away, in which case it returned in from one to three minutes. It was possible that the first bird may have been on at night and that the second bird began early in the morning. Any way the waxwings did not change at short intervals. My observations made me think that the brooding may be done very largely by one bird.

D. Nesting Period.

July 17, 8:00-9:45 A. M.

On July 17, there was one little bird with eyes closed and seemingly without feathers. The parent bird returned one minute after I frightened it away and remained on the nest the rest of the hour.

July 18, 8:00-11:10 A. M.

The next morning I saw a second little bird still partly in the shell. Again the adult bird returned to the nest within a minute. At 9:45 the first parent bird brought food to the second and then flew off again.

July 19, 8:00-11:10 A. M.

The following day a large wooden box was placed so that I could sit on it and look within the nest. The second bird allowed us to approach with the box and did not leave the nest until I gave a quick jerk to the limb. There were four little birds, and one egg which did not hatch, and was gone from the nest the next day. On careful scrutiny, numerous feather germs were seen, although at a casual glance the nestlings appeared naked. When touched near the mouths, the little birds opened them wide, showing a brilliant red and orange throat. At 9:07 the second bird was back and brooded the nestlings. The thermometer registered a maximum of 100 degrees and probably on account of the heat the bird kept its mouth open.

Three minutes later the first bird approached the nest directly with an insect and put it in the second bird's bill. This food was regurgitated, but this process could not be observed as well as a little later on, when berries were fed. Both birds fed the young together. Each perched on the side of the nest. All the feedings I observed the first few days were given by both birds together. At 9:13 the first bird uttered a note and flew away, when the second bird sat upon the nest again. The first bird flew beyond the tree and then upon a branch at the other side of the nest at 9:30. This was one of the few times that the waxwing did not fly directly to its nest. It may be that the bird was frightened by my presence. Both birds perched on the rim of the nest. The first bird gave the food to the second and then each put its bill in the little birds' mouths, but I could not see any food.

At 9:33 the first bird left and the second took its place on the nest again. Half an hour later it stood upon the edge of

the nest with its mouth open and remained in this position for five minutes. At 10:15 the first bird returned and gave some animal food to its mate. As before, both birds sat on the edge of the nest and placed their bills within the little ones' bills. Both parents kept their bills in motion all of the time. At 11:04 the first bird flew off without any sound. The second bird remained on the side of the nest for a minute and then sat on it, remaining there when I left.

July 20, 7:00-8:15 P. M.

The second bird was on the nest and did not move when I approached. Two minutes later the first bird flew to a limb three inches from the nest. It was perfectly still for a quarter of a minute and then gave what looked like a worm to the second bird. They both put their beaks in the mouths of the nestlings. At 7:25 the first bird flew away, and from then on until eight o'clock the second bird was on the nest. I reached out toward the nest and almost touched it before the parent flew off. The four young birds still looked very naked. One was a little larger than the other three. At 8:02 the second bird flew towards the nest with wings outstretched as if trying to drive me off.

July 22, 7:30-8:15 A. M., 3:30-4:30 P. M.

I found the four little birds with their heads up over the nest and their eyes closed. Later when food was brought they opened their eyes—the first time that I saw them open—and raised their heads, opening their mouths. At 7:55 the second bird brought amelanchier berries, and the little birds stood up and nearly fell out of the nest. They uttered a single monotonous note, which I shall call a chirp, and kept opening and shutting their mouths and moving their wings a little. In the afternoon, the birds opened their mouths as the observer climbed upon the box and they continued doing this for several seconds. The second bird flew by and at four o'clock came to the side of the nest, while the first bird flew to a tree about one hundred yards away. A few minutes later the first bird returned with a small worm and gave it to the

second bird, which fed the little birds. At 4:10 the first bird left while the second bird sat on the side of the nest with its mouth open. The station thermometer registered 86 degrees that day. At 4:30 the parent preened the feathers on its breast.

July 23, 8:30-10:40 A. M.

The sun was very bright and warm, the temperature reaching 90 degrees in the shade. At 8:35 the parent bird was not on the nest. The nestlings had downy feathers on their breasts and showed definite feathers an inch long on their wings and tail. On their backs the apteria showed plainly. At 8:50 the second bird returned with an insect, which it gave to the little birds. At a noise from the laboratory it flew off, uttering one shrill note and was absent until 9:15, by which time the little birds had become very much excited. When the second bird approached it showed no food in its bill, but soon regurgitated two blue berries. Several people approached and the birds seemed excited, but it remained on the nest. At 9:40 the little birds kept stretching their necks upwards with their mouths wide open and two minutes later the second bird brought several blue berries, which it fed to each of the young, and then perched on the nest. It was still there at 10:35, when the first bird returned with a worm, which was first given to the second bird, who swallowed it and later gave a part to each little bird.

July 24, 10:30-11:30 A. M., 1:30-2:30 P. M.

As I approached the first bird came with food, which it regurgitated and gave to each bird. It perched on a limb near the nest, where it stayed for three minutes. At 11:03 it returned with a worm, which it first placed on the side of the nest and pinched apart with its beak. Then it swallowed the worm, which was regurgitated after a minute and fed to the young, each receiving some food, although perhaps not all a piece of the worm. At 11:08 the bird flew away, but was back in two minutes and fed each bird twice and then the parent perched on the side of the nest for five minutes. In

the afternoon the young birds were quiet from 1:45 to 1:53, when the second bird returned and twice fed each bird with some animal food. It remained on the nest until 2:15, when the first bird came and fed the young, after which both parents flew away.

July 25, 10:00-11:10 A. M.

The first thing I noticed was that one little bird tried to stand, and for ten seconds succeeded, holding its body up above the nest. At 10:45 a parent bird arrived and the young stood up in the nest, leaning against each other. They were fed blue berries, and then the old bird left and I examined the little ones. They were larger than when I saw them last: on their breast the downy feathers seemed full grown, while on their backs the naked areas were smaller and the tail feathers were a quarter of an inch long. Two little birds stood and flapped their wings, while one pecked at its wing feathers as if to preen them. The four birds filled the nest so completely that some nestlings were on top of the others. At 10:54 the second bird fed the young with blue berries, regurgitating them. At 11:06 the first bird brought a worm and fed it to the little birds and then offered a berry which seemed whole, to a nestling which refused to swallow it, so the old bird took it out of this one's mouth and give it to another.

July 26, 12:30-2:15 P. M., 4:00-4:30 P. M.

When I began my observations the second bird was standing at the side of the nest. Seven minutes later, the first bird flew to a limb below the nest, where it stood for nearly a minute with a blue berry showing in its mouth. It gave the blue berry to the second bird, which broke it up and fed it to the young. The first bird took no part in the feeding. At 12:40 the little birds seemed to be sleeping and the second bird sat still on the edge of the nest. Two minutes later the young birds raised their heads and opened their mouths. At 1:06 they stood up in the nest and the second bird flew away, but returned in two minutes. The nestlings chirped as the parent

approached and stretched their necks in its direction with their mouths wide open. At 1:20 the first bird was back with a worm, which it broke up, placing a small piece in each mouth and then flying off at 1:22. Eight minutes later, the second bird also flew off and I leaned forward toward the nest to observe the little birds more closely. They noticed the movement of my finger. Their feathers were developing, showing lighter feathers around the crown and yellow on the end of the tail. At two o'clock the first bird returned with an insect which it broke up and divided among them, leaving after two minutes. The first bird flew back at 2:11 with berries, which it regurgitated, feeding each little bird one berry. At 4:00, the first bird flew directly to the nest and fed the young, remaining for thre minutes, when it flew to a nearby bush, giving a few calls, which were not answered by the nestlings. The largest of these held its head out of the nest for five minutes, but the others lay quiet. At 4:20 one of the parents brought food directly to the nest. As the bird appeared, the young birds raised their heads and opened their mouths. Again the berries were regurgitated and food was given to each little bird twice. The old bird sat on the edge of the nest for a minute. At 4:25 the little birds were quiet in the nest and did not move again, while I was present.

July 27, 4:00-5:30 P. M.

The parent birds were not near the nest when I approached. The young now seemed as well feathered as adult birds, except in the length of the wing and tail feathers. The largest of the four lay on top with its head on the side of the nest, while the other three were underneath. All had their heads on the opposite side and seemed to crowd one another. As I touched the nest they raised their heads and opened their eyes, but not their mouths. One preened his feathers and I could detect no signs of fear. At 4:50 they all became restless, standing up and opening their bills. They chirped as the old bird approached with berries, which were regurgitated

and fed to them. The parent remained on the side of the nest until five o'clock. At 5:03 the little birds were again quiet and remained so until 5:15 when one of them stood up and moved its wings.

July 28, 7:45-9:45 A. M., 1:00-2:15 P. M.

When I arrived I found only three young birds. The largest had disappeared, probably having fallen from the nest, at any rate I was unable to find any trace of it. Of the remaining three, two were nearly the same size and the third a little larger. Their wing feathers were an inch long and their tail feathers an inch and a half. The tail feathers showed the yellow terminal band. At eight o'clock a parent bird called, and the little birds answered. It flew to the nest over my box, flying so close to my face that I ducked my head instinctively. This frightened it so that it flew off, but remained away only a half minute. It brought blue berries and fed each bird. When the parent left, the nestlings raised their heads, but did not try to fly after it. At 8:06 the largest of the young birds stood up, moved its wings and pecked its feathers. Suddenly all of the nestlings stood up and opened their mouths very wide. I heard no sound, but they seemed to know that one of the old birds was approaching. When a parent came to the nest at 8:08 they pushed one another aside, to get a part of the worm it brought. The old bird left at 8:09 and for another minute the nestlings remained standing, each giving a chirp. At 8:13 a parent was back at the nest with a worm and the young stretched their necks for it and each received a piece. The parents fed them at 8:20 with blue berries, which were regurgitated rapidly. It seemed as if each little bird received two blue berries. Fifteen minutes later the nestlings began to preen their feathers, especially under the wings. At 8:48 a parent returned with food, which it gave so rapidly that I could not see what it was. Blue berries were fed to each bird at 8:50 and after feeding the young, the parent sat on the side of the nest half a minute. When it left, the little

birds changed positions in the nest. At 9:05 a parent returned with berries and the nestlings stood up and were very anxious for food. In a minute the bird was off again. As it approached the nest at 9:15, a goldfinch flew into a tree nearby. The waxwing flew at it and seemed much disturbed. When any bird flew near the nest the waxwings were much agitated, but the presence of people seemed to frighten them very little. During the summer I had observed a catbird, robin, thrush and junco and they were all much more excited by the presence of people, than the waxwings were. It is possible that the pair I studied were unusually courageous, and they may have become used to people gradually. Nevertheless, it was remarkable how little disturbed they were by my presence on the box near the nest. When the waxwing returned from chasing the goldfinch, a bird's song seemed to disturb it. The young chirped loudly, evidently disappointed at not getting food. At 9:30 a parent brought blue berries, regurgitating them very rapidly, while the little birds stretched their necks, moved their wings and were much excited. Ten minutes later they were fed again, but they were calmer, and when the bird flew off (at 9:42) they settled down to sleep.

At 1:15 a parent flew to a tree south of the nest and remained there for five minutes, uttering low calls, which the young answered. Fifteen minutes later it flew to the young, but did not feed them until a minute later, when it placed an unbroken blue berry in the bill of one of the young birds, and then removed it, as the nestling was unable to swallow it whole. The parent then broke the berry up and gave them parts of it. Two minutes later both parents flew past the nest and called to the nestlings, who opened their mouths, but did not answer. At 1:47 a parent brought more berries to the young, and again at 1:55. One of the young stood upon the edge of the nest and flapped its wings. A minute later the nestlings were fed more berries. At 2:10 one of the young birds pecked at a leaf above its head. Five minutes later they were fed more amelanchier berries and became quiet.

July 29, 2:00-4:00 P. M.

The day was very warm, a maximum of 100 degrees occurring at 2 P. M. The young birds were quiet in the nest. They seemed completely feathered and almost full grown. Their tail feathers measured fully two inches. At 2:15 the nestlings opened their mouths and kept them open, but this seemed more on account of the heat than because of hunger. Ten minutes later a parent brought some berries, the little ones chirping vigorously. It flew away again in half a second. The nestlings chirped after the bird left. At 3:08, as a parent approached, each young bird opened its mouth and answered the parent's call. In five seconds each was fed and the parent left. At 3:25 all the young were fed with amelanchier berries. After the parent left they again kept their mouths open, because of the heat. Five minutes later one nestling became restless and chirped several times.

July 30, 9:30-11:00 A. M., 4:00-6:00 P. M.

This was the warmest day during my observing, the thermometer registering 102 degrees. At 9:45 I found the nestlings with mouths open, lying still. Five minutes later a parent came with berries and the young were fed very quickly, for the parent flew away again in less than a half minute. The little ones chirped and two stood up as if they would like to go after it. The birds were restless for the next three minutes, opening their mouths and uttering a loud chirp. The inside of their mouths was not so brightly colored as a few days before. At ten o'clock a parent brought blue berries and in its eagerness to get its share one nestling lost its balance and fell back into the nest. The parent left at 10:03 and two minutes later the little birds stood up and moved their wings with their bills wide open, but no parent appeared. At 10:10 the largest of the young held its head and wings stretched clear out of the nest. Five minutes later the parent brought an insect which the young eagerly devoured and half a minute later the old bird left. In the next

ten minutes the birds quieted down, but kept their mouths wide open. At 10:28 the parent returned with white berries and first tried to give an unbroken one to a nestling. But when it failed to swallow the berry the parent broke it up and gave it in pieces. Probably three berries were fed in two minutes. Thirteen minutes later a parent bird with a blue berry showing in its bill flew to a nearby tree, where it stayed a minute, the nestlings chirping vigorously all the time. At 10:45 they preened their feathers and moved their wings, while one appeared about to leave the nest. After eight minutes they settled down in quiet, but kept their mouths open. In the afternoon I found them apparently very warm and very restless. They did not seem afraid of me, but at 4:12 some noise frightened them and they were very still. At 4:20 the largest bird stood on the edge of the nest as if ready to fly, but five minutes later dropped back into the nest. The parents did not return to the nest during the rest of my stay.

July 31, 8:15-10:20 A. M., 1:20-2:25 P. M.

On July 31 it was much cooler. The maximum was only 79 degrees and there was a heavy wind. I think that the wind may have prevented the birds from leaving on this day. Their mouths were closed and they appeared more quiet and comfortable than on the day before.

At 8:20, when I pointed my pen toward them, they opened their mouths. Ten minutes later one little bird stretched its wings. At 8:45 a parent brought blue berries. The nestlings chirped when it approached, but were less excited than on the day before. The parent regurgitated several berries and fed them slowly, remaining on the nest till 8:51. Then the wind seemed to frighten the young, who settled down on the nest. Fifteen minutes later the nestlings chirped and one stood on the edge of the nest preening its feathers and stretching its wings. They chirped loudly as a parent approached with some insect or worm. At 9:16 the parent left and the little birds were quiet. Two minutes later they flapped their wings and two of them stood on the edge of the nest. At 9:30 the

nestlings were wide awake, but settled down as much as possible on account of the wind. Fifteen minutes later they raised their heads and chirped and in a minute a parent flew to the tree with blue berries. In half a minute it flew away, but it was back in three minutes with more berries and each nestling received one. After this feeding the young birds seemed more active. They stood up and preened their feathers, opening their mouths and stretching their heads out from the nest.

In the afternoon the young birds were sitting up as if expectant. At 1:30 I called to some one passing and they opened their mouths. Three minutes later a parent approached and fed them with amelanchier berries. It flew off, but was back in a minute with blue berries. The young birds pushed against each other in their eagerness so that the parent flew to the other side of the nest in order to feed them all. At 1:50 a nestling stood on the edge of the nest. When a parent approached with blue berries, fifteen minutes later, it had hardly room to get on the nest. I broke two blue berries and placed pieces on the bills of the young birds. One ate its piece and I gave it another, which it swallowed eagerly. At the first trial the other two did not eat. After that they seized the berries so quickly that they almost bit my fingers. They did not seem at all afraid, but seemed willing to eat as long as I could supply them with berries.

At seven o'clock on August first I found the three nestlings still in the nest, but one flew off at my approach. On its first attempt it flew tbout twenty feet, and then flew to a tree twelve feet away. In the next hour it was fed more frequently than the other two birds, which remained on the nest.

E. Observation of Two Young Birds in a Cage.

In the afternoon the two remaining nestlings were taken from the nest and put in a bird cage, which was placed on a window sill of one of the Laboratory Buildings. The large window was kept open and the parent waxwings came to feed the young regularly. At first a parent would fly to the win-

dow ledge and slowly approach the cage if I kept perfectly still and remained several feet away from it. A few days later a parent approached while I was fastening the cage, and fed them in spite of my proximity. We did not succeed in getting a parent to feed a young bird held in the hand.

August 2, 10:15-11:15 A. M., 1:15-2:45 P. M.

I sat down a few feet from the cage in which the young birds were perched close together. At 10:15 they began to chirp vigorously, and a parent flew to the window sill and then flew away without feeding them. Three minutes later it gave each little bird a blue berry. When the young were first in the cage they did not seem to know enough to get their heads within reach of the parent, but a few attempts were sufficient for them to learn. Their later difficulties arose from eagerness. They kept close together on the perch and pushed against each other as if in the nest. At 10:45 the juvenals began to chirp loudly and flap their wings when a parent approached with amelanchier berries, which it gave them. After they had swallowed the berries they flew against the sides and top of the cage. It seemed as if the parents were trying to get the young birds out of the cage, for a parent flew back with berries, but did not give the juvenals any at first. After it found that they could not get away it flew back again to the cage. At 10:18 it fed them each a berry. The young birds were back on a perch close to each other at 10:50. Ten minutes later a parent flew by to a neighboring tree, but returned with amelanchier berries, which it gave to the young, the process taking only fifteen seconds. At 11:02 the juvenals were fed blue berries and the parent bird was back again with more blue berries in half a minute. In the afternoon I found the young birds on their perch, moving their wings back and forth and preening their feathers. At 1:25 they chirped vigorously and a parent flew to a nearby tree where the third young bird was. A minute later the parent brought amelanchier berries to them and returned with more a minute later. At 1:34 a parent was back again with blue berries, and after the young birds ate these, they were quiet for a long time. At 2:05 a parent called

and the juvenals answered, jumping against the sides of the cage. An old bird brought amelanchier berries and it was back again with more at 2:10, 2:20 and 2:40.

August 4, 8:00-9:40 A. M., 1:15-2-15 P. M.

The maximum temperature on August 4 was 90 degrees. At 8:00 the birds were peeping loudly and being answered. A parent approached with a blue berry two minutes later, but flew off without giving it to them. The juvenals flew against the side of the cage and kept on calling, while one raised its crest. At 8:05 a parent approached with amelanchier berries, which it gave them and left, returning with more berries, the two feedings taking less than half a minute. By 8:08 the birds were quiet and preened their feathers, each placing its bill under its wings and tail. At 8:10 the larger young bird began to chirp again, but I heard no answer. A parent brought blue berries five minutes later and each young bird ate one. The juvenals were fed again by a parent at 8:18 and then I cleaned the cage. When we touched the young birds they showed no signs of fear. At 8:25 they were back on their perch and eight minutes later a parent bird brought two amelanchier berries. Half a minute after it fed them it was back with more. At 8:38, after shaking out their feathers and pecking at the bars of the cage the juvenals settled down to sleep and remained so until 8:45, when they picked at their wings. A parent gave them each a berry at 8:55 and then dropped a large one at the bottom of the cage, which a young bird picked up and ate. This was the first time I noticed the young feeding themselves. After this they showed this ability constantly, putting their heads through the bars to reach a berry dropped outside. At 8:58 and 8:59 they were fed amelanchier berries by a parent. The young birds rubbed their bills against the bars of the cage as if to clean them. Five minutes later they were dozing, close together on the perch. At 9:30 the parent brought a large insect of some kind. This was the first time that I had seen animal food brought by a parent since we caged the young birds. At 9:32 a parent brought blue berries and flew back again for more,

but on returning to the cage, some noise frightened it, so it flew away without giving any berries, much to their disappointment which they expressed by flying against the side of the cage and flapping their wings. At 1:15 they were photographed, the cage being moved a few feet into the sunlight. A noise made in setting the shutter was followed by their chirping as if they expected food. In a minute a parent came but flew off at sight of the camera. The young birds flew against the side of the cage and at 1:18 the parent bird fed them blue berries in spite of the nearness of the camera. The young birds were in the sun and seemed very warm. At 1:40 a parent fed them again. The noise of the camera caused it to fly off, but it returned in five minutes and gave the young three blue berries. At 2:00 we replaced the cage.

August 6, 4:20 A. M.-8:15 P. M.

Before dawn came it was damp and foggy, but by noon it became very warm and reached a maximum of 99.2 degrees in the afternoon. At 4:25 the young birds were sleeping with their heads under their wings. No birds were stirring except the night hawk and the whip-poor-will. The young birds stirred whenever a sound was made, but did not awaken until 5:24. Four minutes later they stretched their wings and tried to fly. During the day they ate the following food brought by the parents:

5:24 A. M.—2 pin cherries
6:12 A. M.—1 cherry
6:14 A. M.—2 cherries
6:21 A. M.—1 blue berry
6:42 A. M.—1 amelanchier berry
6:59 A. M.—1 amelanchier berry
7:11 A. M.—1 amelanchier berry
7:53 A. M.—1 blue berry
8:00 A. M.—2 blue berries
8:28 A. M.—2 cherries
8:30 A. M.—3 cherries
8:32 A. M.—1 amelanchier berry
8:50 A. M.—1 blue berry
8:52 A. M.—1 amelanchier berry
8:58 A. M.—1 blue berry
12:25 P. M.—2 service berries
1:00 P. M.—2 blue berries
1:15 P. M.—2 cherries
1:25 P. M.—2 cherries
2:16 P. M.—1 cherry
2:28 P. M.—1 cherry
2:35 P. M.—1 blue berry
3:25 P. M.—1 blue berry
3:39 P. M.—2 blue berries
3:43 P. M.—1 blue berry
4:30 P. M.—2 cherries
4:40 P. M.—2 cherries
4:44 P. M.—2 blue berries
4:55 P. M.—2 blue berries
5:12 P. M.—2 cherries

9:45 A. M.—2 amelanchier berries
9:55 A. M.—2 blue berries
10:06 A. M.—2 blue berries
10:41 A. M.—2 pin cherries
10:45 A. M.—1 cherry
11:40 A. M.—2 cherries
11:59 A. M.—3 blue berries
12:05 P. M.—2 blue berries
5:15 P. M.—3 blue berries
5:28 P. M.—2 cherries
6:00 P. M.—3 cherries
6:02 P. M.—2 blue berries
6:45 P. M.—2 blue berries
7:20 P. M.—2 blue berries
7:52 P. M.—1 cherry

As accurately as could be observed the birds ate forty-two pin cherries, thirty-nine blue berries and twelve amelanchier berries. I picked the same number of these of average size and found them to weigh seventeen grams. The birds were not given any other food. On many occasion during the day a parent bird brought food up to the cage and flew away without leaving it. At first we thought that the bird was frightened at something, but the repetition of the performance on occasions when we could discover no cause for fright convinced us that the parent was trying to get the young to leave the cage and when its efforts failed it came back and fed the young. The juvenals were active during the day; they seemed to be on the perch less than on the day before. They became excited when a butterfly flew past, and one tried to catch a fly which came within the cage. They rubbed their bills in the sand and also against the side of the cage. They also preened their feathers a great deal and flapped their wings. As night approached they gradually became less active, although they were fed at 7:52, when it was quite dusk. At 8:15 they were asleep on their perch.

After this we kept the birds in the cage for eleven days and observed them each day for eight days, but there was little change in their behavior. The parent birds became accustomed to the cage and would bring food even if someone were so close that he could have touched the birds by stretching out a hand. Nevertheless the young birds became more excited at every feeding and beat their wings against the cage in their efforts to get away. The last few days the old birds stopped feeding them, but came to the cage once every day as long as we observed. The juvenals seemed well and lively during their entire time in the cage.

F. SUMMARY.

My observations of the cedar waxwing showed that the male and female build their nest together, one bird bringing most of the material and the other bird constructing the nest. The second nest was completed on June 28th. Three days later the first egg was laid and the other three were laid on the three following days. On July 17, sixteen days after the first egg was laid, the first bird was hatched, and by July 19 the four birds had hatched. As the young birds did not all hatch on the same day, they showed considerable variation in size and development.

The first sound from a nestling was heard the fourth day after the first bird was hatched and from this time on they usually chirped when a parent approached.

As to food, I found that the young waxwings were fed with food which the parents first swallowed and then regurgitated, until the nestlings were nearly old enough to leave the nest. On the first four days I saw only animal food, worms or large insects, and both parents took part in the feeding process. On the fourth day they were fed amelanchier berries, and after this their food was partly berries and partly bugs and worms. In the cage they were fed almost entirely on berries. The amount of time between feedings varied very much. In the middle of the day they were fed more frequently than toward night. On a hot day they were fed less often than on a cooler one. During an entire day we found that two young birds in a cage ate 93 berries and cherries. I picked the same number and found them to weigh seventeen grams.

Within the cage the two juveniles were fed at about the same intervals as before. They became more active every day, flying against the sides of the cage, chirping and preening their feathers. The fourth day in the cage a young bird was seen to pick up a berry. After this both birds picked up fruit whenever any was dropped within their reach. In the cage, as in the nest, the young birds kept close together and appeared to be fond of each other. When they were released they seemed well and strong.

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EDITORIAL

The American Ornithologists Union convened for its thirty-fourth stated meeting for a three-day session in Philadelphia, at the Academy of Natural Sciences, November 14 to 16. The attendance of members from all parts of the country was the largest in its history. The program was varied with motion pictures of birds and accounts of explorations in remote fields. Mr. James P. Chapin's paper on "Bird Migration in Central Africa," and Dr. W. H. Bergtold's paper on "What Determines the Length of Incubation," were among the most valuable contributions to the long list of interesting and valuable papers.

The fourth annual meeting of the Wilson Ornithological Club will be held at the Morrison Hotel, Chicago, December 27 and 28, 1916. There is good prospect of a large attendance and an attractive program. This meeting furnishes an opportunity to bird lovers of the central districts of the country to meet for mutual acquaintance, such as is furnished by the Cooper Club meetings in California for the people of the Pacific slope, and the meetings of the various organizations on the Atlantic slope. Let us take advantage of this rare opportunity.

GENERAL NOTES

TENNESSEE ORNITHOLOGICAL SOCIETY.

October marked the close of the first year's work of this association and the results were quite up to expectations. A great deal of field work has been done and the status of a great many of the rarer birds has been put on a definite basis. Lack of time and opportunities have prevented observations on other species whose distinction is still much in question. Local lists have been secured from observers, chiefly in the central part of the state, and revisions and additions to these in future is part of the working plan. Arrangement has been made with the State Department of Fish and Game to finance the publication of several bulletins. A number of new members have been added during the year and efforts have been made to standardize their observations along systematic lines.

The pleasure and recreation afforded by bird study is being advanced as a substitute for the hunting and killing of game birds. Two full page illustrated bulletins to this end have been prepared and published simultaneously in the Sunday editions of the leading newspapers of the state. Meetings or outings have been held semi-monthly except during the summer months. Several joint outing trips have been taken to localities which appeared to offer special faunal variations.

The first annual meeting was held October 20, in Nashville, and the following officers were elected: Prof. A. C. Webb, president; Judge H. T. Hughes, vice-president; Dr. G. R. Mayfield, secretary-treasurer; A. F. Ganier, curator. New members elected at this time were H. A. Cummins, Prof. E. C. Davis, H. E. Myers, J. T. Shaver, Dr. R. M. Strong, and H. S. Vaughn. The curator reported that the study collection of skins, now embracing over one hundred and seventy species of Tennessee birds, was available for the use of the members. The publication of the list of the birds of the state was postponed for a year pending the securing of more definite data on certain species.

The interest shown by a good percentage of the members of the Society is such that its permanency seems assured.

A. F. Ganier.

Nashville, Tenn.

"INCUBATION PERIOD OF KILLDEER."

In the September, 1916, number of the Wilson Bulletin, under the above caption, Mr. J. M. Bates describes the nesting of a Kill-

deer, whose nest was found May 20th, and the eggs thereof hatched June 15th, making a period of twenty-six days in which the eggs were known to have been incubated. The author concludes with this question: "Can anyone add more accurate data as to the period of incubation?"

The Killdeer, one of the breeding birds of my neighborhood, has furnished in years past many interesting notes for its family history. Its nest has frequently been found, but always some time after it had received its full complement of eggs. For about fifteen years I have maintained a standing offer of a dollar to any child, who would tell me of a nest in which the set of eggs had not been completed. Since the initial offer some of the boys have grown to manhood, always forgetful of the name of the species, but referring to it as "the dollar bird."

It was on our own home lot about one hundred feet beyond the fence of the house yard, in the afternoon of April 19, 1916, that my sister, Dr. E. Amelia Sherman, found a Killdeer's nest with only three eggs in it, the fourth being added the next day. On the morning of May 17th two eggs were hatched, and by six o'clock in the evening three birds were out of the shell. Early the next morning there was nothing in the nest but a newly hatched Killdeer, to the brooding of which the mother returned as soon as the intruder withdrew. A cold wind blew all that day, the nest was not visited again until 5 p. m., when it was found empty, but not more than two feet from it lay a velvety little Killdeer, dead, but not yet stiff. So closely did its concealing colors harmonize with its surroundings it was found only after most careful searching. That the incubation period for this nest of eggs was twenty-eight days there can be no doubt.

It is not certain that all of the other three young ones grew to maturity, but it is believed that they did. So protective was their coloration, so adroit was parental management, that they were not seen after leaving the nest until they had attained the size of the adult House Sparrow. This has been the experience with other broods studied in previous years, and it offers grounds for hope that the Nebraska birds evaded the snake as successfully as they did the ornithologists.

ALTHEA R. SHERMAN.

National, Iowa.

NOTES FROM LAKE COUNTY, OHIO.

Holboells Grebe: The autumn 1916 flight of the Holboells Grebe must have been halted a short time along our southern lake shore for on Oct. 8th I counted no less than eleven in a half mile walk

along the beach. They were fishing a few rods off shore and offered unusual opportunities for observation. This is the first time since spring of 1913 that I have noted them.

E. A. Doolittle.

Painesville, O.

Purple Sandpiper in Lake County, Ohio: While out on the stones of a breakwater that extends some distance out into the lake, on Oct. 29, 1916, I met with a Sandpiper that looked unfamiliar, and as he seemed very unafraid I took out my note book and began to write as detailed a description as possible. The bird was within 15 feet of where I sat and sized me up as closely while I wrote as I did him. Before I was through observing with the glass, I had made up my mind I had found a Purple Sandpiper, and later book descriptions and plates confirmed this. In case any reader may doubt, here are the field notes which we can see apply to no other Sandpiper.

"Legs and feet pure *deep* yellow. Bill about one and one-fourth inches and slightly decurved at tip. Yellow at base and black or nearly so at tip. Head without streaks, plain dull gray on crown. Back without streaks, like head, but feathers edged lightly with darker color. Most of wing feather edged with *white*.

"Upper breast dull grayish, but lighter than back. Lower breast somewhat mottled gray and white but not streaked. Sides and under tail coverts lightly streaked. Eye lids white. A small triangular shaped area in front of eye darkest spot on head.

"Size of bird about that of Pectoral and similar in build but legs seem shorter. Later: Flushed bird. Central tail feathers blackish, outer ones lighter—grayish. White edges to wing feathers making bars. 'Krieked' not unlike Pectoral."

Might add here that on the 18th I found two Red-backed Sandpipers in this same place. The lower stones of the breakwater are moss covered and the birds in feeding would put the tips of the rather long decurved bills close to the stones feeling about in the mossy growth. The wash of the water would come up and bury their heads and shoulders, but they would not even look up, the receding water leaving them with tip of bills close to the rock, moving about in the mossy growth.

E. A. Doolittle.

Painesville, O.

Black-throated Green Warbler as a Summer Resident: I have found this Warbler in summer the past three years, and this season found evidence enough to establish them as breeding birds.

The locality is a mixed woods crowning a high bluff on Grand River. It is much intersected by hemlock grown ravines, and in places thick with undergrowth. I first found a singing male in 1914, on July 19th.

In 1915 I visited the place earlier—on June 20th—and again found a singing male.

This year I was there again on July 2nd and while a male bird was singing in the hemlocks behind me, I watched a female gather her bill full of insect food from the trees and then suddenly dart away across a ravine. Lack of time and the deep ravines prevented a serious search for the nest.

Late Bobolinks: I thought I had made a late record for Bobolinks in 1915 when on the 29th of August I discovered a flock of 15 or 20 in "Reed Bird" plumage feeding in a low corn field much overgrown with fox tail grass; but I went the record several better this fall by flushing a single bird on Sept. 12, from the edge of a sedge-grown marsh. As he came up out of the tangle and flew away he gave a few fragmentary notes of his summer song intermingled with the numerous "chinks" of alarm.

Redpolls: Two friends and myself had the pleasure of watching a flock of 25 or 30 of these birds on April 15th of this year feeding along the edge of a sheltered shrub-grown swamp. A number of them were full plumaged males.

Caspian Tern: After looking in vain for a number of years to find this bird about Fairport Harbor I was rewarded this fall on Aug. 23 by seeing two suspects wing by. A few days later several were seen under more favorable circumstances and their idenity easily proven. On Sept. 8, while I sat by the lighthouse at the end of the pier, several were fishing at the mouth of the river and many more were flying about higher up, and uttering their hoarse squawks.

I watched them until tired of it and started up the beach when, as I raised my head over a stone breakwater, there stood eighteen of them not a hundred feet away on the sand. They were all pointed in one direction and reminded me of a company of soldiers, the big red bills seemingly a mark of distinction for services rendered. Herring and Bonaparte Gulls and Common Tern are present every fall but this is the first time I have found the Caspians.

E. A. DOOLITTLE.

Painesville, O.

NOTES ON THE FALL MIGRATIONS OF 1916 IN CHICAGO AREA.

Our observations during the fall migration of 1916 have been rather more extensive than hitherto and have yielded many good records. Our migration dates made during the last four years have been extended in a good many instances. Some of the dates made in this fall migration are both earlier and later than Mr. B. T. Gault's migration dates of Glen Ellyn, which is only a few miles west of LaGrange.

There are several birds which are on a decided increase in this region, these being the Tufted Titmouse, Carolina Wren, and Cardinal. The Titmice were first noted in any great numbers during the winter of 1915-16, and since then have been seen very often. On August 14, 1916, eight of these birds were observed at Riverside, two or three from all appearances being young birds. This leads to the conclusion that they may have nested in the vicinity.

The Carolina Wren, although it has been of regular occurrence in the past, did not become common until August of this year. Since then we have noted it in many different localities, chiefly on account of it being in full song. The Cardinal has been very common this year and is undoubtedly increasing in the Chicago area. These three birds are clearly extending their range northward.

Among the strictly migrants the Red-breasted Nuthatch, Myrtle Warbler, and Rusty Blackbird have been more abundant than usual this fall.

On September 1st the American Crossbills appeared and have been numerous since that time. On October 21 the Redpolls put in an appearance, which is unusually early. Last Saturday, November 4, a flock of 10 were watched for a long time at Riverside. They were exceedingly tame. White-throated Sparrows have been entirely absent this fall. Other interesting dates are the following:

Palm Warbler, last seen October 28, 1916.

Ring-necked Pheasant, seen October 21, 1916.

Black-throated Blue Warbler, last seen October 14, 1916.

Orange-crowned Warbler, last seen October 28, 1916.

Black and White Warbler.

Tree Swallow, last seen October 22, 1916.

Barn Swallow, last seen September 30, 1916.

Greater Yellow-legs, last seen October 28, 1916.

Golden Plover, November 5, 1916.

Red-backed Sandpiper and Black Bellied Plover, November 6, 1916 (*L. Michigan*). The Red-headed Woodpeckers are staying this winter for the first time since 1913.

The Bachman Sparrow and Lark Sparrow were both found to be breeding here this last summer (1916).

JAMES D. WATSON,
LaGrange, Ill. (Cook County). EDMUND HUESBERG.

REMARKABLE NESTING OF CLIFF SWALLOWS.

That the cliff swallow is a bird of much adaptability is evidenced by the fact that it has taken to modern improvements and now very generally plasters its curious gourd-shaped nests under the eaves of various buildings, usually barns. A few colonies still cling to their ancestral habits, building against the cliffs; but most have abandoned the old way for the new.

During the summer of 1916 the writer was privileged to observe a still further degree of adaptability. Away up in the backwoods of Eastern Maine, in Washington County, thirty miles from the sea, an opening in the ancient wood marks the site of an old farm, long since abandoned. Some of the buildings, including the house, are gone. The great barn, however, built of massive timbers squared with a broad-axe, fastened together with wooden pins and covered with split-cedar shingles smoothed with the drawshave, four feet long and laid two feet to the weather, still stands, and firm. Another building is verging toward ruin. The place is known far and wide as the "Bacon Farm."

For many years the cliff swallows have nested upon the great barn in a large colony of several hundred birds. An examination of the place this summer (1916) disclosed the interesting fact that a few pairs had abandoned the eaves and built inside the big barn, side by side with the barn swallows. An examination of the smaller building revealed many nests similarly located, while a "lean-to" shed, open on one side, harbored a number of families within. It is not unknown for these birds to build within an open shed, though this is rare, but the writer can find no reference anywhere to their nesting inside a closed building, like the barn swallows.

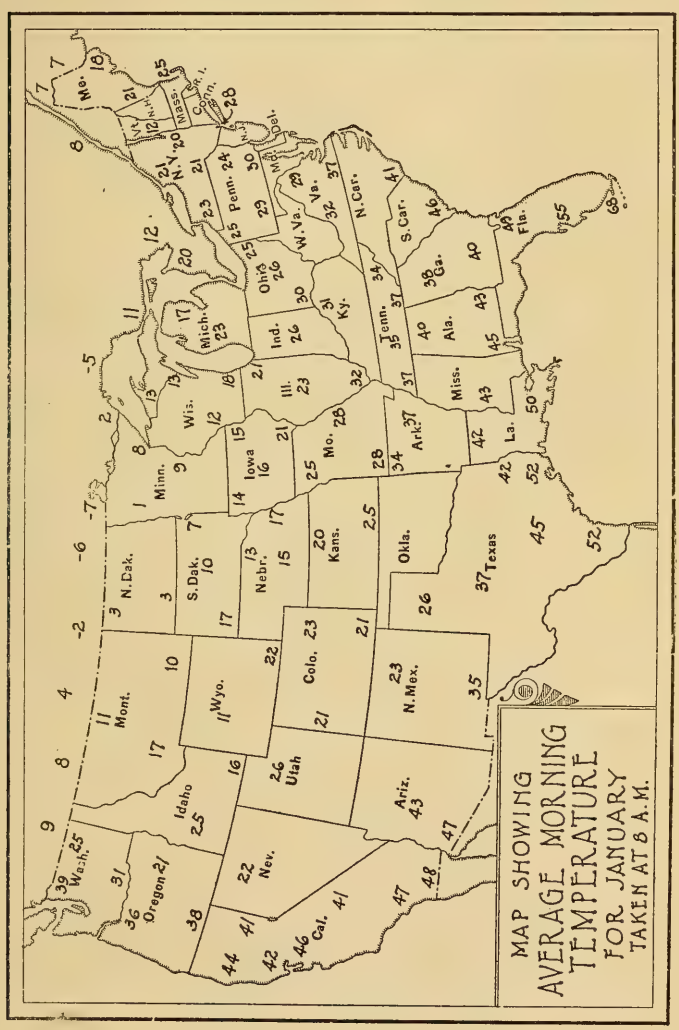
A letter received from Dr. Guy C. Rich of Hollywood, California, formerly of Sioux City, Iowa, states that he has found the cliff swallows nesting in the deserted burrows of the sand swallows on the Big Sioux River at Sioux City. Mud pellets were plastered about the entrances and the eggs were observed in the burrows. No record can be found by the writer of any similar nesting. Evidently our knowledge of the nesting of the birds is far from complete. There is much to learn still. Even an amateur may stumble upon some unique or interesting fact. The swallows are particularly interesting, most species having displayed surprising

powers of change and adaptation. They are true avian progressives.

Manley B. Townsend.

COMPARATIVE MID-WINTER TEMPERATURES.

The diagram shown herewith has been compiled by the U. S. Weather Bureau and represents the average morning tempera-



tures throughout the country during the month of January. The observations are the average for a number of years and were taken at 8 a. m. by the various local weather stations.

This chart should prove of interest to students of bird life, in that it shows what our various winter birds have to contend with and how the isothermal lines fail to follow the lines of latitude. Other conditions, of course, such as topography, wind and food supply, enter into the distribution of winter birds, but temperature is the item which is most tangible and of the greatest interest.

Nashville, Tenn. A. F. GANIER.

The King Eider (*Somateria spectabilis*) in Summit county, Ohio. I have received from Mr. William Barber Haynes, Akron, the head and neck of an immense King Eider, with the statement from him that four individuals were shot November 14, one of which was preserved by Mr. Arch Kunzel, of Akron. The one, the head of which was sent to me, was killed several days later than the day on which the four were shot. It is positively stated that these five birds were alike, and that two others, which Mr. Haynes did not see, were like these and were killed on November 15. These constitute the third record for the state, and the second one for th interior of the state. LYNDS JONES.

STARLINGS IN OHIO.

Mr. S. V. Warram, of Austinburg, Ohio, reports a Starling in the Grand River bottoms on November 12. It begins to appear that this second interloper has begun its march across the country, following the example of the Sparrow. While its numbers are so few a concerted effort looking toward its destruction will at least retard its progress. LYNDS JONES.

LATE TREE SWALLOWS.

Reports from many northern Ohio localities, with the writer's personal observations, indicate that there has been a very late and unaccountable northern stay of the Tree Swallow—so late that many hundreds of these birds seem to have perished from cold and hunger.

May Bird Census

F. MAY TUTTLE, OSAGE, IOWA.

In order that you may reconcile my list with town life, I feel that an explanation is necessary. Our home is located on two good sized lots, near the out-skirts of town. Just outside the west window in the kitchen, where much of my time is spent, are two plum trees, a concrete bird pool, berry bushes in an adjoining yard; and in other parts of the yard are hard maples, apple and evergreen trees, so that conditions are favorable for bird-life in abundance. The Martin house was erected early in May but the birds failed to find it until Decoration Day. The Western Meadowlark that I hear almost every day sings on a pasture fence two blocks south of our home. In every case where the locality is not mentioned, I saw the birds in my own door-yard.

May 1st, chaperoned the 5th grade girls on a picnic to Sugar Creek: Slate-colored Junco, Robins, English Sparrow, Lark Sparrow, Myrtle Warbler, Kingfisher, Flicker,

May 4th.—A five mile walk south-east of town: Robins, 9; English Sparrows; Bronzed Grackles, 6; Chipping Sparrow, 3; Mourning Dove, 3; Meadowlark, 6; Flicker; Field Sparrow; Crow, 6; Blue Jays; Brown Thrasher; Blue-headed Vireo; Ruby-crowned Kinglet; Cowbird; Myrtle Warbler, 5; Bluebirds, 3; Song Sparrow; Goldfinch, 2.

May 3rd, 5th, 8th, 9th, 11th, 12th, 15th, and 16th.—The Northern Hairy Woodpecker came to the suet. How do I know that it was the Northern Hairy? Because, (a woman's reason) it stood beside a robin one day and was fully as large.

May 12th.—Male and female Grosbeak, Catbird, Robin, English Sparrow, Grackle, Mourning Dove, Chipping Sparrow, Blue Jay.

May 15th.—Olive-backed Thrush, Traill Flycatcher, Baltimore Oriole, Grosbeak, Catbird, Robin, Bluejay, Swift, English Sparrow, Grackle.

May 16th.—Robin, Grackle, Bluejay, English Sparrow, House Wren, Olive-backed Thrush, Summer Yellow Bird, Philadelphia Vireo, Grosbeak, Catbird, Screech Owl, Least Flycatcher, Northern Hairy Woodpecker.

May 17th.—Robin, Bluejay, Grackle, House Wren, Catbird, Olive-backed Thrush, White-throated Sparrow, 2; Least Flycatcher, Chipping Sparrow, Redstart, Baltimore Oriole.

May 18th.—Tree Sparrow, Grosbeak, Robin, English Sparrow,

Grackle, Olive-breasted Thrush, Nashville Warbler, B. Oriole, White-throated Sparrow, House Wren, Catbird.

May 19th.—Robin, English Sparrow, Swift, B. Oriole, Tennessee Warbler, Olive-backed Thrush, Catbird, Goldfinch, Redstart, Chipping Sparrow, Grackle, Wilson's Warbler, Cape May Warbler, father, mother and daughter, Orange-crowned Warbler, Grosbeak, Bluejay, House Wren.

May 20th.—B. Oriole, English Sparrow, Robin, Cape May Warbler, Grackle, Catbird, Swift, Nashville Warbler, Tennessee Warbler, Orange-crowned Warbler, Meadowlark, Bluejay.

May 21st.—Orange-crowned Warbler, Catbird, Maryland Yellow Throat, B. Oriole, Robin, Nashville and Tennessee Warblers, Olive-backed Thrush, English Sparrow, Yellow Warbler, Redstart, Magnolia Warbler, Pewee, Alder Flycatcher, Yellow-breasted Flycatcher, Yellow-throated Vireo, Swift, Downy Woodpecker. This bird was very peculiar, the head was all black, below the belly was washed with brown, no white on the wings, and when it flew it showed two parallel white patches on the back; Green-crested Flycatcher, Red-eyed Vireo, Grackle.

May 22nd.—Tennessee Warbler, Maryland Yellow-throat, Olive-backed Thrush, Catbird, Meadowlark, Wren, B. Oriole, Robin, English Sparrow, Alder Flycatcher, a Flycatcher with faint markings on the breast, Grosbeak, Bronzed Grackle, Bohemian Waxwing, 8 in the next flock, Red-headed Woodpecker, Flicker, Ruby-throated Hummingbird, Swift.

May 23rd.—B. Oriole, English Sparrow, Bluejay, Robin, Catbird, Wren, Grackle, Summer Yellowbird, Hummingbird, Olive-backed Thrush, Orange-crowned Warbler, Phoebe, Grosbeak, Tennessee Warbler, Swift, Screech Owl, Red-headed Woodpecker.

May 24th.—Tennessee Warbler, English Sparrow, Catbird, Swift, Hummingbird, Grackle, Wren, Grosbeak, Robin, B. Oriole, Meadowlark, Bluejay, Flicker.

May 25th.—Robin, Bluejay, Flicker, Catbird, English Sparrow, Wren, Black-billed Cuckoo at 6:00 a. m. in an apple tree, Swift, Grackle, Meadowlark, Martin, B. Oriole, Mourning Dove.

May 26th.—Robin, Wren, B. Oriole, Grackle, English Sparrow, Swift, Catbird, Bluejay, Chipping Sparrow, Tennessee Warbler Grosbeak, Flicker, Mourning Dove,

May 27th.—This day was spent at Spring Park, 2 miles southwest of town: Robin, English Sparrow, B. Oriole, Wren, Bluejay, Swift, Grosbeak, Grackle, Tennessee Warbler, Catbird, Martin, Flicker, Red-headed Woodpecker, Brown Thrasher, Meadowlark, Crow, Bluebird, Field Sparrow, Chipping Sparrow, Tennessee Warbler, Indigo Bunting, Alder Flycatcher, Bank Swallow,

Mourning Warbler, Yellow-throater Vireo, Black-billed Cuckoo, Least Flycatcher, Olive-backed Thrush, Pewee, Yellow Warbler, White-breasted Nuthatch, Maryland Yellow-throat, Sandpiper (?), Woodthrush, Red-eyed Vireo, Cowbird, Redstart, Tree Swallow, Chickadee, Scarlet Tanager, Canadian Warbler, Cliff Swallow, Kingbird, Goldfinch, Mourning Dove and a Ruby-crowned Kinglet in the bird pool when we returned.

May 28th.—B. Oriole, Robin, Catbird, Wren, Mourning Dove, Grackle, English Sparrow, Martin, Grosbeak, Swift, Flicker, Bluejay, Tennessee Warbler.

May 29th.—Wren, Catbird, Pewee, Swift, Robin, English Sparrow, Meadowlark, Grackle, Bluejay, Chipping Sparrow, Screech Owl.

May 30th.—Martins, 6; Wren, Grackle, Robin, English Sparrow, Catbird, Swift, Grosbeak, Maryland Yellowthroat, Pewee, Meadowlark, Field Sparrow, Red-headed Woodpecker, B. Oriole, Flicker, Kingbird, Mourning Dove, Screech Owl. Part of these birds were seen in or near some woods south of town, and part in the cemetery, as well as my yard.

May 31st.—B. Oriole, Martin, Catbird, Robin, Swift, Grackle, Wren, English Sparrow, Chipping Sparrow, Meadowlark.

PUBLICATIONS REVIEWED

"Some Bird Friends," by Henry F. Pullen, Victoria, B. C. Published by the Free Lance Company, Victoria, British Columbia, Canada.

There are thirty pages of text, including twenty-three half-tone cuts in the text, besides a full page frontispiece and a full page ocean scene facing the last page. The delicately tinted cream-buff paper makes a pleasing combination with the black type, but is not well adapted to half-tone reproductions. It is possible that a coarser mesh screen would have given a better effect. Fifteen of the headings relate to bird species which are common in the region which is here under discussion, while the headings "Game Birds" and "Birds of the Swamp" cover several species respectively. It is a popular treatise, written in entertaining style, intended to please while instructing. To one who is familiar with the region those essays call up visions of the pure bracing air, with the taint of the ocean in it, the vast reaches of the dark green forests, and the feling of limitless freedom peculiar to the far west.

"Conservation of Our Wild Birds," by Bradford A. Scudder. Issued by the Massachusetts Fish and Game Protective Association, Boston.

"Birds that We Should Encourage to Nest About Our Country Homes," "Nesting-Boxes," "Martin Houses," "Bird Baths," "Winter Feeding of Birds," "Berry and Seed Bearing Trees and Shrubs," "Aquatic Plants," "The Establishment of a Sanctuary," "Enemies of Wild Birds," "Bibliography of Works Pertaining to Birds and the Out-of-Doors," with four illustrations, indicate the nature of the subject matter and the nature of this 71-page brochure. Its value is enhanced because of the completeness of the topics, and the clearness with which the topics are handled. It is made clear that not all birds can be attracted by the same methods, or by one method of treatment. We take issue with the author that the Barred Owl is very destructive to wild bird life. In our experience it is less so than the Screech Owl. Of course there may may be a difference in different districts. We commend this publication as an aid to the conservation of our wild birds. L. J.

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