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THE BULLETIN

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Published for the National Committee of the Audubon Societies, as the official organ of the Societies.

Edited by **FRANK M. CHAPMAN**

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Michigan Ornithological Club.

AN ILLUSTRATED QUARTERLY MAGAZINE
DEVOTED TO THE ORNITHOLOGY OF THE
GREAT LAKE REGIO

ALEXANDER W. BLAIN, JR.,
EDITOR AND MANAGER.

J. CLAIRE WOOD,
ADOLPHE B. COVERT, } ASSOCIATES.

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THE SECOND NEST OF KIRTLAND'S WARBLER.

Group--Museum University of Michigan.

Norman A. Wood, Taxidermist.



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PUBLISHED QUARTERLY IN THE INTERESTS OF ORNITHOLOGY
IN THE GREAT LAKE REGION.

VOL. V.

MARCH, 1904.

No. 1.

DISCOVERY OF THE BREEDING AREA OF KIRTLAND'S
WARBLER.

NORMAN A. WOOD.

Early in June, 1903, the Museum assistant, Mr. E. H. Frothingham, with a friend, Mr. T. G. Gale, went to Oscoda County, Michigan, to fish the Au Sable river. On one of their short trips Mr. Frothingham, who is an experienced field ornithologist, heard a bird song which he did not recognize. Mr. Gale shot the bird. The skin was preserved and was found on their return to be a male *Dendroica kirtlandi*. It was labeled "4 mile plains north of the Au Sable. T. G. Gale, June 15th, 1903." On questioning Mr. Frothingham with regard to this bird, he said: "It was there in some numbers and in full song. The song and the bird were new to me and I thought best to secure a specimen by which to identify it." I asked him why he did not take more, and he said "I knew they had nests and hated to take breeding birds. I never thought of its being Kirtland's Warbler." This is not to be wondered at on account of its rarity.

In many discussions on this subject Mr. A. B. Covert and I had decided that this bird would be found breeding in north Michigan. I was of the opinion that it bred in the Upper Peninsula, north of Mackinac. He said, "If it were not for the Mackinac record I should also look for it in the Canadian zone of the Lower Peninsula." Time has shown his assertion to be correct, and I believe more time will also confirm my opinion. Mr. A. W. Butler (*Birds of Indiana*, p. 1072), says: "The summer home of this warbler would seem to be northern Michigan and Wisconsin." This is the only record I have found expressing this opinion.

When I saw this skin of Kirtland's Warbler, taken in northern Michigan, I concluded there was its summer home, and there it would be found breeding. I took the skin to the Curator, Mr. Chas. C. Adams, who also saw the importance of the discovery, and the necessity of sending a man to the spot at once. I was honored with this commission, and at 4:45 P. M. of June 29th. I boarded the Toledo, Ann Arbor and Northern R. R. train, bound for Roscommon, in the extreme north of that county. I arrived at this old lumber town at 4 A. M. June 30th, after a tedious

night's travel, due to two changes of cars. After some inquiry I found that my objective point was thirty-five miles to the northeast, and that the best way to reach this point was by the river. The South branch, one of the main feeders of the Au Sable, runs near the town. At 7 A. M. I was on board a row boat on a sixty mile run down the river. Roscommon county is one of the high counties of this part of the State. The Muskegon, the Tittabawasse and the South Branch all have their sources here. This county consists of high ridges and plains, formerly covered with white pine (*Pinus strobus*), Norway pine (*Pinus resinosa* Ait.), jack pine (*Pinus banksiana* Lamb.), some hemlock (*Tsuga canadensis*, Linn.), yellow birch (*Betula lutea* Michx. f.), and paper birch (*Betula papyrifera* Marsh.). While floating down the river I saw spruce (*Picea alba*, Link.), balsam fir (*Abies balsamea* Linn.), and great swamps of tamarack (*Larix americana* Michx.),



Fig. 1. Site of the first known nest of Kirtland's Warbler, Oscoda Co., Mich. The view also shows the general character of country.

white cedar (*Chamaecyparis thyoides* Linn.), balm of Gilead (*Populus balsamifera* Linn.), basswood (*Tilia americana* Linn.) and red maple (*Acer rubrum* Linn.). I noticed also the white elm (*Ulmus americana* Linn.) and a few black ash (*Fraxinus nigra* Marsh.). The river here is from three to four rods wide with a sandy, gravelly bottom and the current is quite swift. In places the banks are high and covered with Norway and jack pine. The

ground is covered with a thick growth of sweet-fern (*Comptonia asplenifolia*, Ait.) and blue-berry bushes (*Vaccinium*), with occasional plants of the dwarf morning-glory (*Convolvulus spithameus* L.), harebell (*Campanula rotundifolia* L.), and the wood lily (*Lilium philadelphicum* L.).

This country is wild and very interesting, and the songs of many birds cheered me, as with note-book in hand I floated along. I saw a hooded merganser (*Lophodytes cucullatus* Linn.) with her brood of young. These young were not able to fly; but they tried it, and by using both feet and wings kept out of gun-shot until tired out—then they hid under bushes along the bank until I passed. The female then rose and flew back to them. I made a list of forty species of birds observed the first day. By 6 P. M. I reached a fishing camp, "Camp Douglas"; here I spent the night, having made thirty-five miles by water. It is eighteen miles overland to Roscommon. Leaving "Camp Douglas" the next morning I floated on, finding the river wider, deeper, and somewhat swifter. On the banks were noticed two oaks, red oak (*Quercus rubra* Linn.) and yellow oak (*Quercus tinctoria* Bartr.), also wild red cherry (*Prunus pennsylvanica* Linn.) and aspen (*Populus tremuloides* Michx.). In places cedar trees overhang the river and, due to undercutting, have settled into the water, making "sweepers." These have to be watched or they will overturn one's boat. As I glided along I threw a cast of flies—"Red Ibis," "Dark Coachman" and "White Miller"—and took "here and there a lusty trout, and here and there a grayling." This was once the Grayling river, but since the introduction of the rainbow and German brown trout the grayling has become scarce. Swinging around a sharp bend I once came suddenly upon a pair of bald eagles (*Haliaeetus leucocephalus* Linn.) also fishing. A few great blue herons (*Ardea herodias* Linn.) fly up as I near them, and some crows (*Corvus americanus* Aud.), noisy as usual. Cedar birds (*Ampelis cedrorum* Vieill.) are very common. At 6 P. M. I neared the Butler Bridge, a new steel structure over the Au Sable in Oscoda county, and the end of my journey, by water sixty miles, by road it is thirty-five. Hauling my boat upon the shore, I searched for a place to stay, near the home of the bird I came so far to find.

On July 2d, at 6 A. M., I started out and crossing the river bottom I came to a steep terrace which forms the edge of the "Norway" plains. This slope is very wet, and in places fine springs seep out. Here also is a dense growth of cedar with tamarack near the foot of the terrace. Fir, balm of Gilead and birch make up the timber. Climbing this slope I found a rather level plain with scattering Norway and jack pines. In places these have been cut off, and in their stead there has sprung up a more or less thick growth of small jack pines, yellow oak and poplar (*Populus grandidentata* Michx.). The ground is covered with a mat of wintergreen (*Gaultheria procumbens* L.), sweetfern and trailing arbutus (*Epigaea repens* L.). I was walking slowly through this, watching the junco (*Junco hyemalis* Linn.), song sparrow (*Melospiza fasciata* Gmel.), chipping sparrow (*Spizella socialis* Wils.) and the vesper sparrow (*Pooecetes gramineus* Gmel.)—the most common bird of these plains—when suddenly I heard a new song, loud,

clear, joyous and full of sweet melody. This song may be described as follows: *Wecche chee-chee-chee-r-r-r*. The "r" sound is quite prolonged and loud. The first two notes are low, then the notes gradually increase in volume to the end. I thought it a Kirtland, although I had never before heard its song. I heard this song repeated at intervals of about 30 seconds, and from different directions. I tried to catch a glimpse of the singer, but for a long time failed to do so, as he kept among the thick jack pines and scrub oaks. I repeatedly tried to go where he sang last, and finally saw him flit from a bush to a yellow oak scrub and light about three feet above the ground. As I watched him he sat quite erect, threw forward his head and the wonderful song rang out. This song was remarkable because of its volume and rich melody. I was sure this was the bird for which I was in search; but in order to make certain the identity I shot it. A moment later I held in my hand a fine adult male of Kirtland's warbler. I then looked over the ground very carefully, but failed to find either the female or the nest. Although I repeatedly searched this locality I never found them. On the morning of July 3d I made a second trip to the plains to search for the mate of the Kirtland which I shot on the 2d, but failed to find her. One half mile farther west I heard a male singing, but the wind blew so strong and the bird was so shy I failed to even get a glimpse of him, although it was some encouragement to know there were more in the vicinity. I spent the day in working this locality, but my search was in vain.

July 6th I started out to explore the country to the west of the spot where I found the other birds, and after walking four miles I was rewarded by hearing the now familiar song of *D. kirtlandi*. In trying to locate the singer I flushed a female from the ground. I went to the spot and dropping on my hands and knees commenced to search for her nest. The female came and lit upon a small pile of brush not four feet away, fluttering her wings, chipping and by every action showing great excitement. Her call "chip-chip" brought the male, who came within five feet of me and scolded me with the same, only louder, "chip-chip." All these actions led me to think the nest was near by. I then carefully went over the ground about me, foot by foot, and later extended my search to include many square rods. The female was very anxious and kept near me, but she was not at all shy and went to gleaning worms "like a warbler" and catching moths "like a fly-catcher." After a time the male came and chased her about low down through the pines. This pair of birds ate all the worms and moths I saw them catch, and these facts led me to think they did not have young. I spent the day looking for the nest and watching these birds. The male went to the top of an old burnt stub (about twenty feet high) near by, and sang: *wichy, chee-chee-cher-r-r*. The song of this male was not so loud and ringing, was not so full of melody as the first, but was very sweet and clear. It made me think of the song of the Maryland yellow-throat (*Geothlypis trichas*, Linn.), only the notes were shorter. I was not able to locate the nest, although I looked high and low, in all the jack pines and on the ground where, from the actions of the birds, I thought they nested. I saw the female on the ground several times, and she seemed per-

fectly "at home" there. The next day (July 7th), I returned to the same place, and hoped this time to surprise the female on the nest. I therefore very cautiously approached the spot, and while still a few rods away, flushed her from the ground. She flew a few feet and rested on a small jack pine. I examined the spot where I flushed her, but found no nest. She acted the same as the day before, fluttering her wings and tumbling to the ground, all the time uttering a faint *chip-chip*. I searched the ground carefully for several rods around this spot, but failed to find the nest. I did find a place at the base of a small jack pine which looked as if hollowed out for a nest. I have not been able to account for the peculiar actions of this female at the two places unless this hollow was the beginning of the



Fig. 2. The first known nest of Kirtland's Warbler.

nest. I visited this spot a few days later, but failed to find either bird. This pair of birds made five birds that I had seen and heard. The first colony contained two pair of birds, and this colony two pair more. I saw three birds here.

On the morning of July 8th I started in company with Mr. J. A. Parmalee to drive to the North Branch of the Au Sable, about seven miles distant. Mr. Parmalee was with Mr. Gale when he shot the Kirtland Warbler on June 15th. The valley of the Au Sable is from three to five miles wide at this place, and is terraced. The first terrace is about fifteen

feet above the river, the second about thirty feet above the first, and the third about twenty-five feet above the second. Beyond the valley extends the high uplands. We started from Mr. Parmalee's home at the foot of the second terrace and climbed to the level of the second, where we turned to the west and followed this terrace north of the river for one half mile, passing through Norway and jack pine plains. After a drive of about five miles we came to a large tract of several hundred acres which had been burned over about six years ago as I learned from Mr. R. Fraser, a resident. Scattered burnt and dead stubs reach above the younger growth (mostly jack pine) which is from three to ten feet high. In some places this growth is dense, and in others more open. The ground is covered by a more or less luxuriant growth of sweetfern, three varieties of blueberry, trailing arbutus, and the wood lily. Here also grows the dwarf morning-glory, and the golden-rod just ready to bloom.

We had nearly reached the line of Crawford county when I heard a song and on stopping, soon saw a male *Kirtlandi* singing from his favorite tree. I slipped from the wagon and secured this male. Driving on one half mile I saw a male fly to a dead tree (Fig. 1) near the road. This bird had a worm in his mouth, so I concluded that his nest was near by, and that he would go to it with the worm. I went to the side of a large stub, and

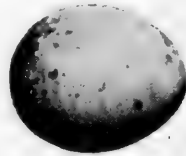


Fig. 3. Egg Kirtland's Warbler--only egg known, natural size.

while I was watching, saw this male assume the erect singing position, throw forward his head and try to sing, still holding the worm in his mouth. This song may be written thus: *ch-ch-che-che-che-a* (the "a" long drawn out). He sang a number of times at intervals of about sixty seconds—but still held the worm. He soon spied me and seemed rather uneasy, wagging his tail after the fashion of *D. palmarum*. Now his song seemed to take an anxious or scolding tone and sounded like *cha, cha che-chee wicha-a-a*. After watching me a few minutes he dropped from the tree (on a long glide) to the east about three rods. I suspected he was going to the nest, so I hurried to the spot, but when I reached it he was not there; so I stood still and waited. In a few minutes he was at his place on the old tree with another worm. Again he sang and wagged his tail and then dove down, but this time two rods to the west of the tree. I started to go there, when just south of the tree I flushed the female from the ground and after a close look, saw the nest (Fig. 2). It may be imagined with what delight I beheld the first nest of this rare bird ever seen, and with what eagerness I dropped to my knees beside it to make a closer examination of its contents. There were two young birds, perhaps ten days old, and a perfect egg (Fig. 3); this proved to be the only egg found.

This egg was a delicate pinkish-white (since the contents were removed it has faded to a dull white) thinly sprinkled with several shades of brown

spots forming a sort of wreath at the larger end. This egg is .72 x .56 inches or 18 by 14 mm., and contained no embryo. The nest was built in a depression in the ground, at the foot of a jack pine about five feet tall, and was only five feet from the road. It was partly covered with low blueberries and sweetfern plants. The nest is two inches inside diameter and the same in depth, very neat and compact, and is composed of strips of soft bark and some vegetable fiber, thickly lined with fine dead grass and pine needles. A few hairs from horses mane or tail complete the lining.

The young nestlings may be described as follows: above dark slate color, lighter on the head, each feather tipped with light sepia brown; those of the mantle broadly edged with whitish spots; those of the back, with buffy white; wings and tail dark, slightly edged with light brown; the lesser and middle coverts were like the back; the greater coverts broadly edged with buffy brown, making distinct bars; lores, sepia brown; sides of head otherwise similar in color to the upper parts, but rather paler, fading gradually into pale buffy brown on the chin and throat, this gradually changing to light brown on chest, sides and flank; each feather of the chest and sides with a dark center, widening at the tip, giving a distinct striped effect; abdomen, pale buffy, tinged with yellow.*

As I sat near the nest the female came and alighted on the branch of the jack pine just back of the nest. She was not at all shy. Once she came with a worm in her mouth, but would not feed the young while I was so near. The male also came, but not so close. Both birds were very restless and uneasy—only a few seconds in a place—which made it very difficult to take photographs of them.

I made Fraser's on the North branch, Crawford county, my headquarters for a few days so that I might be near this colony of Kirtlands. I saw (July 9th) a third female and took a male, but I wished to locate all the nests I could, so I did not shoot the females. I made a second trip to the nest and found both parents feeding the young. After watching them a short time I tried to locate the boundary of this colony to the east. A short distance east of the nest I heard another male singing and tried to locate his nest, but failed to do so. In fact the jack pine is so thick, the ground so covered with old logs, tree tops and vegetation, that it was only by the closest kind of work I could hope to find them, and even then only by watching the male and flushing the female from the nest. At 11.30 A. M. on my return to camp I heard another male singing *wich che-cheer-r-r-r*. I soon located him and found he also had a caterpillar in his

*I wish to call attention to the published cuts of the adult birds. Of the three that I have seen that by Mr. C. J. Maynard (*Birds of Eastern North America*, Pl. XVII.) is the best. This cut fairly represents the trim form and the very characteristic upright singing attitude. While the coloring is not perfect, nor the markings so good, as in the plate by Mr. L. A. Fuertes (*Auk*, '98, Vol. XV., Pl. IV.). This is a beautiful plate, but does not give a true idea of the bird. In this plate the yellow of the under side is too extensive and a shade too bright, the brown of the upper parts too intense. The eye is nearly encircled by white, while in life it is only a narrow line above and below. The head and neck are too short and thick and the body too full, giving the idea of a *sparrow-like* form, while on the other hand *Kirtlandi* in life is a true warbler in form and action. The same criticism of head and neck is true of the figure in Chapman and Reed's "Color Key To North American Birds," p. 191, Fig. 670. The color effect is very good but it seems to me that this is below the average for the warblers in this useful work.

mouth, and knew from his actions that his nest was near. He acted just as did the other one, going to the nest by diving downward when a few rods away from it and then either creeping or flying low down into the nest. The cover was so thick I could not find out which method was used. I often saw these birds light on the ground, and think them to be as terrestrial as *Dendroica palmarum*. However, I soon flushed the female from the ground and very carefully located the spot, but it was so completely covered with shrubs and plants, that only by parting them could I see the nest, which was built exactly like the first, only one half inch deeper and wider, and more cup-shaped, with the edges incurved, especially at the rear. This nest contained five young about ten days old. The number of eggs in a set is perhaps three to five. This pair of birds was shy and it was difficult to get a snap-shot of them. I spent the day in watching them and in taking notes on habits, song and habitat. I also made a list of the birds that live with them. This list will be published later. The junco is common, and breeds, as is shown by the occurrence of young.

On the morning of July 10th I walked two miles west of North branch in search of the warblers, and found the conditions different. The plains are here wooded with older jack pines. The food of this warbler seemed to be span-worms, living upon jack pines, and a small light-colored span-worm moth (*Diastictis inceptata*, Walk.). I saw the warblers capture these moths during flight. I also shot a male Kirtland that came to nest No. 2 with a deer fly in his mouth, so that flies and other insects, as well as the span-worms may compose their food. I consider the North branch the western boundary of this colony of Kirtland's warbler, but on describing the bird, its food and its habits to a young man who lives a few miles north west on the North branch, he said the birds were there and were called "the jack pine bird." I consider this a very appropriate name, as most of their time is spent on these trees and the bulk of their food is gleaned from them. It is not, however, every jack pine plain that is the home of a colony, as I examined hundreds of acres where the conditions seemed all right, and found none.

In the afternoon I went to nest No. 1 to make, if possible, more observations upon the home life of these birds. I found the parents at home, the male singing, as usual, although he seems to share equally with the female the care of the young. I heard his *chip chip che che chec a a* repeated at short intervals, from fifty to sixty seconds. I find these birds very quick and restless, with a direct, slightly undulating flight. When they go from their perch on a tree or stub, they seem to dive down, and while perching and feeding have a short, jerky motion of the tail. I watched them for hours, gleaning worms from the low jack pines, very often jumping from a limb to fly a few feet and catch a moth or fly on the wing, always returning to the same tree or stub to rest or sing before dropping down to the nest to feed the young, apparently always approaching the nest from the same direction, as there was a path beaten only on one side, and the young I always found facing in that direction.

On the morning of July 11th I secured a male, but could not find the

female or nest. In the afternoon Mr. Parmalee came with tools and wagon to help me take up the nest and get it ready to ship. I found the young quite well feathered and very timid. They scrambled out of the nest and hid in the plants several feet away when I attempted to photograph them, thus making it difficult to get a picture. The female came with a worm in her mouth to within two feet of me. She also alighted on the toe of Mr. Parmalee's shoe, but did not pose long enough for a photograph. After getting a photograph of the nest and its vicinity I shot the pair of birds and kept the young alive. We dug up the nest and started for Mr. Parmalee's, arriving after dark. I kept the young alive, by feeding them houseflies, until the 13th. Then they died, and I made skins of them, preserving the bodies. I had hoped to rear these young, at least to keep them alive until I reached Ann Arbor. I evidently did not have the variety of food required, although they ate from six to ten flies each at a time and then went to sleep very contentedly.



Fig. 4. Site of the second known nest of Kirtland's Warbler, Crawford County, Mich.

On the morning of July 14th Mr. Parmalee and I drove to North branch again, as I wished to secure the second nest, and the birds. I took a few snap-shots of the nest (Fig. 4), then dug it up with its beautiful surroundings. I brought the five young birds back alive, but they died the next

day. These were the last ones taken or seen, as the next day I spent in packing for a thirty-five mile ride to Roscommon. This day really ended a very interesting and successful field trip after Kirtland warblers, in their summer home in Crawford and Oscoda counties, during which I had heard and seen sixteen adult birds. In ten days I had secured two pair of birds with their nests, seven young and one egg; also four adult males, making fifteen birds in all.

We may then estimate that the colony contained thirteen pairs of birds, with their increase, and assuming that each nest contained on an average four young, we have fifty-two young birds. Adding to this the number of the parents, twenty-six, gives an estimated total of seventy-eight (78) birds in the area described. Taking from this the number of birds secured leaves sixty-three, the number estimated to be left in the colony, although it is hardly probable that I found all the birds in this colony.

Whether they return to this location next year, no one can say, as they have not nested here for more than three, or at the most four years, because it was all burned over six years ago (about 1897) and everything destroyed but a few old trees and stubs. Next spring another fire is liable to occur, in which case this colony will have to choose another nesting site, which will probably be the place nearest to their site of this year where the conditions are favorable.

On the morning of July 16th it was very cold, (an overcoat being necessary for comfort) as we returned overland to Roscommon. I had hoped to see or hear more of *D. kirtlandi*. I did see spots where the conditions seemed very favorable, but I did not see or hear the birds. In concluding this life history of these birds I am inclined to think the Au Sable river is the southern boundary of their breeding area and that this area extends over the greater part of the Canadian zone of Michigan, Wisconsin and perhaps Minnesota. They will probably be found breeding in favorable localities in the Upper Peninsula of Michigan, but I should not expect them north of Lake Superior.

I still consider this bird as rare, and only to be found breeding in small colonies, and only in the jack pine plains in favorable localities. All that I found were on the first and second terraces north of the Au Sable river. One pair was only one-fourth mile from the river, and the farthest two miles. All of these birds were near some road that was used by teams or stock, and they seem to prefer such places for nesting and breeding. They sing constantly in June and July by the roadside, so they may be easily found by driving through the plains at this time. I did not find a bird over one-fourth of a mile from a road, or under conditions other than those described. This history of the Kirtland's warbler is in the main copied from my field notes, written with the birds before me.

In concluding this paper I give the data for 23 birds, all taken in Michigan and records of 8 others seen, thus making a total of 31 birds. This number of records surpasses that of all other states.

1 & 2—1879, Purdie, H. A., *Bull. Nutt. Orn. Club*, IV, 1879, pp. 1-85. Two females coll. by A. B. Covert, Ann Arbor, Mich., May 15, 1875 and May 16, 1879.

- 3—1884, Ridgway, Robt., *Auk*, I, 1884, pp. 389. Male coll. by N. Y. Green, Battle Creek, Mich. May 11, 1883.
- 4—1885, Merriam, C. H., *Auk*, II, 1885, pp. 376. Male coll. by Wm. Marshall, Straits of Mackinaw, Mich. May 21, 1885.
- 5—1889, Washburn, F. L., *Auk*, VI, 1889, p. 279. Male coll. by Leverage Knapp, Ann Arbor, Mich., May 18, 1888. The sex and date of this specimen as is usually published is incorrect. U. of M. Museum. No. B. 1029.
- 6—1898, Gibbs, Dr. Morris. *Bull. Mich. Orn. Club*, II, pp. 7.. Coll. by F. H. Chapin, Kalamazoo Co., Mich.
- 7—1902, Wood, N. A., *Auk*, XIX, pp. 291, Ad. female coll. by N. A. Wood, Ann Arbor, Mich., May 14, 1902.
- 8—1903, Frothingham, E. H. *Bull. Mich. Orn. Club*, IV, pp. 61. Ad. male coll. by T. G. Gale, near Luzerne, Oscoda Co., Mich., June 15, 1903. U. of M. Museum No. 30938.
- 9—July 2, 1903. Ad. male, near Luzerne, Oscoda Co., Mich. N. A. Wood, collector. U. of M. Museum No. 30966.
- 10—July 7, 1903. Ad. female Oscoda Co., Mich. N. A. Wood, collector. U. of M. Museum No. 30970.
- 11—July 8, 1903. Ad. male, Oscoda Co., Mich. N. A. Wood, collector. U. of M. Museum No. 30968.
- 12—July 11, 1903. Ad. male, near Luzerne, Crawford Co., Mich. N. A. Wood, collector. U. of M. Museum No. 30967.
- 13—July 11, 1903. Ad. female, Oscoda Co., Mich. N. A. Wood, collector. U. of M. Museum No. 31284.
- 14—July 11, 1903. Ad. male, Oscoda Co., Mich. N. A. Wood, collector. U. of M. Museum No. 31285.
- 15—July 13, 1903. Young (nestling), Oscoda Co., Mich. N. A. Wood, collector. U. of M. Museum No. 31286.
- 16—July 13, 1903. Young (nestling), Oscoda Co., Mich. N. A. Wood, collector. U. of M. Museum No. 31287.
- 17—July 14, 1903. Ad. male, Crawford Co., Mich. N. A. Wood, collector. U. of M. Museum No. 30969.
- 18—July 14, 1903. Ad. female shot but lost.
- 19, 20, 21, 22, 23—July 15, 1903. Five young nestlings, Crawford Co., Mich. N. A. Wood, collector. U. of M. Museum No. 30689.
- 24—July 3, 1903. Ad. male, Oscoda Co., Mich.
- 25—July 4, 1903. Ad. male, Oscoda Co., Mich.
- 26—July 6, 1903. Ad. male, Oscoda Co., Mich.
- 27—July 8, 1903. Ad. male, Oscoda Co., Mich.
- 28—July 8, 1903. Ad. male, Oscoda Co., Mich.
- 29—July 9, 1903. Ad. male, Crawford Co., Mich.
- 30—July 10, 1903. Ad. male, Crawford Co., Mich.
- 31—July 11, 1903. Ad. male, Crawford Co., Mich.

The last eight birds were seen or heard but not captured.

University Museum, University of Michigan, Ann Arbor, Mich.

THE MIGRATION ROUTE OF KIRTLAND'S WARBLER.

CHAS. C. ADAMS.

About a year ago the relations suggested in this paper gradually took shape and were written out in practically their present form. But at that time the breeding area or summer home of Kirtland's Warbler was unknown. Since that time the discoveries of Mr. E. H. Frothingham and Mr. N. A. Wood, in Oscoda and Crawford counties, Michigan, have made it necessary to modify certain statements as they were originally written and at the same time they have added information tending to reinforce others. During the past year more has been added to our knowledge of this bird than during all of the preceding fifty-three years which had elapsed since its discovery.

At present we are only concerned with the records of the *spring Migrants*, as emphasis is laid upon migration routes and their bearing upon the distribution of the localities from which these migrants have been recorded. The scattered localities from which the birds have been reported seems at first glance, to be very chaotic. This apparent irregularity has been very confusing.

In the study of bird migration, the routes taken by such birds is of great importance and of special importance in the present case. The only known breeding ground for *Kirtlandi* is in Oscoda and Crawford Counties, Michigan. Its winter home is in the Bahama Islands. By what routes then does it pass from its winter home to its summer breeding grounds in the North? It will be safe to assume that practically all our spring records of these birds are those of the migrants advancing toward their breeding grounds. In these records then we have exact data as to the migration routes of this species. Migration routes and their significance have been championed in this country by Dr. Leonhard Stejneger, of the National Museum, who has said ('99, p. 68) concerning the route of this bird: "The importance of this question [summer home and migration route] is very great, for, seemingly at least, the distribution of this Warbler suggests a migration route almost unique. Yet, if we accept as our working theory of migration, the only rational one which has been offered to the present day, *viz.*, Palmen's, that the annual migration route of a species indicates the way by which it originally immigrated unto its present breeding home, how are we going to explain the apparent uniqueness of the route of *Dendroica kirtlandi*? It will now be seen how desirable it is to trace step by step the progress of this species from the Bahamas to Michigan, and possibly beyond. Here is a species so very strongly differentiated as not to be mistaken for any other, and so limited in numbers that it probably follows only a single narrowly limited route. When we shall have solved this problem we shall also know a good deal more about the road by which in past ages part of our fauna entered their present habitat."

It is not only a point of interest, but also one of importance, as one may see from the foregoing quotation, if we can come to a better understanding of the facts already known concerning this interesting bird. I

have only met with the opinion of two authors who have attempted to indicate the spring route of migration. Chapman ('99, p. 290) says: "Thus during the winter Kirtland's Warbler apparently ranges throughout the Bahamas, having been found from Caicos to Abaco, though it has not as yet been recorded from Inagua. Its northward migration begins in April, South Carolina being reached toward the end of the month, either by direct flight from the Bahamas, or, what is more probable, by advancing northward along the Southeast Atlantic Coast (St. Helena April 29, Worthington). This is the most northern, spring cis-Alleghanian record, the migratory route of the species now leading it northwestward into the Mississippi Valley."

The other author referring to the Spring route is Butler ('97, p. 1072) who says: "The line of its spring movements seems to be a narrow route from the Bahamas past the western end of Lake Erie toward Lake Superior."

It is unfortunate that so little is known about this bird south of the Ohio river. The above quotations clearly emphasize this lack of data and show the desirability of further light upon this subject.

After coming to Ann Arbor Mr. A. B. Covert called my attention to this bird and its relative abundance in this locality, four specimens having been taken here. And being familiar with the idea of migration routes I was led to infer that Ann Arbor was located on such a route. This idea seemed to be in harmony with the fact that the number of birds recorded from here is not due to the relative numbers of collectors in the field, because only two specimens have been recorded from the vicinity of Chicago, with its much greater number of collectors, but to its favorable location on an important migration route.

The geographically scattered records of *Kirtlandi* suggested to me the similarity of their occurrence to that of *stragglers* of other species and the routes followed by such birds. For example, in southern Michigan the Prothonotary Warbler is generally speaking rare, although it breeds in abundance along the St. Joseph river in the southwestern part of the State. Stragglers have been found elsewhere in the State and have been known to breed, but *in general* there is a definiteness in the occurrence of these stragglers, as will be seen later. The similarity of this straggling phenomena to the occurrence of the migrant Kirtland's suggested to me a possible analogy in the migration routes of the two species. The farther this comparison was carried the more significant it appeared to become. Louck's paper ('95) on the geographical distribution of the Prothonotary Warbler in Illinois and Indiana has been used as the basis for the comparison, supplemented by a few other records. But in order to understand this comparison some of the general facts of the distribution of the Prothonotary Warbler must be fresh in mind. For this reason I have adapted and supplemented Louck's map of this species to show especially the occurrence of stragglers and isolated colonies. An examination of the map will show how closely this swamp warbler is restricted to the streams. In addition to the shaded area in which it is known to breed regularly, it occurs also as a straggler in the *northward continuations of the same valleys*, as indi-

cated by the arrows. For example, the continuous breeding area ends about Davenport, Iowa, on the Mississippi river, while an isolated colony is found in the northward extension of this drainage valley at Red Wing, Minnesota, (Louck, '95, p. 17; Roberts, '99, p. 236). The occurrence of the birds in southern Wisconsin will doubtless follow the same law. Up the Illinois river valley above Ottawa, the bird occurs as a rare resident in the vicinity of Chicago, and an isolated colony breeds abundantly in the Kankakee swamps of northern Indiana. Up the Wabash valley, above Delphi, it seems to have spread into southeastern Michigan, and has been

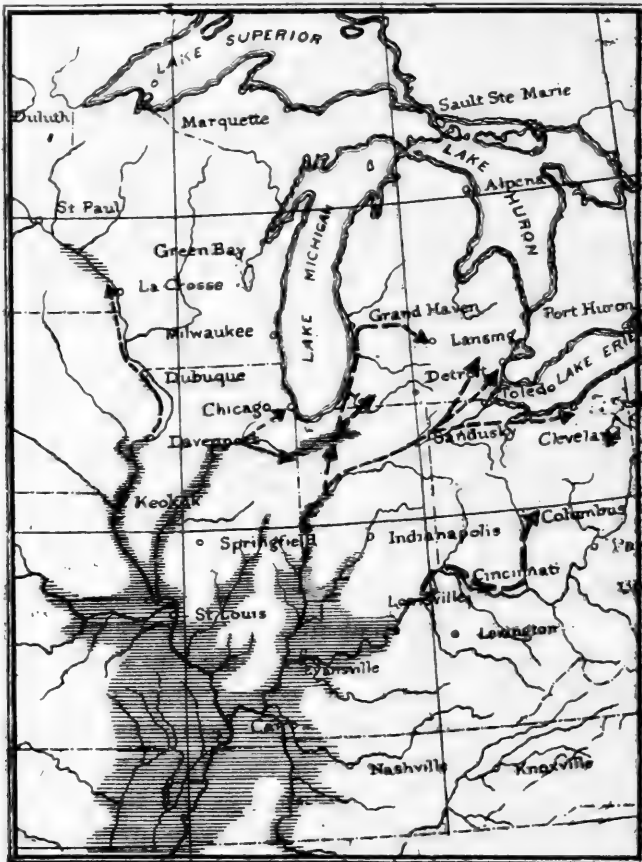


Fig. 1. Breeding area, shaded, of Prothonotary Warbler in Upper Mississippi Valley. Stragglers and route of dispersal indicated by broken lines and arrows respectively.

taken breeding in Oakland County, Michigan (A. B. Covert, May 8, 1896, South Lyon). From near the head of the Wabash, down the Maumee valley, others have spread along the south shore of Lake Erie to the vicinity of Cleveland. (Butler, '97, p. 1022). The Prothonotary Warblers of southwestern Michigan, reach the State by way of the Kankakee swamps of northern Indiana, and these swamps are reached by the Illinois and Wabash bottoms, or both, as suggested by Butler. It is very significant to notice that the stragglers and the new colonies continue up the valleys in which the species normally breeds. The map of the breeding area is also a map showing the path of spring migration, and also, in all probability the path

by which the present species has found its way to its present breeding area since the Ice Age. From this point of view stragglers have more than usual interest, *not* because they are *rare*, but because they show the possibilities of future lines of dispersal and show how dispersal or extension of the breeding range of a species is taking place at the present time. Of course this does not apply to all stragglers into any region, but it is especially suggestive in the case of birds which normally breed along a highway south of the region invaded by the stragglers.



Fig. 2. Probable migration route of Kirtland's Warbler. Arrows indicate location of records and broken lines probable routes.

The paths or highways by which it seems that the Prothonotary Warblers (and also many other animals) have invaded Michigan, thus seem to be as follows: Those in the southwestern part of the State have pushed up from the Kankakee swamps of northern Indiana to the St. Joseph river and then have spread along its course and over southwestern Michigan. These birds may have reached the Kankakee swamps either by the Illinois or Wabash river bottoms, or both, as has been mentioned. The birds of southeastern Michigan and northwestern Ohio, via the Upper Wabash and extinct lake bottoms bordering Lake Erie.

Let us now consider the bearing which these facts have upon the distribution of Kirtland's Warbler. When comparing the distribution of these two birds one must not press the analogy too close, but must be content with general resemblances. But if the general principles or resemblances

will hold, that will be of some advantage. The map showing the distribution of the Prothonotary Warbler has been discussed. A similar map, Fig. 2, of the migrant records of *Kirtlandi*, has been prepared for purposes of comparison. The approximate localities are indicated by the *arrows*. As it is well known that valleys are highways of migration for many species, as in the case of the Prothonotary Warbler, I have therefore connected the arrows by the *broken lines*, to indicate approximately the supposed routes. Dr. Stejneger has suggested that the limited number of birds favors the idea of a single narrowly limited route. This is especially likely to be the case south of the mouth of the Ohio river. Above that place the route apparently branches, but it is highly probable that a narrow route is followed. Our lack of data from South Carolina to St. Louis leaves a great gap in the route. As the bird breeds among conifers it may be influenced by such trees in its migration, in which case the pine barrens of the Coastal Plain and the cypress swamps of the Mississippi valley, to the mouth of the Ohio, may be shown some preference. I do not understand the South Carolina records; perhaps they are stragglers from the general Gulf Coast pine barren route to the Mississippi river. Further data is necessary to settle this point. At least it would be worth while to search the pine barrens of the Gulf Coast during the last of April or the first week of May for the bird. So much for a working hypothesis. From the foregoing remarks it will be seen that the estimated route is somewhat as follows: The birds spend their winters in the Bahamas, reach the coast of the United States about the latter half of April (West Jupiter, Florida, April 19, 27; St. Helena Island, South Carolina, April 27, May 3), and pass west via the Pine Barrens to the Mississippi, up which they ascend and reach the vicinity of the Ohio valley about the first week in May (St. Louis, May 8; Cincinnati, first week in May; Wabash, Indiana, May 4 and 7) and reach the latitude of northern Ohio and southern Michigan about the second or third week in May (Morgan Park, Illinois, May 21; Glen Ellyn, May 7; Rockford, May 25; Lake Koshkonong, Wisconsin, May 24; Battle Creek, Michigan, May 11; Kalamazoo, May 15;* Ann Arbor, May 14, 15, 16, 18; Cleveland, Ohio, May 4, 12, 13, 15 and June (?); Oberlin, May 11) and are breeding in Oscoda and Crawford Counties, Michigan, early in June (Mackinac, May 21; Luzerne, June 15.) The Minneapolis (May 13) and Toronto (May 16) captures. As the routes do not converge, it suggests that the breeding area may be extensive. What is the destination of the birds along the south Shore of Lake Erie?

There remains to be considered another factor which has apparently influenced the location of the migration routes. This is a factor whose influence could not have been estimated but for the careful and detailed studies of the glacial geologists, particularly the work of Mr. Frank Leverett

*Mr. F. H. Chapin writes me as follows concerning the capture of his Kalamazoo specimen: "This Kirtland Warbler I secured within the city limits, early in the morning of May 15, 1885. The specimen I have marked as a female. It was shot at very short range and consequently was somewhat mutilated. It was in a small pine tree in company with other warblers. I remember that the motions of the bird were rather slow and not so active as most warblers. It was very tame."

in Illinois, Indiana, Ohio and Michigan ('99, '02). In his reports Mr. Leverett gives maps showing the ancient glacial lakes and drainage lines. I have adapted from his maps and from suggestions made by him the following outline map, Fig. 3, which shows the most important lines of glacial drainage, and such old shore lines as concern us at present. It is not intended that these topographic features were of contemporaneous age as it is definitely known that such was not the case, but it is of significance to know their origin and their influence upon bird life. To those who have not seen these topographic features or given them any thought it may be a surprise to learn that they form conspicuous features of the topography. The beach ridges may in many cases be followed for many miles as a very marked feature of the landscape. These drainage valleys have wide open valleys or deep gorges so that they are very conspicuous. It should be remembered that these are in a relatively level country, which tends to exaggerate even slight topographic features. In this connection it is of interest to note that two important highways of bird migration into the lower peninsula of Michigan have been influenced to a large degree by glacial drainage. In glacial times the St. Joseph river from South Bend, Ind. (Leverett, '97, p. 438) flowed down the Kankakee river and emptied in turn into the Illinois. This southwestern highway into Michigan has been supplemented by contributions from the Wabash valley. The other highway into southeastern Michigan has been by way of the Upper Wabash and Maumee valleys. In glacial times the Wabash valley below Fort Wayne formed the outlet of Lake Maumee (whose descendant in part, is Lake Erie). Thus the forking of migration routes, at the western end of Lake Erie, is apparently of ancient origin and in all probability began in early post-glacial times.

It is generally accepted that as the great continental ice sheet of the Ice Age spread over northeastern North America, life was compelled to extend its range to the south before it or become exterminated, and as the ice melted away there began a return movement. Such a statement has been challenged, apparently on the basis that birds, as other organisms, do not retreat from adverse conditions. This is the position maintained by Dixon ('97, p. 20) in a very suggestive book on the bird migration. He further maintains that the birds of the Northern Hemisphere never extend their breeding range *southward*, and that southward extension of breeding range during the advance of the ice sheet is a myth. Even if it were granted that organisms do not retreat from adverse conditions, it does not necessarily follow that there was no southward extension of the breeding range with the southward advance of the ice. There can be but little doubt that there were definite zones of conditions, similar to those of the boreal regions to-day, which *migrated to the south at that time*. Such conditions are to-day *favorable* for many birds, and in all probability were at that time. Under such circumstances what would prevent the southward extension of such forms as found their favorable conditions moving south? Dixon further (p. 19) maintains that "the only forms that survived this several times repeated glacial invasion, were those whose pre-glacial breeding

range extended beyond its influence." I see no reason why the class of birds just mentioned should have been so restricted. *Kirtlandi* may well be taken as a representative of the class of birds, just referred to. It is a bird which breeds in the northern coniferous zone. In general, it seems safe to infer that those migratory birds, which now have their breeding grounds in the north, were among the early migrants which pushed back with the retreat of the ice. Can it be that the evident northern breeding area of *Kirtlandi* indicates that it was one of these early invaders? And can its



Fig. 3. Lines of Glacial Drainage or Shore Lines. To show relation of those topographic features to bird migration routes. Border of the last ice sheet (Wisconsin), indicated by dashes.

apparent adherence to glacial highways indicate that its dispersal dates back to early post-glacial times? Habits of migration may preserve records when fossils are lacking. If this was one of the early species to push north, it is but natural that it should follow such highways, as it is along such valleys and shore lines, at that time, that the vegetation would make its most rapid extension northward. A comparison of maps (Figures 1 and 3) is suggestive in this connection. The map of the Prothonotary Warbler (Figure 1) shows the present distribution of a distinctly southern type of bird, which is extending its range northward, and suggests the method and *stage* which *Kirtlandi* has long ago passed through as it extended its breeding range northward with the amelioration of the glacial climate. These valleys and shores, (Figure 3) as has been mentioned, were in early post-glacial times, as to-day, highways of dispersal. The breeding range of

Kirtlandi is in the coniferous region of the north, and yet, if this point is view is correct, it slavishly follows the old ancestral paths in its spring migrations. It should be remembered that in early post-glacial times the conifers extended much farther south than at the present time, so that in all probability there was not as great a break between the northern and southern conifer belts as there is to-day.

At least, it seems worth while, as a working hypothesis, to consider the present point of view, and see to what degree the migration routes of the northern migratory birds have been influenced by glacial drainage lines and lake shores. One would not expect uniformity in this respect any more than we may expect uniform results upon diverse material even to-day, and yet certain types of routes may find their explanation in early post-glacial conditions as suggested by *Kirtlandi*.

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University Museum, University of Michigan, Ann Arbor.

MICHIGAN ORNITHOLOGISTS.



A. H. GRIFFITH,
Director of the Detroit Museum of Art.

Bulletin
OF THE
Michigan Ornithological Club

A QUARTERLY MAGAZINE DEVOTED TO THE ORNITHOLOGY
OF THE GREAT LAKE REGION.

ALEXANDER W. BLAIN, JR.
EDITOR.

131 Elmwood Avenue, - - - - - Detroit, Mich.

ASSOCIATES :

J. CLAIRE WOOD, - - - - - Detroit, Mich.
ADOLPHE B. COVERT, - - - - - Ann Arbor, Mich.

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Exchanges and Mss. should be sent to the Editor. Dues, subscriptions and communications of a business nature should be sent to Chas. E. Wisner, 1115 Brooklyn Ave., Detroit, Mich.

EDITORIAL

With this issue the *Bulletin* enters upon its fifth volume, making the ninth ornithological publication in this country to have reached that age. As is the case with other similar journals, its path has not been entirely strewn with flowers, but those in charge at different times, since the beginning, have had to fight the many difficulties which are constantly arising.

Thanks to the deep interest of the ornithologists in the state, as well as to those in the surrounding states and Canada, the *Bulletin* is now well on its feet. May it live and prosper long after its present friends are in the land with the souls of the songsters which lie in their cabinets.

Owing to the length and importance of the papers on the Kirtland's warbler, published in this issue, we have been forced to defer many articles, notes, the Club minutes, and list of members to the June issue. While the general plan has been slightly deranged, we nevertheless feel that all will be well pleased with the present issue.

The organization of a Michigan Audobon Society is a step in the right direction in the line of legitimate bird protection in this state, and we wish it all possible success. At the first quarterly meeting of the Club for 1904,

held at the Detroit Museum of Art, on February 5th, it was decided to devote one page of each issue of this journal to the interests of the new society. This will not interfere with the policy of the *Bulletin*, which has been carried on in the past, i. e., to furnish readers with notes fresh from the field and museum on the birds of the region about the Great Lakes. We are pleased to publish the views of Wm. Dutcher, chairman of the Protection Committee of the American Ornithologists' Union.

"Regarding scientific collecting: I am not opposed to *real* scientific collecting in the slightest degree; in fact I think it is absolutely necessary for real ornithologists to have birds to study; however, I am opposed to indiscriminate collecting of birds' nests and eggs by boys and pseudo scientific collectors.

"The real ornithologists in this country, i. e., men who have the interest of ornithology at heart, are the ones who have brought bird protection to its present prominence. They were the ones who first discovered that the birds were being rapidly exterminated and are the ones who formed the first bird-protection society in the United States, and who have continued to agitate the subject and are still doing so. The whole Audubon movement is the outgrowth of the real ornithologist's love of nature and his desire to preserve the birds."

The twenty-fifth congress of the American Ornithologists' Union was held at the Academy of Natural Sciences at Philadelphia, on November 16, 17, 18 and 19, 1903. The meeting was one if not the most successful ever held by the Union. We are pleased to note that many Michigan men were elected associate members. This state is still far from being well represented in the Union and at the coming congress many others should join its ranks.

The *Bulletin* would call the attention of Club members to the Patron class. Ten have already joined, but there still remains many in the state who could well afford and should join this class. The annual dues for Patrons is five dollars a year. All should remember that the *Bulletin* is run for no financial end and that none of the officers of the Club are paid for their services. The list of Patrons will be published in the next issue. Will your name be among them?

Our thanks are due to Mr. P. Kinder, of the Detroit Museum of Art, for designing the attractive engraving which adorns the front cover of this issue. The figure represents the Kirtland's Warbler in its northern home among the pines.

The next meeting of the Club will be held at the Museum of the University of Michigan, at Ann Arbor, on Saturday, April 2nd. The annual meeting of the Michigan Academy of Science will be held at Ann Arbor at the same time. This will be the annual meeting of the Club, and it hoped that many of the members will be present.

RECENT LITERATURE.

KEY TO NORTH AMERICAN BIRDS. Fifth edition, entirely revised. By Elliot Coues, Boston: Dana Estes & Co., 1903. Two volumes, royal 8 vo., xli., 1152 pages, 747 black and white illustrations in the text and two colored plates. Price, \$10.00.

In so great a degree is the development of American ornithology due to Coues' "Key" that detailed comment upon the general nature of the new (fifth) edition is unnecessary.

The introductory portion is the same that has served as the text book for a generation of ornithologists, while the main text is on the same plan as that followed in the earlier editions. It has, however, been brought thoroughly up to date and the nomenclature is for the most part in accordance with the American Ornithologists' Union Check-list. The serial numbers are, however, unfortunately omitted and the order remains reversed, the Thrushes heading the line.

To Mr. J. A. Farley, who has edited Dr. Coues' manuscript and made the many changes and additions rendered necessary by the progress of the science since the time of the author's death, great credit is due; and the work is no doubt as nearly what Dr. Coues had in mind as it was possible to make it under the circumstances. The differences in nomenclature, etc., between the "Key" and the A. O. U. list are in the main intentional on the part of the author. The printing is good and the work forms two handsome royal octavo volumes.

So far as illustrations go they are in some respects disappointing. The prospectus with its sample colored plate led many to infer that there were a number of such illustrations, there is, however, only one—a frontispiece—in each of the two volumes, and the numerous excellent figures by Fuertes, which supplement the familiar cuts of the earlier editions lose a great deal of their beauty by being printed upon soft-finish paper. These slight defects, however, deduct but little from what has always been and for years will be a standard and indispensable work for the American ornithologist.

A portrait of Dr. Coues and Mr. Elliot's masterly address upon his life and work reprinted from the *Auk* form a suitable preface, while a list of differences in nomenclature between the "Key" and the A. O. U. list by Mr. Farley is a useful feature.—W. S.

THE BIRDS OF OHIO: A Complete, Scientific and Popular Description of the 320 Species of Birds found in the State. By William Leon Dawson, A. M., B. D. With Introduction and Analytical Keys by Lynds Jones, M. Sc. The Wheaton Publishing Co., Columbus, 1903. xlvii + 660 pages + Index. 80 colored plates and over 200 original halftones. Sold only by subscription.

THE BIRDS OF OHIO. By Lynds Jones, M. Sc. (Oberlin College). Special Paper, No. 6. Ohio State Academy of Science, 1903. 8 vo., 241 pages, 1 map.

PROCEEDINGS OF THE NEBRASKA ORNITHOLOGISTS' UNION. I, II, III, 1899-1902;+index. Dr. Robt. H. Wolcott, Editor, Lincoln, Neb.

THE BIRDS OF FERGUS COUNTY, MONTANA. By P. M. Silloway. Bull. No. 1. Fergus County Free High School, Lewiston, Mont., 1903. 8 vo, 77 pages, 17 half-tone plates.

BIRDS OF A MARYLAND FARM; A LOCAL STUDY OF ECONOMIC ORNITHOLOGY. By Sylvester D. Judd. Ph. D., Bull. No. 17, Div. Biol. Survey, U. S. Dept. of Agric., Washington, 1902. 116 pages, 17 plates, 41 text-cuts.

THE BIRDS OF WISCONSIN. By L. Kumliedr and N. Hollister, Bull. Wis. Nat. Hist. Soc., vol. II (new series), Nos. 1, 2 and 3. Published with the co-operation of the Milwaukee Public Museum, 1903. 8 vo., 143 pages, 8 half-tone plates.

We are in receipt of *Cassinia*, (A Bird Animal), the Proceedings (No. VII) of the Delaware Valley Ornithological Club, of Philadelphia, for 1903. Lack of space forbids a review, but it will suffice to say that the high standard of the proceeding issues is maintained and the volume is some twenty pages larger than the precedings of 1902. The earnest work done by this society is especially manifest in its report on migration and similar clubs in this country would do well to undertake work of this character.

CORRESPONDENCE.

A FORTHCOMING BULLETIN ON MICHIGAN BIRDS.

Editor of the "Bulletin:"

For the past ten years I have been collecting material toward a bulletin on the Birds of Michigan, to be published by the Agricultural College, and the work is now nearing completion. The co-operation of the Michigan Ornithological Club was sought and promised several years ago, and I am indebted already to several members for valuable aid. A circular of inquiry will be sent out soon; meanwhile I would like to ask each member of the Club and each reader of the *Bulletin* the following questions:

1. Do you know of any misstatements, omissions or inaccuracies in Cook's bulletin, Birds of Michigan, published in 1893?
2. Do you know of the capture of other good record, published or unpublished, of any of the rarer birds of the state since 1893?
3. Do you know personally of any unidentified specimens of local birds in any collection, public or private, in the state?
4. Do you know personally of the recent occurrence in the state of the wild turkey, prairie chicken, passenger pigeon raven, whooping crane?

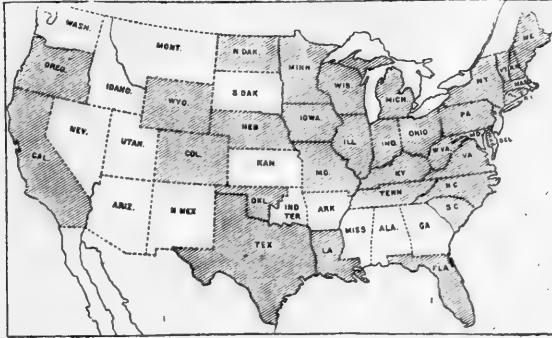
Information on any of the above points will be greatly received and suitably acknowledged in the *Bulletin* when published. Correspondence in regard to any of our Michigan birds is solicited.

Agricultural College P. O., Mich., March, 1904. WALTER B. BARROWS.

MICHIGAN AUDUBON SOCIETY

(Organized February 27, 1904.)

FOR THE PROTECTION OF BIRDS.



Map showing (shaded) States having Audubon Societies.

This department will be a permanent feature of the *Bulletin* and will be devoted to the interests of bird protection in the state. It is hoped that local chapters will be formed in every town or at least every county. The list of officers of the organization were received too late for publication in this issue. Copies of the constitution and literature on bird-protection, etc., may be secured by addressing the State Secretary, Mr. Jefferson Butler, 79 Home Bank Building, Detroit.

The Michigan Audubon Society was organized at Detroit on February 27th, as an auxiliary to the Michigan Ornithological Club. Its objects are as follows: (1) To disseminate information respecting the economic value of birds to agriculture, and their importance to the welfare of man; (2) To discourage the purchase or use of the feathers of any birds for ornamentation, except those of the Ostrich and domesticated fowls; (3) To discourage the destruction of wild birds and their eggs (except for scientific purposes). (4) To establish Bird Day exercises in the schools of the State of Michigan, in connection with the celebration of Arbor Day, and to encourage the introduction of bird study in schools.

Bird-Lore, a bi-monthly magazine (published for the Audubon Societies by the MacMillan Company, Harrisburg, Pa., edited by Frank M. Chapman) is the official organ of the Audubon Societies and should be in the hands of all bird-protectionists.

The report of the American Ornithologists' Union Committee on the Protection of North American Birds for 1903 by the chairman, Wm. Dutcher, is printed as a "supplement" to the *Auk* for January and consists of over a hundred pages showing the good work which was accomplished during the past year.

The National Committee of Audubon Societies' "Educational Leaflet," No. 7, treats of the Snowy Heron and should have a wide circulation in this state.

NOTES FROM THE FIELD AND MUSEUM.

NOTES ON A FLOCK OF EVENING GROSBEAKS.

At Menomonie in the north-central part of Wisconsin, during the winter and spring of 1903, I had the pleasure of observing the habits of a flock of Evening Grosbeaks (*Coccothraustes vespertinus*.) One perfect winter day, about the middle of January, when the blue shadows of the morning lay across stretches of almost unbroken snow, and the air was full of sparkling crystals, my walk was interrupted by a chorus of sharp bird notes, and in a tree near by, I saw a flock of some sixteen of these striking beauties.

The black crown of the adult males shades off on the side of the head to a greenish-brown, and on the neck and body to a beautiful greenish-yellow. There is a bright yellow mask over the eyes. The long feathers of the wings and tail are black, and some of the short feathers of the wings are snow white, making a round white spot on the upper part of them. In the younger males the coloring is not so bright, and the females are grey with a slightly sulphurish wash, while the black and the white feathers of the wings and tail are more or less intermingled. The characteristic which enabled me to identify these strangers was their immense heavy bills. These birds measure two inches shorter than a robin, but the larger body and shorter tail make them look like a larger bird. They are much like a parrot in shape and movement, sitting erect, and moving slowly, except in their flight, which is very swift. Their principal article of diet was the winged seeds of the box elder which cling to the trees all winter, though I saw them occasionally in cedar-trees.

One of the neighbors had a box of sand in her yard, at the south side of the house, where it was sheltered from the snow and warmed by the sun, and here the birds came frequently to nestle in the sand, like barn-yard fowl. They were very tame when they first appeared, permitting a close approach, but I soon found that "man's dominion had broken nature's holy union," and some cruel experience had taught them to beware of human kind. I saw the flock in one part of the city or another all winter, but by the last of April, as the nesting season approached, they became more or less scattered, and I frequently saw one or two alone. They remained until about the middle of May and then flew away to the woods of Canada to nest.

EDITH VAN VALKENBURGH.

Grand Rapids, Mich., January, 11th, 1904.

[The winter of 1903-4 has been marked by a flight of both the Evening and Pine Grosbeaks, and records have been received from many points throughout the Great Lake region. Mr. Ruthven Deane, of Chicago, writes: "We have had a sprinkling of both Pine and Evening Grosbeaks this winter. I saw a Robin December 26th some twenty-five miles north of the city—temperature at the time was ten below zero." Last winter there was a great flight of the Snowy Owl, but no records of the Pine Grosbeak. This winter it has just been vice-versa.—EDR.]

THE BOHEMIAN WAX-WING IN OAKLAND COUNTY, MICHIGAN.

One day in November, 1903, while walking through a second growth of woods about a mile and a half from this place I found myself in the midst of a large flock of Bohemian Wax-wings (*Ampelis garrulus*) an instant most interesting to me as it was my first meeting with them in lower Michigan.

Their constant jumping about the trees, noisy chatter and handsome appearance, render them very interesting indeed, much more so than the common Cedar Wax-wing, which is by no means lacking in interest.

Having been disabled most of the winter, I have been unable to revisit the locality, but owing to their wandering habits, I suppose they long since left the vicinity.

WILFRED A. BROTHERTON.

Rochester, Mich.

THE OPENING OF THE SEASON.

Thursday, February 25th, a bitter cold day, I left Augusta, Mich., at 2 P. M., and about 4 P. M. found a nest of the Great Horned Owl (*Bubo virginianus*). Nest was seventy feet up in tip top of a large sycamore. A Great Blue Heron hatched her eggs in it last year. There were three heron nests in the treet, of which this was the center one.

The nest contained three eggs. The last evidently had just been laid.

EDWARD ARNOLD.

Battle Creek, Mich.

A FACT TO BE REMEMBERED.

Some time last autumn a Red-eyed Vireo (*Vireo olivaceus*) was brought to me for identification. The person did not think it could be of that species because the eyes were black. Fortunately I had "gathered in" a family or two during past years and was able to explain that all the young-of-the-year have black eyes.

Detroit, Mich.

J. CLAIRE WOOF

AMERICAN GOLDENEYES WINTERING ON THE SPEED.

Two male and two female American Goldeneyes (*Glaucionetta clangula americana*) have wintered here on a piece of open rapidly running water on the Speed. They are very active and spend much of their time diving after food.

Guelph, Ontario.

A. B. KLUGH.

PERSONALS.

At the fifty-third annual meeting of the American Association for the Advancement of Science, held at St. Louis from December 26th, 1903, to January 1st, 1904, two M. O. C. members were elected fellows of the Association: Prof. Hubert Lyman Clark, of Olivet, and Prof. Jacob Reighard, of Ann Arbor.



DRAWING BY L. A. FUERTES

TOWHEE.

(From Coues' New "A. C." - see page 25.)

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BULLETIN OF THE MICHIGAN ORNITHOLOGICAL CLUB.

The BULLETIN is certainly creditable, and I am sure it will be a success.—Witmer Stone.

Should receive the support of all the ornithologists in Central and Southern Ontario.—Guelph Daily Herald, Canada.

The last issue was a good one.—Walter K. Fisher, Editor of the Condor, Calif.

This worthy work deserves the active support of all bird students.—Sports-Afield, Chicago.

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EXCHANGES.

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OLD BIRD MAGAZINES WANTED.—I will be glad to receive a list of any duplicate bird magazines or old bird books you may have and can offer either cash or good exchange for them. I have the following to dispose of: Bendire's Life Histories, Vols. I and II, Pacific R. R. Survey, the four vols., which contain all the bird writings of the survey, with 38 colored plates; a complete set of the *Nuttall Bulletin* (8 vols.), unbound, and numerous other bird magazines, etc. I want *Bull. Mich. Orn. Club*, Vols. I, II and III; the *O. & O.* Vols. I, II, III, IV, V, VI, VII, VIII. W. Lee Chambers, Santa Monica, Cal.

FOR SALE OR EXCHANGE.—Choice Southern sets with full accurate and standard data; very cheap for cash. Sets of warblers especially desired. Satisfaction guaranteed. List for stamp. Doctor M. T. Cleckley, 457 Greene Street, Augusta, Ga.

WANTED.—To buy collections of specimens or books, any size, for prompt cash. Will take singles in any quantity, in exchange for specimens or books. WALTER F. WEBB, 416 Grand Ave., Rochester, N. Y.

WANTED.—*Bulletin of the Michigan Ornithological Club*, Vols. I, II, and III, any number. State condition and cash price. All answered. A. W. BLAIN JR., 131 Elmwood Ave., Detroit, Mich.

WANTED.—First-class sets of eggs. Can offer in exchange some fine things, including rare warblers, cranes, falcons, etc., for desirable sets. EDWARD ARNOLD, Battle Creek, Mich.

TO EXCHANGE.—Bird skins and sets for sets. J. CLAIRE WOOD, 179 17th Street, Detroit, Mich.

COLLECTORS.—I have issued a 16-page booklet containing a digest of the Michigan game laws for 1903-04 and other useful information for collectors and sportsmen, which I will mail upon request. LOUIS J. EPPINGER, 516 Chene Street, Detroit, Mich.

WANTED.—Sets of eggs containing abnormal specimens, such as runts albinos, monstrosities, abnormally colored or shaped eggs. Will give cash or good exchange. J. WARREN JACOBS, Waynesburg, Pa.

WANTED.—Every dealer and collector to send me his address that I may send out sample sheets of my *Standard Field Note* and *Data Blank Books*, endorsed by advanced collectors and dealers. Recommended by Ornithological Clubs. "All answered." GEO. W. MORSE, Box 230, Ashley, Ind.

TO EXCHANGE.—A few good sets of Mountain Plover for sets new to my collection. FRED M. DILLE, Longmont, Colorado, R. F. D.

TO EXCHANGE.—A series of Common Tern and other common water birds for sets not common to this locality. CHAS. E. WISNER, 1115 Brooklyn Ave., Detroit, Mich.



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BULLETIN

OF THE
MICHIGAN
ORNITHOLOGICAL CLUB

Published Quarterly in the interests of
Ornithology in the Great Lake Region.

Vol. V., No. 2. June, 1904.



DETROIT, MICHIGAN

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THE BULLETIN

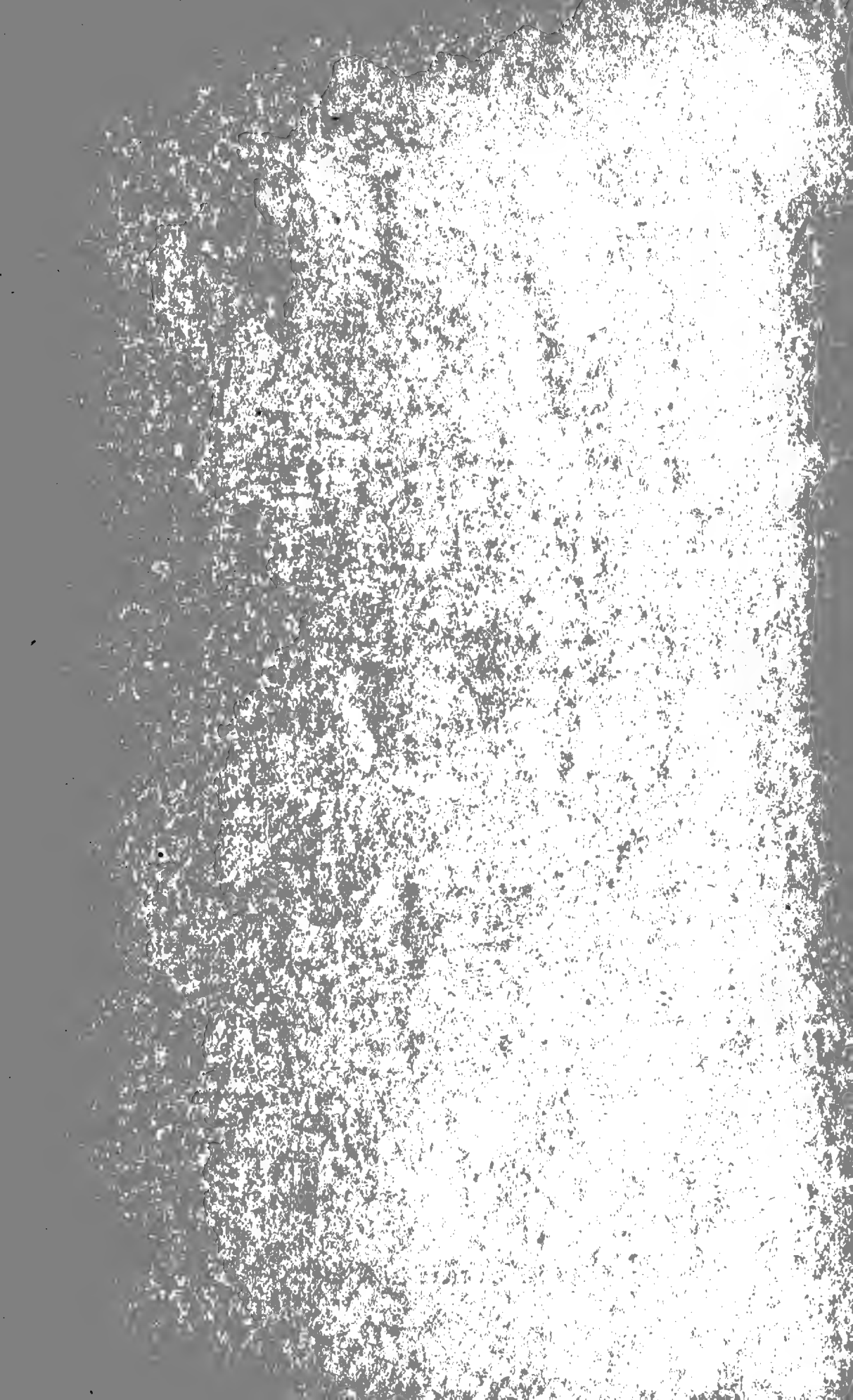
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Dues, subscriptions and communications of a business nature should be addressed to the Business Manager, Chas. E. Wisner, 1115 Brooklyn Avenue, Detroit, Mich.

Articles of general interest relating to the bird life of the Great Lake Region are solicited. They should be in the hands of the editor not later than the 20th of the month preceding publication.





THE AMERICAN REDSTART.

DRAWING BY LOUIS AGASSIZ FUERTES

BULLETIN
OF THE
Michigan Ornithological Club

PUBLISHED QUARTERLY IN THE INTERESTS OF ORNITHOLOGY
IN THE GREAT LAKE REGION.

VOL. V.

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**SOME NOTES ON THE LIFE HISTORY OF THE AMERICAN
REDSTART.**

J. CLAIRE WOOD.

Here in the County of Wayne, the Redstart (*Setophaga ruticilla*) is surpassed in abundance only by the Yellow Warbler (*Dendroica aestiva*), and as it is a common species throughout the eastern United States and well known to every bird student, I will not dwell upon the much written subject of its general characteristics and song but limit myself to some personal observations regarding its nesting habits. Exclusive of the present season I have found 143 nests containing eggs (nothing said of young) and have examined as many more found by other members of our field party, and upon this data the following is based:

The typical nesting site is about seven feet above the ground in the main upright fork of a sapling amid the dense second growth in the heart of a large woods. It is also commonly placed in the crotch formed by a limb branching from the main trunk. Not more than a dozen were upon horizontal forks and I recollect only two cases of nests being saddled to a limb without other support. The most remarkable situation was in a grape vine. This vine reached downward about ten feet from the first limb of a large oak and thence upward to within a foot of the starting point, forming a swing, and at the bottom of this loop the nest was placed. It was a windy day and the nest swung over a space of five feet, but madam clung to her treasure perfectly unconcerned. Another nest, worthy of mention, was placed within an old one of the Red-eyed Vireo (*Vireo olivaceus*), and yet another was partly sunken into the ground at the base of a gooseberry bush, between two logs. The other extreme was fully 70 feet up a great oak, but only five per cent. of all the nests were more than 30 feet above the ground. Many were found along the forest margin, but none in the open bush land 300 yards beyond. The average nest is three inches in exterior depth, but where the crotch is narrow the birds continue to build until a sufficient height is reached to give a satisfactory width, and

this height seldom exceeds five inches. The interior varies but little from $1\frac{1}{4}$ inches in depth by $1\frac{3}{4}$ in width. The nest is a firm, compact structure composed of various plant and bark fibres and flexible grass stems, lined with fine grasses, weed and bark fibres and an occasional horse hair. The exterior is often tastefully ornamented with vegetable down, spider silk, etc., but there is no attempt at interior decoration beyond a few feathers, those of Tanager, Indigo and Goldfinch being eagerly secured because of their brilliant colors. A very beautiful nest looked like a snow ball stuck in a sapling crotch and could be seen a long distance through the woods. The exterior was almost entirely composed of cotton dumped from a collecting box two weeks previous.

The first sets consist of four eggs, rarely more or less, but if these are destroyed a new nest is constructed as soon as possible and another set deposited, which rarely exceeds three eggs, and very often but two. As is the case with many species, locality influences the number per set. Of eight nests found in Springfield Township, Oakland County, three contained five eggs and one of the two sets from Greenfield Township, Wayne County, consisted of that number. All the remaining sets were noted in Grosse Pointe Township, and not one contained more than four eggs, with the exception of a nest with seven, but this was a case of two birds occupying the same nest. When found one female was upon the nest and the other perched close beside it. They were equally demonstrative of anxiety as I ascended the tree. The eggs were in two layers and slightly incubated. Being of two distinct types there was no difficulty in separating them into sets of three and four. This was not a case of polygamy, as both males were present. All four were living in perfect harmony and understanding, which is remarkable from the fact that the males are inclined to pugnacity and fiercely attack all intruders of their kind that invade their chosen territory. I have often regretted that lack of time prevented my watching this establishment and have wondered how the duties of incubation were shared and if so many young could have reached maturity in such a small nest.

The time of nesting is influenced by the season. During favorable years I have found eggs on May 15. The present season has been the most backward in my experience and of the twenty nests found on May 29 but seven contained eggs and none complete sets.

If I recollect correctly, Ernest H. Short, writing in the *Oölogist* some ten years ago, speaks of frequently finding Cowbird's eggs in the nest of the Redstart. This is contrary to my experience, only two cases coming under my notice. From the time a nest is finished until the set is complete most birds remain near the nest no longer than is necessary to deposit one egg. This is not so of the Redstart. The female is ever in the vicinity and always on the watch, and being fearless undoubtedly attacks and drives away this parasitic pest. More than once has a Cowbird dashed by me with several Redstarts in pursuit.

Whenever my thoughts wander back to days in the big woods during those charming months of wild flowers and bird song—May and June—I hear again the silvery chimes of the Wood Thrush, the echoing melody of the Ovenbird, the prolonged warbles of the Grosbeak and above them all, because more constant, the loud trilling music of the Redstart. It matters not how dense and gloomy is the woods the pleasing notes pour in upon you from every side and ring in your ears for many days to relieve the routine of office work, like the eternal piping of the Black Tern and voluble outpourings of the Marsh Wren in the land of reeds and rushes. Cheerful, noisy and musical is this busy little fellow and always in evidence to welcome you with his company, and I, for one, wish him a long and happy existence and rejoice that his enemies are few, and look forward in pleasant anticipation, to our next meeting at his sylvan home.

Detroit, Michigan.

BIRDS IN DECORATION.

A. H. GRIFFITH.

The grace of form, the many changing attitudes, the glory of color would all suggest themselves to the decorator and it is not to be wondered that very early use was made of bird life in the many schemes of decoration. The stone cutter who must rely entirely on form found birds either copied direct from nature or conventionalized of the greatest use, particularly in that age of Gothic work when so many forms borrowed from nature entered into the decoration of churches. The dove, of course, came in among the first, perhaps because of its association with Biblical lore. In the most ancient mosaics, notably that known as Pliny's doves, found at Pompeii, are found splendid examples of the use made of birds. Raphael introduced them innumerable times in his frescoes as may be still seen in the faded ornamentation of the loggia at the Vatican.

But one must turn to Japan and to the Japanese artist and artisan to find the greatest work in this line. Everywhere, on embroideries, inlays, lacquers, and kakamonies, may be found the numerous varieties of birds which must be a part of their natural history. Indeed they seem never to tire of giving a representation of the feathered tribe in some form. The sacred Ho bird, with its immense tail feathers, oftentimes comprises the sole ornament of some splendid box or plate. All their themes drawn from nature would naturally form a part, or background, one might say, for their bird life. The bronze castings will show with what loving care they represent every feather, and all with such marvelous grace and lightness as to cause one to question the material.

Going further round the world one finds in India a constant use of birds for decorative purposes. The brass work of Benares is generously loaded with birds, oftentimes with the peacock, which might not perhaps be termed a bird, but belongs to the tribe. The peacock throne of India was one of the wonders of the world, the body formed of gold, it glittered in a wealth

of the rarest gems, some of which to-day form a part of the priceless gems that decorate the crowns of European monarchs.

Among the carvers of Switzerland birds are perhaps their greatest delight. On almost every piece, clocks, frames or ornaments, they may be found peeping from behind some bit of leaf work or foliage, sometimes hovering over a nest in pairs, again they quarrel over a piece of fruit, always so naturally life like that one must not only admire the skill of workmanship but the love shown by the designer for his subject.



JAPANESE VASES AND PLAQUE

Frederick Stearns Collection, Detroit Museum of Art.

Birds form a part of many national symbols, such as the eagle of Prussia, Austria, France and America, and the story of old Abe, the pet eagle that followed an Illinois regiment throughout the war between the North and South, would make an interesting romance of itself.

Again, to return to America, the bird forms a very important part of the lore and naturally the decorations found on the various articles made by the American Indian. 'Tis true the American artisans so far have made but small use of birds, and it seems somewhat strange that this should be so amidst such a wealth of material. Still we must not forget that we are still in a formative period—by and by the workman will awaken to the unlimited opportunities offered by our natural fauna and bird life for the blending of the two into a harmonious whole which shall be a delight to the eye and yet keep, or rather create, a national type of design suitable for many purposes for which heretofore we have borrowed from other sources.

Detroit Museum of Art, Detroit, Michigan.

A LIST OF THE LAND BIRDS OF SOUTHEASTERN MICHIGAN.

BRADSHAW H. SWALES.

(Concluded from Vol. IV. page 40).

89. *Zamelodia ludoviciana* (Linn.) Rose-breasted Grosbeak.—Abundant summer resident in favorable localities. Usually arrives during the first week in May—my earliest record is April 30, (1896). Departs from the middle to the latter part of September. I saw my latest bird October 21, 1893.

90. *Cyanospiza cyanea* (Linn.) Indigo Bunting.—Common summer resident. Arrives May 3-13th, remaining until late September.

91. *Spiza americana* (Gmel.) Dickcissel.—A somewhat rare summer resident in Wayne county, but more abundant in the surrounding counties. J. Claire Wood met with a flock July 30, 1899, in the reeds bordering the River Rouge, but I have heard of none being seen since. Purdy found two nests in 1891 at Plymouth, but stated that the bird is quite rare. I have found it breeding in St. Clair county.

92. *Piranga erythromelas* (Vieill.) Scarlet Tanager.—Fairly abundant summer resident. Arrives from April 27 (1902) to May 10 (1891). The bulk of the species have departed by the middle of September. I have never seen the bird later than October 2 (1893).

93. *Petrochelidon lunifrons* (Say) Cliff Swallow.—Fairly common from May 1st to September 1st. Breeds in colonies in suitable localities.

94. *Progne subis* (Linn.) Purple Martin.—This is a common bird in certain sections, in others is entirely absent. Numbers are resident in the heart of the business section of Detroit, rare in the suburbs. Arrives from April 9 (1889) to April 26 (1896). In 1902 the first Martins appeared April 24, in 1903 on April 19th. Depart around September 1st.

95. *Hirundo erythrogaster* (Bodd.) Barn Swallow.—An extremely abundant summer resident. My extreme dates for this bird's appearance are April 10, 1899, April 29, 1900. Last seen September 29, in 1893.

96. *Iridoprocne bicolor* (Vieill.) Tree Swallow.—An abundant summer resident, generally here by the 15th of April. In 1901 I noted a few unusually early birds coursing over the River Rouge on March 27th. The main body are gone by late September; I have noted them as late as October 18 (1890).

97. *Clivicola riparia* (Linn.) Bank Swallow.—Abundant, breeds in large colonies along the river, and at the St. Clair Flats, and suitable situations inland. Arrives during late April, remaining well into September.

98. *Stelgidopteryx serripennis* (Aud.) Rough-winged Swallow.—Not common, and rarely observed. I know of but one breeding resort where a few pairs occupy a sand bluff in connection with bank swallows. Arrive about May 1st.

99. *Amphispiza cedrorum* (Vieill.) Cedar Waxwing.—A common summer resident, a few are occasionally observed in winter. Arrives from March 11, (1890) to April 8, (1895). In the open pasture scrub lands this bird breeds well into September, much later than the orchard birds. Departs about October 15th.

100. *Ampelis garrulus* (Linn.) Bohemian Waxwing.—I have no record of this erratic bird's occurrence in Wayne county. W. A. Brotherton has recently noted a large flock at Rochester, Oakland county, in November, 1903. (*Bull. Mich. Orn. Club*, v. 29).

101. *Lanius borealis* (Vieill.) Northern Shrike.—An irregular winter visitor from November 1, (1901) to March 15, (1903). Some winters pass and apparently none are here.

102. *Lanius ludovicianus migrans* (Palmer) Migrant Shrike.—Common summer resident, arrives generally about March 15th, sometimes during late February. Remains until late October.

103. *Vireo olivaceus* (Linn.) Red-eyed Vireo.—Abundant summer resident. Arrives from April 28, (1895), to May 7, (1889). Departs in late September. A few linger as late as October 16 (1889), October 9 (1893).

104. *Vireo philadelphicus* (Cass.) Philadelphia Vireo.—A rare, and irregular migrant. Personally I have never seen it in Wayne county, but I shot one male at St. Clair August 28, 1896 (*Auk*, 1904, p. 84). J. B. Purdy has taken one bird at Plymouth. J. Claire Wood has seen several in late August.

105. *Vireo gilvus* (Vieill.) Warbling Vireo.—An abundant little songster ranking next to *V. olivaceus*. Arrives from April 27, (1896) to May 7, (1889). I have never observed it later than the 28th of September (1889), generally gone by the 15th.

106. *Vireo flavifrons* (Vieill.) Yellow-throated Vireo.—Not common as compared with *V. olivaceus*, and *gilvus*. Summer resident, arrives from May 1st to the 10th. Departs in early September.

107. *Vireo solitarius* (Wils.) Blue-headed Vireo.—Fairly abundant bird during the migrations. In spring it arrives here during the first week in May, passing north by the 15th. Returns on its passage south about September 5th, a few lingering throughout the month.

108. *Mniotilta varia* (Linn.) Black and White Warbler.—An abundant warbler during the migrations. A few pairs remain throughout the summer. J. Claire Wood has found several nests at Grosse Pointe Farms, Wayne county. One nest we inspected May 30, 1900, was cunningly situated in a crevice in the roots of a large oak. The female allowed herself to be caught without difficulty on the nest, which contained four eggs. Arrives from April 24, (1889) to May 13, (1900) lingering as late as October 2, (1893).

109. *Protonotaria citrea* (Bodd.) Prothonotary Warbler.—One record only, A. B. Covert identified one male at Grosse Pointe Farms May 9, 1903, while out with A. W. Blain, Jr. (See *Bull. M. O. C.* iv, p. 60).

110. *Helminthophila pinus* (Linn.) Blue-winged Warbler.—A rare migrant. I have been able to learn of but one record. J. Claire Wood observed a pair May 29, 1902. Mr. Purdy has not met with it at Plymouth.

111. *Helminthophila chrysoptera* (Linn.) Golden-winged Warbler.—A rather common summer resident. Arrives generally during the first week in May, remaining until the middle of September.

112. *Helminthophila rubricapilla* (Wis.) Nashville Warbler.—Common

migrant. Arrives from April 26 to May 3rd, remaining until the middle of May. Returns again in early September, remaining throughout the month.

113. *Helminthophila peregrina* (Wils.) Tennessee Warbler.—Fairly abundant during the fall migration, rare in the spring. Arrives about May 10th, remaining as late as the 20th. In September it appears again, lingering until early October. In the fall of 1893 this was a very abundant warbler.

114. *Dendroica tigrina* (Gmel.) Cape May Warbler.—A rare migrant, May and September. I believe that this warbler is more often observed in autumn. Mr. Purdy has never observed it at Plymouth. In 1903 I observed but one bird, a male, on May 12th.

115. *Dendroica aestiva* (Gmel.) Yellow Warbler.—An abundant summer resident. A uniform bird in its dates of arrival as the following demonstrates: April 27, 1889; May 3, 1890; April 28, 1891; April 29, 1892; May 1, 1893; April 28, 1894; April 25, 1895; April 18, 1896; April 26, 1897; April 25, 1899; April 29, 1900; May 2, 1901; April 26, 1902; April 29, 1903. The bulk of the species have departed by the first of September.

116. *Dendroica caerulescens* (Gmel.) Black-throated Blue Warbler.—A fairly common migrant. Arrives from May 3rd, remaining as late as the 22nd in 1901, and the 17th in 1903. Reappears in early September, remaining as late as October 4th, in 1893.

117. *Dendroica coronata* (Linn.) Myrtle Warbler.—One of the most abundant migratory warblers. I have seen it as early as April 11, (1891), and as late as May 11, (1902). Returning in late September, remains well through October. In 1893 I observed several November 25th, an unusually late date.

118. *Dendroica maculosa* (Gmel.) Magnolia Warbler.—Abundant migrant. Arrives in the first week of May, remaining about ten days. In 1903 I saw one male May 24. Returns again September 1st, lingering until the 20th, occasionally later—in 1902, October 1st.

119. *Dendroica rara* (Wils.) Cerulean Warbler.—A common summer resident. Arrived May 3rd, 1891, 1896; May 7, 1899; May 8, 1897. Departs September 15-10. This species has been found breeding by several parties around Detroit.

120. *Dendroica pensylvanica* (Linn.) Chestnut-sided Warbler.—A fairly abundant summer resident. Arrives about May 6th, remaining well into September.

121. *Dendroica castanea* (Wils.) Bay-breasted Warbler.—Not a common migrant. Arrives May 6-10th, remaining but a few days. Again in September. In fall it is doubtless confused with *D. striata*, and as a result not recorded. I was able to secure several on May 8th, 15th, and 20th, 1904.

122. *Dendroica striata* (Forst.) Blackpoll Warbler.—Common during the migrations, much more so in fall than in spring. Arrives May 10-15, and apparently lingers but a few days. Returns again around September 10th, and remains through the first week of October—a few occasionally are noted even later.

123. *Dendroica blackburniae* (Gmel.) Blackburnian Warbler.—Fairly

abundant migrant. I have seen it from May 3, (1903) until May 21, (1899). Again in September, in 1893, remaining until the 30th.

124. *Dendroica dominica albilora* (Ridg.) Sycamore Warbler.—From personal observation I know little of this warbler. Walter C. Wood secured a pair in July, 1899, and is of the opinion that they were breeding. (*Auk*, xvii, 1900, p. 391). Mr. Purdy has never met with it at Plymouth.

125. *Dendroica virens* (Gmel.) Black-throated Green Warbler.—One of the abundant migratory warblers from May 1st to as late as the 20th, generally the bulk are gone by the 10th. The return movement commences around the first of September, a few remaining as late as October 7th.

126. *Dendroica vigorsii* (Aud.) Pine Warbler.—I have observed this bird but rarely in the May migrations, never in fall. Mr. Purdy says "an occasional migrant." Careful, and extended observation is needed on the local warblers by competent observers before the abundance and extent of migrations can be definitely stated.

127. *Dendroica palmarum* (Gmel.) Palm Warbler.—Fairly abundant migrant, apparently more so in spring than in fall. I have noted it from late April until May 4th. Purdy has found it fairly abundant at Plymouth. Arrived May 4, 1902; May 2, 1903; May 1, 1904.

128. *Dendroica discolor* (Vieill.) Prairie Warbler.—I have never observed this personally, and J. Claire Wood and J. B. Purdy have similar experiences. W. A. Davidson states (*Oölogist*, xii, p. 53) that he found it nesting near Detroit May 27, 1894, but the bird was not secured.

129. *Sciurus aurocapillus* (Linn.) Ovenbird.—A common summer resident. Arrives April 24th, in 1891, to May 7th, in 1901. Departs during the latter part of September. October 5th, in 1893, is the latest autumnal record I have.

130. *Sciurus noveboracensis* (Gmel.) Water Thrush.—I have not found this a common bird except during the period of its arrival. It reaches here during the first week in May, remaining until late September. In 1889 I noticed one October 8th.

131. *Sciurus motacilla* (Vieill.) Louisiana Water Thrush.—Fairly common species in spring, reaching here a little in advance of *S. noveboracensis*—April 20th—May 1st. Of late years I have found this to be more common, and have located a number of pairs. The song is exceptionally sweet, wild, and ringing, and the birds shy. Several nests have been found by local observers near Detroit.

132. *Geothlypis philadelphia* (Wils.) Mourning Warbler.—Fairly abundant warbler during the migrations in May. J. Claire Wood met with a pair July 28, 1903, which might indicate that the birds had been breeding. I have not seen it in fall.

133. *Geothlypis trichas brachidactyla* (Swain) Northern Yellow-throat.—Abundant summer resident. Arrives from the 4th to the 10th of May. Departs in late September. In 1901 I observed several October 8th.

134. *Icteria virens* (Linn.) Yellow-breasted Chat.—Locally a rare summer resident. I have never met with it personally, and know of but two

instances of its occurrence here—both in May. W. A. Davidson found a pair breeding May 29, 1898, and on May 30, 1903, Chas. E. Wisner secured a set at Grosse Pointe Farms. The bird was not secured in either instance.

135. *Wilsonia mitrata* (Gmel.) Hooded Warbler.—A rare migrant. "Rare at Plymouth," Jas. B. Purdy. "Occasionally seen in fall," J. Claire Wood. I have met with but one bird, a male, September 19, 1903, at Belle Isle, Detroit River.

136. *Wilsonia pusilla* (Wils.) Wilson's Warbler.—A rare bird locally. J. Claire Wood added this species to our Wayne County list on June 7, 1903, when he observed three birds. I have not seen it personally and it has not been taken at Plymouth.

137. *Wilsonia canadensis* (Linn.) Canadian Warbler.—I have met with this species sparingly during the migrations. Arrives by May 10th, remaining but a few days. Again appears in fall by September 1st, lingering as late as September 30th in 1893.

138. *Setophaga ruticilla* (Linn.) American Redstart.—This species ranks next to *D. aestiva* as our most abundant warbler. Arrives April 27-May 7th, departs September 23-30th. Breeds very abundantly in favorable localities as Grosse Pointe Farms.

139. *Anthus pensilvanicus* (Lath.) American Pipit.—Fairly abundant during the migrations but irregular. Sometimes appears in large flocks in the fields bordering the city in April and October. Seldom noted later than November 1st.

140. *Galeoscoptes carolinensis* (Linn.) Catbird.—Abundant summer resident. Arrives April 23 (1894)-May 13 (1900), usually here by May 1st. Departs September 21 (1902)-October 7 (1893.)

141. *Toxostoma rufum* (Linn.) Brown Thrasher.—A fairly common summer resident. Arrives April 2 (1889)-April 25 (1891), generally here by the middle of the month. Departs September 26-October 6th.

142. *Troglodytes aedon* (Vieill.) House Wren.—An abundant little bird, both in the country and city, especially in the parks. Arrives during the latter part of April, common by May 1st. Departs about September 20th. I have seen several as late as October 9th, in 1889.

143. *Olbiorchilus hyemalis* (Vieill.) Winter Wren.—A fairly abundant migrant. Observed from March 10th to May 10th in spring, in fall September 20th to October 6th.

144. *Telmatodytes palustris* (Wils.) Long-billed Marsh Wren.—An abundant summer resident in the river, and inland lake marshes, and at the St. Clair Flats. I have noted it as early as April 18th (1903) and as late as October 2nd (1893.)

145. *Cistothorus stellaris* (Licht.) Short-billed Marsh Wren.—Not a common summer resident. J. B. Purdy has found two small colonies breeding near Plymouth. I have not met with it personally as yet.

146. *Certhia familiaris americana* (Bonap.) Brown Creeper.—A fairly abundant migrant. Generally appears in September, remaining until about the middle of May.

147. *Sitta carolinensis* (Lath.) White-breasted Nuthatch. Abundant resident. Breeds in late April, and early May.

148. *Sitta canadensis* (Linn.) Red-breasted Nuthatch.—A fairly abundant migrant, occasionally seen in winter. Appears usually in early September, sometimes during the latter part of August, remaining until November. Becomes abundant again in early March-May 10.

149. *Baeolophus bicolor* (Linn.) Tufted Titmouse.—Common migrant in spring, not so abundant in fall. Is most numerous in February, March, and April, remaining well into May. A number remain throughout the winter. Does not breed to my knowledge.

150. *Parus atricapillus* (Linn.) Chickadee. Common resident, breeds.

151. *Regulus satrapa* (Licht.) Golden-crowned Kinglet.—An abundant migrant in early spring and fall, an irregular winter resident. Arrives from the north in late September, remaining until November 1st. In spring, March and April are the months of its greatest abundance. Seldom remains later than May 3rd.

152. *Regulus calendula* (Linn.) Ruby-crowned Kinglet.—A common migrant, more abundant some years than in others. Arrives in late April, remaining until around May 10th. Returns in early September, finally departing in October.

153. *Poliophtila caerulea* (Linn.) Blue-gray Gnatcatcher.—Common summer resident in some sections, in others not often observed. Arrives about April 28th, remaining until September 10th.

154. *Hylocichla mustelina* (Gmel.) Wood Thrush.—Common summer resident. Arrives between the 23rd and 28th of April, common by May 1st. The bulk have left by October 1st, but I have observed several as late as October 19th, in 1902.

155. *Hylocichla fuscescens* (Steph.) Wilson's Thrush.—An abundant summer resident. My extreme dates in spring of this bird's appearance are April 22 (1900)-May 4 (1902). Departs during the latter part of September, latest record October 10th, in 1893.

156. *Hylocichla aliciae* (Baird) Gray-checked Thrush.—A not uncommon migrant. Arrives April 27th-May 21st, again in September. Careful notes on this bird here are much to be desired, as it is confused with the olive-backed thrush. More extended work during the migrations will doubtless find *aliciae* more common. First taken here in 1898 by J. Claire Wood.

157. *Hylocichla swainsonii* (Cab.) Olive-backed Thrush.—A fairly common migrant April 30th to May 15th. Again in September.

158. *Hylocichla guttata pallasii* (Cab.) Hermit Thrush.—Common migrant. Arrives as a rule about the 18th of April; in 1889 the first was observed April 3rd. Lingers until May 1st. In autumn appears in the latter part of September, a few remaining occasionally into November.

159. *Merula migratoria* (Linn.) American Robin.—An abundant summer resident, a few remain throughout the winter. Arrives February 26-March 24, departs October 27-November 9.

160. *Sialia sialis* (Linn.) Bluebird.—Common summer resident. The

earliest in spring I have observed this bird is February 21, 1891. J. C. Wood has seen it February 10, 1903. Latest arrivals March 24, in 1895 and 1896, the years of the great scarcity of the species. Departs around November 1st. In 1889 I noted one bird December 8th.

ADDENDA.

161. *Meleagris gallopavo sylvestris* (Vieill.) Wild Turkey.—Now extinct. Jas. B. Purdy writes: "Formerly quite abundant, of late years entirely extinct. I once found a nest, and eggs here (Plymouth) and raised some young. These were very shy, especially of dogs. They would run with tame turkeys during the day but retire at night by themselves to roost."

162. *Ectopistes migratorius* (Linn.) Passenger Pigeon.—Once extremely numerous, now probably extinct. The last record I have been able to obtain is an immature bird taken September 14, 1898, at Chestnut Ridge. (*Bull. Mich. O. Club*, iv, p. 81.)

163. • *Ceophloeus pileatus abieticola* (Bangs) Northern Pileated Woodpecker.—"Formerly common, when a boy, now extinct." J. B. Purdy. J. C. Wood saw one about 1886.

164. *Pinicola enucleator leucura* (Mull.) Canadian Pine Grosbeak.—This bird was first taken in this section during the past winter, 1903-4. November 9th, 1903, two were shot near Detroit, and sent in to Louis J. Eppinger (*Bull. Mich. O. C.*, iv, p. 97). On March 6, 1904, I met with two in Highland Park.

165. *Helminthophila celata* (Say.) Orange-crowned Warbler.—Mr. Purdy writes me that this is "an occasional migrant at Plymouth." I have never seen it here.

Detroit, Michigan.



Bulletin
OF THE
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A QUARTERLY MAGAZINE DEVOTED TO THE ORNITHOLOGY
OF THE GREAT LAKE REGION.

ALEXANDER W. BLAIN, JR.
EDITOR.

131 Elmwood Avenue, - Detroit, Mich.

ASSOCIATES :

WALTER B. BARROWS, - Agricultural College, Mich.

J. CLAIRE WOOD, - - - Detroit, Mich.

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EDITORIAL

The publication in 1893 of "Cook's Birds of Michigan" marked a new epoch in the ornithology of the state—its influence cannot be over-estimated. The work, however, was unfortunate in some respects, many of the records being entered on insufficient evidence, and still others, apparently on none at all. It nevertheless has served as a guide to students in the past eleven years. So much for the work of the past.

The announcement of a new book on the birds of the state will be welcomed by all, and the fact that the foremost ornithologist of the state is to undertake the task is still more reason why it will be welcomed. Years of work in the field, eight years as one of the ornithologists of the United States Government, not to speak of his labors in the museum and classroom as a professor of zoology, in our opinion, renders Mr. Barrows the fittest to compile a list of the birds which have been recorded in this state. He has already spent ten years on the work and an abundance of good material has accumulated, but there is still much to be desired in the way of local lists before the work goes to press. All Michigan students should take a personal interest in the work and extend to the author all possible aid in forwarding the pleasantly anticipated work.

The cut of the Redstart, by America's foremost bird-artist, Louis Agassiz Fuertes, pictured as a frontispiece to this issue, was loaned us through the courtesy of Dana, Estes & Co., Boston, the publishers of Dr. Coues' classic "Key to North American Birds."

The Rev. Wm. R. Lord's lecture on birds, presented at the Detroit Museum of Art on June 2nd, under the auspices of the State Audubon Society, proved of much interest to the large audience that greeted him. Other lectures have been arranged for the coming autumn and much good work will probably be accomplished during the present year.

Earl Mulliken, formerly connected with this journal, has moved to California. At the recent annual meeting of the Cooper Ornithological Club he was elected junior vice-president.

The *Auk* for April announces the death of Gurdon Trumbull, a fellow of the American Ornithologists' Union, at his home in Hartford, Conn., in his sixty-third year.

The case of Wm. J. Long had begun to fill many pages of *Science* when the editor gently pulled down the curtain. The woodcock surgery question especially was becoming extremely interesting, and lovers of sensational news will probably be disappointed at the action of *Science's* editor.

MICHIGAN ACADEMY OF SCIENCE.

The tenth annual meeting of the Michigan Academy of Science was held at Ann Arbor on March 31, April 1 and 2. The following officers were elected: President—Dr. A. C. Lane, Lansing.

Vice-Presidents:

Section of Agriculture—Prof. W. J. Beal, Agricultural College.

Section of Botany—Prof. J. B. Dandeno, Agricultural College.

Section of Geography and Geology—Prof. M. S. W. Jefferson, Ypsilanti.

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Section of Science Teaching—Prof. W. H. Sherzer, Ypsilanti.

Section of Zoology—Dr. Raymond Pearl, Ann Arbor.

Librarian—Dr. G. P. Burns, Ann Arbor.

Secretary-Treasurer—Dr. Charles E. Marshall, Agricultural College.

Many interesting papers were presented at the zoological section. Prof. H. L. Clark urged upon the Academy in general, and the zoological section in particular, the desirability of at once beginning a systematic biological survey of the state. A very thorough discussion of the subject followed the reading of this paper. From the discussion it appeared that all present were agreed as to the desirability of such a survey but there was a difference of opinion as to the practical possibility of carrying it on in a profitable way under existing conditions. A committee of the section, consisting of Mr. Bryant Walker, Prof. H. L. Clark, Prof. W. B. Barrows, and Mr. C. C. Adams was appointed to consider the matter and report at the next meeting.



BRYANT WALKER,
Detroit.



WILLIAM H. DUNHAM,
Kalkaska.



A. H. BOIES,
Hudson.



FREDERICK C. HUBEL,
Detroit.

MICHIGAN ORNITHOLOGISTS
FIFTH SERIES.

RECENT LITERATURE.

DAWSON'S BIRDS OF OHIO.—(See page 25, March issue.)

So many are the popular nature books dealing with birds that the student is apt to be rather skeptical regarding the announcement of a "new book on popular ornithology." Such was probably the view taken by many of the Rev. Wm. Leon Dawson's announcement of a new book on the birds of the Buckeye State. This skepticism has proved to be without grounds, however, as he has given us one of the most notable books on popular, scientific ornithology which has as yet appeared in this country.

The work is an imperial quarto, printed on fine paper and illustrated by eighty colored plates, exclusive of the 700 or more pages of text. It is the 200 finely prepared text cuts which will appeal to the student who is already familiar with most of the birds dealt with in the work.

"Our medical advisers," says Prof. Lynds Jones in the Introduction, "are always prescribing more out-door exercise, but without any other object than getting into the fresh air exercise is pretty stupid. Give one the zest of finding new things which must be searched for, something which requires going after and the necessity of exercise is forgotten in the interest aroused by every receding bird." The reader of this work will not need the M. D.'s advice to "seek exercise in the fresh air," for but a glance through its pages tends to give one spring fever.

The beginner will find the "Analytical Keys," also written by Prof. Jones, of much value and assistance. Preceding each biography is a description of the bird—special stress being laid upon the "Recognition Marks." Then we have descriptions of the nesting, the "Range in Ohio" and "General Range."

While the author has drawn to an extent upon other works for information, we have in the main original observations on the birds of the state, written in a charming manner by one who knows his subject well. In Appendix A we have a "Hypothetical List." Appendix B is a "Conjectural List" and contains a list of birds which have been reported from adjacent states and may "occur at least casually in Ohio." Appendix C is a check-list of Ohio birds, together with "Migration Tables" as observed at Cincinnati, Columbus and Cleveland.

As we have already stated, Mr. Dawson has given us one of the greatest works on popular, scientific ornithology which has yet been written—every student in the Great Lake region will find it interesting and profitable reading.—A. W. B., Jr.

COOPER ORNITHOLOGICAL CLUB PUBLICATIONS.—One of the most prosperous of the ornithological clubs in this country is the Cooper Club of California. Organized in 1893 it has ever since remained active. Who is not familiar with the "Cooper boys" of the West? The publications of this society are of two series: The *Condor* is a beautiful bi-monthly teeming with the breath of western fields and mountains—for four years edited by the late lamented Chester Barlow; now under the able direction of Walter K. Fisher.

The *Pacific Coast Avifauna*, consisting of articles of too lengthy a nature to appear in its official organ, forms the other series. No. 4, the "Birds of the Huachuca Mountains, Arizona," by Harry S. Swarth, has just reached us. It is a most excellent piece of work and casts credit upon the club as well as the author. The publications of the Cooper Club may be secured from the business manager, Joseph Grinnell, Pasadena.—A. W. B., Jr.

THE HAUNTS OF THE GOLDEN-WINGED WARBLER. By J. Warren Jacobs. 8 vo., 30 pp. Published by the author at Waynesburg, Penna., 1904. Price 35c.

This paper forms the third number of an interesting series entitled *Gleanings*, which are "based chiefly on the author's research in ornithology and oology and published from time to time as material and data permits." No. I, "Oological Abnormalities," appeared in 1898; No. II, "The Story of a Martin Colony," in 1903.

While the present paper does not attempt a complete life history of this species it nevertheless gives us much valuable and original information concerning *Helminthophila chrysoptera* in its habits, migration, nest building, song, food, young, eggs, etc. Of the hundreds of egg-collectors which America has produced Mr. Jacobs is one of the few who have attempted to make a systematic study of oology.

The present paper is illustrated by eight half-tones from photographs showing the eggs, nesting location, and nature of country, and a color chart showing the various colors displayed on the shell. The work is neatly printed and forms a welcome contribution to our knowledge of the species.—A. W. B., Jr.

ADDITIONAL NOTES TO SUMMER BIRDS OF FLATHEAD LAKE, with Special Reference to Swan Lake. By Perley Milton Silloway.—*Bull. Univ. of Mont.*, No. 18, Biolog. Series No. 6.)

A REVISION OF THE AMERICAN GREAT HORNED OWLS. By Harry C. Oberholser. (*Proc. U. S. Nat. Mus.*, XXVII, pp. 172-192.)

COLOR KEY TO NORTH AMERICAN BIRDS. By Frank M. Chapman. With Upward of 800 Drawings by Chester A. Reed. New York: Doubleday, Page & Co., 1903. 8 vo., pp. VI + 312.

A GUIDE TO THE BIRDS OF NEW ENGLAND AND EASTERN NEW YORK. By Ralph Hoffman. Illustrated by L. A. Fuertes and others. Boston and New York: Houghton, Mifflin & Co., 1904. 12 mo. XIII+357 pp.

MICHIGAN AUDUBON SOCIETY

(Organized February 27, 1904.)

FOR THE PROTECTION OF BIRDS.

79 Home Bank Building, Detroit.

Since taking up the work of bird protection, the Michigan Audubon Society has met with much encouragement, sometimes where least expected, while on the other hand it has been retarded by those who should be helpers. Local secretaries at Grosse Pointe, Muskegon, Hillsdale, Greenville, Smith's Creek and the Counties of Jackson, Oakland and Macomb assert that bird destruction is common. Appeals to the deputy game warden have proved useless. Prosecuting attorneys and sheriffs have not awakened to the situation and it seems no aid is to be expected from them for the present. Mr. Bryant Walker, attorney for the Society, is taking up this phase of the question.

The Society feels that the work accomplished has been of good service. Five thousand educational leaflets, bulletins and notices have been distributed and a large number of schools and teachers have been reached. Mr. Martindale, Superintendent of Schools for Detroit, is encouraging bird study and bird protection and the school authorities at Muskegon and Grosse Pointe are doing active work. The Biological Survey of the U. S. Department of Agriculture forwarded 600 bulletins on "Our Common Birds," etc., which have been sent out, while more are promised.

The Secretary has spoken to four boys' clubs and two adult societies and has posted notices in the woods surrounding Detroit giving a synopsis of the law relating to the protection of birds and the penalties for their destruction. Through the generosity of Mrs. R. A. Newman a stereopticon lantern has been purchased and slides are now being prepared through Mr. Dutcher, the National Chairman, who has kindly loaned his slides to our Society. One thousand copies of the by-laws of the organization have been distributed and we will be obliged to order more. With the exception of a contribution from Hon. W. B. Mershon of Saginaw, who became a patron, the state has not aided financially, though many promises have been received.

Rev. Wm. R. Lord of Rockland, Mass., stopped on his way from the Pacific coast to give an illustrated lecture on the "Ministry of Birds," and Mr. Wm. Dutcher promises to give a lecture in the autumn when the Society meets to consider a revision of the state law, which we trust will be such as to commend itself to the next state legislature. For the work up to date especial mention is due Miss Clara F. Dyar of Grosse Pointe for her constant devotion to the work.

JEFFERSON BUTLER,

State Secretary and Treasurer.

BULLETIN OF THE
CORRESPONDENCE.

THE TAGGING OF BIRDS.

Editor of the "Bulletin":

The remarks on the above subject, made in a recent issue of the *Bulletin* by Mr. Leon J. Cole, calls attention to some work that promises great possibilities in the way of scientific returns. Very interesting and valuable results would undoubtedly accrue if young birds, and as many old ones as possible, were systematically tagged. Some work along these lines has been done abroad and a little of it in this country. Professor Cooke has matured a plan of this kind for observing the migrations of Chimney Swifts and the winter movements of Blue-jays. His scheme, however, necessitates unusual advantages and leisure, and so cannot be taken advantage of except by those located under peculiarly favorable conditions.



LINCOLN'S SPARROW
(From Coues' Key)

If, however, each young bird the field workers of the country came across were tagged and the older ones systematically trapped in the shrubbery of the immediate neighborhood and treated in the same way the maximum amount of results could be attained with the minimum amount of time and labor. If even a few such birds should again turn up it would be well worth working for.

The tags for large birds are easily decided upon. Those for smaller ones, i. e., sparrows, etc., require more careful consideration. They must be light and small so as not to hamper the bearer and strong enough to resist the wear and tear, and of some inert substance that will not corrode, rust or cause inflammations and sores. And with all this they must be large enough to bear an inscription of some sort as a means of ready identification.

I should suggest that aluminum bands be stamped with a number and bent

in the form of the letter C. These should be issued by some central body to avoid confusion and duplication of numbers, who would keep a record of the numbers and to whom sent.

One of these slipped over a bird's tarsus and closed with the pressure of the thumb and finger seems to fulfill the before mentioned requirements. They are light, strong and non-corrosive. In the case of the smaller birds it seems impossible to put any more than a mere number on the tags. An address to which to send records would be desirable but hardly practicable.

A record of each number attached, date, place and species thus marked would be made. If a bird turned up anywhere the central body would be notified. Their records would show to whom that number was issued and the field notes would complete the record.

Such a scheme as this, if widely known and practiced, would in time lead to some very interesting results. It would require the co-operation of the ornithologists all over the continent to arrive at the highest degree of efficiency. But even one man would soon be able to decide such questions as whether a bird returns to the same locality or migrates by the same exact routes year after year.

This seems to be one of the most promising fields open for ornithological work just now and I would greatly like to see the Michigan Ornithological Club take hold of something of the sort and make a start. I have had a few such bands made and am using them as above now. It is needless to say that I request that anyone taking such marked specimens will communicate with me. I should be pleased also to hear from anyone interested in the work.

Detroit, May 18th.

P. A. TAVERNER.

MINUTES OF CLUB MEETINGS.

The first *Quarterly Meeting* was held at the Detroit Museum of Art on February 5th, 1904. In the absence of the president, J. Claire Wood presided. The first paper was by A. B. Klugh of Guelph, Ontario, on "Our Winter Visitors" (published in the *Oölogist*, Vol. XXI, p. 44). This paper was read by Mr. Blain in the absence of the author. A discussion followed on the Pine Grosbeak. Walter C. Wood spoke at length on his trip to the Cheneux Islands and Mackinac County in October, 1903. Among interesting notes were observations on the Pileated Woodpeckers, Pine Grosbeak, Am. Crossbills and Am. Scoters. Passenger Pigeons were reported to be still occasionally seen. Charles E. Wisner read a paper on a trip taken to the Hen and Chicken Islands in Lake Erie on June 3rd, 1903. Common Terns were found breeding in great numbers—over 1,200 pairs. J. Claire Wood read a paper on "Migration," which created much discussion.

Discussion followed on the formation of a Michigan Audubon Society. Jefferson Butler was elected a representative of the Club to look into the matter. Letters of acceptance of honorary membership from Dr. J. A. Allen, Mr. Ridgway and Mr. Brewster were read by the Secretary. Adjourned.

The *Annual Meeting* was held at Ann Arbor on April 2nd, in the U. of M. Museum. A business session was called at 11 a. m. in the curator's office. In the absence of the President and Vice-President, Jefferson Butler presided. Reports were given by the Secretary, Treasurer and Editor. The election of officers for 1903-4 followed. (See page 56 of this issue.) Owing to the formation of an Audubon Society the Bird-Protection Committee was dropped. Other business matters were discussed.

The afternoon session was held in the Museum lecture room. About 60 members and visitors were present. The following papers were presented: "Notes on the Bald Eagle in Michigan," Wilfred A. Brotherton. "The Winter Birds Observed About Ypsilanti, Mich.," Dr. John Van Fessen (read by Max. M. Peet in the absence of the author). "The Birds of Michigan," Prof. Walter B. Barrows. "The Migration Route of Kirtland's Warbler," Chas. C. Adams (published in this journal, Vol. V., pp. 14-21). "The Michigan Audubon Society," Jefferson Butler. "Notes on the Avifauna of Oscoda County, Mich.," Norman A. Wood. "The Future for Ornithological Work in Michigan," Alex. W. Blain, Jr. Remarks followed by Prof. H. L. Clark.

After a social time the meeting adjourned.

BRADSHAW H. SWALES, Secretary.

The *Second Quarterly Meeting* was held at the Detroit Museum of Art on May 6th. Vice-President Griffith in the chair; ten members present. In the absence of the Secretary, the undersigned was appointed acting Secretary.

Adolph B. Covert read a paper on the John Lewis Childs Collection and his recent trip through the East. A. W. Blain, Jr., presented by title a paper on "Two Rare Michigan Birds." Discussion followed on the Heath Hen, the Horned Larks and their sub-species, the Owls, etc. Question raised by Mr. Covert: Where do the Michigan Red-bellied Woodpeckers breed?

Business meeting followed. Prof. Wm. B. Hinsdale, Edward Arnold and P. A. Taverner were appointed a Membership Committee.

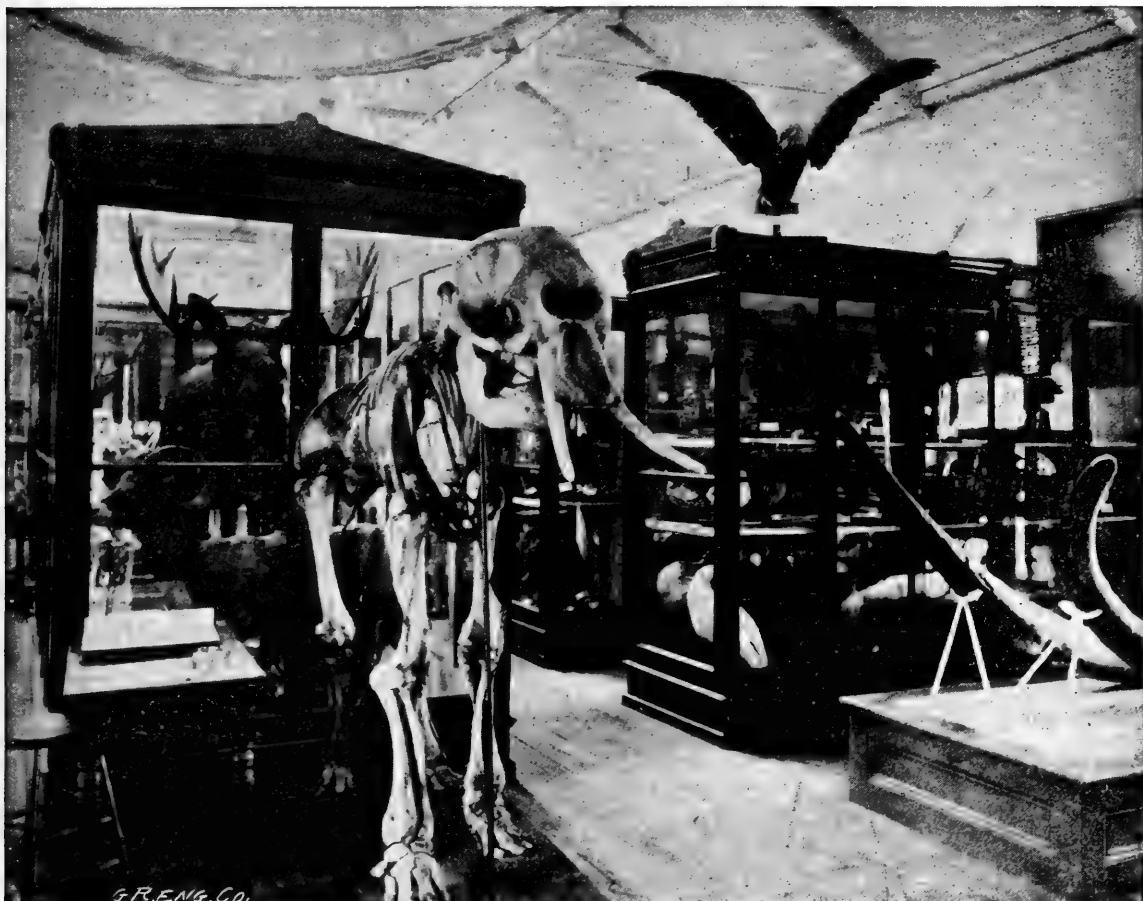
Dr. C. Hart Merriam of Washington, D. C., and Dr. Jonathan Dwight, Jr., of New York City were elected to honorary membership.

The following active members were elected: Rev. Alfred H. Barr, Roy J. Buell, Wm. H. Dunham, Walter Greenburg, Dr. W. A. Hart, Harry C. Oberholser, Miss Jessie Phelps, Otto M. Creary, A. B. Klugh, P. A. Taverner, Walter G. Kimball, Dr. Guy C. Rich, John E. Thayer, Dr. G. F. Richardson, Adolph E. Schulte, Wm. R. Hamilton.

Meeting adjourned to August 5th, 1904.

P. A. TAVERNER, Sec'y, pro tem.

NOTES FROM THE FIELD AND MUSEUM.



MICHIGAN AGRICULTURAL COLLEGE MUSEUM.

The general museum occupies the larger part of the second floor of the Library and Museum Building, the rest of the upper floor holding the laboratories and lecture rooms of the Department of Zoology and Physiology. The main museum hall has sixteen large cases and four smaller ones containing collections of birds, mammals, reptiles, fishes, marine invertebrates, shells, insects, rocks, minerals and fossils.

The collection of mounted birds, while not extraordinarily large, comprises specimens of all the common Michigan species and many of the rarer ones. It occupies four of the large cases just mentioned and includes about 600 specimens. Among the less common species are four good specimens of the Passenger Pigeon, two White Pelicans, a Brunnich's Murre (first record for the state), a Parasitic Jaeger (the first record for Michigan), as well as Holbæll's Grebe, Northern Raven, and a fine Wild Turkey, taken in Clinton County, in 1871. Some of the best specimens were mounted by the late

Percy S. Selous of Greenville and show exceptionally good work. Many of the older specimens were mounted by College students at various times during the last thirty years and of course few of them are "in the highest style of the art," but are more valuable now, since the species have become rare. The collection includes one or more specimens of every species of owl known to inhabit the state, and each represented by specimens actually taken within its limits. Among these are a Barn Owl, two Hawk Owls, a Great Gray, and Richardson's. In addition to the mounted specimens the museum has nearly a thousand bird-skins, including some very nice series and a few record specimens. Among the latter is a Western Meadow-lark taken by Mr. O. B. Warren in Marquette County in 1897. The foundation of this collection of skins was laid in 1893, when the College obtained from Dr. Morris Gibbs of Kalamazoo his collection of about 500 specimens. In 1897 one hundred more skins were obtained from Mr. E. D. Sanderson of Lansing, and about 50 more from Mr. Warren of Marquette County. In 1901 we acquired the bird collection of Leon J. Cole, some 200 skins, and each year since 1893 the officers and students of the College have been adding specimens to this collection.

The collection of birds' eggs is by no means as complete as that of the birds themselves, but it contains several rarities and a large number of well authenticated sets.—W. B. B.

THREE RARE MICHIGAN BIRDS.

Mr. Louis J. Eppinger, the taxidermist of this city, received during the past few months three specimens which are worthy of mention:

Colymbus holbællii (Holbæll's Grebe).—An adult female of this species was shot near Capac (St. Clair County), Michigan, February 15th, 1904, by W. J. Lester. This state has few records for this species but like other rare waterfowl many are shot by sportsmen and left to decay. The author met with this bird at Niagara Falls, the 20th of last September. (See *Auk* XXI, p. 276.)

Nycticorax nycticorax nævius (Black-crowned Night Heron).—On May 5th, 1904, an adult male "Quawk" was shot by Wm. Daily at the St. Clair Flats. This species is rarer in this state, I believe, than is generally supposed. Various reports have reached me from time to time of some herony of night herons, but investigation invariably proves them to be other members of the family. This species, however, probably breeds in the state.

Falco peregrinus anatum (Duck Hawk).—A beautiful female of the "Noble Peregrine" was shot on the outskirts of Detroit by A. B. Schroder on March 25th, 1904. It was probably following the wild fowl on the Detroit River. This species is commoner in the northern part of the state, where it possibly breeds. The above specimen makes the first record for Wayne County.

ALEXANDER W. BLAIN, JR.

Detroit, Mich.

FURTHER NOTES ON THE NESTING OF THE CHIMNEY SWIFT.

I have been much interested in the notes on the nesting of the Chimney Swifts (*Chaetura pelagica*), published in recent issues of the *Bulletin*, (Vol. IV, pp. 82 and 95), by J. Claire Wood and Frederick C. Hubel.

In my home county (Kalkaska Co., Mich.), in the northwestern part of the southern peninsula, it breeds very abundantly, but in altogether different locations from those mentioned by the two former authors. In former years this species occupied hollow trees and does yet to a certain extent, but its chief nesting site is the open wells, many of which are still in use. As the settlements are comparatively new there are few large buildings and consequently few chimneys suitable for nesting.

The wells which they occupy are about 4 feet in diameter and from 20 to 100 feet deep, their sides being curbed with boards and rising from 4 to 6 feet above the ground. If the well is not too deep the nest, which is located quite close to the water, can usually be seen by lowering a lantern to the level of the nest and using an opera glass, or by throwing light on the nest by means of a mirror. There are usually only one or two nests in a well, but nearly every open well has its pair of birds.

Detroit College of Medicine.

WM. H. DUNHAM.

A WHITE-EYED VIREO FROM WELLINGTON COUNTY, ONTARIO.

I have received from Mr. Howard Skales, of Mount Forest, Ont., for identification a White-eyed Vireo (*Vireo noveboracensis*), sex undetermined. It was shot in a wild plum tree in an orchard in Mount Forest on Sept. 28th, 1902, by Mr. Skales.

This is the third record for Ontario; the first being taken by Mr. W. L. Kells at Listowel in the middle of October, 1890, and the second by Mr. W. D. Hobson two miles from Woodstock on April 25, 1902.

Guelph, Ontario.

A. B. KLUGH.

BIRDS VS. WILDFLOWERS.

When we consider the dates of nesting birds and flowering plants we find that the limit is in favor of the birds, though it is not generally understood so. Let us see. The first species of flower to appear in the spring, north of the 42nd parallel is acknowledged by all observers to be the Skunk Cabbage, which blooms, as a rule, in early April, but not rarely in March, while the latest flower to my finding, is the witch hazel, which sends out its inconspicuous blossoms in October.

Now among the early nesting birds we have at least ten species which are known to nest in March and one, the Great Horned Owl, which lays its eggs in February as a rule and occasionally in January. As a legitimate nester in the autumn we have the Goldfinch, which is not rarely found to lay its eggs in September. Thus we find that the range of nesting birds is wider than the flowering time of our northern plants, though many will dispute this on first mention.

Kalamazoo, Mich.

MORRIS GIBBS, M. D.

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SNOW BUNTING

(From Coues' Key)

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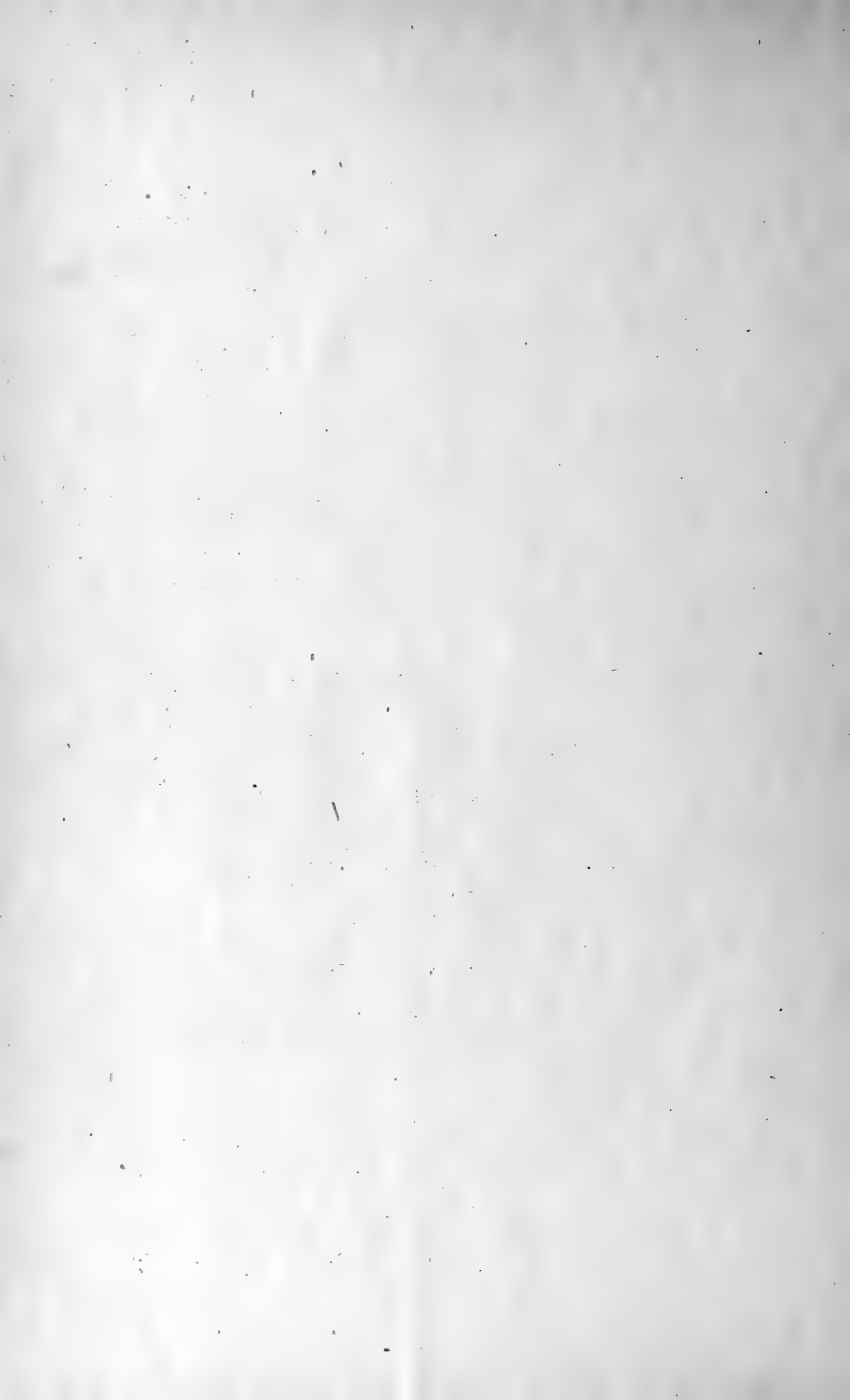
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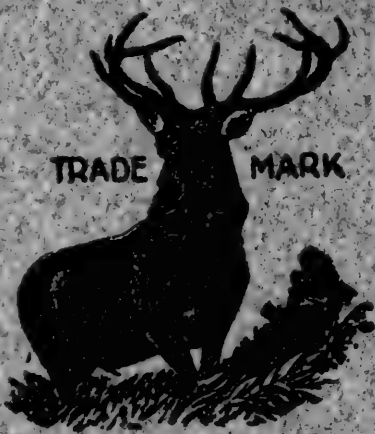
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BULLETIN

OF THE
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Vol. V., No. 3. Sept., 1904.



DETROIT, MICHIGAN

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THE BULLETIN

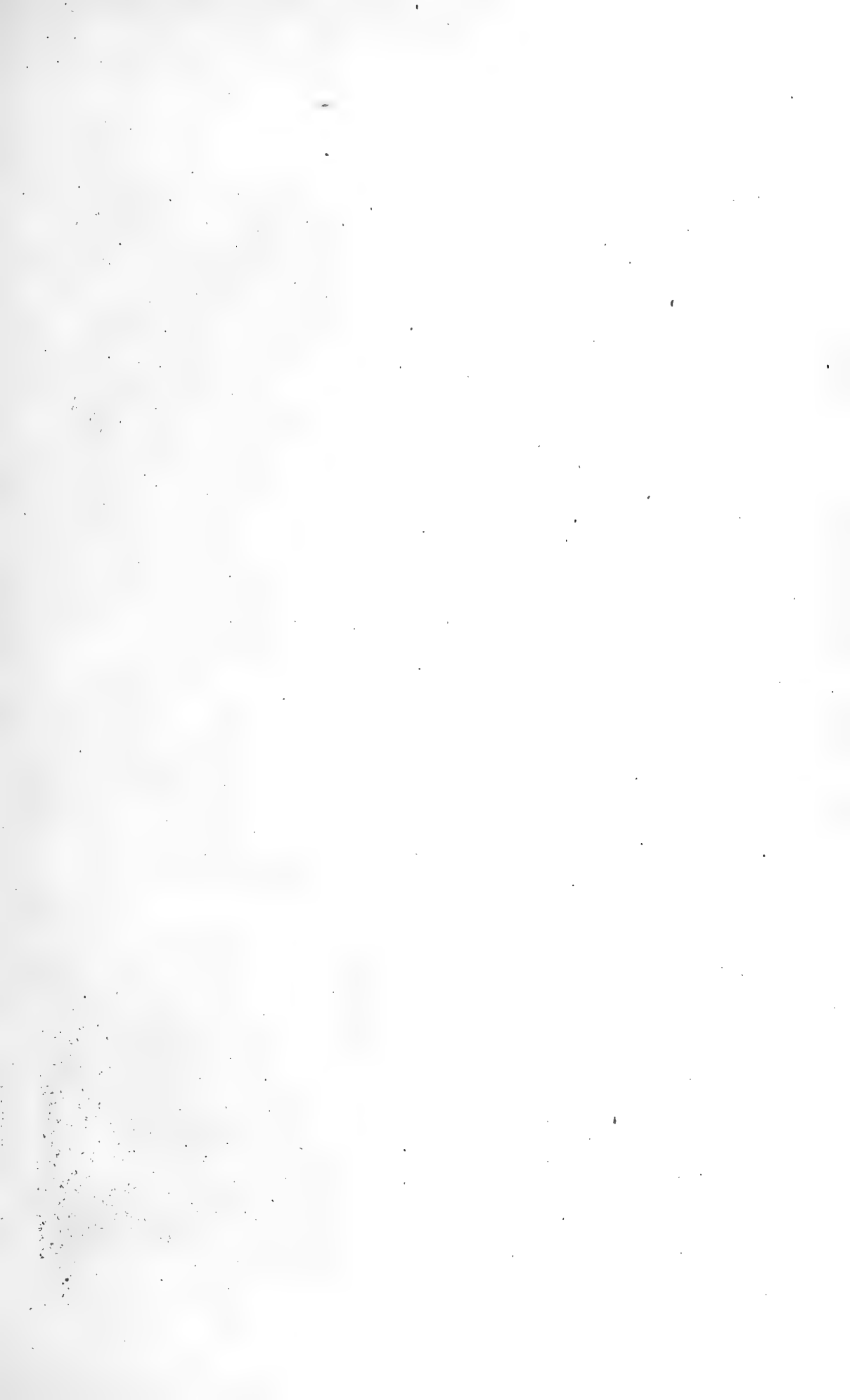
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Articles of general interest relating to the bird life of the Great Lake Region are solicited. They should be in the hands of the editor not later than the 20th of the month preceding publication.





CORY BITTERN.
(*Ardetta neoxena*)

A. exilis. L. 13 in. Ad. male. Hindneck rufous, foreneck, underparts and under tail coverts white and buff. Female similar, but crown and back brown, below streaked with brownish.

A. neoxena, same size. Male. Hindneck black, foreneck chestnut, belly mixed black and chestnut, under tail coverts black. Female similar, but crown and back duller. About twenty specimens known.—Chapman.

DRAWN BY P. A. TAVERNER.
See page 68.



LEAST BITTERN.
(*Ardetta exilis*)

BULLETIN
OF THE
Michigan Ornithological Club

PUBLISHED QUARTERLY IN THE INTERESTS OF ORNITHOLOGY
IN THE GREAT LAKE REGION.

VOL. V.

SEPTEMBER, 1904.

No. 3.

BIRDS OF THE BEAVER ISLANDS, MICHIGAN.

WALTER B. BARROWS, F. A. O. U.

The Beaver Island group consist of nine islands which occupy an irregularly oval space some thirty miles by twenty in northern Lake Michigan, the nearest point to the mainland being the eastern shore of Big Beaver island which is about eighteen and a half miles directly west of Cross Village, Emmet Co., Mich. The islands, however, belong to Charlevoix County. Big Beaver, the largest of the group, is about thirteen miles long from north to south and about six and a quarter miles east and west at its widest part. Near its extreme northern end lies its only harbor, on which is situated the thriving little town of St. James, with its lumber mill, stores, church, school and numerous dwelling houses. The northern third of the island is sandy and rather barren, much of it being pastured with cattle and sheep, so that there are extensive sandy plains, in some places completely grassed over or coated with reindeer moss, but often thickly sprinkled with the circular patches of the ground-cedar or juniper (*Juniperus communis*), and with white and yellow pines here and there. In the hollows and along the shore there is a denser growth of evergreens among which the balsam spruce predominates, though white cedar (*arbor-vitæ*), white pine, and tamarack also occur. There are several dense tamarack swamps within a mile or two of St. James, and a beautiful little lake half a mile or more in diameter (Font Lake) gives an added picturesqueness to the place.

The middle and southern parts of the island contain some good agricultural land, part of which is occupied by prosperous farms. The larger part, however, is still covered with timber, mainly beech, maple, hemlock, balsam, white cedar and tamarack. I spent most of two days in studying the birds of this island, and most of the land-birds noted were observed here. My observations, however, were confined to the northern third of the island and it is probable that many other species would have been found in the large stretches of hardwood further to the south. I found neither gulls nor terns nesting on this island.

Three other islands are large enough to support good farms, and two

of them, High Island and Garden Island, are fairly well populated. The third, Hog Island, is inhabited only by indians.

The remaining five islands are much smaller, ranging from little more than a mile to considerably less than a half mile in diameter. All are surrounded by dangerous shoals and here and there a reef lifts its threatening head above the waves. Fishing, lumbering and farming, in the order named, are the principal pursuits of the people, and the Beavers are noted for the fine quality of their lake trout and whitefish.

I spent nearly a week among the Beavers, arriving at St. James on Friday, July 8, 1904, and leaving the group on the following Wednesday, the 13th. My principal object was to ascertain the status of the colonies of gulls and terns which were supposed to exist there, but I also desired to compare the avifauna of these islands with that of the neighboring mainland of Emmet and Charlevoix counties.

St. James proved to be the headquarters for the summer of one division of the U. S. Lake Survey and through the courtesy of the engineer in charge, Mr. W. J. Graves, of Detroit, and several of his assistants, I was able to ascertain without loss of time the character, size and accessibility of the various islands and reefs, as well as the location of the principal nesting places of the water-birds. I am also greatly indebted to Capt. John McCann, of the tug *Margaret McCann*, and Capt. John A. Dahlmer, of the tug *Knapp* for transportation to and from the several islands, as well as for valuable information in regard to the natural history of the group.

The field glass was used constantly, but specimens were shot whenever necessary for positive identification. In all fifty-three species were noted and with the exception of two species of ducks and a single hawk, of which no specimens were obtained, I saw no birds about which there was any question. Very little time was spent in nest hunting, for the date made it fairly certain that almost every species there was nesting. In fact I think this may be assumed for every species seen, with the possible exception of the White-winged Crossbill.

In the main the landbirds were the same as those of the Little Traverse Bay region nearby, but there were many surprising omissions, some of which can be accounted for on the ground that there was no suitable place for them in the territory which I covered, and that they may—and probably did—occur in more favorable spots on Big Beaver or on some of the islands.

This will not account, however, for the total absence of such species as the Brown Thrasher, Chewink, Catbird, Rose-breasted Grosbeak, Nighthawk, Chimney Swift and Downy Woodpecker, no one of which was observed though all are more or less common on the adjacent main land. True I was told by residents that the three latter species do occur; but the Swift and Nighthawk may be only migrants and the Downy Woodpecker is readily confounded with the Hairy.

The following are the species actually observed:

(The numbers in parentheses are those of the A. O. U. Check-list.)

1. (7). Loon, *Gavia imber*. Several pairs seen, one with two newly hatched young.

2. (51). Herring Gull, *Larus argentatus*. The only gull found about the islands; nesting in several places, though most of the nests were empty and very few young were seen. The nests were always on the ground, in driftwood, or among grass or bushes, never on bushes or low trees although the old birds frequently alighted on the tops of the stunted evergreens near the nests. These were often bulky and well built and frequently lined in part at least with green moss and fresh weed stems or ferns. Nests in which young had been reared were comparatively scarce and it was evident that hundreds of nests had been robbed and abandoned. Among more than four hundred nests examined on one island all but two were empty, each of these containing a single fresh egg. Possibly a half dozen downy young were seen trotting about among the cornel bushes or hiding in the weeds and grass, while not more than a score at most were swimming about a few rods from shore, and less than a dozen already able to fly were wheeling about with the old ones overhead. There were not less than two thousand of these adults and it is to be hoped that some of them subsequently laid more eggs and reared young on the island. Doubtless human brutes were partly responsible for this state of affairs, but there is every probability that this island is overrun with foxes which naturally feast on young gulls and eggs as a change from the steady diet of rabbit which is their main dependence. I saw several rabbits (hares), and many remnants of rabbits and gulls, but did not see any foxes or find their tracks or burrows, but the island was about a mile in diameter, much of it densely wooded, and I was able to spend only an hour on it.

3. (64). Caspian Tern, *Sterna caspia*. This beautiful bird, the largest of the genus, is far from common. Just before entering the Bay of St. James I heard its hoarse "quawk" and saw a single one flying high over the island. Subsequently several more were seen but the islanders did not seem to discriminate this species from the common Herring Gull, and it was several days before I could locate the breeding ground, a tiny ledge nearly a dozen miles away. At last I landed on the little islet in a dense fog only to find a hundred or more empty nests and a flock of angry terns filling the air with their hoarse cries. As I drew my skiff up on the steep shingle I found scattered eggs of the Common Tern about my feet and soon noticed three large heaps of mixed eggs, more or less broken, where they had been hurriedly thrown together as they were collected from the nests. There were more than two hundred eggs of the Caspian Tern in these three heaps and probably half as many of the Common Tern. Evidently they had been collected in this way by someone who had done the work thoroughly, and with the intention of returning on the next day to collect the fresh-laid eggs for eating. The crew of the tug from which I had landed were unanimous in attributing this dastardly work to some "Frenchmen" known to be haunting neighboring islands and living by fishing, wood-cutting and stealing. They scouted the idea that any "white fisherman," or even Indian, would be guilty of such meanness.

The ledge or reef was barely fifty-five yards long by about twenty broad, a mere bank of limestone pebbles without a handful of sand, and capped with a narrow flat bench of cement-like mud, evidently guano. On this flat top were the nests of the Caspian Tern, about one hundred and ten in all, often so close together that the sitting birds must have been able to touch each other. Each nest was a neat saucer-shaped hollow, a little less than seven inches in diameter, made of limestone pebbles about the size of chestnuts and neatly lined or paved with similar, but apparently flatter pebbles. Sometimes there was an outer rim of pebbles raised a little above the surrounding level, sometimes the rim was flush with the surface. Not a stick or straw or fiber of any kind entered into the structure, and I found no vegetation of any kind on the reef. Not a single egg was found in any of these nests, although most of the nests of the Common Tern in the shingle close by contained one fresh egg each. Most of the eggs in the heaps were much incubated (the embryos dead but not much decomposed), and some of them must have been just ready to hatch when taken from the nests. Two newly hatched young were found burrowing among the coarse pebbles and from the fact that they were in a dying condition it is not unlikely that they were hatched after the eggs were removed from the nests.

The old birds were quite unsuspecting at first and constantly flew over and past me at distances of twenty yards or less and I watched them and the Common Terns carefully for an hour or more in the hope of finding some other species. Finally one of each kind was shot, after which the Caspians all withdrew to a neighboring island and did not return until after my departure. The fog was so dense that I was held prisoner for a couple of hours in spite of my desire to get away and let the troubled birds return. I fear that this was the only colony of this species in the Beaver group, and after such persecution it is scarcely likely that they will return to this place next season.

4. (70). Common Tern; Wilson's Tern, *Sterna hirundo*. Known to the fishermen pretty generally as "Lake Erie Gull," and said to have appeared at the Beavers only within the last few years, but this is doubtless a mistake. Two small colonies only were found, about one hundred pairs in each, and on neighboring islands. On one island the nests were among the pebbles, on the other in the sand. In neither place was there any lining, merely a saucer-like depression in the pebbles or sand holding a single fresh egg. Doubtless the birds had been robbed as were the Caspian Terns.

I searched in vain for other species of terns, as well as for the Ring-billed Gull, *Larus delawarensis*; the three species already mentioned were the only members of the family of which I found any trace.

(To be continued.)

NESTING OF KIRTLAND'S WARBLER IN NORTHERN MICHIGAN, 1904.

EDWARD ARNOLD.

On the 15th of June of the present year I found a nest and four fresh eggs of the rare Kirtland's Warbler (*Dendroica kirtlandi*) in Oscoda County, Michigan. This is the first set of eggs of this species known to science. With an assistant I put in a week of very hard work. Up before four o'clock every morning we spent the day constantly in the field, returning at dark, often going without dinner. The male of the Kirtland's Warbler is a beautiful singer, often singing close to the sitting female and occasionally quite a distance from her, sometimes perched on the top of a jack pine, other times half-way down the tree and occasionally on the bottom branches. In singing the male will throw his head back, his throat will swell out and a note resembling *Ter-ter-ter (ter-ter-ter) sir-wit-er-we*, part enclosed fast, will outpour itself.

The bird seems to throw his whole soul into the music. I have watched one sing for about thirty minutes at a stretch, usually, however, the male will sing for about five minutes, then feed a little, hopping about the tree and then down to the ground for a short time and back again to the top part of the tree for another song.

I did not find the bird outside of the elevated portions of the sand land ridges. Here the jack pine grows abundantly and some of the dead ones tower up fifty or sixty feet. It was one of the latter that formed a suitable perch for a beautiful male. Here he would sing at different intervals all day excepting if the day was very hot the music would cease about 11:30 a. m., until five or six in the afternoon.

Besides the note I have given above, the male has three other distinct shorter songs. It is so unsatisfactory recording in English the notes of birds I will not inflict upon your readers my imitations of their songs. It took me several days to get into my head the first song I here record, and although it is as near as I can write it, is far from satisfactory to me.

Contrary to Mr. Norman A. Wood's experience (*Bull. Mich. Orn. Club, Vol. V., pp. 1-13*), I found these birds ten miles distant from the Au Sable river and in full song so I am satisfied they breed a long distance from the river. The nest is very cunningly concealed in the dense vegetation and as it is down deep in the ground and the female a very close sitter, it is very difficult to find. After I found the nest I watched the male for hours and we did not once find the female, so I am satisfied that while the eggs are fresh the female feeds herself and leaves the eggs for that purpose. The nest I found June 15th, was at the foot of a small oak tree, which was surrounded by a number of small jack pines. It is composed of vegetable fibre, grasses, small weed stems and pine needles, and was surrounded by the small pines, deer vine, wintergreen and weeds.

The eggs are of a delicate white color, spotted with shades of brown and pink, forming a ring near the larger end. The shells are very delicate

in texture and require careful handling. Average size of egg .73 x .58 inches.

I dug two square feet of soil with the nest and as the accompanying vegetation was carefully preserved the group will probably be a most beautiful one.

This is the type set of eggs and with the nest, surrounding vegetation, and both birds, is now in the grand collection of John Lewis Childs, of Floral Park, N. Y.

Battle Creek, Mich.

NOTES FROM THE FIELD AND MUSEUM.

CORY'S LEAST BITTERN AT THE ST. CLAIR FLATS.

An adult male Cory's Least Bittern (*Ardetta neoxena*), (see frontispiece) was taken at the St. Clair Flats, St. Clair County, Michigan, on May 14th, 1904. The bird was shot by my brother, Ernest Craven, and given to me in the flesh. It is now in my collection.

Detroit, Mich.

JESSE T. CRAVEN.

This makes the second bird of this species taken in this State, and one of the few known to science. The first Michigan bird was captured by L. Whitney Watkins near Manchester on August 8th, 1894.—EDITOR.

CURIOUS DEATH OF SOME TREE SWALLOWS.

While rowing along the Clinton River on May 18, I noticed a small hole in the post of a fence which ran down to the water's edge. As I did not intend that anything should slip my notice, I stopped to investigate. A glance into the hole revealed the glossy-green back of a Tree Swallow. A slight rap on the post failed to dislodge the bird, while more violent pounding met with the same result. So, deciding to use force, I inserted my fingers and to my surprise, drew out a dead bird. The bird appeared to have been dead about one week, as it had just started to decompose.

My curiosity led me to again look into the hole, thinking that perhaps the bird died laying an egg. But instead of eggs, I saw a sight similar to the first, and drew out another dead Tree Swallow. This bird had been dead longer than the first and had reached a high state of decay.

These operations were repeated until I had withdrawn three more birds, making a total of five dead Tree Swallows taken from the hole. Each bird appeared to have been dead longer than the preceding one, while the last one was merely a dried skeleton with feathers adhering to the back. The only reason I can assign for this curious circumstance is that the birds sought shelter in the hole from the severe cold snaps which we had this spring. However, if this be the case, they must have taken refuge there at different intervals which would account for the various stages of decay.

Detroit, Mich.

J. WILBUR KAY.

BREEDING OF THE BROAD-WINGED HAWK IN WAYNE COUNTY.

The Broad-winged Hawk (*Buteo platypterus*) is not uncommon during certain seasons in Wayne County, Mich., but breeding records are apparently very rare. On April 29, 1893, I found a nest of this species near the village of Highland Park, Greenfield Township, which is, as far as I can learn, the first record for Wayne County. The nest was situated some fifty-five feet up in a beech tree and contained three eggs. I shot the female and now have it mounted in my collection.

The identity of the specimen was not made known until a short time ago, which caused the delay in this record.

Detroit, Mich.

BRADSHAW H. SWALES.

NESTING OF THE PINE SISKIN AND THE RED-BREASTED NUT-HATCH IN KALKASKA COUNTY, MICH.

During the winter of 1898-99, the Pine Siskin, (*Spinus pinus*), was abundant in Kalkaska County, remaining well into the spring and breeding was fairly common. The first signs of nesting were observed April 14, when I saw a pair tearing an old cedarbird's nest to pieces and carrying away the finer parts. Later in the day, a pair was seen picking up hair near a scaffold back of the buildings, where hogs had been butchered the previous fall. The birds flew toward a clump of hemlocks in the woods just south of the house. About two weeks later I went out to the hemlocks to see if I could find the nests. After a short search I located one nest away out on the end of a swaying limb. It was about 40 feet from the ground and about 20 feet from the trunk, and contained three fresh eggs. This was on April 27. On April 25, I also found a nest near East Lake. This was about 29 feet up in a hemlock and well out on a limb. There were three fresh eggs.

On May 10, 1899, at the east side of East Lake, I found a pair of Red-breasted Nuthatches (*Sitta canadensis*), building a nest in a small maple stub. I returned on May 17, and on approaching the place saw the bird leave the hole. On climbing the stub I found the nest contained four fresh eggs. The nest was about 30 feet above the ground.

Detroit College of Medicine.

WM. H. DUNHAM.

The next meeting of the M. O. C. will be held at the Detroit Museum of Art on December 2nd. Many interesting papers will be presented and we hope to have a goodly number of members in attendance.

Among other exhibits of interest to bird-students at the St. Louis Fair is a collection of Pennsylvania Bird's Eggs owned by J. Warren Jacobs of Waynesburg.

Among the recent literature on the subject of migration is "A Discussion of the Origin of Migration," by P. A. Taverner. (See *Auk* vol. xxi, 1904, pp. 322-333. We are pleased to see such contributions from Michigan students.

Bulletin
OF THE
Michigan Ornithological Club

A QUARTERLY MAGAZINE DEVOTED TO THE ORNITHOLOGY
OF THE GREAT LAKE REGION.

ALEXANDER W. BLAIN, JR.

EDITOR.

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ASSOCIATES :

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EDITORIAL

The announcement in a former number of this journal of the discovery of the nesting ground of Kirtland's Warbler created something of a sensation in ornithological circles. As might have been foreseen more than one collector planned to raid Oscoda County this summer and secure specimens of the coveted bird and its eggs. Reports of such intentions were current before the winter's snows had left the Au Sable region and many a bird-lover's blood grew hot at the thought of the certain persecution and possible extermination of the only known colony of this rare species.

Knowledge of the impending danger reached the State Game Warden too late to forestall all attempts but with his customary promptness and energy he took in the situation and made a strong effort to protect the birds. About the 20th of June every permit to take birds for scientific purposes was revoked so far as this warbler was concerned, a special deputy was added to the force in the Au Sable region, and a reward was offered for the apprehension of anyone molesting Kirtland's Warbler in any way. The effect was immediate and salutary, and every true ornithologist as well as every right minded citizen will thank Mr. Chapman for his prompt and vigorous action while regretting that it could not have taken effect at an earlier date.

We are free to admit that the *Bulletin* made a serious mistake in publishing the exact locality in which the birds had been found, but at the moment the interest in the discovery and the desire to give readers the fullest information on so important an event caused a temporary suspension of caution which can be readily understood. The incident has caused some

unpleasant criticism, not all of which is justified. We cheerfully take our own share of blame and promise to be more discreet in future.

In this connection it may be well to call attention to the fact that in Michigan the collecting of birds' eggs is strictly illegal except in the case of such species as are themselves outlaws. The scientist or student, after compliance with certain requirements, may obtain from the State Game Warden a permit which allows him to take a certain number of birds protected by law. But the statute makes no provision for the legal collection of their eggs but provides a penalty for each instance in which such eggs are taken. Under this law last year the holder of such a permit might lawfully kill a pair of Kirtland's Warblers or a pair of Robins but were he to take the nest or eggs of these same birds he would be liable to the penalty provided. It has been claimed that the intent of the law was to allow the taking of eggs by persons holding permits to collect the parents, but this is certainly not warranted by anything in the statute and if the authorities seem to have winked at the technical violation of the law heretofore it is nevertheless unsafe to expect that they will always do so. Especially unsafe is the action of a permit-holder who collects large numbers of eggs without any pretense of collecting birds, merely taking a bird occasionally in order to "authenticate" a set of eggs. Definite provision should be made by law for the collection of eggs for strictly scientific purposes and then the ordinary collector who is robbing for pleasure or especially for profit should be summarily put out of business. An amendment to the present law which will accomplish this end is something which the legislature at its coming season should be asked, and pressed, to enact.—W. B. B.

The *Bulletin* recently received much free advertising in Michigan's leading newspaper, from a series of articles penned by a Detroit gentleman. He possibly has the interest of the birds at heart but would do well in the future to take up their study before further condemning ornithological research.

Any one who has studied birds can not help but be impressed with their great value to mankind and all such are, we believe, in favor of sane protection. Our newspapers are one of the protectionist's main helps toward the accomplishment of his unselfish end, but let us hope that the newspaper in question will hereafter select contributors who are students—not faddists.

The *Bulletin* stands for the protection of birds, even though it is not constantly quoting the views of Beal, Barrows, Fisher, Merriam and others on their great value to agriculture. The taking of a few birds and sets of eggs is as absolutely necessary to the scientific student of birds as the dissecting of a cadaver is to the prospective surgeon. Yet it is these same "bird killers" and "nest robbers" who have done and are still doing the most for the protection of our birds.

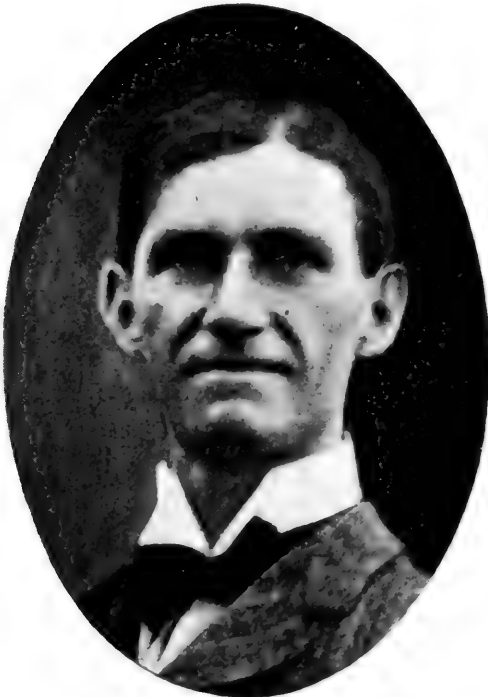
We doubt if there will be all told five hundred birds taken for scientific specimens in the whole of Michigan during 1904—and even this would be less than one bird for every hundred square miles of territory.—A. W. B., JR.



DR. WM. B. HINSDALE,
Ann Arbor.



JESSE T. CRAVEN,
Detroit.



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MICHIGAN ORNITHOLOGISTS
SIXTH SERIES.



MICHIGAN AUDUBON SOCIETY

(Organized February 27, 1904.)

FOR THE PROTECTION OF BIRDS.

79 Home Bank Building, Detroit.

Since the last report to the *Bulletin* as much active work as was expected has not been done. It has been difficult to arouse interest, due mainly to the fact that the Audubonists have been traveling or visiting. The writer, upon a visit to the St. Clair Flats, was informed the shooting of gull took place occasionally in the morning about 3:30 or 4 o'clock. But few shots were heard at any one time, the "sportsmen" fearing detection. The gull skins were sent to New York for millinery purposes. Mrs. A. S. Hudson, of Chesaning, writes that a man has gone into the trade of supplying humming birds for a firm at Bay City. When informed that he was liable to punishment under the law he promised to stop the shooting. So far as can be ascertained the heronry of Great Blues at Clarkston is enjoying a rest. An effort has been made to bring the question of bird protection before the Assembly at Bay View and also the religious bodies meeting at Orion. Much good work may be done by visiting these bodies personally as was done at Orion.

Rev. Wm. C. Covert, of Saginaw, writes that he will undertake the organization of a local Audubon society in that city. Mr. Frank Morton Kellogg, of Battle Creek, promises to bring the protection question before the Nature Study Club. Mr. Walter H. French, Deputy Superintendent of Public Instruction, undertakes to distribute what literature we may forward. Since the last report more than twelve hundred pieces of literature have been distributed and the demand is increasing.

The local Audubon society, of Detroit, expect to meet early in September and take up active work. It is to be expected that there will be more work to be done during the autumn when the shooting of game birds is permitted. Anticipating this the secretary is outlining a number of letters to officials and others in the state and is preparing to forward all literature now on hand. "The Gateway" magazine is publishing an epitome of our work which we expect will be circulated throughout the state. The Detroit Tribune is helping by weekly articles and we trust we will eventually command the interest of the "Detroit Free Press." Mr. Mosely, Sunday editor of the "Free Press," says that so far as his experience has gone he has been unable to discover any great interest in birds in Michigan. The writer has found sufficient interest but finds it difficult to arouse it into activity. We need the assistance of the press.

JEFFERSON BUTLER,
State Secretary and Treasurer.

The "Fourth Report of the Michigan Academy of Science" was distributed early in July. It is a volume of over two hundred pages and contains an account of the annual meeting held at Ann Arbor, March 27, 28 and 29, 1902. Besides the official minutes, constitution and by-laws, and a list of members, the report contains many valuable scientific contributions along various lines of research. Dr. Victor C. Vaughan contributes a masterly address upon "The Value of Scientific Research to the State." Prof. Hubert Lyman Clark gives some "Notes on the Reptiles and Batrachians of Eaton County," listing 36 species. Leon J. Cole and H. C. Tosker present a most careful study of the "Habits of the Muskrat in Captivity." There are other interesting biological papers. The Report was edited by Dr. James B. Pollock of Ann Arbor.—A. W. B., Jr.



MAP OF MICHIGAN.

[As many of the notes published in the *Bulletin* refer to counties, the present map will prove a means of reference.]



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BULLETIN

OF THE

MICHIGAN

ORNITHOLOGICAL CLUB



Published Quarterly in the interests of
Ornithology in the Great Lake Region.

Vol. V., No. 4. Dec., 1904.



DETROIT, MICHIGAN

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PHOTO BY DR. ROBERT W. SHUFELDT.

THE SPARROW HAWK
(*Falco sparverius*)

BULLETIN
OF THE
Michigan Ornithological Club

PUBLISHED QUARTERLY IN THE INTERESTS OF ORNITHOLOGY
IN THE GREAT LAKE REGION.

VOL. V. DECEMBER, 1904. No. 4.

**AN UNUSUAL FLIGHT OF SPARROW HAWKS IN MICHIGAN
IN 1904.**

FRANK SMITH.

Macatawa, Michigan, is a summer resort on the east shore of Lake Michigan, southwest from Grand Rapids. During a few weeks' stay at this place last August, I had an opportunity to witness an unusual flight of hawks. I was much interested in the occurrence, in part, because of the novelty of the experience, but chiefly because the accompanying circumstances seemed to throw light on the causes of such movements. The weather maps for August 29 and 30 show that moderately strong winds from the northeast prevailed over the southern peninsula during those days and the preceding nights. On the morning of the 29th a great increase in the number of warblers and flycatchers showed that an extensive movement had occurred the night before, forming the first pronounced "wave" of the fall migration. On the morning of the 30th so many small hawks were noticed flying southward that I was led to ascend one of the highest sand dunes of the vicinity, from the summit of which I looked to the westward directly over Lake Michigan, and to the eastward over a strip of heavy timber with open country beyond. From this vantage ground, with the aid of a good prism glass, I counted the hawks that came within range, and identified a considerable number of them.

During a period of one and one-half hours, beginning at 9:13 a. m., eighty sparrow hawks passed near enough for positive identification. Two hundred seventy-one other small hawks, which were probably nearly all sparrow hawks, and thirty-one larger hawks, were also recorded, making a total of three hundred eighty-two individuals. As the movement continued uninterruptedly from about 6 a. m. until 1 p. m., there must have been more than one thousand individuals which passed that point of observation during the day. After 2

p. m. but few hawks were seen flying, though large numbers were perched in tree-tops. Many of these were identified, and all proved to be sparrow hawks. During the forenoon flight many of the hawks flew over the lake at a short distance from shore, but almost none were seen farther out than a distance of one hundred or two hundred yards; and in fact many were noticed coming from over the water as though returning to the land after venturing a short distance from it.

It seems to me quite probable that many of these hawks may have started from points inland, and at considerable distances from the lake shore, but that in their flight they were influenced by the direction of the northeast wind and thus reached the lake shore, which they followed southward, so that there resulted a concentrated stream of hawks, including individuals, that under other circumstances might have been distributed over a strip of territory many miles in width.

The general circumstances attending this hawk movement were similar to those described by Trowbridge¹ as accompanying hawk flights studied by him on the shore of Long Island Sound, and they seem to quite satisfactorily accord with his assumption that the direction of the wind is a very important factor in the initiation and the determination of the direction of such extensive movements. In the particular instance described above, the temperature changes were comparatively slight.

University of Illinois, November 1, 1904.

BIRDS OF THE BEAVER ISLANDS, MICHIGAN.

WALTER B. BARROWS, F. A. O. U.

(Concluded from Page 66.)

[Red-breasted Merganser, *Merganser serrator*. Several small squads and one considerable flock of ducks were seen from the fish tugs at various times in going and coming among the islands, but no specimen was taken and while I have no doubt the birds belonged to this species, I do not care to include it in the list without an actual specimen. The species, however, might fairly be included, since Chas. L. Cass took a nest of this species in 1897 on Hat Island, one of the Beavers, and the previous year he saw several broods of young about that island. On Font Lake, Great Beaver Island, I saw three half-grown ducks which certainly were not mergansers. I supposed them to be Lesser Blue-bills, *Aythya affinis*, but as no specimen was obtained, I am not positive.]

5. (194). Great Blue Heron, *Ardea herodias*. Seen frequently at various places. A "rookery" of some size is said to exist in the interior of Hog Island, but I did not visit it.

6. (263). Spotted Sandpiper; Tip-up, *Actitis macularia*. A pair to every mile or two of beach, but by no means abundant.

¹The Relation of Wind to Bird Migration, C. C. Trowbridge, American Naturalist, Sept., 1900, pp. 735-753.

7. (273). Killdeer, *Oxyechus vociferus*. A few pairs on Big Beaver only.

8. (277). Piping Plover, *Aegialitis meloda*. A single bird, found near the lighthouse at St. James, had young or eggs without doubt, as she could not be driven away from the spot, but I watched her for an hour without being able to find the nest. As she allowed me to study her at leisure through the field glass at less than ten yards distance, I was sure that she was not *circumcincta* and so was relieved of the necessity of killing her.

9. (332). Sharp-shinned Hawk, *Accipiter velox*. A single one passed very close to me on Big Beaver, carrying a small bird in its claws.

10. (364). Fish Hawk, *Pandion haliaetus carolinensis*. A single one seen fishing at a distance. Said to nest regularly on the islands.

11. (390). Kingfisher, *Ceryle alcyon*. Abundant. Young just able to fly were seen on Font Lake, July 10.

12. (393). Hairy Woodpecker, *Dryobates villosus*. Rather common on Big Beaver. Full grown young following parents July 10. (In spite of careful hunting I failed to find a single specimen of the Downy Woodpecker.)

13. (412a). Flicker, *Colaptes auratus luteus*. One of the most abundant and conspicuous species. Young full grown.

14. (444). Kingbird, *Tyrannus tyrannus*. Abundant.

15. (461). Wood Pewee, *Contopus virens*. In all suitable places.

16. (466a). Alder Flycatcher, *Empidonax traillii alnorum*. A single specimen found in the alders along the edge of Font Lake, July 10.

17. (477). Blue Jay, *Cyanocitta cristata*. A few seen; said to be abundant in autumn.

18. (488). Crow, *Corvus brachyrhynchos*. Far too abundant and impertinently tame. When trying to locate small birds by their songs, the Crows followed me in squads of three to ten, perching within twenty feet and keeping up such a clamor that nothing else could be heard. Many of their nests were not more than fifteen or twenty feet from the ground, but I think the young were all on the wing. On the beach at one of the nesting places of the Herring Gull I found a full grown Crow minus one eye and otherwise injured, evidently by the gulls. At the same place I drove a Herring Gull off a nest of three eggs, and a few moments later saw the gulls attacking a single Crow close to the nest, while another was flying rapidly away. Going back to the nest I found but two eggs in it, and a few yards away were the fragments of the third egg, from which the chick had just been extracted. I was told by many residents that the Crows were nearly as plentiful on Big Beaver in winter as in summer. (Inquiries as to the Raven elicited no information.)

19. (494). Bobolink, *Dolichonyx oryzivorus*. A single female was found in a field of clover and daisies near Font Lake, where she was certainly feeding young; but although I saw her twice, on different days, no male could be found.

20. (495). Cowbird, *Molothrus ater*. Superabundant.

21. (501). Meadowlark, *Sturnella magna*. Fairly common on the farms of Big Beaver and said to occur on the other large islands, which I did not visit.

22. (517). Purple Finch, *Carpodacus purpureus*. Not uncommon on Big Beaver and still in full song. Undoubtedly nesting.

23. (522). White-winged Crossbill, *Loxia leucoptera*. Just as I was leaving Big Beaver Island, on July 13, a small squad of these birds flew over my head and alighted near by. An adult male and female perched on the top of a low balsam at a distance of ten yards, and allowed a close examination. There were either four or five others in the squad, but they kept so well hidden among the evergreens that I was not able to tell whether they were old or young. The adult male was in high plumage. As this species is said to nest in April or earlier, it is likely that this was a family party, consisting of a pair of adults and four or five young.

24. (529). Goldfinch, *Astragalinus tristis*. Common everywhere.

25. (540). Vesper Sparrow, *Poæcactes graminus*. Seen only on Big Beaver, where it was fairly common on the farming lands. None seen on the grassy barrens at the north end of the island.

26. (—). English Sparrow, *Passer domesticus*. Abundant in the village of St. James, and a few seen at farm houses outside.

27. (538). White-throated Sparrow, *Zonotrichia albicollis*. Common and nesting about the edges of the tamarack and cedar swamps. I found several pairs with young just out of the nest.

28. (560). Chipping Sparrow, *Spizella socialis*. One of the abundant species.

29. (567). Junco; Slate-colored Snowbird, *Junco hyemalis*. Apparently not common. I found it but once, among the hemlocks and cedars of the gorges, between the sand dunes on the west shore of Big Beaver. One of the birds seen was hardly more than a week from the nest. This is one of the characteristic summer birds of the adjacent mainland.

30. (581). Song Sparrow, *Melospiza cinerea me'odia*. Abundant.

31. (598). Indigo Bird, *Cyanospiza cyanea*. Apparently not common. A single male in full song was seen on Gull Island, but no other record of the species was made.

32. (613). Barn Swallow, *Hirundo erythrogaster*. Abundant about the docks at St. James, where the birds had nests under the wharves, within two or three feet of the water. Others were nesting as usual in barns and sheds.

33. (614). White-bellied Swallow, *Iridoprocne bicolor*. A few seen on Big Beaver and one or two of the other islands, but no favorable nesting ground was visited.

34. (616). Bank Swallow, *Riparia riparia*. No colony was found, but single birds were seen here and there.

35. (619). Cedar Waxwing, *Ampelis cedrorum*. Abundant.

36. (624). Red-eyed Vireo, *Vireo olivaceus*. One of the birds whose voice could be heard at almost any time from daylight to dark. Every little grove of cottonwoods or birches had its vireo, and I spent hours in listening and watching for the Philadelphia Vireo—but without success.

37. (636). Black and White Warbler, *Mniotilta varia*. One of the abundant and characteristic warblers, seemingly much more plentiful than on the mainland.

38. (652). Yellow Warbler, *Dendroica aestiva*. Abundant.
 39. (655). Yellow-rumped Warbler, *Dendroica coronata*. Two males were found at widely separated points on Big Beaver, and doubtless they had nests in the vicinity. Others were heard singing occasionally, but they were far from plentiful.
 40. (657). Black and Yellow Warbler, *Dendroica maculosa*. Rather more numerous than the preceding, but not common. Seen as often among the low, dense evergreens as in the deciduous trees.
 41. (667). Black-throated Green Warbler, *Dendroica virens*. The most abundant and characteristic of all the warblers. On Big Beaver one was rarely out of hearing of its leisurely song.
 42. (674). Oven Bird, *Seiurus aurocapillus*. Fairly plentiful.
 43. (681d). Northern Yellow-throat, *Geothlypis trichas brachidactyla*. Not common, but five or six were found on Big Beaver.
 44. (687). Redstart, *Setophaga ruticilla*. Next to the Black-throated Green the most abundant warbler.
 45. (721). House Wren, *Troglodytes aedon*. Omnipresent, and as likely to be found in the depths of the swamp, or among the wooded sand dunes, as about the village.
 46. (722). Winter Wren, *Olbiorchilus hiemalis*. Seen but once or twice (on Big Beaver), but its remarkable song was heard from every tamarack swamp visited. Widmann speaks of the song as "unmusical," but it certainly has far greater charm for my ear than that of any so-called warbler.
 47. (726). Brown Creeper, *Certhia familiaris americana*. Only a single bird seen, in a burnt tract where all the low growth had been killed and a few giant hemlocks rose fair and green above the blackened thickets (Big Beaver).
 48. (728). Red-bellied Nuthatch, *Sitta canadensis*. Common in the locality just mentioned and seen once or twice in the tamaracks. (The White-bellied Nuthatch was not seen at all).
 49. (735). Chickadee, *Parus atricapillus*. Two or three small parties seen, including some young birds.
 50. (758a). Olive-backed Thrush, *Hylocichla ustulata swainsoni*. A single bird sang for an hour or more from a tamarack swamp near St. James, and although I succeeded in getting within a few yards of him several times, it was impossible to get a shot or even to get a satisfactory look at him. Nevertheless I am fully satisfied that it was none other than the Olive-back. No others were seen or heard.
 51. (759b). Hermit Thrush, *Hylocichla guttata pallasii*. The common woodland thrush of the islands, its beautiful song heard at intervals even during the middle of the day, and almost continuously toward night. In spite of its abundance it proved to be a hard bird to see, and of scores whose voices were heard only two or three were seen. (I looked and listened in vain for both the Wood Thrush and the Veery.)
 52. (761). Robin, *Merula migratoria*. Not uncommon in suitable places, yet by no means abundant.
 53. (766). *Sialia sialis*. Bluebird. A few pairs were found nesting on Big Beaver—probably rearing their second broods.
- Agricultural College, Mich.*

A NATURAL HISTORY EXPEDITION TO NORTHERN MICHIGAN.

CHAS. C. ADAMS.

During the past summer the University Museum of the University of Michigan sent a party to Northern Michigan. The aim of the expedition was to study and collect samples of the animal and plant life of the Porcupine Mountains in Ontonagon County and on Isle Royale. The Porcupine Mountains are about 120 miles west of Marquette, on the south shore of Lake Superior. Isle Royale, an island in Lake Superior, is near the north or Canadian shore. Almost nothing has been known of the Natural History of these localities, and collections from these regions have been almost completely lacking in the Museum. Civilization has already exterminated a large number of plants and animals from Lower Michigan, so that it is especially desirable that records be made of these northern regions ere it becomes too late through the encroachments of civilization.

The expedition was made possible through the generosity of certain public spirited friends of the University. The funds of the Museum are too limited to carry on this very important line of work, without special aid. The major part of the funds were the combined gifts of Mr. Bryant Walker, of Detroit, Hon. Peter White and Mr. N. M. Kaufman, of Marquette. The Board of Regents of the University generously contributed the expense of transportation, not otherwise provided. Through the efforts of Mr. White the party received transportation or special rates in the Northern Peninsula. The Duluth, South Shore & Atlantic R. R. gave a special rate to the party, and the White Line Transportation Co., through Mr. W. H. Singer, general manager, gave free transportation to the party to and from Isle Royale. Through Mr. Henry Russel, the Michigan Central R. R. also gave the party a special rate. The Washington Club of Duluth, through Mr. John Pantou, provided the party with excellent field headquarters upon their private grounds on Isle Royale. The Marble Axe Co., of Gladstone, Mich., presented the party with a set of useful camp articles. It is thus evident that many friends have aided the expedition, in addition to the services of the volunteer members of the party.

The field party was in charge of N. A. Wood, the Museum taxidermist. He was assisted by A. G. Ruthven, who had charge of the scientific work, and who directed it along lines outlined by the writer. The other members of the party were Messrs. Otto McCreary, N. A. MacDuff, Max M. Peet and W. A. Maclean. All members of the party, except the leader, were volunteers, and thus their contribution to the success of the expedition was of a very substantial nature. Without their aid nothing could have been accomplished. Upon Messrs. Wood and Ruthven fell the responsibility of the party in the field, and to their care and foresight is due, in a large measure, the success of the expedition.

The field party left Ann Arbor, July 11, after three weeks of unfortunate and unavoidable delay, and explored the Porcupine Mountains until August 13. These mountains rise rather abruptly from the south shore of Lake Superior, and in a succession of ridges reach the height of about 1400

feet, at about two miles in the interior. The entire region is inhabited only by scattered trappers, and the forests are practically in their original condition. The few trails in the region make traveling very difficult, and all baggage had to be carried as packs.

In this connection it is of interest to know how the field party worked. Camp was made at an abandoned mine, where a large substantial shack furnished excellent field quarters, not only as a shelter, but also as a place in which to prepare and preserve collections. The field work was carried on through a detailed study of selected localities. After a preliminary examination of the region, Mr. Ruthven selected a series of representative habitats beginning at the lake and extending southward across the mountains. The various members of the party then visited these stations, where they made observations and collections. In this way not only were specimens collected but the conditions under which they were found was thus definitely recorded.

From the Porcupines (August 13) the party went to Isle Royale, about 60 miles northwest of Houghton, where they made a hasty examination of the lower end of the island. The party remained here until September 5th. The lateness of the season furnished an excellent opportunity to make observations on the fall migration of the birds, and these notes are of peculiar interest on account of the island location. The lower end of the Isle is densely covered by a growth of the original forest of balsam-fir and spruce. During the winter this region is only inhabited by a few trappers and fishermen.

A brief statement of the results of the expedition will be of interest. A detailed report on the observations and collections is now in process of preparation, so that at this time it will only be necessary to call attention to some of the general results. No effort was made to make a complete collection of the animal and plant life in general, but special attention was given to the trees and shrubs, molluscs, fish, amphibians, reptiles, birds and mammals. This is apparently a long list, but it must be remembered that so far to the north the variety of fish, reptiles and amphibians is quite limited, so that attention was mainly devoted to the trees and shrubs, molluscs, birds and mammals. About 90 species of birds were observed in the Porcupines, and about 80 at Isle Royale. Of the birds recorded several are now breeding records for Michigan, and two appear to be for the United States. About 20 species of mammals were collected, and notes were secured on about the same number which were not collected.

In addition to the value of the records of occurrence an important result is the observations on the ecological relations of the animals—in other words, the relation of the animals to their surroundings. This is a phase of such work which generally receives but little attention because only a relatively small number of students are interested in it.

The limited time devoted to this survey made it necessarily of a preliminary nature, and yet it was of a kind needed in many parts of Michigan. It is to be regretted that more time could not be spent on Isle Royale, but it is hoped that during another season this work may be continued.

University Museum, University of Michigan, Ann Arbor.



DR. H. A. ATKINS,
Locke.



PERCY S. SELOUS,
Greenville.



A. J. COOK,
Agricultural College.



JEROME TROMBLEY,
Petersburg.

MICHIGAN ORNITHOLOGISTS
SEVENTH SERIES.

[This issue will complete, for the present, our series of Michigan Students. An account of the life of the late Dr. Atkins and Percy Selous will appear in a later issue.]

Bulletin
OF THE
Michigan Ornithological Club

A QUARTERLY MAGAZINE DEVOTED TO THE ORNITHOLOGY
OF THE GREAT LAKE REGION.

ALEXANDER W. BLAIN, JR.

EDITOR.

131 Elmwood Avenue, Detroit, Mich.

ASSOCIATES:

WALTER B. BARROWS, Agricultural College, Mich.

J. CLAIRE WOOD, - - - Detroit, Mich.

DETROIT, MICH., DECEMBER, 1904.

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EDITORIAL

Friends, the work of another year is finished, completing the fifth volume of the *Bulletin*. Little need be said of the past. More ornithological work has probably been accomplished during 1904 than has ever been done in the state before in the same length of time. The publication of the work of Wood, Arnold and Frothingham in Oscoda and surrounding counties deserves special notice. Barrows' work on the Birds of Michigan has been prepared for the press. The Michigan Audubon Society has sprung into existence and is doing much for the protection of our birds. The results of the U. of M. northern expedition will soon be published. Taverner and Swales secured several important additional records to our fauna and other students have been working long various lines. The meetings have all been successful, especially the annual meeting, an event every member should try to attend in the future. We have thus reason to congratulate ourselves as a society.

Of the future we can expect still greater advance and improvement. During 1905 the *Bulletin* will contain many interesting papers on our birds. The original drawings and photographs of birds, their nests and eggs, will be of no less interest. Let us as members strive to make 1905 a more eventful year than ever before.

Married: Mr. Edward Arnold, of Battle Creek, was married to Miss Alta Simons, of that city, on November 29, 1904. Mr. Arnold is Lost Freight Agent for the Grand Trunk, and is well known to Michigan students for his fine oölogical collection. We have already published many of Mr. Arnold's notes on his rarer "takes," and wish to congratulate him on his latest one.

The Twenty-second Congress of the A. O. U. was held at Cambridge, Mass., on November 28, 29, 30, and December 1. Three Michigan students were elected associates.

Our thanks are due Mr. Ruthven Deane, of Chicago, for loaning the photographs of Dr. Atkins and Prof. Cook, which are published in this issue, also to Mr. Frederick C. Hubel for compiling the index which accompanies this issue.

Ernest T. Seton (*Bird-Lore* vi. pp. 181-182) has republished his excellent suggestions on how to study birds. The article has been revised and will undoubtedly be a great help to hundreds of bird-students. Some of us, however, will probably disagree with the author in his statement that the experts of our museums are the only ones who should be allowed to collect bird-skins today."

Walter Raine (*Ottawa Naturalist*, 1904, pp. 135-138) announces the discovery of the eggs of the Solitary Sandpiper by Evan T. Thompson in Northern Alberta, during the present season. Three sets of four eggs each were secured. The eggs are unlike any other American sandpiper and are deposited in the nests of other birds (Robin, Cedar Wax-wing and Bronzed Brackle). This fills in another gap in our list of "nest and eggs unknown."

PUBLICATIONS RECEIVED.

Catalogue of Canadian Birds, Part III. By John Macoun, Ottawa, 1904. Price 10 cents. 8vo., pp. iv.+415-733+xxiii.

A Preliminary Review of the Birds of Nebraska, with Synopsis. By Lawrence Bruner, R. H. Wolcott. Omake, 1904; pp. 1.-116+index.

Taylor's Standard American Egg Catalogue, 2nd ed. Alameda, Cal. 1904. Price 25 cents. Pp. 92.

Distribution and Migration of North American Warblers. By Wells W. Cook, U. S. Dept. of Agric., Divis. Biol. Survey, Bull. No. 18, 8vo., pp. 142.

A New Material for Sutures and Ligatures (Tendons from the Leg of the Crane) Chas. F. Kieffer, M. D. Reprinted from Journ. Am. Med. Assn, Nov. 19, 1904.

The Economic Value of the Bob-white By Sylvester D. Judd, reprinted from Yearbook U. S. Dep. of Agric., for 1903. Pp. 193-204; 1 plate.

Some New Facts About the Migration of Birds By Wells W. Cook. Reprinted from Yearbook U. S. Dept. of Agric. for 1903, pp. 371-386.

The following periodicals for 1904 were received: *Am. Ornithology*, *The Auk*, *Bird-Lore*, *The Condor*, *Forestry and Irrigation*, *Journ. Maine Orn. Soc.*, *The Oöligist*, *Recreation*, *Science*, *Univ. of Mich. News-Letter*, *The Warbler*, *Zoöl. Quar. Bull. Penna. Dept. Agric.*, *The Wilson Bulletin*.



MICHIGAN AUDUBON SOCIETY

(Organized February 27, 1904.)

FOR THE PROTECTION OF BIRDS.

79 Home Bank Building, Detroit.

Since the appearance of the last *Bulletin*, hopes of a strong Audubon Society for Saginaw have been entertained. Several letters offering coöpration have been received from Saginaw and vicinity. Mr. John C. Nape, Commissioner of Schools for Saginaw County, is undertaking the distribution of literature. Rév. Wm. C. Covert promises to take charge of active work in the city, and Dr. Waldon De Clarenze is helping in the county. Plans are under way to form an Audubon Society at the Bay View Assembly next summer, and some active workers at Jackson expect to organize in the interest of bird protection.

A most successful lecture was given before the Detroit society by Prof. Walter B. Barrows, of the Agricultural College. Audubonists appreciate the fact that Prof. Barrows is not a mere collector, but is working in the interest



JEFFERSON BUTLER

of the birds as well as man. The thanks of the society are due Rev. A. H. Barr and the trustees of the Presbyterian Church for the loan of the chapel without cost. Mr. Norman A. Wood, of the University museum, Ann Arbor, gave an excellent talk on "Winter Birds," Dec. 9th. The officers regret that more were not present as the speaker was interesting, and the subject treated clearly and forcibly.

The society will issue tickets early for the lecture of Mr. Wm. Dutcher,

whom we expect about the middle or last of February. Negotiations are being opened with Mr. Oldys, of the U. S. Biological Survey, for the purpose of giving class and field work in the early spring. The Secretary will be pleased to hear from those desiring to take up this work. An attempt will be made to have the legislature give more power to the deputy game wardens, and to have the Audubonists represented in the state by a deputy appointed by the society, as is done in some states. It is hoped that sufficient funds will be raised by Mr. Dutcher's lecture to cover the expense of issuing a report for the year. Since the last report 500 leaflets on how to organize Audubon societies have been sent out in the state. This was compiled by the Secretary from similar leaflets.

JEFFERSON BUTLER.

NOTES FROM THE FIELD AND MUSEUM.

ADDITIONAL RECORDS FOR THE BARN OWL IN MICHIGAN.

The following records for the Barn Owl, *Strix pratincola*, show that this species is not so rare in the state as we have supposed. I find in the museum catalogue of the Michigan Agricultural College that a specimen was taken at Lansing in October, 1869, and donated to the museum by James Satterlee. This specimen disappeared from the Museum previous to 1894. Prof. H. L. Clark, of Olivet, informs me that they have a mounted specimen in Olivet College museum taken at that place. Another specimen was captured alive in a barn in Johnstown Township, Barry County, Michigan, September 21, 1904. It was exhibited alive for some time in the window of an undertaker's shop in Battle Creek, and then was mounted for Mr. Warren J. Morehouse, of that city. A fourth specimen was killed October 2, 1904, from a duck boat at the mouth of the Saginaw river, near Saginaw, by Emory Townsend, and is now in his possession. I examined this specimen November 14.

WALTER B. BARROWS.

Agricultural College, Mich.

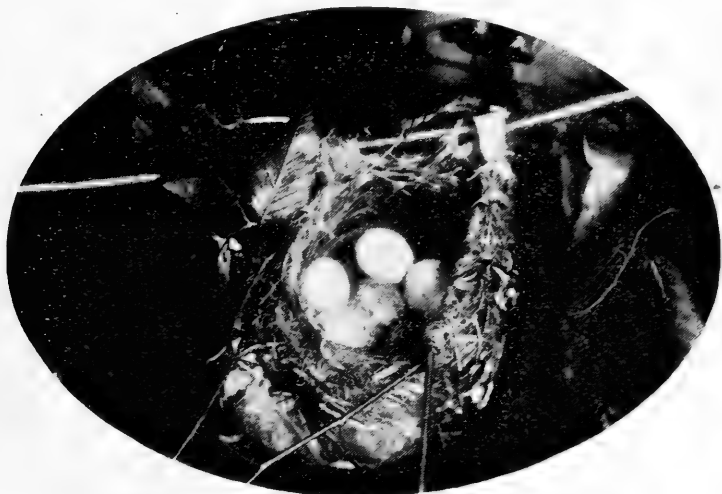
SOME NOTES ON THE COWBIRD.

It is now generally acknowledged among ornithologists that the Cowbird (*Molothrus ater*) is the means of exterminating more valuable birds than any other one species. Our observations in this locality certainly verify this statement. One incident which stands out vividly in my mind is in connection with the Indigo Bunting (*Passerina cyanea*). On June 23d, 1904, we discovered an Indigo's nest well hidden away in a thick growth of red-raspberry bushes, one and one-half feet above the ground. But although well hidden from the eyes of man, it probably fell an easy victim to the all searching eyes of this pest, as it contained one young cowbird and one young Bunting about one week old. The Cowbird was nearly three times the size of the Bunting, while the aperture of its mouth seemed even larger in proportion.

Upon my approach the Cowbird opened this member of its anatomy, and, by actual time, kept it opened for ten minutes, during which the Bunting opened its mouth three times, keeping it opened for a few seconds each time

and then dropping exhausted to the bottom of the nest. We then retired to a distance and watched proceedings through the glasses. For three-quarters of an hour the Bunting did not get a particle of food, both parents being busy trying to fill up the bottomless pit inside of the intruder. A visit to the nest two weeks later discovered that the Cowbird had gone, but also that the Bunting was dead. Here, then, is a case where the life of one Cowbird destroyed the lives of four Indigo Buntings, for the remaining three eggs which go to make up a normal set of this species, must have been pushed out by the adult Cowbird.

A Vireo's nest, found on June 12th, 1904, and shown in the accompanying photograph, was placed about six feet from the ground amidst a thick growth of underbrush and mosquitos, practically impregnable to man. But again the birds had a worse enemy than man, as the nest contained three eggs of the Cowbird and three of the Vireo. The nest being full, one



Vireo Nest Showing Three Cowbird Eggs.

of the latter was piled on top of the nest and consequently one side was smashed in. This fact alone would prevent it from hatching, while the remaining two Vireos would soon have been crowded out of existence by the three Cowbirds.

But this intrusion is not only during the period in the nest, but lasts until the young Cowbirds can fly and are apparently able to take care of themselves. In this connection I have watched a male Black and White Warbler (*Mniotilta varia*) continually feed a young Cowbird for an hour without intermission, during which time the Cowbird flew around immediately after the warbler with its mouth open, ready to receive the food as fast as its foster-parent could find it.

I have watched this same performance with the Black and White Warbler, Redstart, Red-eyed Vireo, Yellow Warbler, and Wood Pewee. In the latter case both parent Pewees did nothing but feed the Cowbird. I was unable to find their nest, in order to discover what condition the young birds were in.

but it is certainly not hard to conjecture if the performance that we witnessed was maintained any length of time.

Many other such incidents could be related which have come under our notice, but undoubtedly every ornithologist has had the same experience. However, it goes to show the number of different lines along which this pest does harm. Many hawks, such as the Red-shouldered, are not protected because they are supposed to destroy song birds and make depredations on the farmyard, but if a record could be kept of the devastation wrought by the Cowbird, it would probably be found to rank first in the work of murder in the bird world.

Detroit, Mich.

J. WILBUR KAY.

NOTICE.

The Annual Meeting of the M. O. C. will be held in the U. of M. Museum, at Ann Arbor, on April 1, 1905. Those intending to present papers will please send, as early as possible, the title, to J. WILBUR KAY, 62 Seldon Avenue, Detroit, Mich.

RECENT MICHIGAN RECORDS.

Am. Barn Owl (*Strix pratincola*). A male of this species was shot near South Lyon on September 18. This species is apparently on the increase in this state. It is to be wondered at that they have not been found breeding here.

Double-crested Cormorant (*Phalacrocorax dilophus*). A young-of-the-year specimen was taken at Rockwood on October 4. I recently examined an adult of this species said to have been taken at the St. Clair Flats in the autumn of '86 or '87.

Red-throated Loon (*Gavia lumme*). An immature bird of this species was shot near Point Mouille on November 11. This is one of the few records of this species for the state.

White-winged Scoter (*Oidemia deglandi*). On November 11, an adult of this species was shot near Point Mouille, making the first record for Wayne County. I also recently examined a mounted specimen of this species said to have been shot at the lower end of the Detroit River.

Surf Scoter (*Oidemia perspicillata*). A female shot on October 13 at the St. Clair Flats makes the second record for Southeastern Michigan.

I am indebted to Mr. Louis J. Eppinger, the Detroit taxidermist, for allowing me to examine the above specimens while in his studio.

Short-billed Marsh Wren (*Cistothorus stellaris*). On October 2, Bradshaw H. Swales shot a male of this species in Wayne County, making the second authentic record for this part of the state.

Northern Parula Warbler (*Compothlypis americana usneae*). A male of this species was taken September 25, by J. Claire Wood, making the first record for Wayne County.

Henslow's Sparrow (*Ammodramus henslowii*). Two females were collected in St. Clair County on June 18, and one male in Wayne County on October 2, by P. A. Taverner and B. H. Swales.

Savanna Sparrow (*P. s. savanna*). A colony of about six pairs were found breeding on June 18 near Pearl Beach, St. Clair County, by Mr. Taverner.

Lincoln's Sparrow (*Melospiza lincolni*). On May 15 Mr. Taverner collected a male of this species near Palmer Park, Detroit.

Wood Duck (*Aix sponsa*). Dr. Frank B. Allison found a pair of these birds breeding in a hollow tree on the edge of Orchard Lake, Oakland County. This was in late April. As the set was not disturbed it is to be hoped that the birds reached maturity. He later brought me an addled egg, which he found pushed to one side of the nest. This species is growing very rare in the state and a special law should be enacted for its protection.

Red-backed Sandpiper (*Pelidna alpina sakhalina*). A specimen (sex undetermined) of this species was shot at the St. Clair Flats on November 20, making an additional record for the Flats. As the bird was new to me and in full winter plumage, it was sent to the National Museum, where it was identified by Dr. C. W. Richmond. The specimen is in the collection of J. T. Craven. When our marsh and water birds have been properly worked out many species now obscure will undoubtedly prove more common.

Michigan Ornithological Club

Organized Dec. 5th, 1894

Re-organized Feb. 13th, 1903

BRADSHAW H. SWALES, SECRETARY,
46 Larned St. West, Detroit.



MINUTES OF CLUB MEETINGS.

The last quarterly meeting for 1904 was held at the Detroit Museum on Dec. 2. Dr. P. E. Moody in the chair; ten members present. The following programme was presented:

"Re Kirtland's Warbler," P. A. Taverner (read by F. C. Hubel).

"Some Phases of the Life History of the House Wren," A. W. Blain, Jr.

"Remarks on the Cowbird," J. Wilbur Kay.

"Nesting of the Blue-gray Gnatcatcher in Wayne and Oakland Counties, Mich.," P. E. Moody, M. D.

"Notes on a Great Horned Owl in Captivity," J. Claire Wood.

"Summer Birds of Puschlinch Lake, Ontario," A. B. Klugh (read by Mr. Blain).

The following were presented by title:

"Birds of the Beaver Islands, Mich.," Walter B. Barrows.

"Birds' Nesting," Morris Gibbs, M. D.

"A Preliminary List of the Birds of Kalkaska County, Mich.," Wm. H. Dunham.

"A Natural History Expedition to Northern Michigan," Chas. C. Adams.

"An Unusual Flight of the Sparrow Hawk in Michigan, 1904," Frank Smith.

Discussion followed after each paper read. The meeting was one of the most successful in the history of the Club.

A short business session followed. Hon. Joseph L. Hudson, J. Wilbur Kay, F. A. Hubel and W. G. Kay were elected patrons of the society.

A. W. Blain, F. C. Hubel and J. W. Kay were appointed a committee to arrange for a supper to be given William Dutcher, F. A. O. U., on his forthcoming visit to Detroit. Remarks on business and the welfare of the Club were made by Mr. Blain. The meeting adjourned to Friday evening, March 3, 1905.

P. A. TAVERNER,
Secretary Pro Tem.

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ERRATA.

- Page 67, line 19, should read: Scattered through this region, I found dead pine trees, some of them 50 or 60 feet high.
- Page 67, line 8 from bottom, for "we did not one find," read, he did not once feed.
- Page 17, Fig. 2, Second sentence should read: "Arrows (excepting the one connecting the Wabash and Kankakee drainage) indicate location of record and broken lines probable routes.
- Page 18, near end of first paragraph, should read: The Minneapolis (May 13) and Toronto (May 16) captures are the extreme east and west localities.
- Page 24, line 21, "twenty-fifth" read 21. Page 26, line 13, "animal" read annual.

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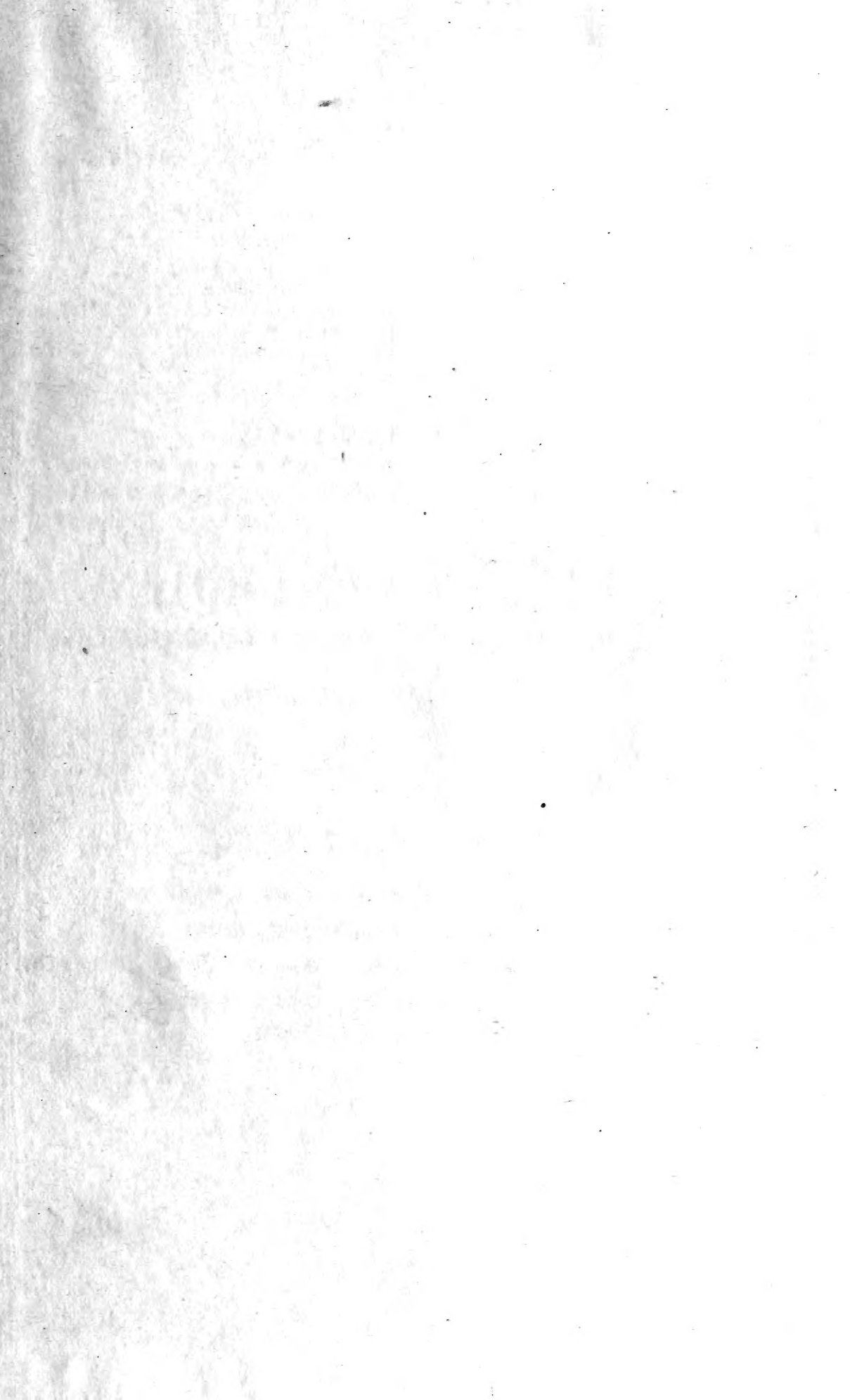
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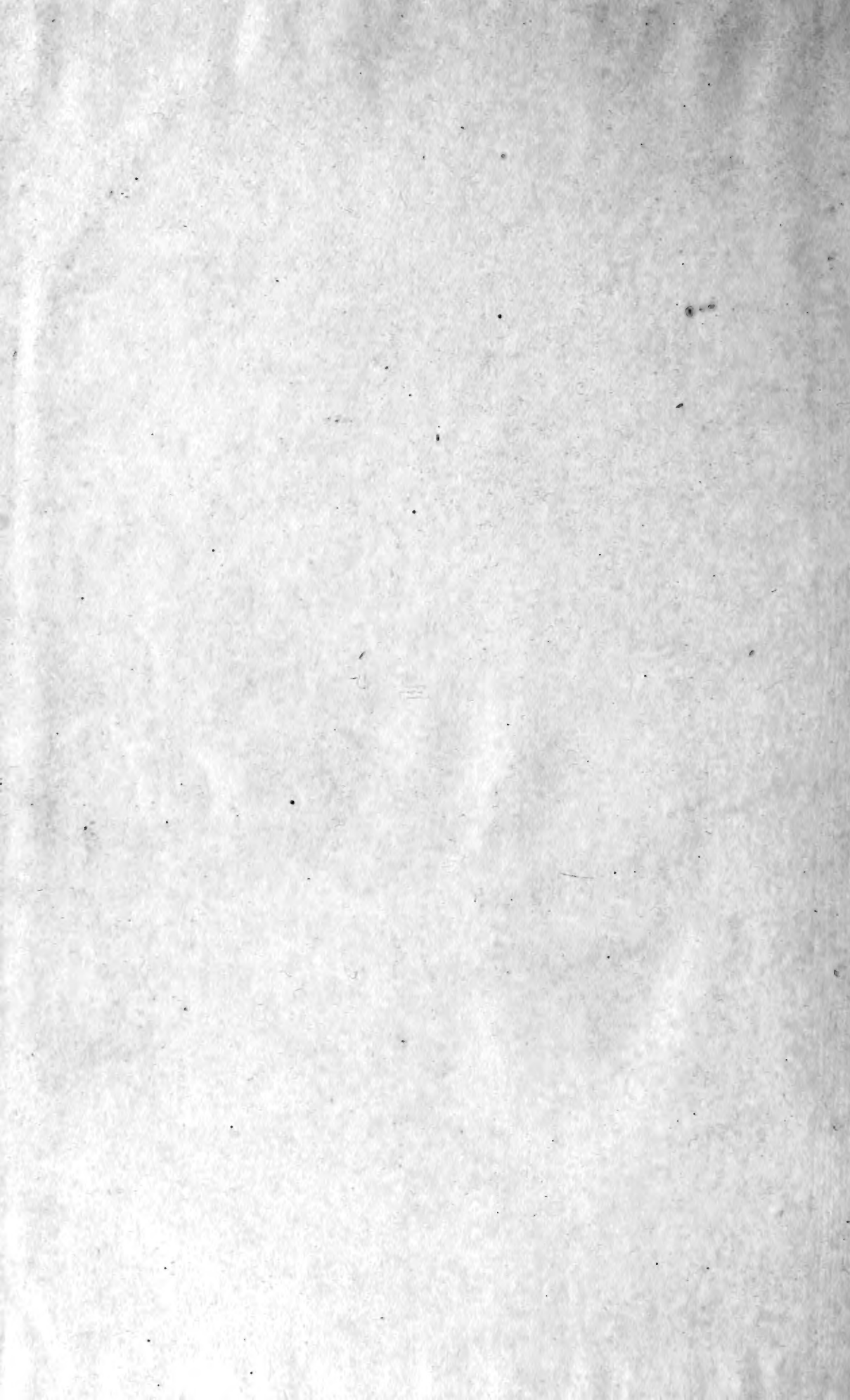
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