

information we found reason for believing that there was a somewhat close relation between the beginning of the cormorants' nesting in the region and the dying of large numbers of trees after the opening of the Chicago Drainage Canal. There is very little probability that they remained in the vicinity during the summers of 1894-98, as the writer and various other persons who were familiar with birds and who worked at the Illinois Biological Station during those seasons did not see them except during migration, while during the past two summers they were frequently seen near the Station throughout July and August. The Station was not located at Havana during the interval between the years 1900 and 1909.

The fishermen of the region know these birds as Nigger Loons and detest them because of their destructiveness to fish. They were rather reticent but there seemed good reason for inferring that the Clear Lake colony had been "shot out" and it seems hardly probable that the establishment of large breeding colonies would be permitted.

THE WARBLERS IN WAYNE COUNTY, MICHIGAN, IN 1909.

BY J. CLAIRE WOOD.

BUSINESS confined the writer mainly to River Rouge Village during the spring of 1909. In the adjacent village of Ford an orchard extended from the Detroit River westerly into Ecorse Township and terminated near a small piece of timber; all being on what is known as Private Claims 112 and 113. Here, spare afternoons were devoted to warbler observations. May 16 and 23 were spent five miles inland on P. C. 32, Ecorse Township. This woods is about one mile long and one end lies in the bottom

lands of the River Rouge, the home of a pair of Red-shouldered Hawks and Green Herons. The two above localities will be designated respectively as the river district and the inland district, while the autumn river district refers to some twenty acres of woods on Section 24, Monguagon Township, eight miles south of the spring district. No such intensive observation was given the autumn migration, both the waders and the raptores receiving a share. An accident confined me to the house during the first two weeks in October but the inland district was carefully worked October 16 and 17 with gratifying results. I tried again October 24 but saw nothing except Myrtle Warblers and abandoned the warblers for the year.

The last week in April was cold and cloudy, culminating on the night of the 28th and morning of the 29th in the greatest snowfall so late in the season in the history of the local weather bureau, covering 26 years. A very brisk wind with the temperature at 37° and an almost continuous snowstorm distinguished May 1, and the 2d was very similar except that it did not snow as much. Unfavorable as these conditions were the warblers began to arrive, the Palm and Myrtle late but the Black and White and the Yellow about on time. The wholly transient migration terminated between two days. Seven species were present May 27 and four on the 29th. May 30 we spent all day in the inland district, but the only wholly transient of any kind was a female Philadelphia Vireo, though such warblers as the Cerulean and Golden-winged were still migrating. May 16 was distinctly warbler day. In the heart of the woods on the inland district they were congregated on the ground along the margin of a water-covered section and the same day similar conditions were observed by Mr. Bradshaw H. Swales on Grosse Isle, and by Mr. Jefferson Butler on Belle Isle. A brisk wind was blowing causing much swaying of branches and vibrating of leaves above but whether it was the insects or the warblers that were forced down could not be determined. Such a congestion of warblers I do not expect to see again. There were hundreds of them within a hundred yard radius. Hopping here and there or quickly fluttering over one another or jumping into the air to capture a passing insect the general effect, as one glanced along the forest floor, was a suggestion of whirling and drifting

autumn leaves. There was a perceptible west to east movement, a few continually arriving and departing. We watched them several hours but could detect no immature birds nor abnormal plumages. Twenty-two species were counted, the greater number being Chestnut-sided and Blackburnian, closely followed by Magnolia and Black-throated Green, while at the other extreme were the Tennessee, Orange-crowned, Parula and Cape May.

The sexes are so near alike in such warblers as Nashville, Tennessee, Orange-crowned and Palm that even in spring, without the birds in hand, no one can acquire an accurate idea of the relative abundance of the two sexes, nor the amount of time the males precede the females, while in autumn, age becomes an important factor. Age and sex were determined from specimens collected and constitute the value of the following list.

BLACK AND WHITE WARBLER (*Mniotilta varia*).—The river district was not suitable and only five were observed all spring, a male May 1, two on the 2d and a pair on the 19th. Common inland both spring and autumn. Noted a male and female October 16. Not observed during the summer.

GOLDEN-WINGED WARBLER (*Vermivora chrysoptera*).—A common summer resident in some sections. Forty-five were counted in the large flock May 16, which is the most I have seen together. Last for the year, August 22, when twelve were counted, including old, young and both sexes.

NASHVILLE WARBLER (*Vermivora rubricapilla*).—The two seen May 8, and the four on the 9th, were males. Fourteen, May 15, were of both sexes and the most seen in one day. Eleven, May 19, were the last in spring. Seen only on the river district in autumn; an adult male September 12 and another on the 19th.

ORANGE-CROWNED WARBLER (*Vermivora celata*).—Three in the large flock, May 16, the two examined being a male and female.

TENNESSEE WARBLER (*Vermivora peregrina*).—Tolerably common on the river district May 15 to 27, both inclusive. The females appeared with the males from the first day and in equal numbers. A male in the large flock May 16 and two in the same woods May 23 were the only inland records for the year. An immature bird, September 12, in the river district was the only autumn record. I have given the warblers close attention, begin-

ning with the autumn of 1904. This warbler was absent that autumn but the most common woodland transient during the following four years in autumn, and rare or absent in spring.

NORTHERN PARULA WARBLER (*Compsothlypis americana usneæ*).— Three females in the large flock, May 16, and a junior female in the same woods October 16. An adult male on the river district September 19. The local birds are referable to Ridgway's proposed form *ramalinæ* which was not accepted in the A. O. U. Check-List and we revert to *usneæ*.

CAPE MAY WARBLER (*Dendroica tigrina*).— A male and female in the large flock of May 16. In the same woods an adult male was noted October 16 and another on the 17th. Two adult males noted in the river district August 29.

YELLOW WARBLER (*Dendroica æstiva*).— A single bird was seen April 27 and the second May 2. The first females appeared May 9 when the species became common and established for the summer. An adult male seen August 15 was the last for the year.

BLACK-THROATED BLUE WARBLER (*Dendroica carulescens*).— Two males and three females on the river district May 19. Four males and three females in the large flock, May 16, and six females in same woods May 23. More common in autumn, the season opening with a female August 29 and closing with two males and two females October 17.

MYRTLE WARBLER (*Dendroica coronata*).— Common on the river district. Noted a female April 25 and a male and female on the 28th. Twenty-five counted May 1, in numbers about equally divided as to sex. Only four females among the thirty May 8 but sexes about equally divided on other dates, including the fifteen May 19, which were the last in spring. Not seen inland though I expected to find a few in the large flock of May 16. Common, both along the river and inland in autumn. Counted thirty October 24, and they undoubtedly remained later.

MAGNOLIA WARBLER (*Dendroica magnolia*).— In the river district a male was noted May 15, flocks, including both sexes, May 19 and 27, and one female May 29. Common inland. The numbers estimated in the large flocks of May 16 was 175. Seen August 29 to September 12 in the river district; all junior birds after the former date.

CERULEAN WARBLER (*Dendroica cerulea*).—First seen in the large flock of May 16, when 46 were counted. Last seen August 22, three adult males and a junior female. June 20, we were locating a Cooper's Hawk's nest in a long narrow piece of woods on P. C. 24, Grosse Pointe Twp., when I heard the song of a Cerulean. A systematic search disclosed two nests, one containing three and the other four eggs; both were complete sets as incubation was far advanced.

CHESTNUT-SIDED WARBLER (*Dendroica pensylvanica*).—Three in the river district, May 15, were the first seen, and two on the 27th were the last of the spring migration. This species was the most abundant of all the warblers in the flock of May 16. A conservative estimate, agreed upon by Mr. Herbert H. Spicer and the writer, fixed their numbers at 300. Seen twice in summer. June 13, while locating a Marsh Hawk's nest in a bushy tangle with many openings grown to marsh grass in Gratiot Twp., a female Chestnut-sided acted as if breeding, and a male was noted in the same locality July 25. A junior male in the river district, September 12, was the only autumn record.

BAY-BREASTED WARBLER (*Dendroica castanea*).—Three males, on the river district, May 15; also, three on the 19th and one on the 27th. The eight in the large flock of May 16 were males. Females were seen only May 23. Not observed in autumn until September 12, when twelve were seen. A female was taken October 16 and another on the 17th. No adults seen during the autumn.

BLACK-POLL WARBLER (*Dendroica striata*).—This species has always been rare in spring and our most common autumn migrant, owing to its uniform and unfailing abundance. Two males on the river district, May 29, and one male inland, May 23. Fifty-nine were counted on the river district August 29 and consisted of juniors and adults. The last were three junior birds, September 26, which was my last day afield until October 15. I believe the four warblers seen October 16 were of this species but they were not taken.

BLACKBURNIAN WARBLER (*Dendroica fusca*).—Five males on the river district, May 19, but only two males among the fifteen seen May 27. Inland, 260 were counted in the large flock of May

16, and they were still common on the 23d, the sexes being about equal in numbers. An adult and a young male were noted in this woods August 22. On the river district three junior birds seen August 29, ten, mostly adults, September 12, and an adult male September 19.

BLACK-THROATED GREEN WARBLER (*Dendroica virens*).—The twenty-five counted May 8 and 9 were mostly males, after which the sexes were about equally divided in numbers. A male May 29 was the last in spring. In the large flock of May 16, 180 (estimated). First autumn individual noted September 5, and seven on the 6th; all junior birds. October 16, two adult males and two junior males were noted, and on the 17th, one adult male and female, three junior males, and one junior female.

PALM WARBLER (*Dendroica palmarum*).—Tolerably common on the river district. The four noted May 1 and one May 2 were all males. May 8 only three of the eighteen seen were examined and these were males. The fourteen seen May 9 consisted of four males and ten females. No males observed after this date, the season closing with three females May 15. Two females in the large inland flock of May 16. Absent in autumn. Somewhat rare in autumn and entirely absent some years. Tolerably common only September 20 and 27, 1908.

OVENBIRD (*Seiurus aurocapillus*).—The river district is not suitable for them and none were seen until the inland visit May 16, when nine were counted, and eighteen mated pairs on the 23d. An adult male, September 26, was the last for the year. July 4, I was stalking a Green Heron on P. C. 404, Gratiot Twp., when an Ovenbird flushed from her nest containing four slightly incubated eggs — rather late.

WATER-THRUSH (*Seiurus noveboracensis*).—No suitable territory for this species was visited during the year, which accounts for its rarity on this list. A female was flushed from a bush pile on high ground May 19, another in a flock of Redstarts August 15, and the first autumn transient and a third female on the 29th were all we noted during the year.

LOUISIANA WATER-THRUSH (*Seiurus motacilla*).—Two inland, May 16, were the only ones seen during the year. This species is a summer resident in certain restricted areas.

CONNECTICUT WARBLER (*Oporornis agilis*).— One male, in the inland district, May 23.

MARYLAND YELLOW-THROAT (*Geothlypis trichas*).— Not seen until May 15, after which it became common. On P. C. 344, Gratiot Twp., I found a nest containing three pipped eggs, one young and a young Cowbird. Mr. Spicer found a nest with three eggs on P. C. 618, same Twp., June 6.

WILSON'S WARBLER (*Wilsonia pusilla*).— Tolerably common on the river district May 15 to 29. No females seen until the 27th, and the four seen on the 29th were two males and two females. Two noted in the large flock of May 16. An immature bird on the river district September 6, was the only autumn record.

CANADIAN WARBLER (*Wilsonia canadensis*).— On the river district a male was noted May 15, two males and a female May 19, and five males and a female May 27. Common inland May 16 and 23. A female, August 29, was the only autumn record.

REDSTART (*Setophaga ruticilla*).— The first seen for the year was a male May 9, and the last were two females October 17. Only exceeded by *D. aestiva* in abundance as a summer resident. June 6, on P. C. 620, Gratiot Twp., Mr. Spicer and the writer were locating chats near some twenty acres of woods that has always been a favorite Redstart haunt. Later in the day we walked through this woods and in less than an hour found a set of one, two sets of three, six sets of four, and one of five, besides seeing five nests with the birds on that we failed to reach, and eight unfinished nests.