

They still bear Watkins's original label with the words "Clay-colored Sparrow" in his handwriting, but as we suspected, they prove to be Chipping Sparrows (*S. passerina*). There are two such specimens taken September 3, one September 4, and two September 9, 1894. In addition there are four similar specimens taken in 1895 (October 3 to 14) and also mis-labeled "Clay-colored Sparrow." We must therefore discard entirely this early report based on Watkins's mis-identified specimens. Unfortunately this erroneous record has already been quoted in the literature at least twice: by R. Ridgway (Bull. U. S. Nat. Mus., no. 50, pt. 1: 325, 1901) and by W. W. Cooke (Bird-lore, 11: 260, 1909).

We then pass to 1901 for our first authentic Michigan record. On May 2 of that year P. A. Taverner shot a male at Port Huron (Auk, 22: 89, 1905). Taverner recorded the specimen as being "in the collection of J. H. Fleming of Toronto" and W. B. Barrows later repeated this statement ('Michigan Bird Life,' 1912: 510). However, as I now learn from Mr. Taverner, Fleming later returned the specimen to Bradshaw Swales in Michigan. It came to the University of Michigan with the Swales collection in 1913 and is now no. 43500 in the Museum of Zoology collection.

The second Michigan record specimen is the male collected by W. A. Maclean of the University of Michigan expedition at Washington Harbor, Isle Royale, on August 25, 1904. Several others were seen there during the following days (Rept. Michigan Geol. Surv. for 1905, 1906: 125).

The third Michigan specimen is a male collected by N. A. Wood for the University of Michigan at Whitefish Point, Chippewa County, on May 22, 1914 (Sixteenth Rept. Michigan Acad. Sci., 1914: 68).

There seem to be no other records until 1924 when Joseph Kittredge, Jr. (Auk, 42: 144, 1925) made the interesting discovery that the Clay-colored Sparrow was apparently breeding at a number of points in both the Lower and the Upper Peninsulas. Two years later he published additional records for Menominee County (Auk, 44: 259, 1927). Following this lead, others began to find the species at many localities and we now have records for at least sixteen counties in the Lower and eleven in the Upper Peninsula. In many of these places the Clay-colored Sparrow is fairly common. Since the habitat in which the species is usually found in Michigan represents only one stage in the ecological succession which follows lumbering and burning of those regions, it seems reasonable to conclude that the Clay-colored Sparrow was not merely overlooked but was at least rare and has now actually become much more common and widespread in Michigan than it formerly was or probably *will* be after a few more years have passed.—
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'Anting' by the Cardinal.—An instance of 'anting' by the Cardinal (*Richmondia cardinalis*) recently was brought to my attention and in view of the fact that this habit apparently has been seldom observed among fringilline birds the details are here reported.

On the afternoon of September 16, 1940, Mrs. T. B. Kurata observed three Cardinals, a male, female and juvenile, behaving in a peculiar manner at her feeding station in the High Park district of Toronto. She first noticed that they were picking up minute objects which were wiped through the body feathers,—under the wing, about the thighs and at the base of the tail. Closer inspection revealed that these objects were small, winged, 'red' ants, hosts of which were emerging from the ground. The birds seemed somewhat excited and persisted at this occupation for ap-

proximately two and one-half hours. At the end of this time their body feathers appeared wet as if the birds had been bathing. It is obvious that the insects had been crushed.

In the evening Mr. Kurata searched the ground in the restricted area where the birds had been but could not discover any of the ants, dead or alive. It is possible that the Cardinals had eaten the insects after applying their juices to their plumage.—L. L. SNYDER, *Royal Ontario Museum of Zoology, Toronto.*

Observations on 'anting' by birds.—For a number of years I have kept native songbirds in captivity and semi-captivity. The use of the word 'semi-captivity' in relation to songbirds seems to be little understood by bird students or at least it seems unfamiliar or far-fetched. By semi-captivity I mean that any pair of birds which nest in the aviary are given day-time liberty during the period of egg laying and incubation and full-time liberty—unless predators are known to be nesting within hunting distance—during the time of rearing the young and until they are weaned or ready for weaning. When eggs are being laid and incubation is taking place the birds are allowed out early in the morning and closed in the aviary before dusk. After the breeding season is over they are kept in the aviary or the bird-room until the next nesting season. The only exception has been with Blue and Blue-fronted Jays which were given their liberty again during the day, from the first of December to the first of March. These birds were called to the aviary before dusk and closed in for the night. At no time have I ever seen any of these birds 'anting' while at liberty. Nor have I seen them going through this peculiar performance in the aviary except when a shovelful of earth from an anthill was put in. As I hope to be able to make a much closer study of 'anting' during the summer of 1941 I will not at present go into much detail regarding my observations. At that time I wish, if possible, to confirm certain presumptions besides, so will largely confine myself at present to a few general remarks and a list of birds I have seen performing.

One point I would like to bring up at present is in connection with the theory advanced by some that ants may be used either to destroy parasites on the body or to prevent the entrance into the feathers of such parasites, having in view the possibility that formic acid exuded from the ant may act as a preventative. I will not express an opinion on this, but in view of the following I think it deserves considerable thought and study.

We are aware that birds may reach easily most parts of the body with the bill. Yet so far as my observations go they do not attempt to rub the ant on or among the feathers of those parts of the body most apt to be infested with parasites, such as under the wings, around the vent, or on the rump and head. Invariably the ant seems to be rubbed along the edge and under side of the outer primaries and on the tail only. The wings are spread and held spread to some extent during the performance and the greatest effort seems to be made to rub the ant on the under side of the tail. This effort, which should be so easy, is the cause of the comical contortions always prominent. They try continually to bring the tail under them to such an extent that they often tumble on their back while so doing and many times I have seen them actually sitting on their tail.

Whether or not the ants are eaten I am not sure, although I think they are. I have examined the ground after the performance is over and failed to see either live or dead ants, so that the presumption would be that they were eaten. As a great many of my birds are hand-reared and exceedingly tame—so much so