

ted Sandpiper, 1; Green Heron, 1; Yellow-legs, 1; Kingfisher, 1; Baltimore Oriole, 3; Hairy Woodpecker, 1; White-throated Sparrow, 1; White-crowned Sparrow, 1; Hermit Thrush, 2; Ruby-throated Hummer, 1; Blue Jay, 3; Barn Swallow, 1; Broad-winged Hawk, 1; Cowbird, 4; Purple Grackle, 2; Whippoorwill, 2; Blackburnian Warbler, 11; Cerulean Warbler, 2; Scarlet Tanager, 10.

SOME FURTHER SUGGESTIONS FOR BIRD STUDY.

BY LYNDY JONES.

We may keep plainly in view two main objects of "All Day" studies, such as Christmas, New Year, May, and July. The first object, as it lies in the writer's mind, is to stimulate interest in outdoor studies. The second is to determine, as far as possible, what birds inhabit the given region at the time of the study. The first object is certainly a worthy one, and the second is the beginning of the carefully prepared local list. It is the oft repeated and firm conviction of the writer that a conservative local list, whether it cover but a small area surrounding some village, or more ambitious, covers a whole county, is one of the most valuable helps for the beginner in bird study. It reduces the liability to gross mistakes in the almost universal expectation, shall I say, of the marvelous in bird life. If the local list is prepared by some person who knows what birds should be found in that locality a list of the species which have not been found up to the preparation of the list, but which should be found there may well be appended. Such a list is certain to stimulate interest in the local study. Who shall be first to add one and another of these species to the real list? These points have all along been given more emphasis than any others because it has been assumed that most of the members of The Wilson Ornithological Club have not yet attained to the degree of knowledge where special studies can profitably be undertaken. There are, however, not a few members who are capable and ready to undertake special work, and it is to such persons that I wish to speak further.

There is a great deal of work that needs to be done before we know anywhere near all about the birds, some of it out of reach of the average person who knows birds well, some of it within the reach of every person. Mention has many times

been made of the need for more extensive and more exact knowledge of the breeding habits of the birds. The nest location, nest material (of what sort and where obtained), how the nest is made, by both or only one parent; the possibility that two pairs of birds unite in one nest, particularly among the more gregarious species; the relation of the nest construction to season and weather; the time in building; the real office it performs in the act of breeding for parents, eggs and young.

There is a whole chapter in the "story of the birds" in the eggs. Who will write that chapter? Some of us may be strongly inclined to the oological side of bird study. If so here is a nearly untrodden field. It is for you, if you feel this tendency, to bring forward a new oology.

A little aside from the subject of oology proper is the embryology of nearly all of our native birds. The concern here is rather with the late than with the earlier stages of incubation. At what time do the first suggestions of the future feathers appears as little papillæ on the skin surface? The 5th day of incubation will probably be found the earliest date. How rapidly do these papillæ grow? What is their condition at hatching? When do the true feathers begin to appear beneath the skin and at the lower end of the down? How are these feathers arranged on the body? What is their rate of growth? How does their rate of growth correspond to the growth of the young bird? Why is down first followed by feathers? What is the relation of the color pattern of the nestling or downy young to the nest and other environment? What is the relation of the color pattern of the downy young to the first feather plumage, and of the first feather plumage to succeeding ones? Just here lies the secret to the development of the color patterns because we have given almost no attention to the downy young and to the earliest stages of the first feather plumage. It is a very enticing field for the original worker.

Coming to the adult birds, we don't begin to know yet all about their geographical distribution and migrations. The winter distribution and the spring migrations are comparatively easy and fairly well known, because at these times peo-

ple feel the inspiration to get out for actual field study. We are also coming to know something about the autumn migrations, but even yet far too little in a particular way. The fall migrations are not so easy to study, and the inducements to it are less enticing, and the difficulties greatly increased for most of us. One must become familiar with the least conspicuous plumages to know what birds he finds, and that is certainly not an easy task, but it can be accomplished. The time of year which has been the most neglected is the summer season. There are two main objects for the summer study, each worthy and each equally important. The first and most evident one is to determine exactly the breeding area of that species. The second reason is to determine the time when the southward migration actually begins. We need to know this as accurately as we know the time of the beginning of the northward migration before we can assume that we know much about it. There are a great many questions about the southward migration that need a conclusive answer, but the data must first be gathered.

Let no one suppose that he can do nothing with these suggestions because he cannot attempt something with all of them. One minor point under one of the minor heads is worth earnest effort and will repay anyone who has the courage and enterprise to undertake the study. Let those of us who can undertake some of these more particular studies, while those who cannot, for whatever reason, do what they can in their own localities.

TWO GOOSE RECORDS FROM OHIO.

W. F. HENNINGER.

On the morning of March 24, 1905, one of the proprietors of the Empire Hotel here at Tiffin shot two wild geese on the Sandusky River, one and one-half miles south of the city. Thanks to the persistent efforts and tireless energy of Mr. Karl J. Heilmann, I was able to secure the skins on condition of returning the meat to the hunter, to which I gladly consented. One of them was a fine old male of the Blue Goose (*Chen caerulescens*). Measurements: Extent, 168 ctm.; bill, 6 ctm.;



Jones, Lynds. 1905. "Some Further Suggestions for Bird Study." *The Wilson bulletin* 17(2), 61–63.

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