

## EARLIEST OBSERVED BIRD MIGRATIONS FOR COLUMBUS.

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In compiling and arranging the list of earliest spring migrations given in this paper, the writer has simply edited the work of the older observers of the club with the hope that the list will be of interest to other workers in Ornithology and perhaps furnish a basis for more extended study along the same line.

The observations were all made during the years 1897 to 1902, and were all by members of the Wheaton Ornithological Club of the State University. A comparison of the data of spring migrations made by Mr. Frank M. Chapman at Englewood, New Jersey, which is about sixty miles farther north than Columbus, with this list shows that the arrival of northward-bound species here is from a week to ten days earlier on the average, though some of the dates coincide very closely and some of the records are from two to three weeks earlier. This difference is especially marked in the case of the Warbler migration which here reaches its height in the last week or ten days in April and the first week of May, while there the greatest flight occurs in the second and third weeks of May. The situation of Columbus is quite favorable, for lying on a north and south river it is in the track of the northward moving migrants, and is favorably located for early records. An effort was made to see whether or not the data in this table would bear out the conclusions reached by Dr. C. C. Trowbridge in his article in the September number of the *American Naturalist* on "Bird Migrations." He was led by the results of a series of long and careful observations to the conclusion that wind and not temperature was the cause of bird flights. Since, however, the data in the possession of the writer do not take systematic account of the volume of migration, the only recourse is to periods giving especially early records or an abundance of them. Another handicap to any attempts to differentiate the effects of wind direction and temperature lies in the fact that in this locality high temperature is usually coincident with southerly and south-westerly winds, and low temperature with north-west and north winds. By the courteous assistance of the local United States Weather Bureau, statistics were obtained for wind direction and mean daily temperature covering the months of April and May, from 1898 until 1902 inclusive. An examination of the list of records shows a noticeable scarcity of records in the first two weeks of April, although both the preceding and following weeks show several records. Comparison with the meteorological table shows during each year, without exception prevailing northerly winds and low temperature. This

however being merely negative and possibly due to other causes can hardly be cited as strong proof. Attempts to correlate the wave of migration, extending through the latter part of April with the wind direction, can not be called successful except in one instance, that of 1902. In this year the records show a period of cold weather (Temp. 30 to 45 deg.) and prevailing northerly winds extending from the beginning of the second week in April to the middle of the third, with scarcely any records of migration. During the time from the 18th to the 22d of the month however, the wind direction shifted to the south and south-west, and the temperature rose to 60 deg. The records of the Ornithological Club for that period contain many records of migrating species, most of them for the 22d and 23d, with the statement that they are about a week early. This is the only good instance of positive evidence in the records, it seeming impossible to establish any clear connection in other instances. In the appended list the date is given, being the earliest record of its appearance by members of the Club and the name of the observer is placed after the species. Species not followed by names have been recorded by several members for the same time. The records for the Robin, Bluebird and Meadow-lark are not given, as some of these species winter here and of course it is impossible to distinguish the arrivals from the South from those wintering here.

- Feb. 13. *Clangula hyemalis* (Linn.) Old Squaw. Parker.  
 Feb. 17. *Branta canadensis*, Canada Goose. Henderson.  
 Feb. 19. *Quiscalus quiscula aeneus*, Bronzed Grackle. Kellicott.  
 Mch. 2. *Aegialitis vocifera*, Killdeer. Smith.  
       *Zenaidura macroura*, Mourning Dove. Smith.  
 Mch. 3. *Agelaius phoeniceus*, Red-winged Blackbird. Tyler.  
 Mch. 6. *Spizella socialis*, Chipping Sparrow. Smith and Cole.  
 Mch. 8. *Gallinago delicata*, Wilson's Snipe. Morse.  
 Mch. 9. *Anas boschas*, Mallard. Tyler.  
 Mch. 12. *Passerella iliaca*, Fox Sparrow. Smith and Cole.  
 Mch. 13. *Zonotrichia albicollis*, White-throated Sparrow. Smith and Cole.  
 Mch. 14. *Pipilo erythrophthalmus*, Towhee. Morse.  
 Mch. 16. *Cathartes aura*, Turkey Buzzard. Griggs.  
       *Spizella pusilla*, Field Sparrow. Smith and Cole.  
 Mch. 17. *Turdus fuscescens*, Wilson's Thrush. Parker.  
 Mch. 18. *Sayornis phoebe*, Phoebe. Griggs.  
 Mch. 19. *Contopus virens*, Wood Pewee. Parker.  
 Mch. 23. *Vireo flavifrons*, Yellow-throated Vireo. Hine.  
       *Progne subis*, Purple Martin. Morse.  
       *Pooecetes gramineus*, Vesper Sparrow. Smith and Cole.  
 Mch. 24. *Tyrannus tyrannus*, King Bird. Smith and Cole.  
       *Spiza americana*, Dickcissel. Smith and Cole.  
 Mch. 25. *Chondestes grammacus*, Lark Sparrow. Hine.  
 Mch. 28. *Dendroica virens*, Black-throated Green Warbler. Henderson.  
 Mch. 29. *Empidonax minimus*, Least Fly-catcher. Smith and Cole.  
 Mch. 30. *Scolecophagus carolinus*, Rusty Blackbird. Smith and Cole.  
 Mch. 31. *Larus argentatus*, Herring Gull. Morse.  
 April 3. *Anas americana*, Baldpate. Taylor.  
 April 5. *Chaetura pelagica*, Chimney Swift. Parker.

- April 10. *Turdus aonalaschkae pallasii*, Hermit Thrush. Williamson.  
 April 15. *Turdus mustelinus*, Wood Thrush. Mills.  
*Chelidon erythrogaster*, Barn Swallow. Jennings.  
*Actitis macularia*, Spotted Sandpiper. Hine.
- April 17. *Harporhynchus rufus*, Brown Thrasher. Morse.  
 April 18. *Helmintherus vermivorus*, Worm-eating Warbler. Hine.  
*Mniotilta varia*, Black and White Warbler. Hine.  
*Helminthophila pinus*, Blue-winged Warbler. Hine.  
*Dendroica aestiva*, Yellow Warbler. Hine.  
*Polioptila caerulea*, Blue-gray Gnatcatcher. Hine.
- April 19. *Piranga erythromelas*, Scarlet Tanager. Parker.  
 April 20. *Galeoscoptes carolinensis*, Catbird.  
*Anmodramus savannarum passerinus*, Grasshopper Sparrow.  
 Hine.
- April 22. *Helminthophila chrysoptera*, Golden-winged Warbler.  
*Dendroica virens*, Black-throated Green Warbler. Williamson.  
*Dendroica blackburniae*, Blackburnian Warbler.  
*Dendroica maculosa*, Magnolia Warbler.
- April 23. *Clivicola riparia*, Barn Swallow.  
*Seiurus noveboracensis*, Water Thrush. Parker.  
*Ardea virescens*, Little Green Heron.  
*Icterus galbula*, Baltimore Oriole. Parker.
- April 24. *Dolichonyx oryzivorus*, Bobolink.  
*Habia ludoviciana*, Rose-breasted Grosbeak. Williamson.  
*Passerina cyanea*, Indigo Bunting.  
*Vireo olivaceus*, Red-eyed Vireo. Parker.
- April 25. *Helminthophila celata*, Orange-crowned Warbler. Hine.  
*Setophaga ruticilla*, Redstart. Parker.  
*Geothlypis trichas*, Maryland Yellow-throat.
- April 26. *Icterus spurius*, Orchard Oriole.  
*Helminthophila peregrina*, Tennessee Warbler. Hine.  
*Icteria virens*, Yellow-breasted Chat.
- April 27. *Petrochelidon lunifrons*, Eave Swallow. Griggs.  
 April 28. *Stelgidopteryx serripennis*, Rough-winged Swallow. Taylor.  
*Turdus ustulatus swainsonii*, Olive-backed Thrush. Hine.  
*Vireo gilvus*, Warbling vireo. Taylor.
- April 29. *Zonotrichia leucophrys*, White-crowned Sparrow. Hine.  
*Dendroica caerulescens*, Black-throated Blue Warbler. Hine and  
 Henderson.
- May 1. *Antrostomus vociferus*, Whip-poor-will.  
*Dendroica coronata*, Myrtle Warbler.  
*Seiurus aurocapillus*, Oven-bird. Williamson.  
*Sylvania mitrata*, Hooded Warbler. Parker.  
*Geothlypis formosa*, Kentucky Warbler. Parker.
- May 2. *Dendroica palmarum*, Palm Warbler. Hine.  
*Melospiza lincolni*, Lincoln's Finch. Osborn.
- May 5. *Myiarchus crinitus*, Great-crested Flycatcher. Teter.  
 May 7. *Coccyzus erythrophthalmus*, Black-billed Cuckoo.  
*Dendroica pennsylvanica*, Chestnut-sided Warbler. Hine.
- May 8. *Vireo solitarius*, Blue-headed Vireo. Parker.  
*Trochilus colubris*, Humming Bird. Osborn.
- May 12. *Comptothlypis americanus*, Parula Warbler. Parker.  
 May 13. *Protonotaria citrea*, Prothonotary Warbler. Hine.  
*Coccyzus americanus*, Yellow-billed Cuckoo. Mills.
- May 16. *Dendroica castanea*, Bay-breasted Warbler. Parker.