

INTRODUCTION.

NEARLY six years ago the writer issued a call to members of the Wilson Ornithological Chapter of the Agassiz Association, to begin a critical study of Warbler songs (family *Mniotiltidae*). The object of this call was to secure a mass of notes descriptive of the songs, from many sources, so that by comparison and tabulation a fairly accurate representation of each song could be put upon paper. It was also hoped that the diurnal as well as the seasonal song period of each species could be determined accurately, and that many other little understood phenomena might become better known. The author of the scheme of study well understood the wide lack of acquaintance among the class of lay ornithologists with the large majority of the family, and hoped that this might be a means of awakening widespread interest in our most beautiful and interesting group of birds. But the responses were few indeed, indicating that the difficulties were greater than could be overcome by the average bird student. Lack of time to devote to the swiftly passing migrants in the early days of May was undoubtedly one great obstacle in the way of many a willing worker.

Failing in this plan, but anxious to bring the host of Warblers closer to those who do not already know them by their voices, the writer has undertaken the task of bringing together all printed descriptions of Warbler songs at his command, combining them with such contributions as have been made in manuscript, and his own notes representing fifteen years of study, thus presenting what is known to him of the songs of the Warblers. On another page will be found a complete list of the works consulted, including books and periodicals. The writer fully realizes that this is far from a complete bibliography of the subject, but it will illustrate the resources at hand.

The task of bringing together such a mass of printed and

manuscript descriptions has been second only to the task of determining in each case what must be allowed as a margin for the personal equation of the describer, and how much must be allowed for variation in the species. No intelligent comparison of the several descriptions could be made without a fairly satisfactory solution of these two difficulties. The method has been to select some species whose songs are clearly distinctive and not seriously variable. Three were selected: Oven-bird, Maryland Yellow-throat and Black-throated Green Warbler. The variation among the individual describers, when determined, will give the variation of the species.

There must be a large margin for mistakes allowed, particularly with the species whose songs are not personally known to the writer. A little study of ones notes in successive years will serve to show that we are prone to variations in our methods of representing the same songs from year to year, allowing as much as we please for variations of the individuals composing the species. The way our ears hear bird songs is often determined by our digestion. But there is always the possibility of finding an average for the whole series of notes. That has been the writer's effort in the body of the paper—to present the average of all notes of equal value.

Five years of teaching Ornithology in Oberlin College to all sorts of students, serve to show that descriptions of color patterns and habits are not adequate to the task of bringing this assemblage of small birds to the notice of the average person who becomes interested in birds. The song seems to be the missing link in the chain of acquaintance. Both the eye and the ear must be educated if one would learn the birds, and my experience indicates that the ear is the readier learner. Is that probably due to a tendency to color-blindness, or to weak eyesight on the one hand, and to a long series of unconscious ear training, on the other?

It is to the class of bird students who hope to find pleasure in acquaintance with the Warblers, rather than to those who already know them that this paper is addressed. It is hoped that by arranging the species in groups according to greater or less resemblance to each other it will enable the student to give special attention to one group before attempting the larger study of the whole group, thus some-

what simplifying the process of study. If this paper should prove of any assistance to lay ornithologists, and to those who find pleasure in casual notice of birds, the labor of preparing it will be fully repaid.

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While the serial arrangement of the species does not follow that adopted by the American Ornithologists' Union, the nomenclature does. The number following the name of the species will indicate its systematic position. It has seemed better to group the species according to their songs rather than according to their structural relationships. The geographical range, which always closes the discussion of each species, has been taken bodily from the A. O. U. Check List of North American Birds.