

Evolution of Bird Song.

EDITOR OF 'THE AUK':

I was much interested in the article in the October number of 'The Auk,' on "Sexual Selection and Bird Song," by Chauncey J. Hawkins. Mr. Hawkins' conclusions are interesting, and perhaps entirely correct, but there are one or two weak points in his arguments, that I should like to point out. I have also some observations of my own, which it seems to me, point to the opposite conclusion, that sexual selection is the primary cause of the evolution of bird song.

Bird voice and bird song are two different things, the evolutions of which have not necessarily been brought about in the same manner. Yet Mr. Hawkins, in portions of his paper relating to his own observations, does not carefully distinguish between voice and song. His remarks concerning the calls of Crows and Jays will not apply to a discussion of song. His observations of Robins and Goldfinches in winter are not so stated as to make it clear whether the birds were really singing or merely indulging in rather musical call-notes. No one supposes that bird-voice, call notes, alarm notes or notes of female to young have been evolved by sexual selection. But when it comes to the true song of the male bird, there seems to be, in my opinion, good reason to suppose that sexual selection had at least some part in its evolution.

In order to avoid mistaken ideas it would be well to have a definition of bird song. I am not sufficiently well acquainted with the literature of this subject to know whether anyone has attempted such a definition, so I will give what I should consider a proper definition in my own words. *Bird song is a vocal performance produced by the male bird during a definite season of the year, that season including the period of courtship, mating and nesting.* Such a definition would imply that a vocal performance in which the female indulges regularly is not a song. Similarly a vocal performance not confined to a definite season of the year is not a song. I am aware that there are cases where an individual female has sung the song of the male. I have met with a single instance of this sort in my own experience in the case of the Slate-colored Fox Sparrow (*Passerella iliaca schistacea*) (Condor XII, 80). I believe that such instances are merely those of individuals showing a tendency toward masculine traits, and that such things may occur in any singing species. Such isolated facts do not hurt the definition or make it less plain. In the same manner a single individual might sing outside the regular song period of its species, or might prolong its nesting a little beyond the limits of its period of song. So long as such occurrences are not general the definition of song remains clear. I doubt if anyone could find an authentic instance however of two individuals of a singing species which mated and began nesting when the male was not in full song.

It is to be noted that musical quality is not part of the definition of song. Many bird calls are exceedingly musical without being songs. Such is the

twitter of a winter flock of Tree Sparrows (*Spizella monticola*). On the other hand some true songs, according to the definition, are sadly unmusical to human ears at least. The efforts of the male Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) are a good example.

One point about bird song which seems to have been more or less neglected by most field observers, is that in many species the song differs from the ordinary type during the short period of courtship. This difference may be in the loudness or form of the song or in performances connected with it. Thus the Song Sparrow (*Melospiza melodia*) and Yellowthroat (*Geothlypis trichas*) rise in sudden ecstasy of flight song, and prolong the vocal performance to several seconds longer than its ordinary duration. The Meadowlark (*Sturnella magna*) also sings a flight song, but one absolutely different from the ordinary song. It is a long-continued jumble of short quick notes and quite closely resembles the flight-song of the Bobolink (*Dolichonyx oryzivorus*). The Robin (*Planesticus migratorius*), in the late days of April when mating is in progress, may be found singing with its bill closed, the notes hardly audible for more than a hundred feet. At such times its mate is nearly always to be found in the same tree, evidently listening with pleasure to this whispered song, which is apparently sung for its benefit only. This mating song of the Robin is a common occurrence in the life of one of our most abundant birds. I have noted it many times in many localities in the past fifteen years. It is common to both eastern and western subspecies, yet most ornithologists seem to have overlooked it entirely, for I have never seen mention of it in print, nor do I know any ornithological friend who has observed it independently.

This fact that many birds have two songs, an ordinary song and a mating song, is significant in solving the problem of the origin of song. The ordinary song is evidently not sung from sexual impulses, but is simply an outburst of vocal sounds expressing great vigor and joy of living. Any observer will note that this song is more commonly influenced by time of day and weather conditions than by the presence of the bird's mate. But the mating song, on the other hand, seems to be caused directly by sexual impulses. If we would know the primary cause of bird song in general, then the question to be solved is which of these forms of song is the more ancient. Did birds first begin to sing simply from joy of living, or were the first songs induced by the period of courtship, and the ordinary song evolved later?

One observation which seems to give some evidence pointing to the greater antiquity of the mating song is furnished by the Meadowlarks (*Sturnella magna* and *S. neglecta*). Both the Eastern and Western Meadowlarks have ordinary and mating songs, the former short and most commonly rendered from a perch, the latter long-continued and always sung on the wing, frequently in pursuit of the mate. The great differences in the ordinary songs of these two species is too well known to need comment, but the similarity of their mating songs is less well known. In fact I have never seen these flight songs mentioned in print by any

writer. The point is that save for certain introductory notes rendered by the western bird before it leaves its perch for the flight, the mating songs of the two species are almost identical. This is the more interesting since neither the call-notes nor alarm notes of the two species are at all alike. This then seems to me good evidence that before these species became separated, their common ancestor had a mating song, one which may have been derived even more anciently from a common ancestor with the Bobolink. Then geographical conditions separated the birds and the ordinary songs were slowly evolved, the eastern birds producing a high piercing whistle, while the western ones evolved a rich, loud thrush-like warble and this leads me to believe that the first songs of birds were mating songs, evolved by sexual selection and limited to the period of courtship only.

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Australia's Effort to Save her Bird Fauna.

EDITOR OF 'THE AUK':

In my last October Australian mail I received a most interesting letter from my friend Captain S. A. White, of Fulham, South Australia, where he holds the Local State Secretaryship for the Royal Australasian Ornithologists' Union. Captain White is one of Australia's best known ornithologists and general naturalists. He has conducted upwards of a dozen scientific expeditions into the unexplored wilds of Southern Australia, where he has discovered unknown races of natives, collected many new forms of birds, plants, and other specimens — and, finally, published some six or eight booklets, illustrated by fine halftones, treating of these several expeditions.

Among his other experiences Captain White has come to realize the fact that many species of Australian birds are on the very verge of extermination; some have already gone forever, while a whole host more are becoming scarce. This pitiable state of affairs applies also to the flora over similar areas.

Now Captain White has recently taken hold of this matter with great force and in 'The Register' of Adelaide invited the attention of the Commonwealth to this serious state of things, especially to the rapid disappearance of many of Australia's most beautiful and interesting species of birds — and we all know what a magnificent avifauna she has.

It would appear that the Government has repeatedly broken its promises to set aside "Flinders Chase" on Kangaroo Island for this purpose, which Captain White points out is an ideal place for the purpose. In the course of his remarks in 'The Register' for October 9, 1918, he says "News came to hand by the last American mail that another 12,000 acres of woodland, prairie and watercourse has been added to the great forest reserves in the