

Bay-winged Cowbird (*Molothrus badius*) of South America, while usually appropriating the nest of other species, sometimes builds one of its own, and always incubates its eggs and rears its own young. The Shiny Cowbird (*Molothrus bonariensis*) is parasitic but has the habit poorly developed, while the Eastern Cowbird of the United States has the parasitic habit fully developed. Thus we have a gradual evolution of the habit in the various species.

He finds moreover that while, like other birds, the male of some Cowbirds establishes a territory which he protects from intruders, this is only perfectly developed in the monogamous Bay-winged species and becomes less apparent in the parasitic species, while the protective instinct of the male in defending the nest decreases correspondingly. With the lessening of interest in the nest and the lack of protection on the part of the male, the normal life is distorted and the way laid open to parasitism. It is the use of a nest already built, and the consequent placing of nest ahead of territory that, in his estimation, tends to break down the female's interest in the nest and the male's habit of territory defense.

Dr. Friedmann concludes by stating that his explanation is by no means the last word on the subject, and is offered more as a suggestion than anything else. We must know more about the physiology of reproduction in birds, especially the physiological basis of instinct, before we can hope to progress much further, and much more careful and accurate field observation is needed.

Dr. Friedmann has brought together a most valuable mass of information and has placed his subject on a basis where definite advance in our knowledge should be more easily possible. The book is well printed and the numerous photographs of nests and young add to its interest. We are sorry to find that apparently the quotations have not all been checked with the originals as for example, in a paragraph from Wilson on p. 159, the use of "not" for "now" and "affection" for "affectation" materially alters the sense.

We also notice, as is frequently the case in linotype printing, that the wrong line is sometimes removed or a rejected line inserted where it does not belong.

Dr. Friedmann is to be congratulated upon his painstaking study of the complicated problem of parasitism and we shall look forward with interest to his further publications on the subject, wherein he promises to discuss it more widely with reference to all of the parasitic species.—W. S.

Saunders on Bird Song.—It is by no means the largest and most conspicuous works that contain the most important matter, and a little brochure on 'Bird Song'¹ by Aretas A. Saunders seems to us to rank as one of the most important contributions to ornithological literature of the last few months.

¹ Bird Song. By Aretas A. Saunders, New York State Museum, Albany. 1929. New York State Museum Handbook 7, pp. 1-202.

Mr. Saunders, as readers of 'The Auk' well know, has been devoting his attention to bird song for many years past and most of his publications on the subject have appeared in these columns. He has devised what is apparently the most practical method of recording songs that has yet been suggested and the number of songs that he has "collected" in this manner may be realized when we learn that he has upwards of 600 Song Sparrow songs alone, in his collection.

While there have been a number of papers dealing with one phase or another of bird song, some of them serious efforts based upon wide experience, others largely speculative, there has been no recent summary of the whole subject, and this is what Mr. Saunders has attempted in the present little booklet. His success in getting so much information in such small compass, and in such readable form, is remarkable.

As he says, what we wish to know is, "how birds sing, why they sing and how the songs have originated and developed." Under the first head he differentiates between song and call, or alarm, notes, then he divides songs into four types, depending on length and complication; next variation is considered, between individuals and on the part of the individual; then the seasonal cycle of song (in connection with courtship, nesting, molt, and winter) and the daily cycle (morning awakening, mid-day cessation, evening and night singing); mimicry; acquirement of song by young; relation of bird song to human music; purpose of song; origin of song; and how to study song, all come in for discussion. There are a number of excellent outline drawings of various birds in song showing position etc., and some fifty charts of songs.

In discussing the purpose of song, Mr. Saunders states that, while there are cases of female song, singing in birds is almost entirely confined to the male, which seems to indicate that it has something to do with mating, while the fact that the song of each species is distinctive indicates that its purpose is recognition, though obviously of less importance in this connection than is plumage. Its variability too would indicate that it may have several purposes. Call and alarm notes are the bird's language but song has no such definite object.

Mr. Saunders selects the "territory" theory as the most satisfactory explanation of bird song—that the male upon arrival in the spring selects a territory with a singing tree in the center from which he sings and thereby warns other males away, and advertises the fact to females of his species that he is seeking a mate. The song is thus both a warning and an attraction, though several other minor purposes of song are explained. Under the head of evolution of song our author states that as birds are descended from a reptilian ancestor their song must have developed from some such sound as the hiss of a snake or tortoise, the alarm notes and call note coming first and song, later, by combinations and elaboration of the former, induced by excitement of courtship or conflict. Mr. Saunders considers that the evolution of song toward an ideal must involve an esthetic sense on the part of the bird, and as sexual selection has not proved

a satisfactory explanation for the production of such a sense he is at present unable to suggest what force may have produced it.

Mr. Saunders discusses mimicry as a possible method by which birds may have improved their songs and seems to give considerable credence to Scott's claim that young birds learn their songs by mimicry. Since, however, he shows that song usually ceases with the hatching of the young it seems hardly likely that the young birds can hear their own parents sing and if they learned song through mimicry it would most likely be the song of some other species, which sang later in the season. We are not at all inclined to give to Scott's experiments the support that some have given them, especially since others have had exactly opposite results in the same sort of experiments. Also, in discussing the esthetic sense and the "ideal" toward which bird song is supposed to be tending, should we not give more attention to the question whether our human ideal is the same as that of the bird or whether the bird songs that rank highest in our musical estimation have any such position in the bird world?

Mr. Saunders' methods of recording song are of the utmost importance and should be studied by all interested in the subject. Only lack of space prevents us from taking this matter up in the detail which it deserves.

We must congratulate Mr. Saunders upon a most important contribution to this branch of ornithological literature, especially valuable since there are but few who are equipped to discuss the subject with anything like authority.—W. S.

Mackay's Shooting Journal.—Mr. George H. Mackay, veteran sportsman and ornithologist of Nantucket and Boston, has done a very fine thing in keeping an accurate journal of his gunning trips with a list of birds shot during a period of nearly fifty years (1865–1922), and his friend, Dr. John C. Phillips, an equally fine thing in having it printed in a limited private edition¹ for the pleasure and profit of other sportsmen and naturalists.

Mr. Mackay, like Dr. Phillips, is not only a real sportsman but a conservationist, and his labors in behalf of better bird and game protection are well known, while his numerous contributions to ornithology have appeared in the pages of 'The Auk' for the past twenty-six years. His careful accounts of the game birds of the Massachusetts coast and a few other localities, as presented in his journal, furnish us with a most valuable record of what used to be, when Golden Plover and Eskimo Curlew were common species on these shores.

Would that those who have in their possession such journals, kept either by themselves or their parents, would follow Dr. Phillips' example

¹ Shooting Journal of George Henry Mackay 1865–1922. Three hundred copies privately printed for John C. Phillips. By the Cosmos Press Inc., Cambridge, Mass. 1929. pp. 1–373, frontispiece portrait.