

continuous mountain chain and causing a break in the range of various subtropical species, as advocated by Chapman, would seem to be impossible. The origin of these similar or identical forms of bird life in the subtropical zones of South and Central America he explains through the existence of wide ranging tropical rain forests and the effect of glaciation upon the range of species of both the tropical and subtropical faunas.

Mr. Griscom's report presents many problems upon which zoögeographers may work and has paved the way for a better knowledge of the avifauna of Central America of which, curiously enough, we seem to know less than that of the more remote South American countries.

While others may not agree with all of his deductions, we congratulate him upon an excellent piece of faunistic work.—W. S.

McAtee on Protective Adaptations.—Mr. McAtee has already published his reasons for doubting the efficiency of warning and cryptic coloration in protecting animals from their enemies (*Proc. Acad. Nat. Sciences Phila.*, June 12, 1912, pp. 281-364), and in the present paper¹ he carries the matter further. He points out that the advocates of this theory now rest their case almost wholly on the reaction of birds to protective adaptations in insects admitting that in the case of predators belonging to lower groups of animals they have no appreciable effect.

Therefore he considers the food of Nearctic birds; demonstrating in group after group that birds are influenced in the selection of their food by availability rather than by the presence or absence of any protective or mimicing device. The author's investigations on the food habits of birds, as a member of the U. S. Biological Survey, are used as a basis for his discussion and in each family of insects or other animals the number of identifications in stomach analysis are given with the percentage of each to the entire number of identifications in the order in which the family is included, as well as the percentage of species in this family as compared to the entire number of species in the order. The identifications of lepidoptera in bird food total about 18,000 and of coleoptera 85,000 so that one can appreciate the vast amount of data upon which our author's conclusions are based. As he says: "the most outstanding feature of the records of the animal food of nearctic birds undoubtedly is the marvellous distribution of them through the phyla, orders, and subordinate systematic groups. Within size limits, animals of practically every kind accessible to birds are preyed upon" and further: "the combined attack of birds plus all other predators still more closely approaches complete indiscriminancy. In other words there is utilization of animals of practically every kind for food approximately in proportion to their numbers. This means that predation takes place much the same as if there were no such thing as protective adaptations. And

¹ Effectiveness in Nature of the So-called Protective Adaptations in the Animal Kingdom, Chiefly as Illustrated by the Food Habits of Nearctic Birds. By W. L. McAtee, Bureau of Biological Survey, U. S. Department of Agriculture. (Publication 3125) Smithsonian Miscellaneous Collections. Vol. 85, No. 7. March 15, 1932. Pp. 1-201, with a subsequently published erratum for p. 56.

this is only another way of saying that the phenomena classed by theorists as protective adaptations have little or no effectiveness." There is abundant discussion in each section of this paper with quotations from published works and refutation of theories advanced.

While the principle of protective coloration has in many cases been accepted without question we have often felt that there were too many exceptions to the rule. Quite aside from the problem of insects being protected from birds we have the oft quoted illustration of the bark-like coloration of the Brown Creeper as a protection presumably against hawks, but the conspicuously colored nuthatch with almost exactly similar habits apparently gets along just as well!

Mr. McAtee has compiled a most valuable contribution to this much mooted question and we do not see how any flaws can be picked in his argument or conclusions. A good bibliography completes the paper.—W. S.

deSchauensee on the Birds of Southwestern Africa.—During the summer of 1930, Mr. R. M. deSchauensee, Research Associate of the Ornithological Department of the Academy of Natural Sciences of Philadelphia, conducted an expedition through southwestern Africa and across the Kalahari Desert to Rhodesia. He was accompanied by his wife and Messrs. A. Reginald Allen and Wharton Sinkler of Philadelphia with Mr. George Saunders as taxidermist. A collection of 558 bird skins was secured representing 254 species of which six proved to be new.

The present paper¹ is a report on the collection consisting of an annotated list with an account of the itinerary and a discussion of the distribution of the birds of southwestern Africa, which seemed to the author to be mainly dependent upon rainfall. There are a number of plates from photographs taken on the trip, illustrating the various habitats, and several maps. Two colored plates represent the bustard *Heterotetrax rupelii*, a hornbill *Lophoceros williaminae* and a flycatcher *Bradornis herero* the last two previously described by the author.

One new form *Zosterops senegalensis quanzae* (p. 198) is described in the present paper from Quanza River, Angola.

This paper is an important contribution to the ornithology of this interesting region and the collections made by the expedition have all been presented to the Philadelphia Academy.—W. S.

Armstrong's 'Birds of Samoa.'—This little book² is termed a "Hand-list" and its object is to enable visitors and residents to recognize the birds of the islands and record their habits "before the march of time and progress has denuded the hills of bush, thus bringing about the inevitable destruction of its bird life."

¹ A Collection of Birds from Southwestern Africa. By Rodolphe Meyer de Schauensee Proc. Acad. Nat. Sci., Phila. Vol. LXXXIV, 1932, pp. 145-202, May 21.

² Hand-List to the Birds of Samoa. By John S. Armstrong, M.B. London, John Bale, Sons & Danielsson, Ltd., 83-91, Great Titchfield Street, W. 1, 1932. Pp. i-iv + 1-91. Price 8 shillings.