

influence of the cold Humboldt Current which washes up from the Antarctic, bringing with it the Penguins and other denizens of the far south, are interestingly discussed and give us a clear understanding of the possible influence of ocean currents on land faunae, a factor which we are likely to overlook in regions where it is not so distinctly manifest. Dr. Murphy's chapter headings give a very clear idea of the topics covered in his book and we cannot do better than to quote them: The Ancient Capital and its Environs; The Seacoast of the Incas; Guano and its Producers; The Most Valuable Bird in the World; The Chincha Islands; Ancient People of the Coast; Independencia Bay; The Humboldt Current; San Gallan; Asia Island and the Central Coast; Peruvian Fisheries; Creatures of the Sea Surface, the Air and the Isles; The Fisherman's Isles and the Guanapes; and The Lobos Islands. There is also a bibliography and an excellent index.

The illustrations form one of the most attractive features of the book. There are upwards of fifty from photographs taken by Dr. Murphy, some of them being part of his notable motion pictures, and many diagrams and charts. Most of the photographs depict the Guano birds in their various activities from individual groups of young and old to congested masses of breeding birds which cover the ground as far as the eye can reach, forming probably the most remarkable bird gatherings that exist on the earth today.

In 'The Auk' for 1920 and 1921 will be found more detailed reviews of some of the chapters of this work which were published previously in less elaborate form in the 'Brooklyn Museum Quarterly.'

Dr. Murphy's book is one of the most important contributions to the natural history of South America that has yet appeared and one that we can commend to the attention of the general reader as well as to the ornithologist or student of geographical distribution.—W. S.

Wheeler's 'Birds of Arkansas.'—It seems but a very few years ago when Arkansas was, so far as detailed information was concerned, a terra incognita to the ornithologist. Then came Howell's list which gathered together all the scattered information on the birds of the State and added much data collected by the U. S. Biological Survey, establishing a State List of 255 species and subspecies.

Since then there has been a constantly increasing interest in the birds by residents of Arkansas until we have now a publication¹ issued by the Bureau of Mines, Manufactures and Agriculture, and prepared by Mr. H. E. Wheeler of Little Rock, an ornithologist evidently well equipped for the work that he has undertaken. This list brings the number of Arkansas birds up to 287, some of which, however, are included upon such

¹ The Birds of Arkansas, A Preliminary Report. By H. E. Wheeler. Published by State Bureau of Mines, Manufactures and Agriculture. Jim G. Ferguson, Commissioner, John C. Small, Assistant. pp. i-xxvi + 1-184, 113 illustrations. [Little Rock, 1925.]

meagre evidence that the author has printed them in italics in the nominal list, in order to bring to attention the need of additional information.

The main text of Mr. Wheeler's report deals only with the species which breed in the State, numbering 150. Under the family headings general information about the several groups is given and the striking features in the coloration of the species are contrasted, then under each species there is a brief summary of its range and a few words on its habits and food. A small map of the State with the distribution of the form designated appears in connection with the majority of the species but some of these are subject to revision, representing only our present knowledge of the matter. The report is fully illustrated with photographs of nests, nesting sites, etc., taken by the author, Mr. J. G. Boyce and others, and by reproductions of Mr. Brashier's bird drawings which appeared originally in Pearson and Brimley's 'Birds of North Carolina.' There are also brief accounts of geographic distribution, economic value of birds, bird houses, bird censuses, game laws and other things that the bird student should know, together with a bibliography by A. H. Howell and many useful references. We congratulate Mr. Wheeler and the State authorities of Arkansas on producing a work which will advance the interests both of ornithology and bird conservation in the State.—W. S.

Sumner on the Stability of Subspecific Characters.—This important paper¹ is the result of years of careful and painstaking research. The investigation was prompted by the conflicting opinions of biologists as to whether the characters—largely color characters—upon which subspecies of birds and mammals have been separated are really inherited characters, like those supposed to separate species, or merely the result of environmental influences acting during the life of the individual. In other words would a pale race like the desert Song Sparrow, transplanted into the humid environment of one of the dark north-west coast forms, continue to breed true, or would it respond to the conditions of its new home and become identical with the local form?

Prof. Sumner chose for his experiments deer mice of the species *Peromyscus maniculatus* which breed more rapidly and are much more easily reared than birds. Without going into details, which the reader must study for himself, Prof. Sumner's results after eight years breeding (seven to twelve generations) show that the transplanted animals have made no approach whatever to the coloration or other characters of the native race of the region to which they were removed.

Such slight change as has taken place being curiously enough in the other direction, due no doubt to conditions of confinement which it is difficult to determine or to eliminate even with the greatest care in making living conditions as nearly natural as possible.

¹ The Stability of Subspecific Characters under Changed Conditions of Environment. By Dr. F. B. Sumner, Scripps Institute for Biological Research. American Naturalist, Vol. LVIII, November-December, 1924. pp. 481-505.