

RECENT LITERATURE.

Chapin's 'Birds of the Belgian Congo.'¹—As many of our readers are aware Dr. James P. Chapin, in 1909, when but twenty years of age, accompanied Herbert Lang on an expedition to the Belgian Congo, in the interests of the American Museum of Natural History. Contrary to original expectations their explorations lasted for five and a half years, involving a journey through the Congo forest of some 1800 miles and an intensive study of the zoology of the region northwest of Stanleyville, including the Ituri Forest and the savannas of the Uelle District, almost to the border of the Anglo-Egyptian Sudan.

Since his return he has been attached to the ornithological department of the American Museum while in the earlier years he pursued a course in biology in Columbia University, a combination of "factors" which has rendered him particularly competent for the investigations which he has since carried on. Besides a study of his own collections and notes, he has consulted the published literature on the bird life and physical characteristics of the Congo and has examined the collections of African birds in sixteen of the leading museums of America and Europe. Incidentally he made two additional visits to Africa in the interests of the Museum; one to the Ruenzori-Kivu Region with F. P. Matthews and DeWitt L. Sage, in 1926-7, and the other to Lukolela, in 1930-31.

The results of Dr. Chapin's studies, long looked forward to, are now being published by the American Museum, Part I, a volume of some 750 pages, having appeared on December 17, 1932.

After a hasty reading of this work we are overwhelmed with the mass of data that is presented and deeply impressed by the masterly manner in which it is discussed, while we are thoroughly convinced of the impossibility of adequately reviewing it in the short space at our disposal. We should therefore advise our readers to take the first opportunity of studying the report in its entirety.

Reversing the order of the contents we shall mention first, the "Systematic List of Species and Races with Notes on Distribution, Habits and Food," which forms approximately half of the volume and will be completed in the two parts which are to follow, the present installment taking us from the Ostriches to the Gallinaceous birds in the sequence of Wetmore and Miller's classification, which is familiar to those who consult the A. O. U. 'Check-List' and Peters' 'Birds of the World.'

Suffice it to say that this portion of the report is all that it should be, with keys to the species, full synonymy of Congo references, lists of specimens secured by the Expedition with descriptions, and paragraphs on

¹ The Birds of the Belgian Congo. Part I. By James P. Chapin. Bulletin of the American Museum of Natural History, Volume LXV, 1932. New York, December 15, (17), 1932. Pp. i-x + 1-756, Pls. I-X, figs. 1-208 and map. Price \$8.50.

habits, distribution, food, plumages, etc., based upon the author's experiences and those of others. There are many excellent text figures, some from photographs but mainly from pen drawings of heads, feet, feathers, etc., as well as ten plates of birds from photographs in life, and a good map. Our only criticism is concerned with typography, with which the author probably had nothing to do, i. e. the printing of the lists of specimens and their description immediately after the synonymy, in the same type and without spacing or break of any kind, which makes them difficult to locate when consultation is desired.

Important as is this part of the work and much as we should like to discuss it more fully, the introductory portion seems still more to warrant our attention.

Here Dr. Chapin presents his data and conclusions on the many major problems that have come up in the faunal study of the region, and their perusal will impress the reader with what can be made of such a piece of research. The matter is arranged in ten chapters entitled: The Ornithological Exploration of the Belgian Congo; Topography and Geology; Climate; Faunal Relations and Subdivisions; Botanical Remarks on the Faunal Divisions; Bird Distribution and its Ecological Aspects; Typical Cases of Geographic Variation; Breeding Seasons; Bird Migration; Evolution and Relations of the Ethiopian Avifauna.

The mere titles do not, however, convey the breadth of treatment that the author has employed. Through many of the chapters runs a continuous discussion of the origin of species and subspecies, the part played (or not played!) by environment—food, climate, vegetation, etc., and by mutation. This part of the work, therefore, possesses an interest for biologists at large entirely apart from those who are concerned only with African ornithology. Dr. Chapin finds little in geological history to affect distribution of bird life or even plant life in the Congo and below 5000 feet elevation “the broad type of vegetation, whether forest or savanna, is independent of underlying geological conditions and even the soil is more a product of the rainfall and vegetation than of the particular rocks which it covers,” a conclusion at which the reviewer arrived in his studies of plant distribution in southern New Jersey some years ago.

Climate and especially rainfall are discussed at considerable length and our author bases his faunal divisions of Africa mainly on the latter. “Temperature alone,” he says, “seems to exert no marked influence on the distribution of animal and plant life until an elevation of 5000 feet is reached” but in the lowlands the abundance and seasonal distribution of rains are the important factors and “climate seems to affect birds mainly through the vegetation which it determines.” As to climatic life zones as traced by Chapman in South America, he says: “A comparison . . . shows many points of agreement” and “a close parallelism might well be expected, when we recall how the various zones result from atmospheric conditions.” He seems to allow rather more importance to this phase of distribution than in a previous paper in which he says: “The whole question

of plant and bird distribution in Africa, particularly in the lowlands, goes back to the distribution and abundance of rains."¹

Referring to W. W. Bowen's recent argument in favor of a primary subdivision of the Ethiopian Region in life zones delimited by isotherms, he says, "I still prefer the separation of the West African Subregion on faunal grounds." Similar objections have more than once been made to Merriam's climatic zonal arrangement of the faunal divisions of North America on the grounds that the faunal relationship of north and south sections of the arid midwestern country have more in common than either has with its corresponding isothermic area in the eastern humid country (cf. Auk, 1933, p. 130). It would seem, however, largely a matter of which factor is considered primary, the boundaries of the several "faunas" remaining substantially the same.

Most interesting of all Dr. Chapin's chapters, perhaps, is that in which he discusses the ecology of the bird life of the several faunas and the evolution of species and their distribution. He says: "It will not suffice simply to draw life zones at certain elevations for the first real change due to altitude can be observed only at nearly 5000 feet; and less than one tenth of the Congo bird fauna lives exclusively above that level. The most fundamental distinction in Africa, ecologically, is that between the forest and grass-dwelling faunas." This distinction was emphasized many years ago in North America by the late Spencer Trotter² and seems to be true of every part of the world, and Dr. Chapin brings it out most interestingly in his account of conditions in the Congo.

In concluding his discussion of this chapter he says: "Just as aquatic birds can occur only regularly where they find suitable streams or bodies of water, so land birds are largely divisible into forest-loving or forest-shunning, . . . within such ecological divisions there are further variations and finally we see that each species has its peculiar requirements and preferences. These largely determine a bird's range, for birds are free in an unusual degree to choose their own haunts. It is often claimed that environment makes a bird what it is. On the contrary I would argue the bird is a product of heredity; and how environment can influence heredity except through selection is very obscure. . . . The boundaries of our faunal areas are conventional, they attempt to show the main features of distribution, but many species are sure to overstep them. Few sharp lines save coast lines mark the common boundary of a whole section of a fauna." Dr. Chapin endorses the view held by most field ornithologists, and we think the correct one, when he says: "Study of the ranges of subspecies and of related species impresses me with the evident fact that species commonly arise from geographic races."

The problem before the faunal zoologist he very cleverly states as follows:

¹ American Naturalist, 1923, p. 110.

² Birds of the Grasslands. Popular Science Monthly, 1883, p. 453. Cf. also The Auk, 1909, p. 221.

"By means of barriers . . . Nature is confining her live-stock in the various faunal areas, much as the geneticist isolates strains of *Drosophila* in bottles. The faunal zoologist looks into the various areas of his country and compares the results. The modifying influences are not always understood and we can scarcely guess just what went into the experiment at its start. But we have the advantage of observing a large and varied lot of results and measuring their mass effect."

His plea for future procedure in faunal ornithology we cannot too strongly endorse: "Let us study the birds alive," he says, "as well as dead; let us look for evidence instead of making premature decisions."

We might go on indefinitely quoting from this admirable work but space forbids. We congratulate Dr. Chapin not only on the production of an ornithology of the Congo which will be our authority for a long while to come but upon a treatise on distribution, variation, and evolution which will be food for thought both for the field naturalist of the museum and the experimental zoologist of the university laboratory, happily linking, as it does, both aspects of the subject.—W. S.

Hachisuka's 'Birds of the Philippine Islands.'—The second part¹ of volume I of this important work is at hand. This takes up the systematic treatment which had barely been begun in Part I and carries it from the pigeons through the various groups of "water-birds."

Under each species or subspecies are given a statement of distribution in the Philippines, a full description of the several plumages, some general notes on habits, nesting, etc., and a list of allied forms with their respective ranges and the extralimital range, if any, of the Philippine form. The synonymy consists usually of the original reference and a reference to McGregor's 'Manual of Philippine Birds,' occasionally, however, where the author does not recognize a genus that has been employed by another (notably Matthews) he includes the generic reference in the synonymy of the species or subspecies to which it may have been employed, instead of under the generic heading. Another peculiar practise is the use of quotation² marks around all abbreviated titles as "Birds Austral." etc.

The work maintains the high standard set in the first part² both as to typography and illustrations. The latter consist of many line cuts, taken largely from Matthews' 'Birds of Australia,' and fifteen plates, many of them colored, from paintings.

Mr. Hachisuka's work bids fair to be for some time to come our authoritative treatment of the Philippine avifauna. We note that the addition of text and illustrations beyond that at first contemplated will extend the work to more than the five parts originally planned.—W. S.

¹ The Birds | of the | Philippine Islands | with Notes on the Mammal Fauna. | By | The Hon. Masauji Hachisuka (etc.). | Part II. Pages 169-439 (vignette). H. F. & G. Witherby, 326 High Holborn, London, W. C. 1. 14th September, 1932. Price

² See Auk, 1931, p. for review of Part I.