

interior provinces, gives an added value to the publication. The present part is quite up to its predecessors in thoroughness and appearance.—W. S.

Gorbunow's 'Birds of Franz-Joseph Land.'—This work¹ is a detailed account of the bird life of Franz Joesph Land based on trips made by the author in 1927 and 1930 on Russian "ice-breaker" boats, and on collections made by previous Russian voyagers, as well as on the literature which he has studied exhaustively. Twenty-six species are found on the island of which all are water birds except the Lapland Longspur, Snow Bunting, Horned Lark, Swallow, Snowy Owl, Gyrfalcon and Ptarmigan. We note that the Eider Duck is the northern race *S. m. borealis*. Some of the species like Bonaparte's Sandpiper have occurred only once or twice and only the true arctic birds breed there. This important work is printed in Russian but there is a much condensed German translation appended.—W. S.

Pearson and Brooks on Crows and Jays.—Continuing its excellent accounts of the birds of North America the 'National Geographic Magazine,' in its January issue, presents an account² of the crows, jays and their allies, by Dr. T. Gilbert Pearson, with attractive illustrations in color from paintings by the well known bird artist, Major Allan Brooks. There are sixteen of these representing the raven, crow, the two magpies, eleven species of jays and the nutcracker. The various subspecies into which these birds have been divided are mentioned by name with an outline of their distribution.

There are good accounts of the habits, history, and food of the birds and a popular introductory sketch of the group with anecdotes and many halftone illustrations. Students of our birds should secure the magazines containing these valuable papers which will eventually form a well illustrated and reliable history of the birds of North America.—W. S.

Palmgren's Recent Publications on Animal Ecology.—Mr. Pontus Palmgren has recently published a number of important contributions to animal ecology and related subjects which we, unfortunately, have not space to adequately review but we recommend them to the attention of all interested in this line of investigation. All are written in German.

One³ deals with the principles of plant and animal ecological investigation while in another⁴ he describes at length a quantitative investigation of the bird life of the woodland of southern Finland which is approached from

¹ The Birds of Franz-Joseph Land. By G. Gorbunow, Transactions of the Arctic Institute, USSR. Vol. IV. Leningrad, 1932. Pp. 1-244.

² Crows, Magpies and Jays. By T. Gilbert Pearson. Nat. Geographic Mag., January 1933. Pp. 50-79.

³ Zur Synthese Pflanzen- und Tierökologischer Untersuchungen. von Pontus Palmgren, Acta Zool. Fennica 6 Helsingforsiae 1928. Pp. 1-51.

⁴ Quantitative Untersuchungen über Die Vogelfauna in den Wäldern Südfinnlands. von Pontus Palmgren. Acta Zool. Fennica 7 Helsingforsiae 1930. Pp. 1-218.

various angles with many tables and charts and excellent photographic reproductions of typical habitats. This investigation is opened with a fitting quotation from Charles Elton: "The study of animal numbers will form in future at least half the subject of ecology."

Another paper¹ deals with the biology of the European Golden-crowned Kinglet and Chickadee as a comparative ecological study, discussing nest structure, with identification of all materials used in construction, and detailed consideration of food, with careful analyses. There is also an investigation of the musculature of the legs of the two species in connection with their use in grasping branches when feeding, etc. Excellent photographs of series of nests illustrate this paper.

Another contribution² discusses *Parus cristatus* on Aland, from an ecological standpoint.—W. S.

Groebbels' 'Der Vogel.'³—This magnificent volume, the first of three dealing with the bird as a biological organism, especially from the viewpoints of structure, function, habit, and adaptation, is one of the really notable bird books of recent years. It not only summarizes and brings together for the first time a stupendous mass of facts, but also achieves a synthesis of these data that is a remarkable tribute to the learning, breadth of vision, and depth of insight of its author. More than anything yet written it shows that the progressive ornithologist of the present and the future will have to be a physiologist and an anatomist as well as a field naturalist. The present volume deals with two main topics,—respiration and nutrition, the other subjects being reserved for the projected subsequent volumes. Some idea of the comprehensive nature of the work may be gained from the following figures, respiration requires 240 pages for its exposition, while nutrition occupies some 600 pages. Not only are all the data clearly and concisely presented with well chosen illustrations but the literature of each is conveniently cited, so that the book immediately becomes an invaluable guide to the literature of the topics it covers. All in all 2863 bibliographic references are given (744 on respiration and 2119 on nutrition).

A book of this sort is not to be read from cover to cover, but is to be referred to as to an encyclopedia. In skimming through it the reviewer was struck with the author's familiarity with the literature of the birds of the world; there is nothing that savours of local limits in its material; American, Japanese, and Australian literature are nearly as exhaustively ransacked as is the European. For the benefit of readers interested in particular

¹ Zur Biologie von *Regulus r. regulus* (L.) und *Parus atricapillus borealis* Selys Eine Vergleichend-okologische Untersuchung. von Pontus Palmgren, Acta Zool. Fennica 14, Helsingforsiae 1932. Pp. 1-113.

² Die Haubenmeise (*Parus cristatus* L.) auf Aland. von Pontus Palmgren. Acta Soc. pro Fauna et Flora Fennica, 56, No. 15. Helsingfors 1927. Pp. 1-12.

³ Groebbels, Franz. Der Vogel. Bau, Funktion, Lebenserecheinung, Einpassung. Erster Band: Atmungswelt und Nahrungswelt. Pp. i-xii + 1-918, 2 pls., 234 text figs. Berlin, Gebrüder Borntraeger, 1932. Price 72 Reichsmarks.