

contribution to exact knowledge of California's waterfowl that has appeared in any recent year. The author, Mr. James Moffitt, has been conducting, with the help of several other experienced Cooper Club members (C. I. Clay, J. M. Linsdale, T. T. McCabe, L. M. Huey), simultaneous counts of Black Brant on the several bays resorted to by this species along the California coast. In 1932, February 10-12, on Humboldt, Bodega, Tomales, Drakes, Morro, Mission and San Diego bays, a total figure of 43,946 individual birds resulted. In the article cited, Moffitt discusses informatively the facts and factors having to do with the present status and the future maintenance of the population of this important game bird. It is proposed to make the census-taking of this species, at the time of its northward movement, an annual event.

The April *Auk* contains an article by Emerson A. Stoner on the way to gather and store "A Collection Showing Food Eaten by Birds" (Vol. L, 1933, pp. 187-189, pl. VIII). Dried and cleaned crop or stomach contents of birds are kept in cotton-lined, glass-covered, individual insect boxes, suitably spread out and labeled, and constitute a permanent and interesting exhibit. No killing of birds need be done specifically for this purpose. "What specimens I have," says Mr. Stoner, "are the result of investigations made upon birds found already dead," such as those found traffic-killed on highways, ones killed by overhead wires, and some left hanging on fences by irresponsible hunters.

The United States National Park Service has started a new series of publications under the title "Fauna Series." Number 1 is an account of the "Fauna of the National Parks of the United States" (small octavo [150 x 230 mm.] pp. iv + 157, 56 halftone figs. in text, 1933—our copy received March 15). The authors are George M. Wright, Joseph S. Dixon and Ben H. Thompson, all members of the newly instituted Wild Life Division of the National Park Service, of which Division Mr. Wright is Chief. All these developments are the result of the increasing recognition being given to the importance of animal life, and of the maintenance of it in undisturbed estate, within the boundaries of all our Parks. Discussion of principles and of methods for insuring the realization of this ideal, in the

face of various adverse human factors, constitutes the theme of this contribution. We cannot here quote, as we would like, extensively from the final formulation of policies (pp. 147-148). The whole thing is stated concisely, with supporting reasons, and we simply urge its careful reading upon naturalists generally. This valuable brochure, illustrated with the fine photographs by Mr. Dixon, of birds, mammals and characteristic landscapes, can be had for 20 cents from the Superintendent of Documents, Washington, D. C. A piece of work of such high standards is greatly to the credit of the administrative group within which it originated. High types of public administrators are exemplified in such men as the late Stephen T. Mather, the present Director of National Parks, Horace M. Albright, Assistant Director Harold C. Bryant, and the Chief of the Wild Life Division. The present contribution is a manual of practical animal conservation, the very best we have yet seen, in that the tenets set forth appear not to have been swayed in the least by any special interests seeking "utilization" of one or another element in the fauna. It deserves careful study by everyone interested in saving for the future as much as possible of the wild life in uncultivated areas generally, outside as well as inside National Parks. For nearly all the ideas set forth can and should be adopted widely, to the greatest benefit of present and future human culture.—J. G.

PUBLICATIONS REVIEWED

AN ATLAS OF EUROPEAN BIRD MIGRATION (Schüz, Dr. Ernst, und Weigold, Dr. Hugo. Atlas des Vogelzugs nach den Beringungsergebnissen bei palaearktischen Vögeln, etc. Kommissions-Verlag: R. Friedländer und Sohn, Berlin, 1931. [One portfolio]. Inhalt I Heft Text und 150 Tafeln. [Tafeln=150 map plates, 270 x 310 mm.]. Text mit 5 Abbildungen, pp. vii + 160. 96 RM.)—It is not too much to say that the publication under review places the study of migration on a truly scientific basis. Having made such a statement I hasten to admit that one range, usually the northern, has been delimited for many migrants, flight lines shadowed forth, and the other range indicated, as a rule with much less certainty. Bird banders are perhaps apt to overlook the storehouse of information which is the check-list, and regard their returns as discoveries of what was in fact perfectly well-

known before. Furthermore, marking individual birds is not a new practice, and many publications have been based upon it. But science must depend upon exact data in sufficient quantity to approach mathematical proof, and no body of such data of comparable scope ever existed.

The publication is a portfolio of 150 maps accompanied by a 160 page volume. The maps show all returns of much significance of European birds, related to their points of capture by systems of lines and conventional signs which convey graphically a surprising number of essential facts in regard to age, interval and date at both ends of the record. In some cases, where the information is slight, two or more maps are printed on one plate. In others, when data are abundant, several or many plates are devoted to one bird (11 in the case of the Starling and 21 in the case of the Black-headed Gull) with certain summarizing maps in addition. Smaller inset maps are used to show distant returns, as from Africa, or, more frequently, to show the "Lebensraum," which we may translate awkwardly as "population range," a new departure of great importance. The accompanying volume gives the known ranges of the birds, usually from Hartert for Europe and from Grote for Africa, information and references for the banding, and excellent bibliographies arranged both under authors and localities, and sometimes, in cases of very crowded maps, certain data on ages and dates which cannot be expressed graphically for lack of room.

The maps include a total of 152 species and subspecies and some 69 more are briefly discussed in the book. Of the forms mapped some 9 are primitive aquatic forms; 19 wildfowl; 19 raptors; 26 rails, shorebirds, and snipe; 11 gulls and terns; 3 auks and murre; 5 columbine; 2 owls; and most of the rest passerine.

Of the marine birds a large number are of course banded as nestlings, but it is surprising to find how many song birds also are banded before July of their first year, a condition which indicates less emphasis upon trapping than exists in our American technique. Needless to say such banding, especially for the study of migration, is by far the most valuable. Nothing is more discouraging than poring over pages of return records of trapped migrants, of which we know neither whence they come nor whither they go, in order to find one or two significant records, of

known origin and known wintering place. The comparative futility of a great deal of our banding has been shown by the sudden demand for exact information on the summer and winter populations of the many species of wildfowl which human slaughter, aided by disease, drainage and drouth, is bringing post-haste to their end. Even before 1926 immense numbers of ducks had been banded, and the number since is legion; but so many are both banded and shot in the fall that the merest handful of significant facts are to be had from thousands of returns. This is no one's fault. Almost any return has some value, and the situation merely reflects the fact that ornithology, like other arts and sciences, clings to the population centers of occidental civilization, which are small spots on a narrow latitudinal belt, while banding, to produce the best results, needs a north-south distribution of effort.

This is no less true in the Old World than in the New. Travel south from London as far as from the Great Lakes to New Orleans and you are in the Sahara. Add the distance to Mexico City and you are in the heart of Africa. The wintering populations are harder problems than our own. Active banding clusters in a small radius about the North Sea and the Baltic, and lacks the far-flung organization which we here have, from the Atlantic to the Pacific, from Canada to the Gulf.

It is not by merely satisfying our desire to reduce nature to a formula and plot it on a map that the conception of the *Lebensraum*, here for the first time a concrete and measurable actuality, owes its importance. Isolation is the key word of most modern theories of racial differentiation, and in the case of vertebrates this usually means geographic isolation. Ornithology emphasizes this isolation almost entirely in terms of the breeding range; and the integrity of the breeding population, upon which the whole concept of the geographic race is based, remains to be demonstrated among birds.

In so far as the isolation of mutational characters is concerned, breeding isolation is naturally the only one of importance. It is further true that even in regard to direct or selective environmental influences, the breeding period is that of danger and susceptibility—of development, stress, and sharp proof of the power to survive. Yet so far as environment may constitute an effective agency, the case for such emphasis on the breeding range, especially

when from two-thirds to three-quarters of the year is spent elsewhere, is not convincing. It is probably not too much to predict that if environment and variation can ever be effectively correlated in birds, the year-round environment will have been taken into account, as with other organisms. Granted that races must be distinguishable and their ranges delimitable without the aid of any marking system, none the less knowledge of the manner in which the *indistinguishable* component fractions of races or undivided species are isolated, or are likely to have been isolated before differentiation—of the nature of the units from which we must believe races to have sprung—must be of great importance to the theory of geographic differentiation among birds. Such facts, reasonably self-evident for most land vertebrates, require proof among creatures of unlimited mobility. To become conscious of such a problem and to take long steps toward solving it in some cases, marks an important point of progress.

It is an extraordinary fact that under present world conditions Germany can issue such a piece of work (assistance was received from the Prussian Ministry of Science, Art, and Public Instruction) in so sumptuous a style, while the results of American banding, increasing at such a rate as soon to be beyond hope of reduction and organization in usable form, continue to accumulate, of little use to anyone who cannot go to Washington and work there at length.

Dr. Schüz is stationed at the Rossitten bird observatory of the Kaiser Wilhelm Association for the Advancement of Science. Dr. Weigold is director of the Natural History Museum at Hannover, and has spent much time at the Helgoland bird observatory. Both have published many papers on similar subjects. Dr. Schüz's *Ergebnisse der Vogelberingung* in the Proceedings of the VII International Ornithological Congress is the best general commentary on the contents of the present publication.—T. T. McCABE.

THE BIRDS OF FRANCE (Les Oiseaux de France, Par A. Menegaux. Volume I. Introduction à l'Etude de l'Ornithologie Rapaces, Gallinaces, Colombins, Pici-formes. Paul Lechevalier, Paris, 1932).—This book, volume XXVI of the *Encyclopedie Pratique du Naturaliste*, is the first of three in process of preparation upon the birds of France. A short introduction

explains rules of zoological nomenclature, and discusses briefly general distribution of birds over the surface of the globe (with map). The first part contains chapters upon the topography and anatomy of birds; eggs, nests and incubation; migration; longevity; manner of collecting and preserving skins and eggs; and insect parasites of living birds.

The second portion of the book contains classification of the four included groups: birds of prey; gallinaceous birds; pigeons and doves; woodpeckers. When subspecific names are reached in the keys the reader is referred by plate numbers to the "atlas," which constitutes the third portion of the book. Here each of the included sixty-four representatives of the avian fauna of France is given one page of descriptive information, accompanied by a full-page colored portrait. Method of treatment is the same for all: scientific name, common names (French, German, English, Italian, Spanish); color description; measurements; habits and habitat; geographic distribution. The volume ends with: list of black-and-white figures (appearing throughout the text); list of colored plates; table of contents; alphabetical index of all names used.

The author has thus gathered together under one cover a useful handbook of general information upon birds for the purpose of aiding both French bird students and foreign visitors more readily to become acquainted with the avifauna of France. As stated in the preface, of the volumes to complete the series the next will deal with water birds, the third with passerine birds. This last volume will include chapters on usefulness of birds and on the protection of birds.—MARGARET W. WYTHE.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

JANUARY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on January 26, 1933, at 8:00 p. m. in Room 2003, Life Sciences Building, Berkeley, with about seventy-five members and guests in attendance. In the absence of officers Mr. Alden Miller presided. Minutes of the Northern Division for December were read and approved. Minutes of the Southern Division for December were read. Proposals of names for membership were as follows: