

The final section deals with methods of studying migration. The major emphasis is on observation, and the view of the possible fruits of experimental studies is, perhaps, overly pessimistic.

There are an annoying number of typographical errors, misspelling of generic names, incorrect plate references, and so forth. In some cases the choice of generic names is doubtful, and in several instances a species is placed in two different genera on different pages. An appendix giving "the numbers of individuals of twenty-nine species of immigrant butterflies and moths in Britain each year from 1850 to 1955" might well have been omitted in favor of a more comprehensive bibliography (some works mentioned in the text are not cited in the bibliography) or more discussion of movements of insects other than Lepidoptera (such as mosquitoes).

Because the enthusiasm of the author for his subject is contagious, this interesting and well-written book will doubtless do much to stimulate interest in the phenomenon of insect migration.

PAUL R. EHRLICH

Department of Entomology,
University of Kansas

Georgia Birds. Thomas D. Burleigh. University of Oklahoma Press, Norman, Okla., 1958. xxix + 746 pp. Illus. \$12.50.

Bird Hybrids. A check-list with bibliography. Technical Communication No. 13, Commonwealth Bureau of Animal Breeding and Genetics, Edinburgh. Annie P. Gray. Commonwealth Agricultural Bureaux, Farnham Royal, Bucks, England, 1958. x + 390 pp. 50s.

Extinct and Vanishing Birds of the World. Special Publication No. 13. James C. Greenway, Jr. American Committee for International Wild Life Protection, New York, 1958. x + 518 pp. Illus.

The three books reviewed here have little in common besides the mere recording and arranging of information about birds with little or no intention of analyzing or explaining the data they present. Within their scope they represent three quite diverse aspects of bird study: a regional or faunal work, a compilation of hybridization in wild and captive birds, and a record of the passing from the scene of those species which have been the casualties of man's advance over the face of the globe.

The first of these, dealing with the bird life of the state of Georgia, presents an up-to-date account of all the kinds of birds authentically recorded in that state. The individual accounts of each species are written to accord with its actual

status in the area and, except for brief statements, no attempt is made to discuss its activities or occurrence elsewhere. In this it succeeds very well and gives every indication of taking its place with other well-known state bird books. The geographic location of the area it covers makes it a particularly welcome addition to regional American works. The account of each species gives a statement of its general distribution, its status in Georgia (given in necessary detail), and one or more paragraphs about its habits and recognition marks. The 35 colored plates from paintings by George M. Sutton are well done, but in the review copy they were, in some cases, too pale. This may be the fault of the printing rather than the painting. The book has an adequate index.

The second book is a straightforward check list, with bibliography, of known avian hybrids. While no great critical appraisal has been made of the surprisingly great number of such occurrences, the individual accounts do cite references that substantiate or cast doubt on the record in question. In other words, it is left to the user of the book to accept or reject a given record. It is too bad that no attempt was made to distinguish between hybrids in the wild state and those in captivity. In the latter category we find many instances of crosses between cage mates that in nature do not occur within thousands of miles of each other. The ducks seem to be the most prone to hybridizing—the mallard has no less than 50 crossings with other species listed; the wood duck, 26; the pintail, 27; and so forth. The literature and other sources appear to have been thoroughly covered, and the result is a useful source of information on bird hybrids.

Greenway's record of extinct and vanishing bird species is, even as a bald record, not as good as either of the above books. One of the things the reader wants to look up is where (in what museums) specimens may be seen of each of these departed species, and here the coverage is very incomplete. The author seems to have been aware of this as he dodges the issue by listing only the specimens known to him, without attempting to make his knowledge more complete. In checking this feature of the book against the collections in the U.S. National Museum, I found that specimens—sometimes in considerable numbers—of nearly three-quarters of the species discussed were not mentioned in the book. What is true of the collections in the National Museum is true of those in other museums as well. The historical data on the various species are similarly incomplete or, in some cases, inaccurate. Thus, the story of the demise of the last passenger pigeon in the zoo at Cincinnati is given correctly for that species, but is

repeated, incorrectly, for the Carolina parakeet. The book will undoubtedly be consulted as a source reference for years to come, and it is all the more unfortunate that it is not consistently as good throughout as it is in many places.

HERBERT FRIEDMANN

U.S. National Museum,
Smithsonian Institution

New Books

Morphologie structurale. vol. 1, *Structure statique, formes structurales élémentaires.* vol. 2, *Types d'évolution du relief, théories organiques.* Pierre Birot. Presses Universitaires de France, Paris, 1958. 464 pp. vol. 1, F. 1000; vol. 2, F. 1800.

Philosophy of Atomic Physics. Joseph Murdy. Philosophical Library, New York, 1958. 136 pp. \$3.75.

The Physics of Elementary Particles. J. D. Jackson. Princeton Univ. Press, Princeton, N.J., 1958. 144 pp. \$4.50.

Physiology of Fungi. Vincent W. Cochrane. Wiley, New York; Chapman & Hall, London, 1958. 537 pp. \$9.75.

The Practice of Sanitation. Edward S. Hopkins and Wilmer H. Schulze. Williams & Wilkins, Baltimore, Md., ed. 3, 1958. 496 pp. \$8.

Problems in Wood Chemistry. Weizmann Science Press of Israel, Jerusalem, 1957 (order from Interscience, New York). 136 pp. \$6.75. The lectures and discussions which took place during the meeting of the FAO panel of experts on wood chemistry in Israel in April 1956 are published in this volume.

Process Dynamics. Dynamic behavior of the production process. Donald P. Campbell. Wiley, New York; Chapman & Hall, London, 1958. \$10.50.

Quantum Electrodynamics, Selected Papers. Julian Schwinger, Ed. Dover, New York, 1958. 441 pp. \$2.45.

Readings in Linear Programming. S. Vajda. Wiley, New York, 1958. 106 pp.

Roads. Fon W. Boardman, Jr. Henry Z. Walck, New York, 1958. 143 pp. *Roads* is a juvenile book that tells the story of road building from the days of the Romans to the modern roads of today. Descriptions of the materials used and the modern road-building machinery are included.

Sampled-Data Control Systems. Eliahu I. Jury. Wiley, New York; Chapman & Hall, London, 1958. 468 pp. \$16.

Science. A course of selected reading by authorities. International Univ. Soc., London, ed. 2, 1958 (order from Collings, Inc., New York 17). 345 pp. \$4.50. The contents are divided as follows: "The origin and meaning of science"; "The universe"; "Matter and energy"; "Science and everyday life." There is an introductory reading guide by E. N. Da. C. Andrade.

Solid State Physics. Advances in research and applications. vol. 7, Frederick Seitz and David Turnbull, Eds. Academic Press, New York, 1958. 539 pp. \$12.

Trends in Genetic Analysis. G. Pontecorvo. Columbia Univ. Press, New York, 1958. 145 pp. \$4.