

RECENT LITERATURE

The Avian Egg.—Romanoff, Alexis L. and Romanoff, Anastasia J. (John Wiley and Sons, New York), pp. xiii + 918, 424 figures, many tables, January, 1949. Price, \$14.00.—One is at once impressed by the detailed information available in this volume. In no other book can be found so much information about the egg before the activation of life within it. This completeness is no doubt due to the 20 years of preparation and the some 15,000 publications (over 2,600 cited) used in the compilation. Much previously unpublished information is also included.

The subject is treated in three parts. Part I deals with morphogenetic expression, including mode of laying, external characteristics, structure, formation, and anomalies. Part II treats the chemical, physical and biological properties of the egg, and part III is on the bio-economic importance of the avian egg, including food value, preservation, and industrial uses.

As an example of the detailed treatment, the chapter on external characteristics takes up: 1) the size of the egg, in relation to variation within the species and to individual, age, seasonal, hereditary and environmental factors; 2) the shape of the egg and its causative factors, in relation to species, breeds of domestic fowl, individual, seasonal, hereditary and physiological differences; 3) color of the egg and 4) shell texture, in relation to these same variable factors; and, 5) mathematical determination of size. All this information is well documented.

The book is clearly and concisely written, and major points are illustrated by graphs, charts, tables, and drawings.

Because of the much greater amount of research on eggs of the economically more important species, the book is understandably slanted toward the members of the Anseriformes and Galliformes. However, those interested in birds other than domestic fowl and game birds will be disappointed that most examples are of domestic fowl, even though studies on other species are available. Species are usually mentioned by the ambiguous common names (grouse, goose, quail and duck).

The bibliography does not include titles of papers. Space requirements may have prevented their inclusion, but in a book covering so many aspects of a subject such a bibliography is difficult to use. The book is indexed in good fashion.

In addition to presenting a wealth of information, the book will provide a definite stimulus for ornithologists to fill in some of the gaps in our knowledge about the eggs of birds.—H. I. FISHER.

Bird Hiking.—Hausman, Leon A. (Rutgers Univ. Press, New Brunswick), pp. 1-104, many text-figures, November 8, 1948. Price, \$2.00.—Although this book deals primarily with birds, it is written in nature-lover style and includes rambling accounts of mammals, rocks, fungi and "fox-fire." The feeling of the entire book is perhaps illustrated by the following quotation from page 25, "The bird that summons us forth on an evening ramble is the Nighthawk, whose ornithological name, *Chordeiles minor*, is prettily translated as Little Harp of Evening."

The bulk of the book informs the novice of the mechanics and joys of bird hiking, even to suggesting a suitable breakfast! Here and there are useful bits of information, much diluted, on territory, habitats, altitudinal zonation and seasonal occurrence.

A valuable part of the book is the list of references for nature study, which includes 25 titles on birds and 34 titles on everything from limnology to astronomy.—H. I. FISHER.

Sons of Science.—The story of the Smithsonian Institution and its leaders. Oehser, Paul H. (Henry Schuman, New York), pp. xviii + 220, 39 pls., January

13, 1949. Price, \$4.00.—All those interested in the development of science in the United States will enjoy this readable book. Those interested in the study of birds will note that two Secretaries of the Smithsonian, Spencer Fullerton Baird and Alexander Wetmore, have been primarily interested in birds.

The far-flung activities of the Institution are also of importance to ornithologists because they include the extensive collections of birds in the United States National Museum, The National Zoological Park in Washington, D. C. and The Canal Zone Biological Area. The history of these is related briefly.

The story of this century-old institution is told in the form of short biographies of the men who have been responsible for its growth. There is a chronology of principal events in its history and a selected bibliography.—H. I. FISHER.

The flight of birds.—Storer, John H. Cranbrook Institute of Science, Bull. 28, pp. xiv+94, 176 figs., January 5, 1949. Price, \$2.50.—Since, and perhaps before, the time of Aristotle, humans have studied and pondered the mechanism of flight by birds. Much of this observation and thought has been of little avail because accurate statements of movements of the wing, or parts of the wing, could not be made. The advent of motion pictures aided greatly, but by far the greatest forward strides in our knowledge of flight have been made by experiments in wind-tunnels and by slow-motion photography.

In this present book, Mr. Storer has presented in clear, understandable terms a brief summary of our knowledge of the mechanics of flight by birds in the light of modern aerodynamics. He begins his discussion with a short introduction on the general principles of aerodynamics, which is well illustrated by diagrams. These facts are then applied to bird flight, including such topics as lift, tilting, stalling angle, drag, turbulence, short versus long wings, wing flaps, feather structure, rudder action of the tail, soaring, gliding and formation-flying. Most of these subjects are illustrated by excellent photographs of wild birds in flight, often in slow-motion sequence, so that movements of the parts of the wing can be studied.

One of the most interesting aspects of the book is the emphasis on the complexity of birds' wings and the varied movements of the various parts of the wing. We often attempt to compare the whole of an avian wing with the whole of a wing of an airplane. Mr. Storer shows the inaccuracy in this by pointing out that at different times the different parts of the wing function in various ways. For example, in flapping flight the proximal part of the bird's wing, as far out as the wrist, functions primarily for lift, as does a plane's wing. The distal portion of the wing functions as a variable pitch propeller to give forward impetus. However, in gliding and soaring, this distal part also serves primarily to increase lift.

The discussion of "slotting" in birds' wings is extensive, giving examples and illustrations of slotting effect and the slots formed by the alula, wing-tips, the wing and tail together, and the covert feathers.

There is a glossary and an index. One might wish the bibliography were more extensive, but the book is recommended reading for every ornithologist.—H. I. FISHER.

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OBITUARIES

WILLIAM THOMAS SHAW, an Associate of the American Ornithologists' Union, died at his home in Fresno, California, May 13, 1948.

Shaw was born of Scotch ancestry in Woodburn, Ontario, February 10, 1873. As an infant he was stricken with infantile paralysis which left his left leg practically useless. Due possibly to this handicap he never married.

Shaw grew up in Minnesota where his early proficiency in preparing specimens helped him work his way through the University of Minnesota, at which he obtained his Bachelor of Agriculture and Bachelor of Science degrees in 1898 and 1899, respectively. His Master of Science degree was received at Michigan State College in 1901, and the degree of Doctor of Philosophy at Stanford University in 1926.

His early teaching positions were at Iowa State College and Oregon State College. He moved to Washington State College, Pullman, Washington, in 1908, where he taught biology, served as curator of the Charles R. Connor Museum, and was zoologist for the Experiment Station connected with the College.

After a year at Stanford he spent a year at Redlands University, filling in for an instructor on leave.

Coming to Fresno State College in 1928, he offered courses where students went on field trips with him and learned much along the trapline, digging out burrows, and