Book Reviews

Die Binnengewässer. Bd. XVIII, ***Verbreitungsgeschichte der Süsswassertierwelt Europas.*** August Thienemann. Stuttgart: Verlag Schweizerbart, 1950. 809 pp., 249 fig. Paperbound, DM 92; clothbound, DM 95.

In this, the sixteenth volume of the well-known series, Thienemann, who began the series with one of the best existing statements of limnological principles, returns with an immense zoogeographical treatment of the fresh-water fauna of Europe. The book begins by considering the distribution of *Mysis relicta* as an example of ecological zoogeography. Two sections of just over 120 pages then give the principles of modern ecology and limnology as they appear relevant to zoogeographical studies. Valuable sections on archaic elements in the fresh-water fauna of the world and on the preglacial fresh-water fauna of Europe follow. An attempt is then made to identify preglacial elements in the existing European fauna. The interesting snails of the genus *Melanopsis* in the hot springs of Hungary and Italy provide one convincing group of examples, and part of the cave fauna, of obvious antiquity, another. The fascinating fauna of Lake Ochrid is also considered in this context and is followed by an all-too-brief excursion to the Caspian. Just over 100 pages are then devoted to the effects of the Pleistocene glaciation. The available paleontological material, largely from interglacial beds, is summarized, and the main types of distribution believed to be of glacial origin are described. Some of the stratigraphy may need slight correction in the light of recent work. The extraordinary disjunct distribution of genera such as *Hucho, Rhodeus,* and *Misgurnus,* which occur in eastern Asia and in Europe but not in Siberia, is emphasized and attributed to Siberian glaciation; the evidence for this is, however, hardly indicated, and the whole problem of the development of the desert areas which in part produce the disjunction is not considered. The postglacial reinvasion of glaciated regions is dealt with at length, special consideration being given to the Baltic types of distribution. The last 50 pages of the detailed discussion summarize in a masterly way the introduction into Europe accidentally or intentionally of 26 species of fresh-water organisms, ranging from the hydrozoan *Cordylophora caspia* to the muskrat.

Thienemann's book is an essential part of the library of anyone interested in zoogeography. It should be studied meticulously and critically by all students of North American fresh-water fauna. The author adopts a reasonably conservative view, which leads him to reject some absurdities but also, perhaps, makes him undercritical of many plausible and apparently well-established conclusions that actually rest on little enough evidence. One also misses the evolutionary point of view that is rejuvenating zoogeographic research in America. In spite of this feeling that the work is in a certain rather vague sense a little old-fashioned, it is a veritable mine of information. One puts it down in gratitude to its distinguished author for so literally sharing with us the fruits of his immense learning. The prospective purchaser is advised that the outlay of three additional marks on the clothbound edition will prove a sound investment.

G. E. HUTCHINSON

Osborn Zoological Laboratory
Yale University

Patterns of Sexual Behavior. Clellan S. Ford and Frank A. Beach. New York: Harper, 1951. 307 pp. $4.50.

Attitudes and outlook upon matters pertaining to sexuality, the reproductive system, and the function of reproduction have undergone a tremendous change in the United States within the past two decades. Emerging from a period when it was highly questionable for a scientist to study basic phenomena pertaining to sex, and conditions under which it was unlawful to send through the mails, or otherwise disseminate, information pertaining to birth control, the year 1932 saw the publication of the first edition of *Sex and Internal Secretions* (revised in 1939). Here, attention centered chiefly upon physiological processes, mainly in the lower animals, and a vast amount of information on basic biological processes, especially as they related to rapidly developing knowledge concerning the hormones, was introduced. Individuals could thus begin openly to give consideration to the workings of this system, as they could much earlier to the digestive, excretory, or nervous system. Although a guaranteed publication subsidy was required for this volume, it immediately came into wide use among scientists and medical experts, was widely commended, and both editions were rapidly exhausted.

Then, in 1948, the first of a projected series of studies on problems relating to sex, *Sexual Behavior in the Human Male,* appeared. Although replete with charts, tables of statistics, and carefully compiled data obtained by the interview method, the book rapidly became a nonfiction best seller, and additional studies are being eagerly awaited.

Patterns of Sexual Behavior marks another milestone in the elimination of provincialism and permits scientists, physicians, and intelligent laymen to bring into retrospect, from a wide cultural viewpoint, many problems on which dependable information has been lacking. It is now possible to view the problem from a background of differing cultures, since concrete information is utilized from data on 190 human cultures, from the Arctic Circle to Australia. One may also consider the problems from an evolutionary background owing to the abundance of information pertaining to subhuman primates, as well as to all classes

of lower mammals. Laboratory studies are called upon rather heavily to illuminate the basic physiology involved. The book has been compiled by a well-trained anthropologist, familiar with a great many existing cultures, and by one of the foremost experimentalists in sex behavior problems. The authors have been most successful in merging their different experiences into a well-integrated general treatise, to the extent that the separate disciplines merely become a part of the generalized picture, developed against a wide evolutionary background. It is authentic, full of diversified information, and masterfully presented.

Chapters deal with "The Nature of Coitus," "Types of Sexual Stimulation," "Circumstances for Coitus," "Attracting a Sex Partner," "Sexual Partnerships," "Homosexual Behavior," "Relations between Different Species," "Self-stimulation," "Development in the Individual," "Feminine Fertility Cycles," "Other Physiological Factors in Sex Behavior," with a closing chapter on "Human Sexual Behavior in Perspective." A glossary of 350 terms, including location and a short characterization of different cultures, a bibliography of some 200 references, and an index make the book understandable to the layman and a valuable reference source to the scientist.

As a characteristic treatment of the different chapters, the discussion of "Homosexual Behavior" opens with a general introduction and setting in antiquity, followed by discussion of attitudes and frequency among both men and women in the United States. The chapter continues with a treatment of attitudes existing in 76 other human cultures. Similar behavior is then traced through the subhuman primates, and examined for lower mammalian species, with a closing summary for the chapter. The biological, evolutionary, and physiological aspects of sex behavior are thus brought together in a commendable attempt to assist in a better understanding of the behavior and attitudes toward sex in human society.

CARL R. MOORE

Hull Zoological Laboratory
The University of Chicago

Researches in Binocular Vision. Kenneth N. Ogle. Philadelphia-London: Saunders, 1950. 345 pp. $7.50.

In this publication, there is a readable and well-presented account of the results of many years of research by Dr. Ogle and his colleagues at the Dartmouth Eye Institute. We are fortunate to have this work, as probably no other single group has devoted so much time and effort to the understanding of these extraordinary phenomena.

The treatise is neither comprehensive nor exhaustive, as the intention was only to present the knowledge of the subject matter gained from investigations at Dartmouth. The greater part of the material is concerned with direct investigations on the perceptual process of spatial localization. Although many aspects of binocular vision are not discussed, the section dealing with aniseikonia will be of clinical interest. The author has organized and integrated his investigations into the general body of knowledge bearing on the subject.

Broadly speaking, the contents are divided into four parts. The first part presents an introduction to the localization of the horopter and the influence on the horopter by introducing magnification into one eye. In Part II the author reports on investigations concerned with the extent of Panum's fusional area, fixation disparities, fusional amplitudes, and cyclofusional eye movements.

Part III presents some of the work for which the Dartmouth group attracted great interest. This work concerned the distortions introduced in the spatial localization of walls, floors, and ceilings when changes are made in the relative magnification of the images of the two eyes. The last part treats certain aspects of aniseikonia, from which the clinician will gain some insight into the perceptual problems.

The student of vision will find this a valuable reference.

HENRY G. WAGNER

Department of Biophysics
The Johns Hopkins University

Mathematical Engineering Analysis. Rufus Oldenburger. New York: Macmillan, 1950. 426 pp. $6.00.

This is a new kind of textbook with a new delimitation of subject matter for which the new expression "mathematical engineering analysis" has been chosen. In about 400 pages all branches of mechanics and certain parts of thermodynamics, electricity, and magnetism are covered. Obviously some kind of selection had to be made. The author's main idea seems to have been to give only the simplest basic formulas, which usually serve as a point of departure for the construction of mathematical theories. He also wants, however, to present results of a practical nature. Thus, in his first chapter, after a discussion of the most primitive notions of particle mechanics, he shows on page 27 a complete cutaway illustration of an automobile shock absorber which suggests that the preceding definitions and laws should be applied to it. In the same vein the book continues to offer simple formulas such as that heat flux is proportional to a temperature difference or to a temperature gradient. The reader is then encouraged to apply a theorem for heat transfer to complicated devices like gas turbine blades. Nowhere in the book is a theoretical setup carried through to such an extent that a student would learn how more than the most immediate consequences could be drawn from the basic laws by the use of methods that are usually called "mathematical analysis."

As every teacher knows, the difficulty of formulating laws and theorems in a clear, concise, and correct way, so that a beginner can successfully handle them, is enormous. The author is not always lucky in choosing his formulations; what, for instance, "Laws 1.4 and 1.5" on page 10 mean is hardly clear. In the chapter on aerodynamics one single theorem (14.1) is