for that of France. Aside from MacGillivary's almost useless treatment of the Tenthredinoidea in the *Hymenoptera of Connecticut*, there is still no single modern taxonomic work dealing with the classification to species of sawflies for any state, or sizable locale, in the United States.

KENNETH W. COOPER

Princeton University

Wildlife management: upland game and general principles. Reuben Edwin Trippensee. New York-London: McGraw-Hill, 1948. Pp. x + 479. (Illustrated.) $5.00.

Workers and students in the field of wildlife management have long looked for a textbook to report the information that has so rapidly accumulated since the publication in 1933 of Aldo Leopold's classic *Game management*. Trippensee's work accomplishes this purpose admirably in several phases of the field.

Dr. Trippensee has been a wildlife research worker and teacher for 20-odd years in the Lake States and New England. His discussions of wildlife problems and bibliographies amply reflect this long period of work.

About four-fifths of the text is devoted to discussing three broad classes of wildlife—farm, forest, and wilderness—and to summarizing information on the ecology and management practices for the various species of wildlife considered as typical of these broad divisions. In general the information is well presented, though its order offers some problems. For instance in describing the technique of "Evaluating the Rabbit Range" on page 34 it is suggested that the reader turn first to the section on "Evaluating the Pheasant Range," some 42 pages later. The material for the Lake States area is much better than that for the western or southern sections of the United States.

The remaining fifth of the book deals with "Miscellaneous Wildlife Relationships" and "Wildlife Administration." These two sections are in the main adequate and sound summaries of predator problems, game harvest, refuges, winter feeding, administration, and technical training in the field of wildlife management. However the chapter on variations in animal numbers seems inconclusive to the reviewer.

After defining cycles in a way that seems to ignore quantitative data (he speaks of "noticeable scarcity" and numbers that "attract attention" in referring to population densities) Trippensee seems to argue around the question, through constantly leaning towards the "cosmic theory" as a basis of cycles in animal numbers. By using averages, he may well have masked the variations in time between dates of periods of abundance. Much of the data presented indicates both a lack of uniformity in time interval and also a lack of uniformity in the causes of decline in animal populations. In view of this, the term "cycle" as he uses it has little meaning in the commonly accepted sense of the word.

The reader will note that such important forms of wildlife as migratory birds and fur-bearers are not mentioned in the review. Trippensee states that "these, with a section on game fishes, were written but not published because of the difficulty of publishing and marketing as large a volume." It is hoped that these sections will be made available at a later date.

WILLIAM H. MARSHALL

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Larger imperforate Foraminifera of South-Western Asia: Families Lituolidae, Orbitolinidae and Meandropsinidae. Francis R. S. Henson. London, S.W. 7, Engl.: British Museum (Natural History), 1948. Pp. xi + 127. (Illustrated.) 1£ 10/–.

This work is on the Foraminifera of a relatively new area. Very little has been published on the older formations of this region. The Foraminifera of only three families are included, one of which is new. Besides this, 14 new genera, 27 new species, and six new varieties are described. The various forms have complex internal structures and the plates show many thin sections to illustrate these structures. A glossary of the many special terms is included, and keys to the genera of each of the three families are given. Detailed text figures show developmental stages and the relationships.

The development and phylogenetic relationships of various forms belonging to these three families are discussed in detail and add much knowledge to the early developmental stages in these complex forms. The bearing of these stages on the evolutionary development is quite complex and much is still to be discovered regarding their usefulness in determining the true relationships of the various genera and their position in a true classification of the groups. Many gaps are yet to be filled in by future studies. These discussions of the various stages and their relationships to one another and to stages of other groups should make a decided advance in our knowledge of the three Foraminifera families concerned. The work should inspire others to add to our knowledge and to check the various relationships.

JOSEPH A. CUSHMAN

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Animals without backbones. (Rev. ed.) Ralph Buchsbaum. Chicago: Univ. Chicago Press; London: Cambridge Univ. Press, 1948. Pp. xii + 405. (Illustrated.) $5.00.

No one will be as startled or as excited about this new edition of a highly successful text as people were about the book in its original form in 1938; the novelty of the excellent illustrations and simple, direct style has worn off. Yet it is clear that while the former edition was going through its seven printings, Dr. Buchsbaum was busy finding ways to improve his book. The new version has grown by only 34 numbered pages, and most of this is in an added final chapter entitled "Further Knowledge." In this new section and the accompanying four new pages of gravure photographs, the student is introduced carefully to such helpful material as information on biological field stations, scientific journals, and biblio-