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A MARINE ECOLOGY BOOK WITH THE FACTOR, LIFE HISTORY, AND HABITAT APPROACH¹

In eighty years of journals and expedition volumes lie lovely little stories on the life of marine creatures and hypothetically pertinent distributions of environmental properties. Much of the fascination of the sea is in the delightful mysteries of odd organisms and situations, whether portrayed in the color photography of the popular literature or in the diagrams and graphs of the biologist. In a new book with detailed scholarship and 27 pages of bibliographic citation, Dr. Moore has gathered some of the best charts, sketches, and functional graphs from the widely scattered literature, much of it foreign (but English language). He presents us with an annotated data book of ecological patterns in the sea. With illustrations that have been little used by other summary books, the author pulls together a wealth of material on seasonal cycles, vertical zonation, vertical migration, life history functions, growth patterns, and autecological factor graphs. Any lecturer in marine ecology will receive this contribution with open arms as a source book for some of the best in marine literature.

In many universities there are courses entitled "marine ecology" in which organisms, life patterns, and the properties of their environment are taught with accompanying field trip survey. Under a teacher with great knowledge the miscellaneous facts come alive and many students develop a deep and lasting love of the environment. The very multitude of fascinating stories and the absence of overall schemes adds to the fun and mystery. It is for this kind of course that Hilary Moore's book can be used in richness. First he presents chapters on physical, chemical and biological factors. Then in two chapters he provides a short synopsis of the habitats of the sea. Five chapters follow on organisms and their spatial and tem-

¹ Moore, Hilary B. 1958. Marine ecology. New York: John Wiley & Sons; London: Chapman & Hall, Ltd. xi + 493 pp., figs. & tables. \$9.50.

poral patterns. But, in the final paragraph of the review chapter, the author puts his finger on the weakness of his miscellaneous facts approach when he comments: "The science has in some of its aspects suffered from the over-collection of data to the point where the mass of material tends to become indigestible."

There will be other marine ecologists and those who teach ecology with an approach of principles who will find that the science has been sold short. They will not find here an introductory treatment of the general ecology of the sea. There is only the barest mention of the great generalizations of the sea such as the distribution of fertility, the workings of nutrient cycles, the flow of energy, the workings of population growth and regulation, the circulation machinery of the sea, dominant role of meteorology, the fundamentals of light penetration, the importance of blooms, buffer systems, the biological control of bottom geochemistry, the mechanisms of tides, waves, the constant ratios of the biologically active elements in production and regeneration, microorganisms, and the paleoecological record. The pretty story of overall ecology in the papers of Gordon Riley is scattered as after-comments concerning plankton and not in sufficient details to serve as a bridge into the literature. For the general workings of the marine environment, students must still go to Harvey, Riley, and Sverdrup. It is an elementary book in not attempting to present any difficult concepts, but it is an obscure book in providing so much description without organization. Every marine biologist must have this book, but few synecologists will recognize it as the heart of ecology. Everyone will welcome the chance to see one of the teaching approaches of the Miami Marine Laboratory.

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THE NATURAL HISTORY OF TERRESTRIAL ARTHROPODS OTHER THAN INSECTS¹

Relatively few professional zoologists are able to name all of the currently recognized classes of arthropods, much less the orders of arachnids. Cloudsley-Thompson has done research on most of these groups, and his personal familiarity with the subject matter gives his book life and authenticity. It is abundantly clear that patient and skillful study in the best Fabre tradition has gone into obtaining the information recorded in the eleven chapters.

The pattern of presentation is the same for all groups. Each chapter opens with a section on classification and distribution, followed by sections on general behavior, food and feeding habits, enemies, and reproduction and life cycle. The chapters end with one to two and one half pages of bibliography, divided into sections on identification and biology. The book is thus a compilation rather than a synthesis. The author intends it to be a source book for "natural history workers, upper school biology teachers, and university students." He has

¹ Cloudsley-Thompson, J. L. 1958. Spiders, scorpions, centipedes and mites. The ecology and natural history of woodlice, myriapods and arachnids. London, New York, & Paris: Pergamon Press. xiv + 228 pp. xvii plates, 40 figs. \$9.00.

written at the level of his intended audience with great success, although anyone from amateur teen-ager to distinguished professor will find it both a convenient reference work and a means of entering the professional literature.

Two thirds of the text is devoted to the arachnids, each major order being the subject of a chapter, with five minor orders, mostly allied to the whip-scorpions, treated together. One each of the remaining chapters treats isopods, diplopods, and chilopods, and the pauropods and Symphyla are covered in a single chapter as "other myriapods."

The book is undeniably interesting, and the non-expert is sure to find new facts in every chapter. Were it not for the word "ecology" in the subtitle, there would be nothing to criticize. The use of both ecology and natural history implies a distinction, and since the author makes the distinction, the reader could reasonably expect information on populations and ecological importance in the communities inhabited. This information is certainly available for a number of the groups considered, but only a few passing references to numbers are to be found. Certainly the soil mites, the isopods, and the diplopods