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Zoology

KILLERS OF THE SEAS, by Edward R. Ricciuti. 1973. Walker & Co., New York. 308 p. \$10.00.

Who has not been impressed with tales of the denizens of the deep? Probably nothing is more misunderstood than the sea and its inhabitants. It is a difficult research task to separate fact from fiction, here. In this endeavor, Edward Ricciuti has done a most credible job. He has brought mythology face to face with reality. An experienced scuba diver, he is able to lend personal experience to his research and presentation in an intimate, often amusing manner. He is not above poking fun at himself.

Killers of the Seas takes a careful look at each creature that is actually or possibly dangerous. The taxonomic relationships are made especially clear. Various biotoxins found in the creatures are discussed. Except for an explanation of the sodium-pump mechanism, in which the author says that sodium and potassium ions attract one another, the explanations of physiologic phenomena are accurate and would be understandable by most secondary-school students.

The scope of the book is wide: from sharks and whales to sea cucumbers, puffers, and eels. Ricciuti has written a readable, enjoyable book that should be on every biology teacher's shelf.

James L. Mariner
 Fountain Valley School
 Colorado Springs, Colo.

THE ECOLOGY AND EVOLUTION OF ANIMAL BEHAVIOR, by Robert A. Wallace. 1973. Goodyear Publishing Co., Pacific Palisades, Calif. 342 p. \$11.95.

Although only the last chapter deals specifically with evolution, the evolutionary emphasis, as the title suggests, indeed permeates this comprehensive new animal-behavior treatise. This is a lengthy and "loaded" textbook, with double columns and small print, but the writing is very readable and occasionally witty, as well as informative and thought-provoking; and the illustrations are well chosen. The author draws heavily upon current and classic literature, with good referencing and

an exhaustive end-of-book bibliography.

Wallace thoroughly synthesizes most modern aspects of animal behavior; and under these circumstances the book may prove too much of a good thing as an undergraduate textbook on animal behavior. Fortunately, the subject matter has been organized into fairly self-sufficient sections, which include instinct, learning, navigation and orientation, biologic clocks, communication, populations, competition, aggression, and cooperation and sociality, as well as the final chapter on evolution.

This volume would make an excellent addition to a basic biology reference collection, with students and teachers of general biology, animal behavior, ecology, and evolution selecting individual chapters for a detailed exposure to topics of interest.

Richard G. Beidleman
 Colorado College
 Colorado Springs

FISHES OF THE WORLD: A KEY TO FAMILIES AND A CHECKLIST, by G. U. Lindberg. 1974. Halsted Press, John Wiley & Sons, New York, for the Israel Program for Scientific Publications. 550 p. \$42.50.

The Soviet ichthyologist L. S. Berg's *Classification of Fishes, Both Recent and Fossil* (2nd ed., 1955) is the framework, from orders to superfamilies, into which his compatriot G. U. Lindberg has fitted this essential survey (originally published in Leningrad in 1971) of the living marine and freshwater fishes, from *Amphioxus* to pegasusdragons. He uses the recent taxonomic views of J. R. Norman, K. Matsubara, and others to modify the Berg framework somewhat; and he elevates to family rank many of the subfamilies of the widely used "Phyletic Studies of Teleostean Fishes with a Provisional Classification of Living Forms" (1966), by the American ichthyologists P. H. Greenwood, D. E. Rosen, S. H. Weitzman, and G. S. Myers. He accepts D. M. Cohen's tally: the world has 20-22,000 species of fishes in 5,000 genera. Lindberg puts them in 555 families and 62 orders.

The book actually has two keys: to the orders as well as the families. The keys contain nearly 1,000 little drawings of exemplary species and diagnostic structures—drawings that serve very well to give a notion of important genera. The keys are based almost entirely on the gross morphologic characters that a commercial fisherman or a general biologist would readily grasp, without resort to dissection. However, Lindberg accommodates the specialist by giving technical details in brackets. From the keys one is led to the descriptions of families—the "checklist." For each family Lindberg gives taxonomic synonyms (a considerable

boon), popular names in several languages, number of genera and species, distribution, commercial importance, and extensive references—to a bibliography of some 4,000 titles! And the book is exhaustively indexed.

At \$42.50—why are the Israeli Program translations so expensive?—this book will be purchased mainly by libraries, research stations, and fishing fleets. But anyone who is interested in the ingenious construction of large-scale keys should try to borrow a copy.

Sam Gadd
Colorado Springs, Colo.

THE COCCIDIA, ed. by Datus M. Hammond and Peter L. Long. 1973. University Park Press, Baltimore. 490 p. \$24.50 (hardback).

This authoritative book covers virtually all aspects of the biology of the Coccidia. It contains original review articles by Norman D. Levine, Datus M. Hammond, Erich Scholtyseck, J. K. Frenkel, and others of equal stature. The 10 chapters cover taxonomy, life cycles, host specificity, ultrastructure, physiology, cultivation, pathology, and immunity. The last chapter, by L. R. Davis, on techniques for the collection and study of Coccidia is particularly useful. The book includes many tables, photographs, and line drawings of ex-

cellent quality. Exhaustive citations of the literature appear at the end of each chapter.

This is an excellent reference work. It is highly recommended to those working with Coccidia or teaching a course in parasitic protozoans.

Ronald P. Hathaway
Colorado College
Colorado Springs

INVERTEBRATE LEARNING: vol. 1, *Protozoans through annelids*, and vol. 2, *Arthropods and gastropod mollusks*, ed. by W. C. Corning, J. A. Dyal, and A. O. D. Willows. 1973. Plenum Press, New York. 580 p. \$18.50 each (hardback).

These books seem to be a collection of reviews concerned with invertebrate learning. Vol. 1 has chapters on protozoans, coelenterates, platyhelminthes, and annelids; vol. 2 is on chelicerates, crustaceans, insects, and gastropods. Preceding each review is a conventional and brief summary of the biology and taxonomy of the groups discussed. Introducing the papers is a review of the principal parameters of learning in mammals. This attempt at presenting readers with facts that might put them on an equal academic basis in both invertebrate zoology and learning, while technically discussing learning in in-

vertebrates, creates a very unreadable and factual text. However, because it provides a needed, thorough, and up-to-date survey of the literature in invertebrate learning, it would be an excellent reference for invertebrate biologists, psychologists, ethologists, and neurobiologists.

Alexandra Vargo
Colorado College
Colorado Springs

For Young Readers

SEEDLINGS AND SOIL: BOTANY FOR YOUNG EXPERIMENTERS, by C. T. Prime and Aaron E. Klein. 1973. Doubleday & Co., Garden City, N.Y. 168 p. \$4.50 (hardback).

Although the authors (who are British) indicate that this is a practical book of experiments with plants that can be done at home by young scientists, precious few would be able or inclined to pursue the suggested experiments and observations without some assistance from a science teacher. Included in the book are instructions for setting up controlled experiments and making observations relating to the structure, function, and behavior of plants, with considerable emphasis being placed upon the relationships be-

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