cuted line drawings. In addition, structure is related to function in admirable fashion. In spite of its brevity, the treatment is not elementary: it is both sophisticated and up to date.

Certain faults are perhaps unavoidable in this compressed format. One is that the book is not completely self-sufficient. For example, the terms suctorians, radiolarians, and foraminiferans are used but not defined, nor do they appear in either figure legends or text in the section on protozoan classification. The reader will have to resort to another textbook or an unabridged dictionary. Also, there is no general index to supplement the systematic indexes. A large number of technical terms are introduced and well defined, often by context, and an index of these would have been useful.

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EMBRYOS AND HOW THEY DEVELOP, by Marie M. Jenkins. 1975. Holiday House (18 E. 56th St., New York 10022). 194 p. $6.95 hardback.

This book will well serve the young reader as an introduction to the fascinating world of embryonic development. With simplistic clarity and unencumbered skill, Jenkins explains a myriad of processes normally occurring in developing tissue.

Beginning with genome duplication and regulation, then developmental patterns, Jenkins phylogenetically describes different developmental facets of representative organisms. The book concludes with a very nice section dealing with human development. Also included are discussions about genetic defects, endocrinology, and multiple births.

Revealing photographs are professionally presented, and an introduction to the metric system, a glossary, and a suggested reading list are provided. This book is highly recommended for juvenile readers and those uninitiated in embryology.

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MAMMALS OF THE WORLD, by Ernest P. Walker and associate. 3rd ed., 1975. Johns Hopkins University Press (Baltimore 21218). Vol. 1 and 2, 1568 p. $37.50 hardback.

The two-volume set describes the numerous members of the class Mammalia. For each of many examples included there are appropriate descriptions: common name, order, family, genus, and species. A type specimen's description of a species for each genus which is reported includes species characteristics, length of head, and tail (if any). All units are given in the metric system. Coloration, fur characteristics, skull characteristics, and dentition are reported for each type species. Additional similar forms related to the type specimen are listed and described.

Reported to list more than 1,075 genera of mammals including those which are considered endangered, the book includes representatives from the marsupials to man. The information on man is sketchy, which is, of course, a necessity in a work that treats so many diverse forms. The illustrations leave something to be desired; several do not clearly represent the characteristics of the species described. This can be overlooked, however, since there are so many fine photographic reproductions of species.

The two-volume set is probably too expensive to be included in the high school teacher's personal library. Neither book in the two-volume set is complete alone as a library acquisition; so, if a school orders, it should opt for both volumes. The two volumes are important, useful, and functional additions to any library. The information included does not make for easy reading, but reference books seldom do. I highly recommend this work for the biology reference shelf in life science libraries—high school through university graduate school.

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DEVELOPMENT OF VERTEBRATE ANATOMY, by Joy B. Phillips. 1975. C. V. Mosby Co. (3301 Washington Blvd., St. Louis 63103). 480 p. $14.50 hardback.

In the "old days" undergraduate biology majors took such courses as botany, zoology, comparative anatomy, embryology, and vertebrate taxonomy. More recently the curriculum has also included such courses as genetics, cell biology, molecular biology, and environmental biology, plus biochemistry and physical chemistry, leaving the student little time to take the more "traditional" courses. Therefore there is now an attempt to condense and combine topics previously found in several courses. This textbook was designed to fuse embryology and comparative anatomy.

The book is divided into three sections: an introduction to vertebrate classification, early developmental processes, and organogenesis of vertebrate systems. In each chapter the author attempts to summarize histology, embryology, physiology, and comparative morphogenesis. Experimental studies

are occasionally mentioned. For example, the chapter on muscles contains sections on classification of muscles, embryonic origin, histogenesis, muscle contraction, skeletal muscle, muscle terminology, primitive musculature plan, fate of myotomic muscles, pharyngeal myotomes, fate of bronchiomeric muscles, derivatives of gill bar muscles, appendicular muscles, integumentary muscles, and electric organs.

I have mixed feelings about this book. Although I appreciate the need for such a united discipline, this "tasting" a little bit of everything left me with the distinct feeling of having "eaten" nothing. Areas such as physiology are covered more thoroughly in many general biology textbooks. The student at least can read about the more experimental aspects by finding the suggested readings in *Scientific American,* reviews, and technical papers. Certainly the major emphasis is on comparative morphogenesis. Here the author introduces the student to a large number of diverse examples of developing systems. And *this* is important, even to the molecular biologist looking for the best organism to investigate a specific problem in biochemical differentiation.

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THE YEAR OF THE BUTTERFLY, by George Ordish. 1975. Charles Scribner's Sons (597 Fifth Ave., New York 10017). 148 p. $8.95 hardback.

The saga of two monarch butterflies—from egg to caterpillar to mating adults and over a 6,000-mile migration, including the attempted return journey home—is related in scholarly detail in this book. Ordish, an economic entomologist, launches Pliable and Timorous (female and male characters from Bunyan's *Pilgrim's Progress)* on their lepidopteron adventure by describing their activities on emerging from their minute (20/1,000 inch diameter) eggs laid in a milkweed patch beside a filling station in Glens Falls, N.Y.

From that point on the story unfolds in abundant biological detail, instar by instar, stage by stage. The drama is told occasionally from the perspective of the filling station operator's son and his entomologist companion, but mostly from the imagined viewpoint of Pliable and Timorous. There are adventures galore: the task, as recently emerged caterpillars, of remaining in contact with their specific food plant while enduring storms, resisting attack by predators, avoiding or fighting off parasitic flies, and ultimately the arduous migration to Mexico and back.

There is, for the general reader, a healthy and digestible dose of sound biology throughout this book. Ordish frequently interjects informative tidbits that exemplify and amplify basic behavioral adaptations operative at the various stages of the monarch's life cycle and several physiological and environmental factors that release the behavior.

Ordish is at his best when he temporarily strays from his story-line butterfly personalities and attends to the biological business at hand; for instance, the passage dealing with the monarch's abilities to navigate vast distances over water and varied terrain is excellent. But some readers will want more information on the significance and techniques of tagging butterflies. The fact that they can be tagged at all will surprise many.

Any beginning student of butterfly behavior will benefit by reading this attractive little book. Unfortunately, however, the more serious student is likely to object to the numerous cases of anthropomorphism and teleology, both of which are difficult to avoid in a narrative of this sort. Sample instances: At the outset we are told that the "... animals are the enemies of plants. They eat them. Plants fight back." "Enemy" is used all too frequently and interchangably with "predator." We are told that *Exorista* (a parasitic fly whose grub bores into caterpillars and feeds on them) "... would feed extremely carefully, to avoid killing its host prematurely." Ordish himself warns of the pitfalls of anthropomorphism in nature writing and even includes a brief essay about it in the appendix, although he fails to come to grips with the subject critically. The effect of anthropomorphism is, of course, to make the reader identify with the nonhuman animal cast in a "hero" role. More sound science might have gotten across had the reader been made to identify with the two young researchers who so methodically traced the four-month activities of Pliable and Timorous. After all, it is the human perspective from which we must inevitably view the world. Until we achieve the skill—i.e., scientific observation and objective description—required to observe that world dispassionately we surely are to be misled, and to mislead, if we attempt to describe the world from the perspective of a nonhuman animal to which we attribute human passions.

As appendix items, the book includes reference notes, a chronology of the life history of both butterflies under study, a brief glossary, bibliography, and index. Typographically attractive, the book would have been improved significantly by including informative photographs, and diagrams by a skilled entomological illustrator. The nine major drawings are poorly done and tend to be more decorative than informative; in three cases they are at odds with the text. More attention to illustrations, which would have justified the high price of this book, and diligent editing to avoid anthropomorphisms would have gone a long way to make this good book emerge into an excellent one.

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Books Received

THE MANAGEMENT OF 35mm MEDICAL SLIDES, by Alfred Strohlein. 1975. United Business Publications, Inc., New York. 128 p. $11.00.

THE EARTH AND ITS MATERIALS, by Constantine Constant. 1975. Richards Rosen Press, New York. 85 p. $4.80.

HOW TO MAKE YOUR SCIENCE PROJECT SCIENTIFIC, by Thomas Moorman. 1974. Atheneum Publishers, New York. 94 p. $5.50.

ECOLOGY, by Jeanne Bendick. 1975. Franklin Watts, Inc., New York. 72 p. $4.90.

FAT AND SKINNY, by Philip Balestrino. 1975. Thomas Y. Crowell Co., New York. 33 p. $4.50.

OIL: THE BURIED TREASURE, by Roma Gans. 1975. Thomas Y. Crowell Co., New York. 33 p. $4.50.

OIL SPILLS AND SPILLS OF HAZARDOUS SUBSTANCES, by the Oil and Special Materials Control Division of the Office of Water Program Operations. 1975. U.S. Environmental Protection Agency. 29 p. Price not given.