

the cause, symptoms, and treatment of shock, in the blood vessel-lymphatic chapter; and modules on sensory input, memory and learning, pain reception, and sleep, in the central nervous system chapter; and the general digestive system and liver function, in the digestion-nutrition chapter. The modules do enhance the book and may well be the most read and most studied parts.

The illustrations, with shading to emphasize structure, are generally clear. Some micrographs are included. In places the text has detail that is referred to in illustrations but is not included there. Some graphs and curves are included but not nearly as many as in some introductory-physiology textbooks. This might be a drawback for some instructors who emphasize graphic representation and interpretation of physiological data.

The cellular approach is emphasized by the inclusion of introductory chapters on cell structure, cell function, and body organization which do not follow the organization of the systems chapters. The book concludes with chapters on prenatal development and birth, cellular aspects of disease and defense, and aging and death. The latter provides a good introduction to gerontology and senescence and calls for a concern for these problems by youth, who will probably make up the majority of the book's readers.

The authors strive to present an emphasis on integrative mechanisms. Of necessity, reference to textual material in other chapters is needed, and page references here would be useful. As with most books by multiple authors, an unevenness of style, vocabulary level, and readability is present. The chapter on the cellular aspects of disease and defense is at a considerably more sophisticated level than many of the systems chapters. This new entry into the introductory anatomy-physiology field deserves consideration by those involved in teaching such courses.

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### Related Fields

**THE GIANT PLANETS**, by Alan E. Nourse.  
1974. Franklin Watts, Inc., New York.  
62 p. \$3.95.

What little is known about the largest planets in our solar system—Jupiter, Saturn, Uranus, and Neptune—constitutes the subject matter of this book. Traveling at a speed of 5,000 miles per hour, the author takes the young reader on an imaginary space voyage from the region of the sun to the five farthest planets of our solar system. Since tiny Pluto is also discussed, I wonder about the appropriateness of the title. However, the bulk of the text is devoted to

the "Gas Giants" and what is known and speculated concerning their size, composition, atmosphere, and satellites. The hypothesis that Pluto may, in fact, be a much larger planet than we suspect is also suggested, but the author points out that Pluto has characteristics which make it markedly different from the four giant planets.

The photographs and figures are generally quite good and self-explanatory with the exception of the labeling of fig. 6, which is obscured by the drawing. A short bibliography and three-page index are also included.

The suggested reading level of fifth grade and up seems too low a placement. It would take a rather exceptional fifth grader to conceptualize the distances involved and to have the vocabulary necessary to read this book. It would seem more appropriate for the average junior-high-school student and the poor reader at the high-school level.

The fascination of what is yet to be learned concerning these outermost planets would make this book absorbing reading for the youngster interested in space exploration.

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### Zoology

**INTEGRATED PRINCIPLES OF ZOOLOGY**, by Cleveland P. Hickman, Sr., C. P. Hickman, Jr., and Frances M. Hickman. 5th ed., 1974. C. V. Mosby Co., St. Louis. 1033 p. \$12.95.

This textbook of general zoology has, since its first copyright in 1955, become a neoclassic. The earlier editions have been widely received, and one should expect that this edition will not be any exception.

The book is divided into five parts with that on diversity receiving by far the most attention. In this section, the phylogenetic approach is used to illustrate methods of animal classification. The authors do not limit their extensive survey of the animal kingdom to morphological considerations only (although these do play a key role) but also to ecological, evolutionary, and ontogenetic relationships as well.

The other four parts of the textbook are given to such topics as the physiochemical basis for life, vertebrate physiology, evolutionary theory and principle, and the general principles of ecology and biogeography. These sections are all well written and in many cases are updated from previous editions. Although animal diversity is the overriding theme in the text, these sections serve well to unify the many biological principles discussed.

The entire book is well illustrated with many appropriately placed, clear, black-and-white photographs and red-

and-black line drawings, often striking in their clarity. Within the chapters, the subheadings are either marked by a small red square or printed in red letters; this is useful where special student attention is desired. There is an extensive glossary at the back of the book, and the practice—as in previous editions—of giving a chronological development of biology has been maintained. The conclusion of each chapter has a further reading list.

This book should find its way to the desk of every biology teacher. It is likely that most will find it to be a valuable quick reference to many subjects zoological.

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**ATLAS OF INSECTS**, by Michael Tweedie.  
1974. John Day Co., New York. 128 p.  
\$10.00 (hardback).

This beautiful book is about insects around the world. The basic theme is insect distribution as affected by continental drift, glaciation, activities of man, and such present-day isolating factors as water, wind, mountain ranges, and deserts. The first chapter presents the zoogeographical regions of the world and their origins, with a brief look at a few unique insects of each. Most previous works of this type have been concerned with the distribution of higher animals; this publication featuring insects as the central life form is most welcome.

Insects of the Palearctic, Nearctic, Oriental, Ethiopian, Neotropical, and Australian realms are covered in successive chapters. Unique and interesting species of each region are discussed and illustrated. Food habits, distribution, and bits of ecology are presented, sometimes in considerable detail, for the more outstanding insect types. Each realm is illustrated with a colored relief map, overprinted with small black-and-white symbols for the resident insects. A code for the various insect symbols accompanies each map, making it relatively easy to identify and locate a given species. A color code for geographical features is also useful.

The insect faunas of several islands are covered in the last chapter. Numerous interesting species are illustrated and discussed, along with the effects of isolation and strong selective pressures, such as wind, upon the development of different forms and new species. The last two pages of this chapter have a chart of the geographical history of insects.

This book will be a great source of material for teachers of entomology and biology at all levels. Hobbyist-naturalists will find much basic information in the various regional discussions of insect life. Entomologists in virtually