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icated. The line drawings and electron-micrographs are superb.

This is certainly an authoritative volume for electron-microscopists; but it will be of little value to the classroom teacher of high-school biology.

Herbert J. Stoltze
Northeastern Illinois University
Chicago

Textbooks

TEXTBOOK OF ZOOLOGY: INVERTEBRATES, ed. by A. J. Marshall and W. D. Williams. 7th ed., 1972. American Elsevier Publishing Co., New York. 893 p. \$11.00 (hardback).

This is the familiar textbook known as "Parker and Haswell," from its first authors (both deceased). The seventh edition is most comprehensive. The 11 chapters are by such well-known zoologists as J. F. A. Sprent, J. Llewellyn, E. N. Kozloff, G. Ettershank, and R. L. Ghent, among others. Although there are many contributors, the text reads smoothly, thanks to the excellent editing. In each section the morphology and physiology of a representative animal is thoroughly illustrated; and this is followed by a discussion of other members of the group, with their deviations and distinctive features. A scheme of classification is included in each section.

The drawings are copious and excellently done. They truly complement the text rather than serve merely as decoration. The selected reading list and the index are useful. This is an excellent reference work for anyone interested in invertebrates, and it could be adapted, as a textbook, to either a beginning or an advanced course in invertebrate zoology.

Ronald P. Hathaway
Colorado College
Colorado Springs

READINGS IN LIVING SYSTEMS, ed. by Julius S. Greenstein. 1972. Canfield Press, San Francisco. 190 p. \$3.50 (softback).

This collection is meant to supplement the textbook *Living Systems: Principles and Relationships*, by James M. Ford and James E. Monroe. The editor has selected 18 readings; his own contribution, written in jest, is entitled, "Studies on a New, Peerless Contraceptive Agent" and presents an imaginary molecule containing the configuration -NO-NO-NO-. The readings are on a range of topics: molecular biology, ecology, botany, zoology, biologic concepts. Vincent B. Wigglesworth writes well on insect hormones, and there are excellent résumés by Michael Richardson, on upward movement in xylem, and by Ian Sussex, on plant morphogenesis. The oldest date of original publication is 1953 (James Watson and

Francis H. C. Crick, in *Nature*, on DNA); 16 of the readings first appeared in print between 1962 and 1971.

It may still be possible to obtain the nine books from which the selections were taken, and most of the journal articles are commonly available. Therefore a teacher should decide whether to invest in a greater range of supplementary readings, including the ones presented here, by library acquisition of the originals or to choose, instead, this collection.

Daniel F. Burton
Mankato (Minn.) State College

TEXTBOOK OF CYTOGENETICS, by Walter V. Brown. 1972. C. V. Mosby Co., St. Louis. 346 p. \$12.50 (hardback).

The interrelationships of genetics, cytology, and molecular biology are handled skillfully and accurately in this book. For this reason the book could be useful to a much broader group of biology teachers than those who will use it as a textbook in upper-division undergraduate or beginning graduate-school courses.

Brown's generous citation of the literature supports concise, clearly written discussions and interpretations in a manner that identifies points of controversy and alternative explanations (where they exist). In addition, he identifies hypotheses that appear to be based on questionable facts. This is especially evident in chapter 5, which deals with somatic pairing and recombination.

The illustrations are well coordinated with the text; and the inclusion of recent electron-micrographs will be especially helpful to biology teachers in the interpretation of synaptonemal complexes, genophores, etc., which are not considered in the older cytogenetics textbooks. Unfortunately the reproduction of some of the photographs is inconsistent with the overall high quality of the book.

Donald M. Huffman
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Pella, Iowa

LIFE: CONQUEST OF ENERGY, by Richard M. Tullar. 1972. Holt, Rinehart & Winston, Inc., New York. 447 p. \$11.00.

It is a painstaking task to write a biology textbook for nonmajors. Tullar's sincere efforts to reach this group are apparent, and so is his failure to do so. He says, "scientific minutiae and terminology will be kept to a minimum . . ." yet there are quite extensive discussions of biochemical formulas, glycolysis, and protein synthesis. Such elaborate chemistry at the beginning of a textbook surely will "turn off" the reader. Should a nonmajor's priorities lie in the chemistry of photosynthetic light and dark reactions and in the