Reviews

Cell and Molecular Biology

ELECTRON MICROSCOPY AND CELL STRUCTURE, by Michael A. Tribe, Michael R. Eraut, and Roger K. Snook. Basic Biology Course, Book 2. 1975. Cambridge University Press (32 E. 57th St., New York 10022). 115 p. $14.95 hardback, $5.95 softback.

This particular portion of the Basic Biology Course series deals with the fine structure of plant and animal cells as seen through the electron microscope. A good contrast is presented between the magnification and resolution of the light microscope and the electron microscope. The presentation of cellular substructure is purposefully specific and, consequently, may need to be supplemented by a discussion of the function of the cellular organelles. Pictures of electron micrographs fill most pages, allowing the reader to actually visualize the structure of the organelles and their interrelationships.

An outstanding feature of the book is its organization. It is written in a programmed manner with the recommended prerequisite knowledge and behavioral objectives clearly stated at the beginning. A glossary and a list of supplementary readings are included in addition to an index.

Electron Microscopy and Cell Structure would be especially valuable as a supplement to any course on cellular structure. Any student who is interested in electron microscopy would be sure to enjoy and profit from this book. The self-instructional format permits the student to utilize the materials on a totally individual basis. The book may be used by either high school or college students and would be a significant contribution to any reference shelf.

Claudia B. Douglass
Purdue University
West Lafayette, Ind.

LIGHT MICROSCOPY, by Michael A. Tribe, Michael R. Eraut, and Roger K. Snook. 1975. Basic Biology Course, Book 1. Cambridge University Press (32 E. 57th St., New York 10022). 108 p. $14.95 hardback, $5.95 softback.

This college laboratory manual presents a self-instructional program on the components and correct use of the light microscope for examining biological objects. Nine learning objectives are given in the introduction, and a self-assessment test on those objectives concludes the manual. The major instructional topics of the manual concern the structure and operational procedures for light microscopes, the calibration and use of the microscope for measuring size, phase-contrast microscopes and staining as aids to resolution, and stereoscopic microscopy. A fault-finding flow diagram is provided to aid in solving problems encountered in the use of the microscope. A 26-page appendix reviews some practical and theoretical limitations on resolution, including details on interference and diffraction of light waves. The appendix is an optional portion of the program and requires an elementary background in trigonometry and optics.

The problem of making this manual useful with the diversity of microscopes used in college laboratories has been adequately solved by providing cards illustrating five representative makes of microscopes. Throughout the program, biological specimens are prepared for observation and used by the students in gaining experience with the light microscope. These techniques include making wet mounts, staining epithelial cells from the mouth, making squashes of onion root tips, and preparing and staining blood and bacterial slides. Work with the stereomicroscope employs *Drosophila* to observe sexual dimorphism, differences between mutant and wild forms, and as an aid in the preparation of salivary gland squashes.

The manual is clearly written in an excellent format and is profusely illustrated with line diagrams and photographs. British spellings and terms are noticeable but do not distract from the effectiveness of the program. However, proofreaders overlooked several errors and omissions which will inconvenience students. The most conspicuous examples of this are omissions of page numbers which were to refer the student to another portion of the program.

This learning program is well suited for general biology courses at the college level, although it probably includes more detail than is included in most beginning courses. The manual offers a unique and innovative approach to teaching light microscopy. Particular emphasis is placed on microscope calibration and resolution, areas often neglected in curricula. Although this book can be used independent of the remainder of the series, substantial curriculum changes may be necessary to allow time for additional coverage of light microscopy and to coordinate the organisms and techniques studied with those used in other courses. This laboratory manual is appropriate for use in modular teaching units and purchase of the program by students may not always be essential.

John W. Ferner
Franklin and Marshall College
Lancaster, Pa.

Ecology and Environmental Biology

AMERICAN SPORTSMEN AND THE ORIGINS OF CONSERVATION, by John F. Reiger. 1975. Winchester Press (205 E. 42nd St., New York 10017). 365 p. $10.00 hardback.

Implying that scholars have ignored sportsmen or have treated them with

contempt when they recount the history of the development of environmental reforms and conservation achievements in the U.S., Reiger sets about to refute this oversight and injustice in this well documented, well illustrated book. The 150-page text of the book is followed by 75 pages of illustrations, 50 pages of extensive, well-cited notes, 40 pages of selected references, and an index. The book has been thoroughly researched and is well documented, and provides a good basis for a study of the history of conservation activities in the United States.

George Bird Grinnell, editor of *Forest and Stream* magazine from 1880 until 1911, receives plaudits on almost every page. If Reiger's previous book, *The Passing of the Great West*, hadn't been subtitled as a biography of Grinnell, he might well have mentioned Grinnell's name in the title of this book. I don't believe this is a shortcoming though, because, after reading both books, I agree that Grinnell is hero enough to rate two books as well as being the subject of Reiger's doctoral study.

George W. Kelley
Youngstown State University
Youngstown, Ohio

Health

BIOLOGICAL AWARENESS: STATEMENTS FOR SELF DISCOVERY, by D. W. Edington and Lee Cunningham. 1975. Prentice-Hall, Inc. (Englewood Cliffs, N.J. 07632). 242 p. $10.95 hardback.

Designed to supplement science, health, and physical education programs, this book introduces a student to the functioning of his body in an innovative manner. The student is presented a series of statements about the functioning of his body, and each statement is accompanied by a 5-15 minute easily performable exercise designed to enable the student to test the validity of the statement with respect to his own body.

Interpretation of some of the statements and their associated exercises requires the student to apply some knowledge of science; for example, "The source of the chemical energy used for muscular work is dependent upon the intensity and duration of the exercise condition." However, the vast majority are of a more general nature, appealing particularly to someone interested in physical conditioning.

The book would most adequately serve secondary school students interested in health and physical education. To this end the authors discuss in detail their program's relevance to contemporary curriculum models in this field. The book would also be a valuable supplement to any program training health education professionals as trainers or therapists. Many of the exercises can be performed with no need for additional materials or equipment; the remainder require materials and facilities available in virtually every secondary school.

Biological Awareness will provide the interested student with many enjoyable, informative hours of exploring the physiological interactions between his own body and the environment in which it functions. At least one overweight, mesomorphic reviewer who possesses an average risk for cardiovascular disease thoroughly enjoyed her attempts at "self discovery."

Georgia E. Lesh-Laurie
Case Western Reserve University
Cleveland

Related Fields

AMERICAN ASTRONAUTS AND SPACECRAFT, ed. by David C. Knight. 3rd ed., 1975. Franklin Watts, Inc. (730 Fifth Ave., New York 10019). 207 p. $8.87 hardback.

This publication presents a pictorial review of this nation's manned space efforts, from Project Mercury in 1959 through the Skylab missions in early 1974. The remarkable NASA photographs are worthy of anyone's serious study. Excellent colored pictures occupy 16 pages, and the fascinating subject matter helps offset the less than top quality of many of the black-and-white reproductions.

The contents of this book are somewhat disjointed, and neither the photo captions nor the meager accompanying narrative prevent the reader from becoming confused as to which project is being described. This publication is nevertheless a valuable resource for those interested in studying the evolution of the hardware and equipment employed in our space programs. This book contains brief autobiographies of the U.S. astronauts and a very useful glossary of space terms. A 48-page supplement pertains to the Apollo and Skylab missions.

James M. Garner
Office of the Washington State
Supt. of Public Instruction
Olympia

Zoology

KEEPING LIVE CORALS AND INVERTEBRATES, by Robert F. L. Straughan. 1975. A. S. Barnes & Co. (Box 421, Cranbury, N.J. 08512). 228 p. $14.50 hardback.

This book would be sold appropriately in an aquarium shop. The author covers every aspect of aquarium preparation and lists materials needed. Sources for the materials are also named. The first 90 pages concern aquarium set-up and the keeping and collecting of corals. Many of the points are reiterated beyond necessity, and for some readers, reading the captions under the illustrations would be an adequate way to cover the material.

The strength of the book is in its illustrations. The eight color photographs are excellent, and the 192 black-and-white photographs are mostly so.

The book, while primarily devoted to keeping corals, does describe selection, feeding, and care of 25 marine invertebrates, including sea spiders, starfish, sea urchins, sea pens, nudibranchs and several kinds of shelled mollusks, shrimp, crabs, and noncoral coelenterates. There is also a short and helpful section on keeping and selecting marine algae and a longer section on setting up a miniature mangrove swamp.

The author has edited and published the *Salt Water Aquarium* magazine for nine years. It is a shame he did not save some areas of the book for editorial pages of that publication. Some of his views, on having some of the laws repealed which limit or prohibit collection, will not be shared by all readers. Other may question his premise that to keep an animal whose life span is limited in an aquarium is valid, because it is interesting and more practical than bringing the observer to the ocean floor.

While the author has a suggested reading list, he seldom refers to the work of others, and does refer frequently to his own experiences and achievements.