

projects are described and the experiments are routine, it is clearly obvious that the experiments lend themselves to variations by the students. Other books tell you what to do; this one shows how to do it. I recommend the book to every high-school biology teacher.

James C. Horton  
Cal State College  
Bakersfield, Calif.

LABORATORY EXERCISES IN GENETICS, by Gerald James Stine. 1973. Macmillan Co., New York. 287 p. \$5.95.

This excellent manual consists of 16 exercises for the introductory-genetics course. Each exercise has a statement of purpose; a detailed discussion of background information, with references for further reading; the steps of procedure; and data sheets. It is unlikely that all the exercises could be performed during one semester; however, the organization of the manual will allow the instructor to modify or select according to individual preferences. Most students should be able to complete each exercise with a minimum of assistance.

In addition to traditional studies of *Drosophila* and *Neurospora*, a particularly attractive feature is the broad spectrum of topics, including human immunogenetics, human chromosome analysis, transfer of genetic material in *Escherichia coli* conjugal systems, and viral transduction of bacterial genes. Excellent illustrations in both the background reading and the procedures give additional assistance to the student. Five appendices provide information about suppliers, media, and the nutritional requirements of genetic stocks. A glossary makes up the last section. Although no teacher's guide is mentioned, perhaps a supplement is available or is now in preparation.

The manual is strongly recommended as an up-to-date set of exercises that will stimulate and challenge undergraduate students.

Marjorie Behringer  
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LABORATORY TECHNIQUES IN ZOOLOGY, by Roy Mahoney. 2nd ed., 1973. Halsted Press, New York. 518 p. \$21.50 (hardback).

Written as a textbook for a laboratory science course in England, this comprehensive and practical manual will be used by teachers, technicians, and museum curators. The emphasis is on preserving specimens and on research techniques. The longest chapter, "Phylum Technology," describes in detail for each phylum cultural methods; demonstration, fixation, and preservation techniques; and special preparations, such as nematocysts and radulae.

Related chapters, on management of aquariums and vivariums, fluid preservation, injection and corrosion techniques, museum and paleontologic techniques, and preparation of vertebrate skeletons, contain reagent formulas and procedures not easily found elsewhere.

For the researcher, chapters on histologic and embryologic techniques are complemented by introductory chapters on electron microscopy and physiologic techniques. Notable omissions are electrophoresis and chromatography. Practical discussions of the theory, use, and care of specialized equipment, such as light and electron microscopes and microtomes, are provided.

This book is well written and covers a wide range of topics. Excellent diagrams and a bibliography for each chapter add to the value of this reference. Regrettably, only British suppliers of materials and equipment are named, but the American researcher should have little difficulty obtaining recommended supplies or suitable substitutes.

Karen Brelsford  
Columbia, Md.

#### Textbooks

HISTOLOGY AND COMPARATIVE ORGANOLGY: A TEXT-ATLAS, by William J. Banks. 1974. Williams & Wilkins Co., Baltimore. 295 p. \$24.95 (hardback).

Here is an excellent, up-to-date text-atlas intended primarily for students of animal histology and comparative anatomy in colleges and veterinary schools. This book contains 556 diagrams, photomicrographs, and electron micrographs representing most of the cell types of the mammalian body. The book has three sections: on cytology, histology, and comparative organology. These sections cover, in 23 chapters, every important structural and functional aspect of vertebrate tissue and organ systems. Species differences are discussed whenever necessary.

The text is clearly and knowledgeably written, and the arrangement of the chapters is logical. Generally, the photographic reproductions are of high quality—especially those of the electron micrographs. However, the quality of a few of the photomicrographs is poor. Each chapter is self-contained and has its own extensive and up-to-date references. An author index is lacking; however, the book has a valuable and comprehensive subject index. The book is attractively printed.

*Histology and Comparative Organology* could be used in introductory undergraduate and veterinary-school histology courses. It should also be useful, as a reference, to those engaged in teaching and in research.

Shyamal K. Majumdar  
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DISCOVERING THE BASIS OF LIFE: AN INTRODUCTION TO MOLECULAR BIOLOGY, by Ann Roller. 1974. McGraw-Hill Book Co., New York. 280 p. \$5.95 (softback).

This book has the purpose of permitting students, including those with no training in biology or chemistry, to understand the importance of these subjects. The author feels that, because the origin of life, a cure for cancer, and the nature of life, death, and disease are topics of concern to all, they should be mentioned in relation to molecular biology.

Many of the classic experiments, as well as a number of more recent ones, are described in detail. The reader gains an appreciation of the methods, ingenuity, and arduous work of research.

The text concentrates on the structure and function of proteins; DNA-RNA; and genetics. Seven of the 12 chapters are concerned with these three topics.

One of the major attributes of the book is its style. The author (or her editor) has put forth a great deal of effort to make this a readable text. Another good point is the high quality of the photographs, which usually amplify and elucidate the more difficult topics. The only drawback seems to be that many topics are treated too briefly; for example, only a few pages are devoted to cellular respiration and to photosynthesis. This would detract from the use of the book for a course. However, the book would serve very well as a reference enabling students with deficiencies of background to grasp some of the fundamentals of molecular biology.

Dean A. Adkins  
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IMMUNOLOGY, by Harold M. Schmeck, Jr. 1974. George Braziller, Inc., New York. 143 p. \$2.95 softback, \$6.95 hardback.

Schmeck sets out to give an up-to-date review of immunological research and some appreciation of what it all means and why it is ultimately so important. He has participated in seminars sponsored by the National Institute of Allergy and Infectious Diseases, so the seminar findings form the backbone of this short, concise presentation.

The chapter titles—"Immunology, Butterflies, and Blood," for example—are intriguing invitations to such subjects as the Rh factor and passive immunization. The author's excitement about the role of immunology in urgent medical problems, such as cancer, comes across strongly. In the last chapter, "The Many-Edged Sword," he leaves the reader with an eager interest in any new discoveries along the inter-related lines of immunological damage and such afflictions as heart disease,

arthritis, and aging. The reader understands Schmeck's optimism in viewing immunology as the field that may be "lifting the burden of illness from man."

This book is useful either as a reference work or as a short summary of immunology. The glossary and the list of further readings make it especially valuable to a teacher of biology.

Sister Mara Walton  
Sacred Heart Academy  
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**INTRODUCTION TO CHEMISTRY FOR BIOLOGY STUDENTS**, by George I. Sackheim. 2nd ed., 1974. "EMI Programmed Biology Series," Educational Methods, Inc., Chicago. 135 p. \$2.95 (softback).

This popular programmed text, first published in 1966, is designed to help biology students review or learn quickly and efficiently the basic chemistry essential to an understanding of biologic phenomena. This includes atomic structure, isotopes, electron shells, chemical symbols and formulas, ionic and covalent bonding, electrolytes, acids, bases, salts, pH, enzymes, functional groups in organic compounds, carbohydrates, fats, proteins, and oxidation-reduction reactions. The book is well planned and explains concepts clearly. It avoids unnecessary detail.

An insertion between frames 52 and 53 might have clarified the meaning of numerical subscripts in chemical formulas. And, because enzymes are catalysts, frame 139 should contrast enzymes with other catalysts, rather than with all catalysts. These are minor detractions from an otherwise excellent learning program. This book should enjoy even more success than did its predecessor, in introductory-biology courses in high schools and colleges.

Paul G. Jantzen  
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**PHYSICS FOR THE LIFE SCIENCES**, by Alan H. Cromer. 1974. McGraw-Hill Book Co., New York. 509 p. \$11.95.

According to the authors, the purpose of this introductory college, noncalculus physics textbook is "To give students in biology, pharmacy, pre-medicine, physical therapy, physical education, and the allied health sciences the physics background they need for their professional work." The book is organized into five general topics: mechanics, properties of matter, wave phenomena, electricity and magnetism, and modern physics. At first glance this organization of the book misleads one into believing that it is a very traditional physics book. A more detailed examination reveals that the large majority of the examples used in the text and in the end-of-chapter questions deal with the life sciences. The usual

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diagram of a lever has its companion diagram of a human arm; an example of a pulley system includes the rigging of a patient in neck traction. The center-of-gravity illustrations include many examples of human beings and other animals in various positions, illustrating the relationship of their centers of gravity to their general stance. Other interesting examples, throughout the book, are included in the sections on (i) scaling, which discusses the sizes of many animals; (ii) energy, which has a paragraph on metabolism and a very enlightening section on the energy required to run; and (iii) fluid flows, which has an explanation of heart and blood pressure. The gases-and-air sec-

tion discusses the operation of a scuba outfit. The subject of surface tension includes the treatment of water transport in trees, and the topic of evolution is discussed in the area of entropy.

One minor criticism could be raised. The book could better be titled "Physics for the Health Sciences"—as the introductory comment on its purpose suggests. No examples or illustrations are given in the general area of ecology, where applications such as radiation balance, energy flow within ecosystems, and other topics could have been added. Nevertheless, because the examples that are used are simple, straightforward ones that do not require any extensive biologic knowledge, they constitute a