

Book Reviews

• Readers' comments on reviews should be addressed to the Editor.

Biochemistry

INTERMEDIARY METABOLISM AND ITS REGULATION, by Joseph Larner. 1971. Prentice-Hall, Inc., Englewood Cliffs, N.J. 308 p. \$7.95.

On the assumption that biochemistry is the "overlap" between biologic and physical sciences, most introductory courses in biochemistry appeal to a broad spectrum of students. Because of this heterogeneity Larner presents his material in several units that are meant to maintain flexibility—a flexibility that should allow the instructor to develop his course without the use of a comprehensive textbook. In this the author apparently has succeeded: his book is not encyclopedic but it does set forth important principles in some depth.

This book is one of four published by Prentice-Hall on major aspects of biochemistry; the others have to do with (i) molecules and structures found in living cells, (ii) their biologic functions, and (iii) their synthesis and breakdown. Thus, Larner's book is a part of the picture but not the total picture; nor does the author intend it to be other than just this.

I found the book readable and, with the proper science background, understandable. The illustrations are lucid, appropriate, and self-explanatory. And the book is as contemporary as anyone could expect.

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BUILDING BLOCKS OF LIFE: PROTEINS, VITAMINS, AND HORMONES SEEN THROUGH THE MICROSCOPE, by Roman Vishniac. 1971. Charles Scribner's Sons, New York. 62 p. \$6.95 (hardback).

31 beautiful, good-quality color photographs of basic biologic substances—proteins, vitamins, and hormones—make up most of the book. The pictures are of little scientific value; in Vishniac's words, "Rather they demonstrate the startling similarities between living cells seen through an interference microscope and the canvases of an abstract painter." In taking these photographs Vishniac has expressed himself more as an artist than a scientist.

The short text gives an historical sketch of the study of proteins, vita-

mins, and hormones as well as some interesting bits of information about them. A short bibliography is included.

Abstract-art enthusiasts should enjoy this book; so should biologists who happen to like abstract art.

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Botany

AN ILLUSTRATED STUDY GUIDE TO PLANT BIOLOGY, by James W. Geis and John Morrison. 1971. Burgess Publishing Co., Minneapolis. 150 p. \$4.95 (softback, spiral-bound).

This manual lends itself to a one-semester introductory course in which both innovative and traditional teaching methods are used. Each of the 14 subject units represents one week's work. Some units may be taught by autotutorial methods; others may be taught by traditional laboratory methods. The manual could, however, be adapted to a course in which autotutorial methods are used for the entire course.

Modification and substitutions of materials will be necessary in those parts of the country where suggested materials are not conveniently available or where they are unfamiliar to students. There is a good selection of drawings and other illustrations; from them, students can identify structures and record observations of processes.

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PLANT ANATOMY: EXPERIMENT AND INTERPRETATION, PART II, by Elizabeth G. Cutter. 1971. Addison-Wesley Publishing Co., Reading, Mass. 349 p. \$7.95 (softback).

This second part of a two-part series by Cutter concerns the organs of plants. (Part I [1969] dealt with cells and tissues.) The book is printed on good paper; the illustrations, including the electron micrographs, are sharp, with clearly labeled parts; and the text is augmented by well-chosen graphs and line drawings. Cutter's style is lucid. The bibliography, including 589 items referred to at appropriate places in the text, is most useful and up-to-date. A list of major books for additional reading is included. I found the index quite detailed and useful.

The book is conventionally divided into discussions of the major organs of

seed plants. It differs from most current anatomy textbooks in having much more emphasis on the development of organs; at the same time the description of mature structures is not slighted. One of the best features is Cutter's frequent reference to experimental studies supporting and adding interest to her accounts of structure in relation to function in the treatment of organogenesis. The role of auxins and growth regulators is often brought into the discussion of stem, leaf, and root development and maturation. Factors affecting cell division and differentiation during organ formation are discussed in detail. One of the last chapters treats of plant embryos; although too brief, this is an important part of the book because we have so little, in collated form, on embryogenesis and embryo structure since the work of Maheshwari in 1950. The instructor will be interested in the outlines of experiments, adapted for class use, on the control of cambial activity.

This refreshingly modern, relatively inexpensive treatment of plant anatomy should be attractive to biology teachers and to students of structural botany. It appears to be intended for the beginner, but there is much information and interpretation of value to the serious student of anatomy.

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TREES: STRUCTURE AND FUNCTION, by Martin H. Zimmerman and Claud L. Brown, with a chapter by Melvin T. Tyree. 1971. Springer-Verlag. New York. 336 p. \$18.50.

The authors define the book's scope as "devoted largely to those aspects of structure peculiar to trees." They state that processes basic to all green plants are left to textbooks on biochemistry and on general plant physiology. The preface also states: "This text emphasizes the relationships between structure and function." The book is thus defined as covering developmental anatomy and growth physiology in trees and the anatomy and physiology of translocation. Within these limits, the book is successful.

Of the seven chapters, three, by Brown, are on aspects of growth. The descriptions of primary growth of vegetative stems and roots are succinct and accurate. The descriptions of secondary growth are somewhat more detailed. There is good coverage of experimental anatomy. Brown's discussion of experiments on the effects of plant hormones on growth and his deductions about the role of hormones are sufficient to support an understanding of developmental anatomy of stems and roots.

Zimmerman's three chapters are on transport in phloem, transport in xylem, and storage and transport of assimilates. He has written very clear