

Book Reviews

Cell and Molecular Biology

CELL BIOLOGY: STRUCTURE, BIOCHEMISTRY, AND FUNCTION

by Phillip Sheeler and Donald E. Bianchi. 1980. John Wiley and Sons, Inc. (One Wiley Drive, Somerset, New Jersey 08873). 594 p. \$22.95 hardback.

The intent of the authors to write a text for junior and senior level courses in cell biology, molecular biology, and cellular physiology has been admirably met. It is too difficult for a classroom text for advanced biology classes at the secondary level, but it could serve very well as a comprehensive resource book for teachers and students in these classes. The book is well written and covers all aspects of cell biology: cells and growth, molecular constituents of cells, cell metabolism, and the structure and function of organelles.

The most refreshing aspect of this book is the three chapters on research techniques and instrumentation. The authors recognize that rapid advances in cell biology are often paced by the development of sophisticated instrumentation and research techniques. I applaud the authors because no student can fully appreciate cell biology without some minimal understanding of the tools of biology. These chapters describe cell fractionation, electrophoresis, chromatography, and the use of radioisotopes. Some theory and application are also presented. However, I was disappointed that Rosalyn Yalow's work in the application of nuclear physics in chemical medicine through radioimmunoassay was not mentioned. I trust that any future editions will include her pioneering work.

A strong point of this book is the quality and quantity of illustrations. Both schematic diagrams and electron micrographs are used skillfully to support the text. Students will find these helpful in understanding many of the concepts and principles explained. Although the authors recommend a stereo viewer for some illustrations, I found only three illustrations that used stereoscopic pairs. This is hardly worthwhile.

The reference sections at the end of each chapter were weak. Most of the articles and reviews cited were from *Science*

and *Scientific American*. A greater variety of source material would provide the student and teacher with the flexibility to meet individual class needs. In some cases, key references were omitted. For example, the chapter on enzymes did not include classic references such as Dixon and Webb's book *Enzymes* (1964) and Lineweaver and Burk's paper in the *Journal of the American Chemical Society* (1934).

The social aspect of modern cell biology is noticeably absent. Only four paragraphs were devoted to recombinant DNA technology, with only passing reference to the social implications. Radioisotopes are classified in one table according to their "degree of hazard to the investigator if accidentally ingested." A concluding chapter on the social impact of cell biology is needed.

In general, this book is well written, well illustrated, and comprehensive. Its description of research techniques and instrumentation is particularly good. Although it is weak in some areas, it would be an excellent reference book for both teachers and students in advanced biology courses at the secondary level, and as a classroom text for undergraduate cell biology courses.

Vincent J. Cusimano
Susan E. Wagner High School
Staten Island, New York

Ecology

AN INTRODUCTION TO THE BIOLOGY OF MARINE LIFE

by James L. Sumich. 2nd ed. 1980. William C. Brown Company (2460 Kerper Boulevard, Dubuque, Iowa 52001). 359 p. Price not given.

This is a book for the biology student in which no previous knowledge of marine biology is assumed; yet a general exposure to the basic concepts of biology would be helpful.

The text presents two chapters of an introduction to the marine environment and its inhabitants. Then, with a well-defined sequence, the author surveys marine animals and the plant-animal relationships in varied environmental situations.

The structural or physiological adaptations that are present to help the living

organisms fulfill their roles rounds out this text. The author does present his perspective of human intervention in the marine ecosystem.

The chapter summaries and questions for discussion seem appropriate and helpful. Key technical terms are printed in bold type in addition to being defined in the ample glossary in the back of the book.

For the student and teacher, this book would be valuable for the secondary school science elective course or collegiate survey course.

Robert D. Littlefield
Oxford Hills High School
South Paris, Maine

Genetics

STUDYING GENETICS

by David E. Newton. 1980. J. Weston Welch, Publisher (Box 658, Portland, Maine 04104). 30 p. \$9.50.

Studying Genetics is a series of twenty-six individual spirit masters that covers a wide spectrum of genetic topics ranging from a history of genetics through Mendelian concepts to more advanced ideas such as epistasis and chromosome mapping. The set is primarily designed for high school biology, although some of the contents could be utilized at the college level. *Studying Genetics* would be excellent supplementary material to normal course work. The masters could be used to prepare worksheets for individual students, transparencies for general class use, or quizzes over selected genetic topics. This series is not intended to be used as a self-instructional tool, for an understanding of certain background information is essential before many of the exercises can be attempted. Not all of the sheets need be used by the instructor in teaching a genetics unit. Certain ones could be selected that complement a particular approach or content in any sequence desired. The series is neatly done, diagrams are used to a limited degree, which certainly aids student interest, and the price is attractively low enough to meet the approval of most administrators.

Lawrence Fauque
North Toole County High School
Sunburst, Montana