

The material is knowledgeably written and attractively printed with over 250 micrographs, and numerous other photos, plus detailed summaries and superb study guides at the conclusion of each chapter. Each section is amply illustrated with excellent electron micrographs, drawings, charts, and tables that explain the structure and function of cells.

However, the summaries at the end of each chapter tend to be too detailed and redundant of the material within the chapter itself. Unless the student has a good background in general chemistry and some introductory background in biochemistry, the chapters dealing with "Membranes and Macromolecules" (chapter 2), and "Bioenergetics and Cellular Homeostasis" (chapter 3), would be difficult to digest. Therefore, there are some technicalities in degrees of difficulty of the chemistry material, although the author has simplified the chemistry from the earlier edition. The remainder of the text is less difficult for students to comprehend as it is devoted to structure and functions of cells, processes of genes and their regulations, protein synthesis and secretion, membrane transport, and cell division, to mention a few.

Because of the rigor of the chemistry material this book would better serve advanced courses in high school biology, and introductory or allied courses of college general biology, or cell biology.

Shirley A. DeFilippo  
Ellsworth School  
South Windsor, Connecticut

## CELL BIOLOGY

by John Kimball. 2nd ed., 1978. Addison-Wesley Publishing Company (Reading, Massachusetts 01867). 429 p. Price not given.

This textbook for introductory study of the biology of cells is well organized, clearly written, and amply illustrated. Beginning with the chemical composition of cells, the book takes its readers through organelle composition, metabolism and photosynthesis, leading into cell reproduction and genetics. It concludes with a chapter on mechanisms of immunity.

Each topic is treated in enough depth and with appropriate references to the critical observations leading to the principles presented that students should have a comprehensive understanding of the foundations of cell biology. The concept of molecular and protoplasmic structure is built on the role of electrons in the formation of chemical bonds and their activity in giving molecules electronegativity. Electron activity is also the basis of the presentation of the mechanisms of respi-

ration and photosynthesis. Structure of the various organelles is neatly tied into their cellular functions. The explanations of the synthesis of proteins and nucleic acids, and photosynthesis are current but not exhaustively presented. The genetics section appropriately integrates nucleic acid and protein synthesis and Mendelian, microbial and developmental genetics. The concluding chapter introduces concepts of the immune response, which provide a suitable conclusion to the book, particularly the preceding section on genetics.

Enzymes are described in relatively general terms including the effect of inhibitors. One might wish that a more specific treatment of enzyme kinetics including the Michaelis-Menton and the Lineweaver-Burk models was included. This edition of the textbook is a welcome addition to readings that support introductory cell biology courses. It avoids a highly technical presentation that makes many textbooks written for this level unacceptable.

Donald L. Wise  
The College of Wooster  
Wooster, Ohio

## THE CELL

by Carl P. Swanson and Peter L. Webster. 4th ed., 1977. Prentice-Hall, Inc. (Englewood Cliffs, New Jersey 07632). 304 p. \$12.95 hardback, \$9.95 softback.

Now in its fourth edition, this widely acclaimed text expands on the latest experimental research of our day, not by adding two or three chapters at the end of the book, but by incorporating new material into each chapter thereby proving that the authors are correct in stating that "the cell is the basic unit of organization." These ideas are exemplified by stressing the biochemical aspects of cell growth; presenting an excellent exposition of mitosis and meiosis; exploring the cell's structure and function; describing the processes by which the cell manipulates matter and transforms it into energy. The organization of this edition into eleven units makes this a flexible tool in the hands of the teacher. The last chapter presents a comprehensive picture of the evolution of the cell.

The text is lucidly written. There are several features that make for clarity, such as large, clearly labeled diagrams, explanatory tables and electromicrograph illustrations, all with the legends in blue type, which further stresses the importance of the item.

At the end of each chapter is a very complete bibliography. Appendix A deals with the textbooks and mono-

graphs; Appendix B names reviews; and Appendix C, journals, all of cytological interest. Unfortunately, no glossary is included.

This text is attractive, readable, and relevant and will be an invaluable source of information for students.

Sister Ignatia Marie  
Newark Catholic High  
Newark, Ohio

## BASIC CELL BIOLOGY

by Charlotte J. Avers. 1978. D. Van Nostrand Company (450 West 33rd Street, New York 10001). 369 p. Price not given.

The author states the book has been written for introductory courses in cell biology, for which students possess minimal backgrounds in biology and chemistry. I find this designation confusing; introductory courses in biology, at least at the high school and community college levels, do not usually encompass the specialized treatment of cellular and molecular biology. Furthermore, cellular biology without prerequisite chemistry will doubtless pose severe problems to the student who attempts to understand scholarly treatments of membrane mechanics, cellular metabolism, enzyme kinetics, electron transfer, protein synthesis, cellular genetics, photosynthetic mechanisms and cytochemistry in general.

The textbook begins with an extensive introduction to cellular life; organization, historical background, microscopy, structural and functional units of the cell, and evolutionary relationships.

Next follow chapters related to cellular structure, function and regulation in terms of how organic molecules, cellular energetics, enzymes and membranes contribute to the life of the cell.

After laying the foundation, the remainder of the book deals with systems for energy transformation, packaging of cellular protein products, cellular movements and molecular and subcellular control over reproduction. The chapter on cellular chemistry is particularly well illustrated with many appropriate structural formulas. The enzyme chapter provides a most up-to-date treatment. Considerable detailed information is provided in the chapters on cellular packaging (ER, Golgi apparatus, lysosomes, microbodies, muscle fibers, centrioles, cilia and flagella).

Cellular genetics aspects (DNA, RNA, ribosomes and protein synthesis) are treated in a highly technical but lucid fashion in chapter eight.

Chapters 9 and 10, on the nucleus and cellular reproduction, complete the cur-