

Book Reviews

Michael Emsley
Department Editor

MICROBIOLOGY

THE MICROBES: AN INTRODUCTION TO THEIR NATURE AND IMPORTANCE

by Paul J. VanDemark & Barry L. Batzing. 1st ed., 1987. The Benjamin/Cummings Publishing Co. (2727 Sand Hill Road, Menlo Park, CA 94025). 928 pp. \$39.95 hardbound.

This textbook is designed to provide a balanced treatment of general and medical microbiology, and general applications for the microbiology major. It should be noted that it was written for students with a background in biology and chemistry at the undergraduate or beginning graduate level. As such, little time is spent reviewing the basic concepts in these areas.

While the text was written for a one semester or a one quarter course, there is too much material for a single term. Each topic is given thorough treatment with the material organized in a traditional manner and the prose in a readable style. Each chapter is followed by questions and a list of selected readings on the topic. A generous glossary near the end of the book introduces new terms in bold print.

The book is organized into seven distinct parts. The first, "Introduction to the microbes," reviews the history of microbiology, surveys the range of microbes, compares eukaryotic and prokaryotic cells and summarizes prokaryotic structure. The second, "Microbial growth and metabolism," is a well organized treatment of growth requirements, cell growth, respiration, fermentation, photosynthesis and biosynthesis. Part three, "Prokaryotic genetics and microbial control," reviews transcription, translation and mutation before considering types of prokaryotic gene transfer. Part four, "The microbes," is a taxonomic consideration of all the major groups of microorganisms. Part five, "Medical microbiology," considers various aspects of disease and includes two

chapters on immunology. Part six, "Environmental and applied microbiology," covers microbial ecology, pollution, food and biotechnology. Part seven, an epilogue, gives a brief statement of the current status of microbiology and a look into the future.

This is a good, well rounded text providing a traditional, yet comprehensive look at microbiology. It is well organized and remarkably easy to read and understand. A multitude of figures and tables abound throughout.

Those of us in microbiology are fortunate that there are many good comprehensive microbiology texts from which to choose. This one is good enough to be included among the best.

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MARINE LIFE

THE YEAR OF THE CRAB: MARINE ANIMALS IN MODERN MEDICINE

by William Sargent. 1987. W.W. Norton and Co. (New York). 180 pp. \$14.95 hardback.

Marine animals have long been studied as sources of information about the anatomy and physiology of higher organisms. The evolutionary adaptations of such animals as the horseshoe crab offer insight into the secrets of the human body. Discoveries in this field have led to breakthroughs in biomedical technology.

This book examines, in an entertaining narrative form, the situations and habits of various marine life forms, as well as their individual and collective contributions to the world of medicine. Each chapter is a story tracing the events of a day or week or month in the life of a marine animal through the course of one year. Each season yields new and exciting discoveries as the history of the evolution of biological medicine unfolds.

I strongly recommend this book to marine-lovers and biomedical researchers alike. The narrative is as captivating as the scientific breakthroughs are fascinating. The author poses questions throughout that make the reader ponder such problems as why the dinosaurs became extinct and leaves us with a brief outlook on the future.

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ECOLOGY

TERRESTRIAL PLANT ECOLOGY

by Michael G. Barbour, Jack H. Burk & Wanna Pitts. 2nd ed. The Benjamin/Cummings Publishing Co. (2727 Sand Hill Road, Menlo Park, CA 94025). 634 pp. \$39.95 hardback.

Terrestrial Plant Ecology is the 2nd edition of a book primarily intended for use as a college-level textbook, and organized into four major parts (Background and Basic Concepts, The Species as an Ecological Unit, The Community as an Ecological Unit, and Environmental Factors) and 20 chapters. It does an outstanding job of covering a broad range of concepts and theories in the field of plant ecology, and includes explanations about sampling techniques and equipment used in the field.

The second chapter is a brief review of the history of plant ecology, which is built upon throughout the book as the authors are careful to establish correct historical and philosophical perspectives for the major areas of research. For example, Chapter 8 (Community Concepts and Attributes) begins with an expansion from Chapter 2 of the comparison between the "organismic" and "individualistic" views about the biotic community. A modern synthesis of these views based on current research is given in Chapter 11 (Succession).

As a reflection of modern plant ecology, much of this book is concerned with the ecological significance of physiological plant processes. Chapter 15 (Photosynthesis) provides a very basic review of C₃, C₄ and

Michael Emsley is editor of the Book Review section of *ABT*. He is professor of biology at George Mason University and sits on the editorial board of the George Mason University Press. Emsley, who holds a B.S. and Ph.D. in zoology from the University of London, is an insect taxonomist currently working on a project to identify and classify a genus of katydids found only in Central and South America. The project, begun in 1958, includes examining the sound producing mechanism of the insects. Emsley is the author of *Butterfly Magic*, *Insect Magic* and *Cloudforests and Rainforests*. His address is: **Biology Department, George Mason University, Fairfax, VA 22030**. This month's book reviews were obtained by the previous department editor.