

Reviews

Botany

ONE THOUSAND AMERICAN FUNGI, by Charles McIlvaine and Robert K. Macadam. 1973. Dover Publications, Inc., New York. 791 p. \$6.50 (softback).

It has been 72 years since this book was originally published and it has stood the test of time. No other single volume has proven to be as useful to the field biologist, the amateur mushroom hunter who hunts for the pleasure of the find, or the Julia Childs of American cooking. Based on general usefulness and the recent rekindling of interest in the natural, Dover has republished this book in paperback and added a table of nomenclatural changes.

Still present are the clear, concise descriptions of species accompanied by excellent drawings. The 31 pages of color plates are well reproduced and a valuable asset to the user. The chapters on "Toadstool Poisoning and Its Treatment" and "Recipes for Cooking and Preparing for the Table" remain useful to both the experimental and the practiced connoisseur. Perhaps the most useful feature of the book is the glossary. Terms are defined in a clear and concise manner. The greatest tribute one can pay a book such as this is to say that it will be useful not only to layman but to the professional mycologist. This is just such a book.

Dover claims that this edition, although softback, will also stand the test of time. The paper is opaque and has little show-through, and the claim is made that it will not discolor or become brittle with age. If so, this volume is indeed a bargain at the price and has more than earned a deserved place on the shelves of high school and college libraries.

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FUNGI THAT DECAY PONDEROSA PINE, by Robert L. Gilbertson. 1974. University of Arizona Press, Tucson. 207 p. \$9.50 softback.

Most useful to the forest pathologist and professional mycologist, this book could serve the general biologist or botanist as an occasional reference for the identification of wood-decaying fungi or

the morphology (illustrated) of microscopic structures within the basidiocarp. Each of the 228 species is accompanied by beautiful line drawings of hyphae, basidia, spores, and often cystidia and an adequate technical description. Dichotomous keys separate the orders, families, genera, and species. Also included are a section on materials and methods, a checklist of Basidiomycetes that decay Ponderosa pine in Arizona and Mexico, a glossary, a bibliography, and an index of scientific names. The book would be of very limited usefulness in high schools.

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Cell and Molecular Biology

INQUIRIES INTO BIOLOGY: THE CELL, by H. Murray Lang, Edwin G. Palfery, and Ed L. R. Van Nieuwenhove. 1974. Macmillan Co. of Canada, Toronto. 43 p. \$2.75 softback.

Although part of a series, this book stands by itself as a laboratory block on cellular biology. It can be used at the high school level or as a self-instruction book for junior high students who are given some help with vocabulary.

Beginning with the history of cellular biology, the book covers the usual topics, such as osmosis and active transport, but goes beyond most high school textbooks on the subject to devote a part of its coverage to those organelles that can be examined only through electron micrographs. This section is prefaced by a chapter on interpreting electron micrographs. The book blends an understanding of physical processes with biological ones.

Necessary reading is minimal; the emphasis is on doing. Each of the "Inquiries" is self-explanatory and students should be able to proceed at their own rates with a minimum of teacher direction. The inquiries include the usual type of exercise, such as looking at onion cells and human cheek cells, and a good exercise explaining resolving power is also included. The use of controls and other aspects of good scientific methods are emphasized along with the use of the metric system.

The only weakness of the book other than the somewhat traditional treatment of the topic is its question section

at the end of each chapter. The titles "Questions To Test Your Understanding" and "Research Problems" are misleading. Over half the questions in the former test factual knowledge and the latter are, for the most part, questions that require application or synthesis of information rather than research.

The book is attractively and adequately illustrated. Its price is in line, although durability in a laboratory situation might be questioned. It can be recommended as a laboratory block for self-instruction or class use on basic cell biology.

Barbara Ferrell
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INTRODUCTION TO MOLECULAR BIOLOGY, by G. H. Haggis. 2nd ed., 1974. Halsted Press, New York. 428 p. \$8.95 (softback).

This second edition is a thorough revision; many sections and chapters have been rewritten in an understandable fashion. The organization and approach of the book is logical. To explain the concepts of molecular biology, the author has included discussions of a number of classical experiments as well as many modern techniques with explanations of difficult and confused materials and very useful diagrams, electron photomicrographs, and charts.

The book has ten chapters and four appendixes. Chapter 1 deals with basic processes and functions of cells, cell organelles, and cellular components. Chapters 2 and 3 describe structures of protein molecules, protein component of viruses, and various structures of the body and mechanisms of protein function. Chapter 4 discusses the molecular models and molecular mechanisms of the permeability of the cell surface. Recent knowledge from biochemical investigations and electron microscopy is utilized. Chapter 5 provides an eloquent discussion on the structure and function of most of the cell organelles. The classical and modern discoveries in genetics are included in chapter 6. The chemical nature of genes, structure and function of nucleic acids, and nucleoprotein and protein synthesis processes are given in chapters 7 and 8. Chapter 9 is devoted to normal and abnormal hemoglobins, sickle-cell anemia, and the evolution of proteins. The evolutionary changes of cytochrome *c* are discussed

in detail in this chapter. Chapter 10 discusses control of protein and nucleic acid synthesis. The section on genetic studies with the tumour viruses is fascinating.

The text is written clearly and knowledgeably which makes this an interesting readable book. The author has updated the material and included important recent developments in molecular biology. The text is suitable for introductory undergraduate courses in cell biology and molecular biology. It can also be used as a supplementary reading book in introductory biology, biochemistry and genetics courses.

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Ecology and Environmental Biology

INTERDISCIPLINARY ENVIRONMENTAL APPROACHES, ed. by A. E. Utton and D. H. Henning. 1974. Educational Media Press, Costa Mesa, Calif. 256 p. \$8.95 softback.

The National Environmental Policy Act of 1970 requires that all agencies of the federal government utilize a systematic interdisciplinary approach that will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and decision-making that may have an impact on the environment. Efforts to meet that requirement should be aided by this work. In listing the special features of the book, the publishers point out that it presents the largest collection of environmental theory by disciplines to be found under one cover, contains essays designed specifically for this project rather than reprinted articles, emphasizes the theme of resource rehabilitation, and contains suggestions toward environmental planning in over 20 academically related areas.

The average student or teacher of high school biology will not find this work easy to read, but the more than adequate credentials of the editors and authors indicate that this may serve as a useful reference.

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EXPERIMENTAL MARINE BIOLOGY, ed. by Richard Mariscal. 1974. Academic Press, New York. 377 p. \$18.50 hardback.

This book will be of the most value to the collegiate community. However, the secondary school teacher will find the first chapter, which delves deeply into the establishment of closed system marine aquariums, very helpful. The

text is divided into seven chapters, each one a complete unit produced by independent contributors. Except for the first chapter, there is no interdependence among the other chapters, each one being applicable to special investigative procedures. These sections cover a broad spectrum of experimental approaches. Several of the chapters would of necessity be limited to schools in coastal areas (for example chapter 2 "Field experiments in marine ecology" and chapter 3 "In situ approach to marine behavioral research"), but this should not deter other colleges from the purchase of the book since the remaining chapters cover comparative physiology; comparative endocrinology; comparative biochemistry; toxicology; and developmental biology (the latter dealing in part with algae).

If the funds are available to follow the thorough installation and maintenance instructions of chapter one, the inland university would have a welcome opportunity to contribute to the burgeoning field of marine biology. Very few, if any, secondary schools would have either the money or the equipment necessary for most of the experimental work.

This is an interesting compendium of the various areas of experimental marine work ranging from miniaturized electronic tracking to scanning electron microscope studies. Probably the greatest general value of the book would be the extensive (8-14 pages per chapter) bibliography at the end of each chapter. Although interesting to the general reader in the field, the book is intended primarily for the serious researcher.

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WILDERNESS AREAS OF NORTH AMERICA, by Ann and Myron Sutton. 1974. Funk & Wagnalls, New York. 394 p. \$10.00 hardback.

Every individual who enjoys the out-of-doors without the internal combustion engine should own this book. The authors have attempted to catalogue and describe areas in North America where outdoor enthusiasts can participate in a wilderness experience through climbing, backpacking, hiking, canoeing, or cross-country skiing. The 500 areas are scattered from the Arctic Circle to Panama and include swamp, forest, desert, tundra, prairie, and ocean floor.

The descriptions are concise, averaging less than a page, and include information not readily available from other sources. Plant and animal species for which the area is noted are given, along with references to the geology and climate. Hazards that may be encountered and special equipment that will be needed are also listed. Because the areas range from national parks to

private lands, regulations and restrictions for use of the sites are described. Towns where tourist accommodations may be found are named and the mileage to each is given.

The average reader will not wish to read this book from cover to cover but will use it as a reference. If, however, he does choose to read it in its entirety, he will come away with the feeling that there is hope for the preservation of wilderness experiences for posterity. If he wishes to keep track of the areas he must see before he dies he will find, by being very selective, that he might complete the list if he lives to be 153.

It is obvious that the authors could not collect all of the information personally, but the information from these areas has been verified by local authorities. The continuity is good, and in the accounts actually experienced by the authors a feeling for the environment seems to leap from the pages.

The book is organized according to geographic regions with a crude map of each at the beginning of the specific section. The index, organized according to the names of the wilderness area, is complete, but no subject index is included. There are 88 black-and-white pictures of the areas and species described.

The most valuable gem of information in all but a few accounts is the address from which maps and more information can be obtained. There have been times when I would have given twice the price of this book for just one of these addresses.

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PEST CONTROL, by Arthur Woods. 1974. Halsted Press, New York. 409 p. \$29.50 hardback.

Although arthropod pests are emphasized, essentially all known agricultural and health-related pest groups, from viruses to vertebrates, are considered in this comprehensive treatise. The ecology of pest species is covered very nicely at the outset and most of text that follows is devoted to enumerating a multitude of control methods with a bit of history as well as the economic and ecological considerations of each method with respect to each pest group. Case histories are amply and appropriately interspersed in the text. More space is devoted to biological than chemical or other methods of control, but the last chapter presents a rather compelling argument for "integrated control"—the rational use of all the appropriate controls orchestrated in such a way as to effect maximum control with minimum economic or environmental stress.

The book is interesting and very well written but the general reader or non-specialized undergraduate would likely be discouraged in places by the tech-