

volving numerous loosely interwoven authors. This last point also markedly enhances its use as a general text.

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PINE BARRENS: ECOSYSTEM AND LANDSCAPE

by Richard T. T. Forman, ed. 1979. Academic Press (111 Fifth Avenue, New York 10003). 601 p. \$39.50.

This is an attractively printed and illustrated survey by 43 authors in some 33 chapters of the remarkable 2,000 square mile forest in New Jersey. Dedicated to the memory of Murray F. Buell who organized the ecology programs at Rutgers, this text describes the features of the Pine Barrens in seven sections: "People;" "Geology and Soils;" "Climate, Water, and Aquatic Ecosystems;" "Vegetation Patterns;" "Plants;" "Animals and Animal Communities;" "Conclusion."

Naturalists, ecologists and environmentalists should find this text a valuable resource for teaching and research.

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Microbiology

MICROBIOLOGY OF FOODS

by John C. Ayres, J. Orvin Mundt, and William E. Sandine. 1980. W.H. Freeman and Company (660 Market Street, San Francisco 94104). 707 p. \$19.95

This is a comprehensive book with the purpose of outlining the harmful and beneficial microorganisms found in food. The book is divided into four parts. Part One consists of an introduction to the classification of microorganisms and a description of non-microbiological methods of preserving foods. Part Two deals with the process of fermentation as a means of preservation and the production of enjoyable types of foods and beverages. Part Three discusses the microbiology of many specific groups of foods. Included in this section is detailed analysis of such food groups as poultry, dairy products, fish and shellfish, fruits and vegetables, cereals, and condiments. Part Four describes food borne illnesses and intoxicants.

Throughout the book key and technical terms are made conspicuous by the use of boldface type. The authors do a good job of using explanatory tables

and figures when needed. For example, the chapters on alcoholic fermentations have well-placed diagrams that aid the reader in understanding the technology of the various processes described. Another useful feature is the inclusion of references at the end of each of the twenty-three chapters.

This book certainly contains a wealth of interesting information concerning the microbiology of a great variety of foods. It also does a respectable survey of the organisms responsible for food borne illness. Includes in this section is a fair coverage of illnesses caused by protozoans and helminths.

This textbook would be suitable for use in a course at the advanced undergraduate or graduate level in food microbiology. I would also recommend it as a reference book for the college or secondary library of classroom. With its wealth of usually hard to locate information, the book could serve as a useful resource.

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INTRODUCTION TO MICROBIOLOGY

by Dean A. Anderson and Rodney J. Sobreski. 2nd ed., 1980. The C.V. Mosby Company (11830 Westline Drive, St. Louis, Missouri 63141). 518p. \$16.95.

This textbook is designed for students with minimal chemical background. As such, it is weak on metabolic aspects. However, much of the classical microbiology did (and does) not use a great deal of the chemical knowledge of intermediary metabolism, and it is rather interesting that the book can do a fair job explaining molecular biology and microbial genetics without any extended reference to the chemistry of the substances involved. Indeed only about 40 pages are devoted to these subjects. About 150 pages are devoted to the nature, cultivation, and identification of microorganisms including viruses. About 40 pages are devoted to microbial control and chemotherapy. About 100 pages take up applications of microbiology—water sewage, foods, dairy products, industrial applications, soil, and air. About 120 pages focus on infectious diseases, including those caused by protozoa and fungi. It is doubtful whether the text will be used in larger universities partly because of its lack of the chemical or molecular biological approach, and partly because the applications of micro-

biology which once constituted a large part of the subject, are mostly ignored in university courses. For a second level course, without pretensions to being the very best in its field, however, the Anderson and Sobreski book could prove useful.

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MICRO-ORGANISMS: FUNCTION, FORM AND ENVIRONMENT

by Lilian E. Hawker and Alan H. Linton, eds. 2nd ed., 1979. University Park Press (233 East Redwood Street, Baltimore, Maryland 21202) 391 p. \$19.95.

This is a college-level textbook whose avowed "...aim is to survey the whole field of microbiology in a manner... useful to students and specialist workers." Obviously, within the pages allotted, this ambitious task could not be accomplished without some compromising.

The life cycles of algae are disposed of in 112 words; resistogram typing is presented cryptically and without referral. However, both subjects are mentioned succinctly, even provocatively.

The book is divided into 16 chapters, devoting almost equal space to the physiology, the morphology, and the ecology of microorganisms. As evidence of the number of topics considered, there is an index listing more than 3,000 items. Of the 350 references cited, about 44% were published in the 1970s.

The book bristles with facts, very precise facts, very well-ordered facts. The writers are authoritative without being Olympian and confident, although properly cautious, in presenting current theories and information. The contributing authors are British-based, but neither parochial axes nor nationalistic mannerisms that might restrict widespread use of the book are apparent.

In summary, the editors have prepared a physically pleasing, coherent, cross-referenced work. *Micro-organisms* is neither a definitive nor an exhaustive volume, but it is encyclopedic, trenchant, and cogent. It is not a "self-help" book; it requires a teacher's direction, emphases, and elaboration. It is a book that would be a solid concordance for a first course in general microbiology where the teacher plans to pursue specific topics in detail and desires the student to have in hand an eclectic, up-to-date overview of the field.

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