

# Book Reviews

• Readers' comments on reviews should be addressed to the Editor.

## BOTANY

ALGAE, MAN, AND THE ENVIRONMENT, ed. by Daniel F. Jackson. 1968. Syracuse University Press, Syracuse, N.Y. 560 pp. \$18.00.

This book consists of 27 papers presented at an international symposium, sponsored by the New York State Science and Technology Foundation and Syracuse University, to explore ways in which algae can be used by man. In the realm of basic research, the emphasis is on algal physiology; in the realm of applied research, on the control of the eutrophication process.

The book is divided into three parts. The first, and most extensive, section has to do with the basic aspects of phycology. The excellent paper by R. W. Hoshaw on the biology of the Zygnemataceae typifies the broad coverage of this section. The second section introduces the applied aspects of phycology. Control of eutrophication is treated in five papers, two of which deal with virus diseases in the Cyanophyceae and with algicides in general. The main trends in experimental work with algal cultures in the U.S.S.R., presented by B. V. Gamov, has one of the most extensive and valuable bibliographies in the book. A consideration of algal toxicity in animals cites natural and experimental episodes. Algal toxicity in humans is more briefly considered. Accounts of research in soil phycology and estimates of the economic potential of using algae as livestock feed complete this section. The last section is devoted to specific algal studies in New York state.

Without exception the papers are concise, current, and extremely readable—though technical and therefore presumptive of familiarity with the specific topic. As a reference source, this book is recommended. Students of nonvascular plant morphology will find current summaries of the status of certain aspects of phycologic research. Environmental engineers and biologists concerned with the aquatic environment will also find the book useful.

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THE STUDY OF BOTANY, by Preston Adams, Jeffrey J. W. Baker, and Garland E. Allen. 1970. Addison-Wesley Publishing Co., Reading, Mass. 556 pp. \$10.75 (hardback; textbook edition).

The underlying philosophy of this

book concerns the basic pattern of deductive logic in every scientific experiment or observation. (This understanding—that predictions follow from the tentative acceptance of an hypothesis—has also been used successfully in *The Study of Biology*, by Baker and Allen.) The present book is well illustrated; it includes excellent photographs taken with the scanning electron microscope. Suggested readings and exercises are given at the end of each chapter.

The text emphasizes recent aspects of research, such as microtubule function and organelle autonomy. Inclusion of a few examples from zoology helps the student to understand that he is dealing with biologic concepts. Botanic terminology has been reduced to a minimum, and a glossary is provided for those terms retained. The more "classical" (that is, descriptive) part of the science has not been omitted, but the arrangement may be new to some botanists; for example, explanations of life cycles are spread over chapters on ecologic relationships (wheat rust), cell aggregates (algae), and migration to the land (mosses, ferns, pines). The discussion of paleobotany is exceptionally good.

Here and there the text is confusing; for example, in the equating of action and absorption spectra in the discussion of phototropism (although these spectra are well described in the section on photosynthesis). But these are minor points, considering the overall clarity. The book would be particularly valuable for introductory courses in botany that do not have a general-biology prerequisite.

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## EDUCATION

THE TEACHER AS A DECISION-MAKER, by Dale L. Brubaker. 1970. Wm. C. Brown Co., Dubuque, Iowa. 230 pp. \$3.50.

The title suggests a possible link with the 1971 NSTA theme, "Decision-Making in Science Education"; however, the author's approach seems more appropriate for use with prospective teachers who are concerned with defining the scope and alternative solutions to practical problems of job interviewing and sources of conflict in a school. He attempts to acquaint the prospective teacher with the many

variables encountered in being a teacher, and he does so by presenting 197 situations, each accompanied by suggested alternative responses. To support this case-history approach, Brubaker provides a brief analysis of the school as a social system and offers a model for analyzing teachers' decisions within this framework. The model contains five areas in which teachers prescribe. Prescribing, on the part of teachers, is defined as trying to convince those with whom the teacher comes in contact of the validity of the teacher's judgments.

In an introductory pre-service education course this book might serve to stimulate fruitful discussion of the teaching role. The book does not seem appropriate, however, for a science education course.

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BIOLOGY 3: THE NEXT GENERATION, by Joseph M. Oxenhorn. 1970. Globe Book Co., New York. 191 pp. \$2.40 softback, \$3.40 hardback.

This is the third volume in the biology section of a series, "Pathways in Science" (edited by Peter Greenleaf), designed for the slow learner and reluctant science student in the secondary school. It has a reading level of 5-6 grade.

Each chapter starts with a target question, which is answered through reading in the chapter. Summaries occur periodically throughout, to help in remembering previous reading. Each chapter ends with a self-test and suggested outside activities. Glossaries end each unit.

As the title implies, this book is a survey of reproductive patterns (from primitive organisms to man) and of inheritance patterns (exemplified in man). The coverage is adequate and accurate, the diagrams and photographs are well done and applicable, and the laboratory investigations are well placed and practical, requiring little in the way of equipment and supplies or unusual specimens. Much observing of living organisms is involved.

A slow student should be able to handle the reading and experiments in this book with interest and should gain understanding of the perpetuation of species.

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## ENVIRONMENT

[LA MOTTE CHEMICAL PRODUCTS Co. BOOKLET SERIES.] 1968-70. *Limnology: an introduction to the freshwater environment*, by W. H. Amos (40 pp., 50¢). *A study of soil science*, by H. D.