

Book Reviews

Emmett Wright
Department Editor

BOTANY

HOW FLOWERS WORK—A GUIDE TO PLANT BIOLOGY

by Bob Gibbons. 1st ed. 1984. Bradford Press Ltd. Distributed in the U.S.A. by Sterling Publishing Co., Inc. (2 Park Ave., New York, NY 10016). 160 pp. hardback.

The title of this book is somewhat misleading because within 160 pages it attempts to cover most of the major topics—cells, morphology, reproduction, ecology, etc.—that one would normally expect to find in a college level general botany course. Due to its breadth of coverage, it is not surprising that many of the topics are glossed over and without sufficient depth.

This book does tie together various botanical concepts, and I believe that it can help the reader gain a better overall perspective of the field of botany. It contains many excellent photographs and illustrations to go along with the text. It also provides many unique examples to demonstrate certain concepts. Particularly good examples are found in the chapter on plant reproduction.

In my opinion, the use of this book as a supplement to a regular textbook could enhance the teaching of a general botany course or a botany unit in a general biology course. It also provides an interesting general review of plant biology for the biology teacher with little botany training.

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ENVIRONMENT

INTRODUCTION TO ENVIRONMENTAL STUDIES

by Jonathan Turk. 2nd ed., 1985. CBS College Publishing (383 Mad-

ison Avenue, New York, NY 10017). 330 p. softback, price not listed.

This revised edition is a well written introductory textbook on environmental science for nonmajors at the college level. It also appears suited for use as a textbook for advanced high school courses in science, although the limitations of a softbound book should be considered. This book has value as a reference for teachers with limited background in the subject. In this regard, the case studies presented in many chapters dealing with specific environmental problems could serve as useful springboards for discussion in the classroom.

As expected in an introductory textbook, a wide range of topics are covered, but are not dealt with at length. In general this is not a problem, but I think the book would have benefited by lengthier discussions of some issues, for example: acid precipitation and the ecological effects of war. I was especially disappointed that no mention of nuclear winter was made in the text. In spite of this shortcoming, complex subjects that are covered, such as nuclear fission, are dealt with in an accurate and understandable way.

This edition has been reorganized and revised fairly extensively. The sequence of topics is presented in a more logical manner, highlighted by many new photographs and illustrations. Questions given at the end of each chapter have been restructured, and many encourage higher-order thinking. The suggested reading list at the end of each chapter has also been updated and improved.

Overall, I think this work would be an excellent textbook for an introductory environmental science course, especially for college students who are nonscience majors.

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GENERAL

EXPERIENCES IN BIOLOGY

by Penelope H. Bauer, Michael Magnoli, Armand Alvarez, Dorothy Chang-Van Horn and Delilah Gomes, 2nd ed., 1985. Laidlaw Brothers, Publishers. (River Forest, IL) 672 p.

This book is another in a long series of biology encyclopedias. It is hard to find a page that doesn't introduce a

new term. Each new term is set off in italics and is followed by a phonetic spelling to aid in its pronunciation. The authors have been thorough in their coverage of the subjects. Each section is highlighted with many excellent colored photographs and illustrations. Each chapter contains a section called "Find out by doing" which provides "hands on" experiences in biology. These are not as much discovery type activities as they are activities designed to verify what students have already been told.

The basic format of each chapter is tell them what you are going to tell them, tell them, and tell them what you told them. The chapter starts with a list of educational objectives, followed by the text and ends by reviewing the important ideas. Each chapter is terminated with a series of review questions designed to test recall and rote memory. No formal thinking is required.

The authors end each unit with short, extremely generalized section "Pros and Cons", a few paragraphs on careers and a short section on computer programs adaptable for use. An extensive glossary is included.

The text is complemented with a laboratory manual in which the stu-

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dents are told what to expect in the experiment. A teacher's guide accompanying the laboratory manual provides test questions for each chapter along with a pre and post test for each unit. Eight colored bulletin board size charts and some transparency masters come with the teacher's aids.

If someone is looking for a traditional biology book that is well done, this will fill the bill. If they are looking for something to challenge the students' creative potential and formal thinking, they need to look elsewhere.

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LIFE SCIENCE

by Bonnie B. Barr. 1986. Addison-Wesley (Menlo Park, CA). 598 p. hardback. (Price not given).

Life Science is a biology textbook which appears to be aimed at junior high school students (no age level was supplied with the textbook). Compared with other textbooks of this type, it is considerably above average.

The subject matter of each chapter serves as the core to each unit. Support sections such as library research suggestions, small articles on related careers in biology, activities for lab work, and last, sections entitled 'Science Heritage,' which are historical notes relevant to the material being studied, are all interwoven with the core information. This extra material helps interconnect subject matter with the real world and provides interesting diversions. The numerous photographs, illustrations, etc. are keyed to the text and are very well done.

The author seems to have made a distinct effort to be even-handed in her choice of photographs in that men and women of several races appear in photographs in various role models. A minor point perhaps, but worth considering if we wish to encourage all our students to develop their potential.

Junior high textbooks in the past were quite good at developing broad general concepts, but often did a poor job teaching specifics. This book hopefully represents a trend toward more thorough coverage of subject matter at this level.

I'd be happy to use this book in my classroom.

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GENETICS

CLONING: OF FROGS, MICE, AND OTHER ANIMALS

by Robert Gilmore McKinnell. (Revised edition of *Cloning: A Biologist Reports*.) 1985. University of Minnesota Press (2037 University Ave. S.E. Minneapolis, MN 55414). 127 p. hardback, \$12.95.

This slim volume can be read in one sitting. Many people will want to read it this way, for it is an engrossing account. It is a lucid, interesting, factual story of the progress of cloning animals written by one of those making the discoveries.

The author goes beyond his first book on cloning by including recent studies and by adding work done on animals other than amphibia. The substantial appendices explaining how to care for frogs, make microimplants, etc. are missing from this second book. Instead, there is an interesting chapter on how humans might be cloned if anyone is foolish enough to do this and an essay on why this should not be done. As might be expected, McKinnell dismisses D.M. Rorvik's account of the cloning of an eccentric millionaire by quoting a judge of a U.S. District Court to the effect that Rorvik's book was a 'fraud and a hoax.'

McKinnell's book will be useful to high school and college students and to biologists who need to know in general the state of the science of cloning. The author is at pains to tell why research in cloning is done: to provide a tool for the study of aging, cancer and embryology, not to provide cloned drudges, superathletes, or the usual Marilyn Monroes and Einsteins. While he shares the joys of discovery, he eschews the glitzy and meretricious speculation that has surrounded the subject of cloning.

A scientist actively discovering new information about our world makes a worthy contribution when he stops long enough to invite the rest of us to look over his shoulder and see what he is doing and why he is doing it. Robert McKinnell has done just that.

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TEACHING METHODS

SECONDARY AND MIDDLE SCHOOL TEACHING METHODS

by Leonard H. Clark and Irving S.

Starr. 5th ed., 1986. Macmillan (866 Third Avenue, NY 10022). 469 p. Price not given.

This college textbook is a useful assembly of pedagogical principles aimed at helping the prospective teacher learn how to teach. It is not directed at any particular subject area, but many of the methods listed are useful in science teaching. Although principally for perspective teachers, it may be a valuable tool for both university supervisors and supervising teachers.

This edition is better than most of its kind, and not nearly so dry as most. It incorporates some of the more useful classroom innovations, such as computers, but retains all of those found in previous editions. The chapter, 'The Professional Teacher,' is packed with excellent advice concerning proper behavior of student teachers. I wish all of my previous student teachers had read this chapter before entering my class!

The only major flaw in the book is the chapter, 'Marking and Reporting to Parents.' Most school districts have adopted their own policies regarding these important concepts. Though I may generally agree with the concepts presented, I do not believe that the student teacher is provided with enough background or latitude for reaching sound decisions, particularly in the area of marking. If one skips this chapter, the book is otherwise very good indeed.

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