Book Reviews

Botany

A SYNONIMIZED CHECKLIST OF THE VASCULAR FLORA OF THE UNITED STATES, CANADA, AND GREENLAND, VOLUME II: THE BIOTA OF NORTH AMERICA

by John T. Kartesz, and Rosemarie Kartesz. 1980. The University of North Carolina Press (Box 2288, Chapel Hill, North Carolina 27514). 498 p. $35.

The vascular flora of North America is extremely large and diverse. For more than a century, American taxonomists have wrestled with the problem of attempting to coalesce the vast resources of floristic information into a functional whole. This comprehensive checklist is an attempt to provide a solid foundation for an atlas, and ultimately, a guide to the flora of North America. The checklist is a reference work that should be in every university and herbarium library. Its greatest use will be in helping to make plant nomenclature uniform. It will be of considerable help to ecologists and other botanists who must identify plants but who are not taxonomists.

Also useful is the list of reviewers, as it supplies a list of *Who's Who* of the authorities on many North American genera—for example, Benson on *Cactaceae*, Barneby on many species of *Fabaceae*, and Rollins on *Brassicaceae*. Variations in taxonomic treatment, especially in infraspecific categories, reflect the work of individual reviewers. Subspecies and varieties are not used consistently. Some taxonomists will disagree on the treatment of certain genera.

The book is set in typewriter print except for the introductory section. Paper and binding are good quality. The price seems high; but considering the information it contains and the inflated prices of scientific publications, it is reasonable.

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DIFFERENTIATION IN HIGHER PLANTS

by D. H. Northcote. 1980. Carolina Biological Supply Company (Scientific Publications Division, Burlington, North Carolina 27215). 31 p. Price not given.

This *Carolina Reader* is good supplementary material for biology majors and could be used by the better students in general botany or in plant anatomy and plant physiology classes on the subjects of membranes, microtubules, movement through membranes, xylem development, phloem development, and control of differentiation in plant tissues; however, the academic level of this reader is above that of the average freshman botany student. The text is easy to read and important terms are italicized or set in bold print. The diagrams and the photographs are excellent, appropriate, and well-labeled; I was very glad to see electron-microscope scanning photographs along with the traditional types. The *Reader* concludes with a more than adequate list of additional readings if one wants to pursue the subject in greater detail.

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Ecology and Environmental Biology

INTRODUCTION TO ENVIRONMENTAL SCIENCE

by Joseph M. Moran, Michael D. Morgan, and James H. Wiersma. 1980. W. H. Freeman and Company (660 Market Street, San Francisco, California 94104). 658 p. $16.95.

This college textbook is designed for a one-semester course on environmental science. It is intended for students who do not plan to major in science. A main objective is to show students how environmental problems affect them. This is done very effectively through many practical illustrations.

The book is divided into three major parts: Part 1 surveys basic principles that govern the environment; Part 2 explores current environmental problems; and Part 3 focuses on the core of most environmental issues, such as overpopulation and food and energy shortages.

Helpful teaching aids include a statement of objectives for each section, conclusions at the end of each chapter, summary statements, review questions, suggestions for projects, and an extensive bibliography.

A special feature called "Boxes" adds to the usefulness of the text. These are special sections set off from the main text that give deeper explanations of certain topics or provide specific examples or case studies of environmental conflicts. Frequently, students are challenged to express their opinions'—an excellent means for encouraging discussion.

One of the outstanding features of the book is the generous use of photographs, drawings, maps, and graphs. These are well selected and supplement the text. Also helpful is a glossary that functions as a mini-dictionary of environmental terms.

The book is accompanied by an Instructor's Manual that contains learning objectives, test questions, current topics, and audiovisual materials.

The authors have succeeded in making this textbook interesting and practical as well as educational. It would be useful for any course focusing on the environment.

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THE PROTOZOA: INTRODUCTION TO PROTOZOOLOGY

by John N. Farmer. 1980. The C. V. Mosby Company (11830 Westline Industrial Drive, St. Louis, Missouri 63141). 732 p. $26.95.

This book was written as a source of information for the biology student who is intrigued by the protozoans. It is not necessarily a reference text. The author has organized the material in the book so that it could be used either as a supplement to a lecture presentation or to a laboratory experiment. I believe that the book would also be valuable as a supplementary text on the high school level.

The first four chapters deal generally with structure, function, reproduction, and the role of protozoa in ecosystems. The remaining thirteen chapters deal more specifically with the morphology, ultra-structure, biology, and ecology of particular protozoan groups. The classification keys at the beginning of the chapters may be used to identify the genus of organisms observed during laboratory experiments. The book is complete in detail and contains 600 illustrations. An excellent glossary is included, and each chapter ends with a list of references and recommended readings.

This book is appropriate for the current trend of the importance of protozoans in the ecosystem—as initiating food chains, indicators of water quality, and as parasites of humans and domesticated animals.

This book can be used by all levels of biology students from high school to the graduate student.

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General Biology

BIOLOGY
by Irwin L. Slesnick, LeVon Balzer, Alan J. McCormack, David E. Newton, and Frederick A. Rasmussen. 1980. Scott, Foresman and Company (1900 East Lake Avenue, Glenview, Illinois 60025). 700 p. Price not given.

Biology is a textbook appropriate for the standard tenth grade offering. The publishers offer a teacher's addition, a laboratory manual, a teacher's edition of the laboratory manual, test materials (on duplicating masters), and study guides (also on duplicating masters). The materials are attractive, scientifically accurate, current, and clearly presented.

The content is fairly traditional with ten common units divided into twenty-seven chapters; each chapter is further divided into "lessons." Performance objectives are listed at the beginning of each chapter; these are translated into specific cognitive competencies.

There is attention to career education—mostly in terms of "professional" science. The activity approach is good in terms of its flexibility and its incorporation into the total presentation. Unfortunately most activities are fairly standard—designed to illustrate concepts and general information.

Although the authors suggest that most ideas are related to humans, this idea is not in as much evidence in the actual material as is desirable. The first nine chapters are fairly common topics in a general biology course, *i.e.*, scientific method, classification, cells, genetics, and evolution. The next section concentrates upon the five kingdoms of organisms—proceeding from simple to complex.

The pictures are exceptional; the questions and the attempt at *relating* chapters, lessons, activities, and extensions of the material are also exemplary.

The emphasis upon central concepts, traditional topics, the typical structures for such a course, is not a strength—except for those looking for a new text designed to update courses already described and in place in school programs.

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PROBLEMS IN BIOLOGY: A BIOLOGY LABORATORY GUIDE
by Carol Knox and Katheryn Rowsey. 1980. The Independent School Press, Inc. (51 River Street, Wellesley Hills, Massachusetts 02181). 90 p. Price not given.

This laboratory manual for an introductory high school biology course includes thirty-five investigations in the major areas of biology with emphasis on the use of the scientific method. The manual is designed to be used with a student-made notebook and any textbook.

Most of the investigations are very traditional, but the manual also includes investigations on karyotypes and succession in a woodlot that are well-designed and unusual. The manual's best features include emphasis on student-developed reports, very good choice of investigations, and a section at the end of each lab called, "To Do If You Have Time and Interest."

However, its usefulness is limited by several factors. No information for teachers or teacher's guide is included. The total program is rather expensive as it includes dissection of a fetal pig, the use of two types of live vertebrates, and the dissection of photomicrographs. Several labs require access to outdoor areas. Students using the manual must be good readers and writers. Much of the organization and reporting is left to the student.

Two investigations require the use of live vertebrates: "Agonistic Behavior in Mice" and "Hibernation in Frogs." Neither requires injury to the animal, but the animal must be handled during the investigations and housed in the school. One of the weakest features is the drawings that accompany the directions. They