

fications are explored. These related studies include reproductive biology, population estimates, transmission of diseases, other ecological relationships, and behavioral repertoires of both species. Inter- and intraspecies social behavior is emphasized. Over 100 references are cited and background information is given.

Most notably, the reader is taken "behind the scenes" to see how study techniques were developed, what difficulties were encountered, and how on-site observations led to new questions and hypotheses. A large number of these hypotheses were tested using appropriate methods and statistical designs. Often assumptions and speculations are given, but these are usually identified as such.

Turner is a creative, probing researcher and a lucid writer who allows the reader to vicariously experience a field study in the tropics. Teachers and graduate and undergraduate students could read the book for pleasure. Those interested in research would especially profit from it. Advanced high school students might enjoy the content, but some knowledge of classical ecology, advanced vocabulary, and statistics would be necessary for smooth easy reading.

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CROWDING AND BEHAVIOR, by Jonathan L. Freedman. 1975. Viking Press (625 Madison Ave., New York 10022). 177 p. \$7.95 hardback.

What is crowding? Chapter 1 answers this rhetorical question with a measurable definition: "[Crowding is] the amount of space available per person." Reducing this powerful word to such simplicity is, even for research purposes, troublesome enough; but in addition, the reader frequently must contend with whether "space" refers to a measurement of area or to one of volume.

The author's research supports two major conclusions: that there is no relationship between crowding and social pathology; and that high density intensifies the typical reaction towards other people whether that typical reaction is toward the positive or toward the negative. Chapters 7 and 8 describe the research in a manner that

is concise yet easily understandable. Along with the supporting appendixes, they make the book an important reference for college courses on overpopulation, crowding, and related issues.

Unfortunately, the rest of the book is best ignored. Chapter 4, "From Mice to Men?," is in very poor taste. It contains a succession of cheap shots at two supporters of rival theories: Robert Ardrey (*African Genesis; Territorial Imperative*) and Desmond Morris (*The Naked Ape*). The author's summary of their work, "Minor inaccuracies . . . — which a scientist tries to avoid—creep in unless a writer is an expert in the field in which he is writing" is a better commentary on himself. His statements with regard to natural selection are reminiscent of creationist thinking, and the concluding chapters on urban design clearly stretch the author's abilities. (He is a psychologist.)

The most frustrating aspect of this book is the author's tendency to comment with obvious truisms that have little direct relationship to the argument at hand; for example, "Although it is not guaranteed in the constitution [sic], the right to cheap transportation for everyone must be an important goal of society." This usage is pervasive throughout the initial chapters and only disappears when the author is on home ground with his own research.

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### Ecology and Environmental Biology

ECOLOGY: THE LINK BETWEEN THE NATURAL AND SOCIAL SCIENCES, by Eugene P. Odum. 2nd ed., 1975. Holt, Rinehart & Winston (383 Madison Ave., New York 10017). 244 p. Price not given.

The second edition of *Ecology*, like the first, is a must for every biology, conservation, and environmental science teacher. This edition presents many new examples and results of Odum's recent investigations.

Once again, Odum's forte is his ability to present the principles of ecology in easily understandable terms. In treating human ecosystems, Odum discusses them in an energy-flow context showing

how dependent we are on our environment and how delicate the balance is. Odum warns time and again that ecological problems are complex and as such do not have simple answers. He gives many examples of the impossibility of solving one problem by implementing one solution alone as we have done so often in recent years. He emphasizes that regional planning and research are necessary before decisions can be made that will affect our lifestyles. Odum proposes, then, that economic and ecological values are so interconnected now that the world should shift its measure of the value of goods and services to energy units instead of dollars and cents. As a result, citizens would see the true cost in energy units of maintaining their lifestyles.

For someone who is not an ecologist, yet wants a good introduction to the subject, this publication covers the big ideas of the field and relates them to the individual's and society's survival. General readers, however, may find the cross-references in the text from one chapter to another annoying. Also, there are several misspellings and typographical errors that are at times distracting.

For those readers familiar with Eugene Odum's collaborative effort with his brother, Howard, on the classic *Principles of Ecology*, you will see much that is similar but in a more readable form employing examples that are meaningful to a wide audience.

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LIFE IN AND AROUND FRESHWATER WETLANDS, by Michael J. Ursin. 1975. Thomas Y. Crowell Company (666 Fifth Ave., New York 10019). 116 p. \$6.95 hardback, \$2.95 softback.

Intended as a handbook for biologists and students of natural history, this book covers organisms that could possibly be found in marshes, bogs, and swamps of temperate North America east of the Mississippi. Included are 98 pages of range maps, classifications, and line drawings of these organisms as well as 16 pages of excellent, full-color photographs.

The survey is meant only as a brief guide and does not include every species. The range maps tend to cover more territory than promised and the classifi-

cation system would make follow-up investigations difficult. But as the purpose of the work is to stimulate interest in wetlands, the book could be useful to the casual visitor on a beginning observation in a freshwater wetland.

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THE EARTH MANUAL, by Malcolm Margolin. 1975. Distributed by Houghton Mifflin Co. (2 Park St., Boston 02107). 184 p. \$10.00 hardback, \$5.95 softback.

*The Earth Manual* is essentially a "how to do it" guide for would-be conservationists. According to the author, most of the book is based on his experience in managing the conservation program for the Redwood Regional Park in the hills above Oakland, Calif.

The author gives a number of excellent detailed instructions on how to help control water erosion, fell trees, transplant native shrubs and trees, collect, treat, and disperse wildflower seeds, treat injured trees, prune trees, build nature trails and ponds, construct hedgerows to encourage the proliferation of birds and small mammals, and, in general encourage the maintenance of wildlife in wilderness areas.

Margolin should have been content with writing a practical how-to-do-it guide for distribution through bookstores. Instead, his book is laced with personal opinions about how "kids" behave, with *his* ideas on how "kids" should be taught, and is replete with anthropomorphic statements of the wildest sort. He uses the term "kids" repeatedly when referring to students ranging from fifth graders to high school seniors. The reader is left confused as to the age of the students even though the author talks of recruiting high school students, Cub Scouts, and Boy Scouts to aid in his work.

The following quotations should help to clarify my objections. For example: "There are animal droppings—a sure winner with kids since they combine two of their favorite obsessions: animals and turds." "The litter of half-eaten nuts teaches us that animals are enormously sloppy, inefficient feeders—a fact that small children are always glad to hear." "'C'mon' I'd yell. 'Let's go out and see how the plants make

babies.'" "You mean a stick is going to grow?" a kid once asked me. 'It's not a stick,' I replied. 'It's a magic wand.'" "Kids' work is bound to be sloppy and half done. That is the nature of kids." "One of the nicest things about using plants is that plants *want* to fight erosion. In fact, they want to fight erosion even more than you do, and what's more, they know how to do it."

One classical example of a combination of teaching technique and anthropomorphism: "I would assemble the kids and give them what must have been the craziest speech they ever heard. 'Be quiet, please. You've got to be quiet. It's lunchtime. The trees are eating. Sh-sh-sh! The trees in the forest are always eating. It's always lunchtime. No wonder the trees are so fat. Just look at the bellies on them. They eat all day long, all night long, every day of the year. Eat, eat, eat. Millions of mouths, always eating. No wonder trees don't move and run around and jump. They don't have time. All they have time to do is eat. The earth is like a huge banquet table, and all their lives they sit at the table, eating, eating, growing, growing, swelling, swelling.'" Margolin goes on to explain to his "kids" that trees breathe in and out through millions of noses.

I submit that Margolin's approach to teaching, his tendency to categorize student likes and dislikes regardless of age, and his unnecessary use of anthropomorphism, are not consistent with good teaching practice. I find it impossible to state for whom the book is written—"kids," or "teachers."

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### **Educational and Professional Concerns**

OPPORTUNITIES IN ENVIRONMENTAL CAREERS. by Odom Fanning, Rev. ed., 1975. Vocational Guidance Manuals, Inc. (620 S. Fifth St., Louisville, Ky. 40202). 251 p. \$3.95 softback, \$6.95 hardback.

This volume is a complete revision of the highly successful edition of 1971. It is a book of career opportunities designed especially for teachers and guidance counselors. The long-term

outlook for jobs in environmental management, particularly in the area of protection and energy programs, is presented from a very optimistic viewpoint.

The organization of the text makes it easy for the user to locate the desired information about specific careers without having to read the entire book. The reader can quickly view a general description of the occupation and then find specific institutions that offer training in this area. The writing style is reasonably concise and objective.

The basic fault with this book is due not to the editor but to the quickly changing times. The information becomes obsolete very rapidly due to ever changing technology.

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AN INTRODUCTION TO THE PROFESSION OF MEDICAL TECHNOLOGY, by M. Ruth Williams and David S. Lindberg. 2nd ed., 1975. Lea & Febiger (Washington Square, Philadelphia 19106) 135 p. \$5.00 softback.

In an age of computers and electronics, the profession of medical technology requires a person knowledgeable not only in the clinical and medical foundations of the career but also in the new and emerging tools of the profession as well. This relatively brief but valuable reference clearly captions for the biology or health careers coordinator, careers counselor, or prospective student the academic and clinical training necessary for entry into the various allied health fields within the profession of medical technology. As a textbook, the volume is suitable for use in introductory classes in medical technology.

The profession of medical technology has undergone numerous developmental changes since its beginnings in the 19th century. In this revised edition, the authors have referenced extensively the historical basis for the profession as well as current employment training, salaries, and opportunities. Such opportunities may be found in hospitals, private labs, public health agencies, and industry. Williams and Lindberg note the recent changes in the above areas which have raised medical technology from a health occupation to an emerging health profession. The authors