

are observing here is the interaction between physical environment and the physiological reaction of the organism.

After the chapter on biological rhythms, the author concentrates his attention primarily on climatic factors. Edaphic and biotic components are for the most part excluded in this discussion. There are, however, some comprehensive discussions of temperature regulation and responses to hot and cold environments.

As one progresses through the book, he begins to recognize that the text is actually a compilation of research papers and other publications. Although chapters and subject headings provide some organization, the information is often spotty and jumps from one subject to another with few unifying threads. The many references to physiological adaptations in man and the final chapter, "Ape-Men, Resources and Pollution," are commendable attempts to include man as a mammal with the unique ability to drastically modify and pollute his environment while still falling prey to basic physiological and environmental principles.

The book, if used as defined, should be extremely useful. It contains a great deal of information on the physiological reactions and adaptations to the environment of mammals that cannot be found elsewhere in a single volume. As long as its shortcomings are recognized, it will make a fine textbook in the area of environmental physiology.

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SHOULD TREES HAVE STANDING? TOWARD LEGAL RIGHTS FOR NATURAL OBJECTS, by Christopher D. Stone. 1974. William Kaufman, Inc., Los Altos, Calif. 128 p. \$2.95 softback, \$6.95 hardback.

Stone has a rather novel approach to the problem of man's destruction of nature. He states his thesis most clearly on page 9, where he says, "The reason for this little discourse on the unthinkable the reader must know by now, if only from the title of the paper. I am quite seriously proposing that we give legal rights to forests, oceans, rivers and other so-called natural objects in the environment—indeed, to the natural environment as a whole."

The book has a foreword by Garrett Hardin and is divided into two parts. Part I has an introduction and three chapters, concerned with the author's ideas on the legal and social aspects of obtaining legal rights for the environment. Part II is a discussion of the opinions of the U.S. Supreme Court, *Sierra Club vs. Morton*. Some very interesting points are brought out in this section. The book also contains an index.

Should Trees Have Standing? will be helpful to anyone interested in the preservation of the environment. It could be a valuable tool in the hands of environmental protection groups.

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PRESERVING MAN'S ENVIRONMENT, by Joseph L. Pavoni, D. Joseph Hagerty, and John E. Heer. 1974. Data Courier Inc., Louisville, Ky. 308 p. \$13.95. (hardback).

This is an outstanding book that will add new dimensions to environmental education at all grade levels. It will be a good reference for any teacher who is seeking to improve his environmental education program. Each of the ten chapters deals with some facet of the environmental crisis and provides the tools needed for the development of a comprehensive teaching unit, including authoritative background information. An outstanding section which makes this a most useful vehicle for environmental education, are the units dealing with environmental impact statements and environmental law.

Each teaching unit includes discussion of the importance of the unit and objectives. A strong point for the book is its inclusion of units for both basic and advanced classes. In addition, each teaching unit is supplied with evaluative questions that can be used at any level. Information sources for each grade level include books, periodicals, pamphlets, films, filmstrips, charts, and games.

Printed on recycled paper, *Preserving Man's Environment* will be thoroughly used by all who add it to their reference shelves.

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MAN'S RESPONSIBILITY FOR NATURE: ECOLOGICAL PROBLEMS AND WESTERN TRADITIONS, by John Passmore. 1974. Charles Scribner's Sons, New York. 213 p. \$7.95 hardback.

"Intricate" and "intriguing" seem good words to describe the many levels of controversy and counterpoint in logic that the author pursues in this work. *Man's Responsibility for Nature* is "heavy" reading in the positive sense of the term. The depth to which the author carries his analysis of western man's attitudes toward his environment should delight the philosophers and neophilosophers among us. The ecological problems examined are pollution, conservation, preservation, and multiplication (population). Each is

viewed in the light of historical and contemporary discussion in an effort to determine what access remains to solutions; whether traditional morality, in compromise with scientific and technological advance, offers promise of producing the kind of thoughtful action that western tradition permits and encourages.

Passmore offers argument that strips away "rubbish" from the viewpoints of mystics, scientists, economists, and others to show that there exist "seeds" of new patterns of human behavior which offer greater promise than a view that condemns all tradition, or all science, as immoral or irrelevant.

I recommend this book to the mature and thoughtful reader and to the analytical class, if either is motivated to move beyond the trite to a fresh engagement with "real" issues.

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AN ECOLOGICAL AND EVOLUTIONARY ETHIC, by Daniel G. Kozlovsky. 1974. Prentice-Hall, Inc., Englewood Cliffs, N.J. 127 p. \$3.95 softback, \$6.50 hardback.

If you are not already angry over the waste, exploitation, pollution, and human degradation occurring on our one and only earth, you need to read Daniel Kozlovsky's little volume. On the other hand, if you are incensed and are looking for the right ways to cleanse our culture of its plundering and inhumane ways, be prepared to take issue with one or more of the correctives Kozlovsky suggests. In 64 very short essays (he calls them notes), Kozlovsky develops this question: "What is meaning in . . . a social organism that is determined to change its environments to suit itself and is changing them so rapidly that no genetic correspondence can be hoped for?" It is at the author's treatment of this question that some readers will take umbrage.

Evolution, Kozlovsky maintains, is nonethical, change being indifferently wrong or right, depending on the environment. It is adaptation that has value. But genetic adaptation requires reproduction, and we have too much of that already. At our present rate of increase, we will exhaust earth's support capabilities soon. We find ourselves in a swirl of environmental, social, cultural, and political changes requiring adaptations for which our genetic tools are wholly inappropriate. Our hope lies in our capacity for behavioral adaptation. Kozlovsky contends that up to now our behavior has been directed in all the wrong ways by our widespread adoption of Christianity.

The free-spirited biologist author (he admits he has never been a certified biologist) says that human beings must learn, must be taught, to want less. He

advocates "the development of the capacity for intelligent *nonmanipulation*." He says, "We need more people to say: 'I'm sorry, but I can't work on that, I'm busy thinking and living as simply and nondestructively as I can.' Such an attitude," Kozlovsky continues, "combined with a general enlightenment of *what is* destructive, is the only thing that can get us out of this mess."

This retreat from aspects of social responsibility is the crux of Kozlovsky ethic. Escape, he says, to your own self and family in a serene and non-threatened environment and live a full animal and human existence. "All you have to do is learn to say to hell with it!" Marijuana may help you. "Dope . . . lets you see the simple 'is-ness' of things and of yourself."

Despite the inconsistencies (don't ingest preservatives, but trip on dope), oversimplifications ("we must stop being ignorant, superstitious, and greedy"), and distortions ("a good biology course should teach you why it feels so good to climb into bed with someone of the opposite sex"), Kozlovsky manages to achieve some concise and lyrical prose, bursting with urgency and anger. He trusts "we can and will, as a people, tell the present destructive culture to *stick it*." With a great deal left unsaid, Kozlovsky delivers his outrageous injunction decorated with some fine epigrams selected from his outspoken predecessors—Whitman and Thoreau.

A to-hell-with attitude has both its uses and abuses. Kozlovsky's rather poorly printed book is daring, his casuistry understandable, if arguable, and his indignation honest. But he has written neither a biology nor a philosophy book. Instead, he has put together some arguments for a radical life style that will probably exorcise the familiar ecological devils for the fortunate few who can get their kicks from self-imposed poverty. The hard truth Kozlovsky doesn't see is that this nation's people, to say nothing of the world's, cannot return to the tribe.

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Education and Professional Concerns

CONSTRUCTIVE CLASSROOM BEHAVIOR: A TEACHER'S GUIDE TO MODELING AND ROLE-PLAYING TECHNIQUES, by Irwin G. Sarason and Barbara R. Sarason. 1974. Behavioral Publications, New York. 56 p. \$2.95 (softback).

This publication is a companion to *Reinforcing Productive Classroom Behavior*. The book is aimed at getting the teacher to help his students through the effective use of role-playing and

modeling. Examples of ways the teacher may help his students and solve problems of school and vocational adjustment are included. The style is clear and to the point, and there is a thorough glossary and an annotated bibliography. Most important, the book takes into account the real situations a teacher may face in a busy day and suggests solutions.

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CAREERS IN ENVIRONMENTAL PROTECTION, by Reed Millard and editors of Science Book Associates. 1974. Julian Messner, New York. 188 p. \$5.79 (hardback).

Sound career counseling is at best difficult; in periods of rapid change it may seem impossible. Particularly when job markets decline, coordinated nationwide efforts to counsel can and do create dislocations in the supply-demand tug-of-war. Predictions of relative demand in the various careers are especially likely to cause long-term problems. Fortunately, this book avoids that pitfall.

Over half of the book describes some of our environmental problems along with some of the attempts to solve them. The author, apparently trying to be evenhanded, relates both exploitationist and conservationist views. He went too far in such cases as devoting nearly three pages to the virtues of clearcutting by the lumber industry and in extolling the advantages of both restored and unrestored strip-mined lands. He also states (p. 96) that the "use of [offshore] oil rigs . . . for fish habitats is the kind of achievement that results from the environmental scientist's search for knowledge."

Descriptions of the careers, however, are done well, indicating the need for training and the relationships of educational level to job hierarchy. There is a separate section for careers not requiring college degrees. Curiously, limnology is not mentioned, and marine biology is referred to only obliquely. Otherwise, a wide range of careers is listed.

In common with most career books, there is an ample list of addresses to which one can presumably write for "further information." Actually, few of the addresses will lead to any more detail than one finds in the book and some are worthless in this respect. Federal agencies concerned with environmental protection, regional offices of the Environmental Protection Agency, and regional offices of the U.S. Civil Service Commission, are also identified.

Shortcomings of this book are largely an indication of the state of the art of

career counseling. I have seen much worse, but I wish I could claim to have seen much better.

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Evolution

THE LIFE GAME: EVOLUTION AND THE NEW BIOLOGY, by Nigel Calder. 1974. Viking Press, New York. 141 p. \$12.50.

From such diverse fields as molecular biology, anthropology, geology, game theory, computer technology, and zoological field research the author of this work has woven a story worth reading. Here is a volume so beautifully illustrated as to be a collector's item, so sprinkled with delightful pearls of information that scanning it should be forbidden.

Calder reports on a journey undertaken for BBC television and coproducing organizations from seven other countries. Creationists may take offense to the opening paragraph, wherein they are referred to as Bible thumpers, but a moment's reflection should bring to mind the authority under which they have placed themselves. Perhaps some readers will be newly advised of the suggestion by Cavalli-Sforza that Europeans acquired a white skin as an adaptation for vitamin D production, when rickets seemed to threaten survival. A section called "Doing without Fossils" introduces protein chemistry as the living link between the drifting continents from fragmented Pangaea, while also referring to the roughly constant rate of change in working molecules. The latter topic relates the 17 chemical differences of present day animal cytochrome c to the length of existence of those various animals.

The reminder is stated that not even the Stalinist geneticists could muster any hard evidence to support Lamarckism, which holds that experience directly modifies heredity. The serious argument now is between the selectionists and mutationists. The former hold that variations are normal and healthy while the latter think that genetic variations are aberrant and usually disadvantageous. Ernst Mayr has represented the preponderance of selectionists (or New Darwinists) in stating that although their theory is not controversial, its application sometimes is. A new proponent of mutationism has arisen in Motoo Kimura, who suggests that most mutations are nearly neutral in their effect; otherwise the high rate of change in working molecules would be lethal. To Kimura, most evolutionary changes are escapees from the control of natural selection. He and his colleague Tomoko Ohta continue their "heresy" by presenting