

The book should be of general interest to high-school students and college undergraduates. The illustrations are exceptionally good. Some elementary knowledge of classical and modern physics is assumed. The reader is exposed to Kepler's laws, Newtonian mechanics, and relativistic theory without recourse to mathematics, for the most part. The author's analogies in such matters as the "clock paradox" are, although not original, well conceived.

The strongest point the book makes has to do with the constant struggle between cosmologic theory and astronomical observation. The author gives a blow-by-blow account of how such ideas as those of the expanding universe and the steady-state universe have been tested by scientific thought. In addition, he gives some attention to the future of cosmology. Kilmister has also sought to identify the techniques that he believes offer the best chances for a breakthrough in cosmologic thought during the next decade. Virtually no hypothesis has been left uncovered—including some rather bizarre ideas about antimatter.

Robert L. Solomon
State Fair Community College
Sedalia, Mo.

Education

GUIDE TO LITERATURE OF THE LIFE SCIENCES, by Roger C. Smith and W. Malcolm Reed. 8th ed., 1972. Burgess Publishing Co., Minneapolis. 166 p. \$6.50.

This widely used book (formerly *Guide to the Literature of the Zoological Sciences*) has been expanded to include the plant sciences. This should make it useful to a greater number of biologists and biology teachers. The book has been written to serve as a textbook or reference for classes in biologic literature. There are sections on advice in thesis and dissertation selection, sources of funds, advantages and disadvantages of literature summaries, library organization, abstracts preparation, and sources of bibliographies. A new section, "Literature on the Teaching of Biology," contains a very limited list of periodicals, books, and collections of classic papers; the teacher will be disappointed to find that many widely used sources are not included.

Paul M. Daniel
Miami University
Oxford, Ohio

NEW TRENDS IN INTEGRATED SCIENCE TEACHING, by UNESCO. 1970. UNPUB, Inc., New York. 381 p. \$7.00.

This volume on integrated science-teaching in many countries is the product of a joint effort of UNESCO and the Committee on Science Education of the International Council of Science

Unions (ICSU). UNESCO's program in integrated science-teaching is aimed at providing member states with assistance in implementing experimental projects for developing new methods and materials for primary and lower-secondary schools. The publication concentrates on work at this level but includes a few examples from higher levels.

Part 1 contains examples of how various workers have defined integrated science and provides a general background relating to the trend towards integration. Part 2 presents statements of the thinking underlying the work in progress and examples of this work. Part 3 treats of the psychologic and social factors that must be taken into consideration in planning curriculum changes.

This collection of articles—not all germane, sometimes in dual language (English and French), and in their original typewritten or printed form—does not constitute a coherent volume dealing with trends in integrated science-teaching. However, the volume does contain many excellent articles, and the reader can learn something about innovations, either in progress or planned, by the member states.

Harold Durst
Kansas State Teachers College
Emporia

Environmental Biology

MAN AND THE SEA: CLASSIC ACCOUNTS OF MARINE EXPLORATIONS, ed. by Bernard L. Gordon. 1970. Natural History Press, Garden City, N.Y. 498 p. \$9.95.

Poems (like Masefield's "I must go down to the sea again") are about the only form of writing absent from this exciting anthology. It opens with the Biblical account of Noah, with comments by Suess; quotes Plato and Atlantis; and goes forward to 1969 articles on the hot brine deeps of the Red Sea and the promising uses of seaweed. The contents are almost evenly divided among physical, chemical, and biologic oceanography. 27 of the 71 articles have been selected from the 1960s. Of special interest to the layman are selections from the writings of Benjamin Franklin, Isaac Newton, Charles Darwin, and Louis Agassiz—famous men of broad interests.

Secondary-school students should be able to read many, if not most, of the articles. The book could serve as an introduction, not only to sea exploration but to career opportunities in this fascinating field. It gives the teacher an overview of the history of oceanography. Some of the articles have bibliographies, which in effect are introductions to the technical literature.

As an anthology the book cannot go deeply into any one aspect of marine

science; nevertheless it outshines many books devoted solely to marine biology. Gordon is to be congratulated on his skill as a compiler. The book should be added to school libraries.

Elizabeth P. Nuckolls
Los Angeles (Calif.)
City Unified School District

A LABORATORY MANUAL OF GENERAL ECOLOGY, by George W. Cox. 2nd ed., 1972. Wm. C. Brown Co., Dubuque, Iowa. 208 p. \$3.95 (softback).

The author has included all but one exercise of the first edition (1967) and has added six more, for a total of 35 exercises in this second edition. All of the "new" exercises are excellent, especially the one on selecting an ecologic field-problem and the one on computer programming.

This is a well-written, practical manual that could be used as an excellent reference for college general-ecology, population-ecology, and community-ecology courses. It contains a wealth of information and many good ideas and suggestions for field and lab problems, procedures, and treatment of data. (However, an outdated, tedious method of determining dissolved oxygen is given.) The manual contains too much material to be "covered" in a one-semester course, but it is structured for easy selection.

John Ransom
Kansas State Teachers College
Emporia

ENVIRONMENTAL SCIENCE LABORATORY MANUAL, by Maurice A. Strobbe. 1972. C. V. Mosby Co., St. Louis. 146 p. \$4.25 (softback).

This manual was designed to introduce selected analytic procedures for determining the presence of pollutants and for characterizing the general environmental quality. The analytic methods are derived from numerous sources but emphasize the use of pre-packaged materials and methods developed by certain commercial enterprises. Some scientists might consider some of the procedures unsuitable for research application; however, it should be kept in mind that the manual is intended for use by elementary-science students. To this end the manual serves its purpose.

There are five main parts: on particulate matter and chemical parameters affecting air quality, on chemical analysis of water, on microbiologic examination of water, on physical parameters of water, and on identification of pesticide residues by thin-layer chromatography. The sixth part consists of appendices. Each instructional part consists of a set of exercises concerning related pollution parameters. A brief discussion of the environmental significance of a given parameter is presented at the beginning of most exer-

cises. A list of materials and commercial sources for each test is followed by instructions for executing the analysis and interpreting results. Space is provided for recording results, and the student is asked to respond to questions. The appendices include a glossary, descriptions of environmental effects of pollutants, and information on air- and water-quality standards.

The manual is well written, and the format is such that an instructor can be selective in assigning the exercises and in the sequence in which they are to be performed. If you are seeking a manual for a beginning environmental-science course, this one deserves your attention.

Carl Prophet
Kansas State Teachers College
Emporia

HOW AND WHY NOT TO HAVE THAT BABY, by David B. Van Vleck. 1971. Optimum Population, Inc., Charlotte, Vt. 39 p. \$1.00 (softback).

This short book relates the concern about overpopulation to its ecologic consequences. It is the kind of information that should be within reach of every person sharing this concern and working with young people. The book tells it as it is: facts about reproduction, contraception, and abortion, as well as other aspects of the population problem, are treated straightforwardly, without any of the usual moralizing. Methods of controlling the size of the population and why these methods are urgently needed are clearly and factually stated. Every member of NABT should have a copy of this book. This would be one step toward making the information available to a wider audience. The book is published by a non-profit organization that is trying "to help reverse population trends, recognizing the fast accumulating evidence that unless this can be done in the very near future, catastrophe lies ahead for all of us on this earth."

Jack Fishleder
University of California
Berkeley

THE ECOLOGY OF MAN: AN ECOSYSTEM APPROACH, ed. by Robert Leo Smith. 1972. Harper & Row, Inc., New York. 448 p. \$6.95

The high quality of Smith's selections is most evident. The author did not limit himself to "ecologic" literature: they are taken from geography, anthropology, economics, political science, agriculture, and philosophy. And the commentary is excellent. Smith points out that the hunter and gatherer did not live on the edge of a catastrophe, nor did he need to develop a sophisticated social system. This view is confirmed in the article that follows: on the Bushmen of the Kalahari. Next comes an article on primitive agriculture, followed by

commentary suggesting that subsistence methods must be adequate if they have stood the test of time. (We are forced to ask, "Will present methods of technology stand the test of time?") The articles follow along this continuum. The idea of homeostasis between biotic and abiotic elements is developed early and is maintained as a theme throughout the book.

Smith states that "the book is intended as a supplement in any course dealing with man and the environment." Actually, the book is self-contained. It merits a place on every teacher's bookshelf.

Martin Borko
Orange County Community College
Middletown, N.Y.

THE EVERGLADES TODAY: ENDANGERED WILDERNESS, by George X. Sand. 1971. Four Winds Press, New York. 184 p. \$5.95.

This "angry book" describes the beautiful, mysterious Everglades just as the early Spanish explorers found it. Then, in contrast, it tells what the "greedy white men" have done to destroy it. As you read, you can see the great expanses of sawgrass, shiver at the thought of being attacked by hordes of mosquitos, wonder at the beautiful flowers around you, hear the varied sounds, and be thrilled by the unusual species of animals of the Everglades. Then, in the next paragraph, you are made aware of the destruction man has wrought. The Everglades has been reduced to half its original size and has been dammed, drained, and concreted. The topsoil has been destroyed and all has been burned, until even the balance between salt and fresh water is endangered. A great number of plants and animals are endangered.

Interwoven with this story of beauty and desolation is a history of the Everglades. It begins with the geology; and it includes the Seminoles, whose life and sad fate are discussed. Sand says of the future of the Everglades: "There is some comfort in the expectation that since technology created the Everglades problem, technology will also solve it." This is a good book for an ecology course and for the enrichment of any high-school biology class.

Martha G. Taylor
Haleyville (Ala.) High School

MAN, SPACE, AND ENVIRONMENT, ed. by Paul Ward English and Robert C. Mayfield. 1972. Oxford University Press, New York. 628 p. \$5.95 (softback).

Awareness of the ecologic crisis has followed a rather predictable course in the last 15 years. Membership in conservation societies mushroomed as the public began to be bombarded with popular articles deploring the ecologic

state of affairs, and the bandwagon of ecologic concern became almost too heavy to pull. Oftentimes, as in the case of detergent phosphates, the rash "cures" proved to be worse than the disease.

Meanwhile, back in the halls of ivy, a core of realistic people continued their research on patterns of culture. To understand human behavior was considered indispensable to the solution of ecologic problems. *Man, Space, and Environment* is a collection of 39 papers discussing aspects of human geography.

The book has six major sections. The first three deal primarily with the analysis of behavior: (i) from an historical perspective of community planning and development, (ii) as manifest in man's activities involving the environment, and (iii) as seen through his perspectives or images of his relationship to the environment. Here the doomsday tone usual in books of similar title is lacking; instead, the emphasis is on understanding the relationships man enjoys with his surrounding and on demonstrating that man is a product of his environment—not so much biologically, in the last few millenia, as culturally. The second half of the book discusses the spatial structure of human behavior: the causes and effects of man's diffusion and concentration around the world.

Although *Man, Space, and Environment* does not spout facts and figures about a rapidly depreciating environment and does not offer "quickie" solutions, it does do two things that are very important. First, it attempts an analysis of the patterns of human behavior in various parts of the world—patterns that have produced the ecologic manifestations our popular literature has emphasized in the last few years. Second, it reinforces the idea that rational thought and understanding of human perspectives are essential to effect long-range planning in the efficient use of the space and resources of our finite world.

Many of the papers are rather technical and would be somewhat difficult for a secondary student; but there is also much in this book from which students and their teachers can benefit—especially as biology becomes more and more integrated with the social, economic, and political aspects of our culture.

James L. Mariner
Fountain Valley School
Colorado Springs, Colo.

ENVIRONMENT: RESOURCES, POLLUTION, AND SOCIETY, ed. by William W. Murdoch. 1971. Sinauer Associates, Inc., Stamford, Conn. 447 p. Price not given.

The editor planned this book for undergraduates in interdisciplinary courses dealing with man and the environment, with the hope that the lay