

tist's research on higher plant evolution carefully blended with the results of other researchers. The book is a thesis of enormous scope, presenting evidence supporting the hypothesis that those mechanisms known to produce new populations and species are also responsible for the origin of genera, families, and orders of flowering plants. Because experimental proof of this theory is obviously not possible, its support depends on an enormous body of indirect evidence which indicates how various plant organs and plant groups originated and permits speculation about what forces probably influenced the development of these characters. As would be anticipated, Stebbins presents a very strong case to support this theory.

Since the author presumes the reader has familiarity with botanical terminology and plant family characteristics, the book will be difficult reading for most biologists. However, any teacher of plant morphology or taxonomy could benefit greatly from taking the time needed to read this book; he will gain fascinating insight into the evolutionary development and adaptive value of the various forms of plants. The teacher will be able to generate student interest by using Stebbins' theories and examples to unify the otherwise bewildering array of botanical characteristics, while avoiding the all too frequently committed error of presenting lists of diverse botanical features to be memorized with no appreciation for the order which has been provided in this work.

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Ecology and Environmental Biology

MAN AND THE ENVIRONMENT: AN INTRODUCTION TO HUMAN ECOLOGY AND EVOLUTION, by Arthur S. Boughey. 2nd. ed., 1975 Macmillan Publishing Co. (866 Third Ave., New York 10022). 575 p. \$8.95 softback.

This book provides an introductory overview of human ecology with emphasis on both its evolutionary and environmental aspects. It is designed as a basic college textbook in human ecology or as a supplement for related courses. It would be suitable for upper level high school students with a good background in biology. The 14 chapters have been well planned and well written and will give the reader a pleasant, intellectual view instead of the often rigid, mundane reading of a textbook. The author provides a background to the forward look that is necessitated by urgent considerations for the future.

This second edition has the same organization as the first but has updated chapters to show major advances in the field. Other new feature materials: the critical population problems, famines, the energy crunch, environmental legislation, and innovative fossil-dating techniques.

Pedagogic aids include current bibliographical references, appendixes, a glossary to explain key terms, and comprehensive author and subject indexes.

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Educational and Professional Concerns

OPPORTUNITIES IN FORESTRY CAREERS, by E. L. Demmon. 1975. Vocational Guidance Manuals (620 S. Fifth St., Louisville, Ky. 40202). 119 p. \$4.25 hardback, \$2.45 softback.

This book clearly describes careers for professional foresters. The author briefly, but accurately, provides a history of forest management in the U.S. and discusses the value of wood products to the American economy. The various aspects of forest management—from harvesting timber to providing for recreation—is highlighted. Demmon pays additional attention to specialty services such as forest pathology and entomology. The rest of the book accurately discusses the requirements of a forestry education and outlines the various programs offered by forestry schools in this country.

The book is primarily written for people leaving high schools and other people interested in careers in the out-of-doors. It is an excellent reference for vocational and career education counselors.

Overall, the book is very valuable, current, and informative. However, despite a need for better forest management in this country, opportunities in forestry may not be as available as the author asserts. This unavailability of jobs is due to several reasons among which is the insufficient budgets appropriated by Congress to the federal forest management agencies. Indeed, at present, there are thousands of graduate foresters on the Civil Service rosters who cannot find jobs. The author should provide some idea as to the availability of jobs in forestry with such variables as extended recessions, government spending policies, and the bureaucracy, as a whole, in mind.

Nevertheless, Demmon has produced a very readable book that will be of benefit to many interested in the forestry management area.

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T.E.T: TEACHER EFFECTIVENESS TRAINING, by Thomas Gordon. 1975. Peter H. Wyden (750 Third Ave., New York 10017). 366 p. \$9.95 hardback.

The success of his parent training program (*Parent Effectiveness Training*) prompted the author to develop this similar training program for teachers. The book develops scenarios familiar to all experienced teachers, depicting problems frequently encountered by teachers. Both adequate and inadequate problem solutions are developed through imaginary teacher-student dialogues. The advocated teacher-student relationship is an honest one in which the teacher is able to express actual feelings instead of masking them. Interaction between students and teachers follows the Rogerian technique which provides students with the opportunity to solve their own problems after successfully identifying them.

The book is pragmatic in that such topics as teacher-student communication, developing a learning environment, conflict between two or more students and between teacher and student, and the solution of emotion-loaded problems that defy any logical outcome are presented.

T.E.T. can be used by teachers to solve occasional problems arising in the classroom, or it can change the whole teaching outlook. In either case, the authority figure of the teacher is eliminated. The philosophy of teacher effectiveness training does not advocate either the traditional regimented classroom or the permissive classroom. It does advocate normal human relationships conducive to maximum classroom learning.

Gordon's book should be on the reading list for both in-service and preservice teachers. Although T.E.T. will not be panacea for all educational problems, it is a viable alternative for teachers who wish to change the classroom learning environment.

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NONTRADITIONAL COLLEGE ROUTES TO CAREERS, by Sarah Splaver. 1975. Julian Messner (One W. 39th St., New York 10018). 255 p. Hardback; price not given.

This book, a compilation of data which gives a detailed look at many aspects of nontraditional career preparation in college, touches upon interdisciplinary and student designed majors, off campus activities and study-abroad programs, correspondence study, consortia, experiential credit, new and unique colleges, campus-free degree programs, and life-long learning. It offers students an in-depth study of attractive alternative approaches to undergraduate degrees, the guidance that would help the student judge his capabilities for certain of these routes, and the addresses to which he may write for additional information.

Included also are many of the kinds of information a college or high school counselor would ordinarily have on file but would welcome in one convenient packet. Nowhere, until now, has there been a single volume covering so many of these alternative career preparation possibilities.

Obviously, such a volume could not be all-inclusive, but it does touch upon some interesting innovations such as the middle college concept being tried in some areas, which combines the final two years of high school and the first two college years for an associate arts degree.

The *external degree* is another newcomer on the educational scene. There are many variations. It is frequently offered by consortia, but sometimes by a single college or university, and is designed to allow the student to earn the degree beyond the college campus with competencies acquired "externally" through such means as correspondence, TV courses, or CLEP examinations. They are designed for independent study, but do stress the importance of student-faculty contact and guidance.

The table of contents is straightforward and a helpful guide to the wealth of material

contained in the book. The bibliography is not lengthy, but it points the user to most of the common sources, should he need them. There are two indexes, a career course subject index and a conventional item index. This is an unnecessary dichotomy and causes some inconvenience.

Despite the wide variety of material contained in the book, the author has a better knowledge of eastern colleges, it seems, than those in other areas of the country, and therefore gives a somewhat skewed picture of the field.

Many counselors and teachers who know the author's other books will welcome this newest addition. Her evident familiarity with both the material and the educational scene brings an authority to her insights and criticisms. Students, as well as their parents, will find the book a valuable source of information about alternate ways to prepare for a chosen career in college.

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General Biology

BIOLOGY: AND ITS RELATION TO MANKIND, by A. M. Winchester. 5th ed., 1975. D. Van Nostrand (450 W. 33rd St., New York 10001). 713 p. Price not given.

This college textbook has, during the past 25 years, progressed into its fifth edition. It is planned for a full-year biology course but may be shortened by omitting some chapters. There is no glossary and the index is not extensive enough to help a student refer back to many topics.

The student is challenged from chapter one on. The multiplicity of ideas presented in every chapter presupposes either high school biology or great inquisitiveness. Most frequently the basic ideas are not stated in concise sentences but in short paragraphs.

The first 72 pages are devoted to scientific method and the basics of matter, radiation, and energy as they apply to the origin and maintenance of life. Cell structure, homeostasis and living membranes, mitosis and meiosis, and metabolism and energy conversion are included in the 90 pages devoted to life activities. For the most part emphasis here is on basic structures and their functions rather than what happens in any particular organism.

Organisms are arranged by kingdoms and discussed according to phyla. Most discussions of phyla include little more than distinguishing characteristics, some members, and their economic importance. Extended treatment is given to bacteria and protozoa as pathogens; bacteria and fungi as decomposers; seed plants for plant structures, photosynthesis, respiration, and effects of plant hormones; and man as representative of vertebrates. In fact, all life processes of Chordates receive extended treatment (150 pages) using the structures and functions as they occur in man.

The last six chapters include short treatments of human sexuality and birth control; heredity; man's relations to his environs; and evolution. Each chapter ends

with thought questions applying ideas from the chapter, and suggested titles for further reading.

The format of the book is attractive, the print easy to read, and the illustrations adequate.

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BIOLOGY: AN INQUIRY INTO THE NATURE OF LIFE, by Stanley L. Weinberg. Rev. ed., 1974. Allyn and Bacon, Inc. (470 Atlantic Ave., Boston 02210). 644 p. \$14.50 hardback.

This book is intended for the first course in biology at the tenth grade level. It falls into the category of traditional biology textbooks and is supplemented by an annotated teacher's edition, laboratory manual, and text-coordinated transparencies.

The text surveys the various areas of biology, is knowledgeably written, and is especially thorough on biochemical topics. A readability test developed by Fry was performed on the text, and it was found to be very near eleventh-grade reading level. The first 82 pages stress the cell, introduce chemistry, and cover biochemical topics such as respiration. Although well written, this approach may not be the best way to introduce the average student to biology. The text is stated to encourage students to think for themselves through open-ended research and open-minded discussion. However, the chapters involving current issues and problems of man are placed at the end of the book. Questions at the end of each major division are asked in the usual format of name, describe, explain (how, what, and why) which reviews subject content but does not do much for the open-ended research idea. Some problems have occurred with color registration in printing, but some interesting new photos accompany the more familiar.

The laboratory manual offers 73 exercises which span the biological areas. Each exercise is simply explained, diagrammed where necessary, and well organized for both teacher and student.

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PATTERNS IN BIOLOGY, by David Harrison. 1975. Halsted Press (605 Third Ave., New York 10016). 256 p. \$12.95.

A wide gamut of biological facts, ranging from Oparin's concept of coacervates to futuristic ramifications of the evolutionary process, are covered in this textbook. Material is divided into three major sections: the cell and its metabolism; continuity of organisms: patterns of reproduction; and continuity and discontinuity: inheritance variation and evolution. Sections are profusely illustrated with graphs, charts, diagrams, portraits, and photomicrographs.

Although the author's intent is to present reference materials suited to advanced students of biology, he also includes detailed basics of fundamental biological significance. Among these are the immune mechanism and structural configuration of DNA and RNA as

well as functional aspects of macromolecules. Consideration is given to viruses as aberrations of normal protein synthesis, the mechanism of energy interchange in cells, and basic embryonic development.

Nearly half of the book centers on genetic aspects of continuity and discontinuity. The bases of heredity are explored, beginning with Mendel's genetic propositions and going on to the phenomenon of immunological tolerance accounting for variations in plant and animal species. Genetic predictability as well as unexplained variability receive ample consideration. The evolutionary role of mutation is elaborated in terms of ecological significance of the biosphere.

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ELEMENTS OF BIOLOGY, vol. 1, by P. K. Nair and M. Mohan Kamath. 1975. Asia Publishing House (420 Lexington Ave., New York 10017). 239 p. \$5.00 softback.

This textbook was written to meet the requirements of the students of the first year of a two-year "pre-university" course. I assume this means an introductory course for the college-bound high school student. The book would serve as a fine summary for a person needing to review for a comprehensive exam over a course in general biology. All aspects of biology are covered with adequate emphasis on each. The illustrations are quite good, especially in the portion of the book devoted to botany.

The number of facts and vocabulary words presented is enormous and, in most cases, lack experimental evidence to help reinforce the concepts. Most pages have far too many new vocabulary words, which reduces the readability of the book. A glossary—very important to the introductory biology student—is not included.

I found nothing particularly new and refreshing about this textbook. It summarizes well but tends to emphasize facts rather than ideas.

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ACTION BIOLOGY, by Stanley L. Weinberg and Herbert J. Stolze. 1974. Allyn & Bacon (Rockleigh, N.J. 07647). 456 p. Price not given.

This is a biology textbook written on the third and fourth grade reading level. It should be most useful in a multilevel classroom situation in either middle school, junior high school, or even high school. The book is organized with a minimum of general reading before an activity is introduced. The content is scientifically sound with a minimum of scientific terminology. Questions are asked at the right time and do not become a burden to the text. The word guide for pronunciation is very good.

The seven units are well selected and each could be taught separately. One gets the feeling that they may have been originally intended as minicourses. They are titled "Keeping Alive"; "Food"; "The Invisible