

General Biology

lection, the effects of population increase, pest control, and many other human endeavors. The section ends with a survey of our health problems, their causes and potential solutions. The reader is acquainted with the concepts of aging, the artificial heart, cancer therapy, biofeedback, and genetic disease, identification, and treatment.

The "Future" begins with an analysis of human behavior, as it is shaped by our technological environment and as it might shape our future. "Much of our behavior is obviously learned, rather than genetic But what of . . . aggressiveness, ambition, the urge to form a family? Are these learned or genetic characteristics?" The science of ethology is also described. McClary proves to be a realist, by admitting that "all cultures serve their own interests first and nature's second" "We suggest that all peoples, Western or not, use nature on their own terms." Even, he says, the American Indian. He also admits what many of us forget: ". . . any step by Western culture back toward an earlier kind of nontechnological environment would . . . be a step down the evolutionary process It would be a renunciation of the human potential." In a sense, the machine is not rendering man less human, but is instead an indication that man is becoming more human and more capable of utilizing nature to his benefit, as all species do. "To renounce technology is to renounce the human potential." We must not abandon technology, but we must integrate it more functionally with nature.

Being a realist, the author admits to the problems of vertical ecosystems called "high-rise" apartment buildings, the danger that "Machine made objects [may] have a dehumanizing effect" in some circumstances, and the decline of diversity and increase in specialization.

The book offers many tangential notes that are presented as sidelights to the main text. The best of these are "The Importance of a Front End," "Is Human Society a Superorganism?", "Reality as Seen by Art and by Science," and "Why Lawns?"

Some errors or debatable statements include the statement, "Most biologists oppose vitalism"; the assignment of purpose to the evolutionary process, especially in the first chapters; and an evolutionary tree showing all Chordate classes that lacks birds.

Any teacher who employs this book as a textbook is bound to disagree with some of McClary's beliefs. But this is one of the credits owed the author. He invites disagreement; but he offers sufficient background to enable the reader to be knowledgeable in reaching a conclusion.

This is a beautiful book—brief survey, detailed, not boring at all—the best in its class.

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BIOLOGY OF THE FUTURE, by Eckehard Munck. 1974. Franklin Watts, Inc. (730 Fifth Ave., New York 10019). 128 p. \$5.90 hardback.

This book, even though small, encompasses most of the concepts of modern biology without going into much history. It focuses on many of the new areas of biology, such as bionomics, molecular biology, ethology, and so on, which have come to be an important part of modern biology because of the work of philosophers, psychologists, and others. The author states that our only hope in survival lies in the understanding of the life around us and ourselves.

"Zero Hour," "And Slew Him," and "Whereto, Adam?" are examples of some of the intriguing chapter headings found in this book. Accompanying these interesting chapters are some unusually good and interesting illustrations, some in color, others in black-and-white. My only criticism of this book is on the sequence of the material. Chapters 1 and 2 discuss the cell, DNA, and the genetic code, which should have been placed in the last half of the book in exchange for some of the exciting and more interesting material that could provide a stimulus to the average reader. This book is intended for grades seven and up; however, it might be a little difficult for younger readers.

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MAN AND THE NATURAL WORLD, by Coleman J. Goin and Olive B. Goin. 2nd ed., 1975. Macmillan Publishing Co. (866 Third Ave., New York 10022). 654 p. Price not given.

Educators and students who utilized and enjoyed the first edition of this textbook will surely welcome the second edition, as the body of the book has remained intact. One of the author's original convictions in writing the first edition was that ". . . such biological phenomena as respiration, osmosis, and energy exchange are more interesting, more understandable, and more thought-provoking for the general student when examined in the context of his own body and life." This premise has not been altered. The second edition once again presents biology to the prospective nonscience major using the human body as the principal experimental system.

Changes from the first edition are minimal and consist primarily of updating. Most of the modifications are simply incorporated at the conclusion of existing information.

The book is clearly and concisely written, relying heavily on diagrams

for illustrative material. Many of the selected drawings are quite "diagrammatic" and, in some instances, forsake absolute scientific representation for the sake of emphasis. Photographs receive only limited use, being most evident in the taxonomy, ecology, and behavior sections.

Very little chemistry is included in the book, other than the elementary material found in an appendix. In addition, detailed experimental evidence is lacking. These omissions probably reflect the book's intended use, which, in my opinion, would be best served in high school and community college courses for students not preparing for a career in the sciences.

One of the most educationally enjoyable and satisfying aspects of the book is the author's use of material from disciplines other than science to convey scientific information. For example, the "tears" of the Mock Turtle are employed to illustrate the phenomenon of salt elimination, and quotes from Shakespeare attest to an early medical understanding of the value of urinalysis.

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BIOLOGY: A HUMAN APPROACH, by Irwin W. Sherman and Vilia G. Sherman. 1975. Oxford University Press (200 Madison Ave., New York 10016). 553 p. \$13.95 hardback.

This introductory textbook is divided into three sections, the first reviewing such topics as the origin of life, the nature of the cell, and the chemical aspects of respiration, photosynthesis, and the genetic code. The second section focuses upon the human as a "type" organism, with chapters on reproduction, development, digestion, circulation, and coordination, while the concluding part contains chapters on human genetics, evolution, and environment.

The book is well designed, with many excellent illustrations. An index and two appendixes (general chemistry and metric measurement) are included. Frequent "asides" from the text appear in boxes and add interesting vignettes into biological inquiry. An admirable teacher's guide ("Teacher's Companion To . . .") is also available and provides, for each chapter, an outline and summary, objectives, reference and film lists, and sample questions.

The emphasis on the human organism is both a strength and a weakness. Because the book is written for the nonmajor, many familiar topics have, of necessity, been excluded. Most notable, of course, is the absence of botanical references. With the exception of photosynthesis, very little discussion of plants is found, and such commonly encountered botanical words as *algae* or *flower* are not indexed. (But then,

neither is *Mendel*, though a two-page boxed summary of his work is included.)

Whether or not a book for beginning students should emphasize so strongly (and exclusively) the human organism, nearly all instructors recognize that perhaps the biggest challenge in teaching such a course is deciding what to eliminate, not what to add. In any case, this book offers an attractive alternative to the conventional survey textbook.

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Superior

BIOLOGY AND MAN, by William D. McElroy, C. P. Swanson, and R. I. Macey. 1975. Prentice-Hall, Inc. (Englewood Cliffs, N.J. 07632). 672 p. \$12.95.

It is unfortunate in this day of increasing sensitivity to the equality of the sexes that throughout this book human beings are almost always referred to as "man." Even the section describing the development of eggs in the ovary is indexed "Reproduction in Man." Prentice-Hall editors would be well advised to obtain a copy of the 11-page "Guidelines for Equal Treatment of the Sexes in McGraw-Hill Book Company Publications."

A second unfortunate decision was to rely too heavily upon simplifying and combining books from the 1969 edition of Prentice-Hall's paperback series *Foundations of Biology* without adequately editing out overlapping material or consistently up-dating. The "Foundations" series was not a textbook; instead, each paperback presented extensive narrative on selected subjects. Used in conjunction with a textbook or for special reading for advanced work, each book of the series was very good. Whether this or any series like it could ever be remodeled into an equally good textbook is not for me to say, but it is clearly evident that this conversion leaves a great deal to be desired.

In regard to subject matter presentation, the focus is so restricted to the human that the book cannot be considered for adoption in general biology courses. Even in the chapters on cellular biology only two pages are devoted to plant cells, ten pages to photosynthesis, and three to plant reproduction. The first 23 chapters form part one under the general title of "Modern Cell Biology" and deal with the cell, its chemistry and structure, reproduction, genetics, development, concluding with evolution and the origin of *Homo sapiens*. Part two presents the organ systems as found and functioning in the human animal in ten chapters along with two chapters that primarily present topics already discussed in part one. Part three, "An Ecological Epilogue," is a single chapter presenting

some basic ecological concepts while showing that many present activities have put the human species on a collision course with ecological disaster.

Each chapter concludes with a summary, a list of very sophisticated questions for thought and discussion, and suggestions for further reading (most of which were published prior to 1968). There is a glossary of terms at the end of the book. Page composition is clean and uncluttered and type easy to read. Figures and diagrams are numerous, clear, and easy to understand. Construction of the book appears adequate for its anticipated use.

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WHERE DO I FIT? A module of the BSCS Human Sciences Program. Exp. ed., 1974. Biological Sciences Curriculum Study (P.O. Box 930, Boulder, Colo. 80302). 310 p. Price not given.

The physical, social, and physiological changes that accompany the shift from youth to adult status form the fabric of the activities offered in this module. Interdisciplinary throughout, the activities are intended for middle and junior high school students. There are 22 activities in the section "Where Do I Fit as a Person?"; 11 activities in "Where Do I Fit as an Organism?"; and 11 in "Where Do I Fit in the Future?"

The teachers guide consists of two parts: the teacher's part in the front, and the student activities in the back. In the teacher's part the activity objectives are clearly stated, and packing lists and evaluation facilitations complete this section. The activities, printed in black on heavy, multicolored construction paper, are poster-like in appearance. Cartoons, charts, diagrams, and sketches are used liberally.

This course is a departure from the usual BSCS style. It has no expository text, addressing itself to the student entirely through open-ended activities and evaluations. To a teacher accustomed to structure and a single discipline this course may seem to lack substance.

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Genetics

HUMAN GENETIC NOTES, by M. M. Green. 1975. Addison-Wesley Publishing Co. (Reading, Mass. 01867). 225 p. Price not given.

This syllabus is intended for students who have completed a first course in biology, an elementary course in statistics, and have some knowledge of biochemistry. It was developed to minimize the amount of note-taking and to

maximize the amount of listening done by students. Most of the 22 chapters are similar to those in usual textbooks, although they are centered on man. Regrettably, there is no discussion of the interesting and exciting aspects of twinning in man, and the lack of an index is notable.

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Health

HANDBOOK OF MICROSCOPIC ANATOMY FOR THE HEALTH SCIENCES, by Annabelle Cohen. 1975. C. V. Mosby Co. (3301 Washington Blvd., St. Louis 63103). 143 p. \$5.50 softback.

This book presents the general features of microscopic anatomy to those who are preparing to function or are functioning in a hospital atmosphere, in nursing or as technical or paramedical personnel. It stresses the structural organization of cells into tissues, tissues into organs, and organs into systems.

The book is very precise, emphasizing the most important aspects of the microscopic anatomy of the human body. It combines normal with abnormal histology and includes information on malignant and benign tumors of the body tissues.

The first three chapters are general; they introduce primary tissues, histological design of organs, and abnormal tissues. The remaining ten chapters deal with the organization of body systems.

I found this handbook to be good in that it is factual, concise, defines terms in use well, and includes many photomicrographs to illustrate the text. It is easy to read and includes an extensive index that enhances its use as a handbook. The information is practical enough to be useful to any person associated with health sciences.

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Microbiology

MICROBIOLOGY, by L. P. Gebhart and P. S. Nicholes. 5th ed., 1975. C. V. Mosby Co. (3301 Washington Blvd., St. Louis 63103). 367 p. \$11.95. *Microbiology Laboratory Manual: A Sequence of Experiments*, 2nd ed., 1975. 98 p. \$5.50.

According to the authors, the major reason for this fifth edition is to "keep the student up to date in the field of microbiology since an ever-increasing