

pany the text, which would lose something if paired with a more traditional type of laboratory manual.

I recommend the book to biology teachers at all levels as an idea resource on the use of the unifying theme of evolution through natural selection and as a thoughtfully written biology book.

Robert Patterson
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Genetics

OUR FUTURE INHERITANCE: CHOICE OR CHANCE? by Alun Jones and Walter F. Bodmer. 1974. Oxford University Press (200 Madison Ave., New York 10016). 141 p. \$13.00 hardback, \$4.00 softback.

This book is a thorough presentation of the scientific, social, ethical, and legal implications of recent advances in genetics and biology in Britain and the United States. Topics reviewed: artificial insemination by donor, artificial fertilization, genetic screening, and selective abortion, organ transplantation, genetic engineering and cloning, and social concerns for biological research.

It was written primarily to educate the public in recent developments in biology under the direction of a multidisciplinary committee (working party) from the British Association for the Advancement of Science, but it will surely find a wide audience among a variety of biological scientists and students as well.

Each topic mentioned above is thoroughly reviewed as a separate chapter with adequate illustrations, tables, charts, and photographs. The final chapter is particularly significant as it reviews each topic from the viewpoint of social concerns for these biological developments. Many questions are posed and possible dangers highlighted, but the authors have chosen to allow the readers to draw conclusions for themselves. Nevertheless, the message comes through most clearly that there is a strong need for public awareness of some of the new biological research, particularly in genetics, and at the same time there is a corresponding need for restraint in certain areas by the researchers themselves.

Donald D. Rabb
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HUMAN GENETICS, by A. M. Winchester. 2nd ed., 1975. Charles E. Merrill Publishing Co. (Columbus, Ohio 43216). 221 p. \$3.95 softback.

This book is aimed at "the average person with little background in the sci-

ences." In size and scope, it is rather more comparable to the McKusick book than to the more extensive works by Stern and by Sutton. It is probably intended as a textbook for a nonmajor course in human genetics or human biology, for which it would be adequate.

Although the book is concise, its organization logical, and its technical demands minimal, it may not serve its intended audience well. The approach is classical: the principles of heredity are presented and are fleshed out with standard examples of human genetic situations. Unfortunately, this approach might miss the mark for the general student who has become aware of the impact and excitement generated by dramatic advances in modern genetics, and who has come to recognize the very personal stake all people have in human genetic advance. Because a number of students have presumably come to the discipline of human genetics primed with bits of information about human heredity which led them to seek a more vigorous and methodical presentation of the subject, it seems logical that their interest in learning basic genetic principles would be stimulated by an early introduction of well-chosen examples of human situations. Although this book follows a standard model for presenting the information and is clearly written, it seems to run counter to this logic.

There are certain peculiar omissions in this work. There are too few descriptions of particular genetic situations in other organisms which might have profound relationships to the human condition, and there is no extended discussion about ethical considerations of genetic advance. Amniocentesis is presented very briefly as a modern technique, but the full extent of its usefulness is not discussed. Nor are cloning or genetic engineering dealt with.

The text is followed by a short glossary, which is not especially useful, and by an index, which is adequate. There are no literature references.

This is one kind of introduction to human genetics. It has clarity and brevity as its strengths. It does not overstate. But it misses the excitement of the field.

Richard A. Levin
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History and Philosophy

STUDIES IN THE PHILOSOPHY OF BIOLOGY, ed. by F. J. Ayala and T. Dobzhansky. 1974. University of California Press (2223 Fulton St., Berkeley 94720). 412 p. \$22.50.

There has long been controversy in biology between the reductionist and the antireductionist schools of thought. This book is a very enlightening series of essays by distinguished philoso-

phers and scientists examining the different domains of reductionism.

The authors present a variety of viewpoints of the ontological, methodological, and epistemological dimensions of reductionism. The ontological studies explore the question of whether physicochemical entities and processes form the basis of living systems. The methodological treatment answers questions regarding the strategy for research and the acquisition of knowledge. Epistemological studies examine the nature and origin of knowledge and how reductionism bears on comparisons of laws and theories in different branches of science. The task undertaken is enormous and cannot be covered in one volume, but undoubtedly this is one of the most distinguished studies on the topic.

To anyone interested in the nature of science and to scientists concerned about priorities in biological research of the future, this book should be a valuable addition to the library.

Godfrey Roberts
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Physiology

BASIC SCIENCE AND THE HUMAN BODY, by Stewart M. Brooks. 1975. C. V. Mosby (3301 Washington Blvd., St. Louis 63103). 499 p. \$11.95.

Several unique aspects of this book make it an excellent text for an introductory course in human anatomy and physiology for nurses and paramedics. The first four chapters review the needed chemistry, physics, and microbiology and form a useful student reference. The material in these chapters is somewhat detailed and occasionally irrelevant to the main topic of the book, but the material can be easily skipped by well-prepared students.

A classical, system-by-system, approach is used, with the addition of considerable amounts of material on disfunctions and diseases of the system under discussion. This sort of material is often added to lectures by the instructor; now the student can have a written reference to the most common diseases and problems of the human body, in reasonably untechnical language.

Each chapter ends with 50-100 questions on the general topic of that chapter, many of which force the student into outside references, or to other chapters. Selected questions would make a good study guide for the chapter, but great care must be used to pick questions that can be answered with the material in the book.

Rather than conversational, the style is terse, pithy, with heavy use of precise anatomic vocabulary. Thus, the reading is difficult but blessedly short. For example, the stomach is described

as "an ovoid, musculomembranous pouch."

The illustrations—all black-and-white—are excellent and well integrated with the text. Most are simple line drawings, but photographs of diseased persons and organs and some photomicrography add spice.

The book ends with a very good glossary of some of the more commonly used words in the text and a very lengthy, detailed, and accurate index—an absolute necessity for a book of this kind. The book's only failing is its rather dated approach and spellings. For example, the terms "electron shells" and "valance" fill the introductory chapters, while the chapter on vitamins does not mention vitamin overdoses. Marijuana use barely rates mention.

While the language and clinical approach exclude it from use in most high school courses as well as most college physiology courses, the fine index and detailed descriptions of malfunctions of the human body make it an excellent reference book for teachers of these subjects.

Charles J. Harris
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HUMAN ENGINEERING: THE BODY RE-EXAMINED, by John Lenihan. 1974. George Braziller (One Park Ave., New York 10016). 207 p. \$7.95 hardback.

For the high school student who has not thought of the human body as an engineering feat, this book is interesting, understandable, and easy to read. It presents a fresh and very needed approach to anatomy and physiology. Various systems and organs such as the skeleton, muscles, skin, ear, and central nervous system are dealt with, thereby illustrating the application of various aspects of engineering (mechanical, chemical, electrical) to the body.

The book is intended primarily for the beginner since it lacks depth and detail. Chapter 1 on the skeleton is well done, but as the book continues the text becomes more and more superficial, leaving many unanswered questions in the reader's mind. In dealing with the nervous and circulatory systems, the author tries to include so much material that the text becomes collages of brief paragraphs. In the discussion on the respiratory system, the actual mechanics of breathing have been omitted. The last chapters, "Spare Parts" and "Can Man be Improved?" are very short and do not satisfactorily cover material of great interest to the average reader. The last pages on reproduction are printed and positioned so that they seem almost ostracized from the rest of the text.

There are some gross errors; for example, the elbow is included as a ball

and socket joint and the bird as a cold blooded animal. There are 13 illustrations, many of which do nothing to clarify the text because they have no labels. While the book attempts to bridge the gap between biology and engineering, it is an expensive bridge without a strong foundation.

Thelma J. Flint
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NEW PARTS FOR OLD, by John G. Deaton. 1974. Franklin Publishing Co. (P.O. Box 765, Palisade, N.J. 07204). 160 p. \$7.40.

This is a simple but intensive story of the history and current status of organ transplantation. Readers will be surprised to learn how ancient the practice, including that of skin transplantation, is. There is good descriptive material on pioneer researchers of the subject, stressing the great reliance on fundamental and basic research. Much could not be accomplished until such technical advances as the development of the heart-lung machine.

The book is highly recommended for secondary school readers as well as biology teachers.

Paul Klinge
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Related Fields

PROBABILITY AND CHI-SQUARE FOR BIOLOGY STUDENTS, by Sandra F. Cooper and Thomas R. Mertens. 2nd ed., 1974. Educational Methods (500 N. Dearborn St., Chicago 60610). 118 p. \$3.75 softback.

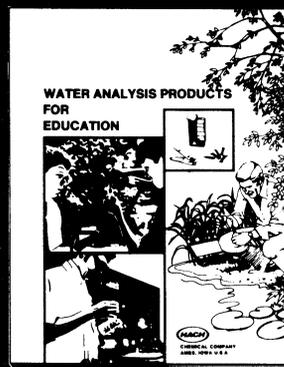
In this programmed approach to elementary probability and the application of the Chi-square procedure to hypothesis testing, some acquaintance with Mendelian genetics and elementary algebra is assumed. The material is presented in frames, with answers to frame questions occurring directly after each frame. There are also three progress quizzes and a comprehensive review. A table of Chi-square is included.

The frames read easily, and generally there is sufficient repetition to assure drill learning. The coverage of probability goes through the binomial expansion, but the binomial distribution as a statistical concept is not covered. While the methodological instruction seems sound, some fundamental concepts, such as independence or the choice of an appropriate significance level, are passed over very lightly.

In most cases, the book will be of best use in a genetics course in which the textbook does not cover the equivalent material adequately.

Werner G. Heim
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