
The Moon. *V. A. Firsoff.* A Signet Science Library Book: P 2985. New American Library, New York. (paperback) 1966. 127 p. \$.60.

This book may be considered a simplified, shortened, and brought-up-to-date version of the author's "Strange World of the Moon" (1959), in which he made all sorts of unorthodox suggestions (including possible existence of life on the moon).

The same unorthodox approach remains in this booklet, with much effort spent trying to be facetious. Thus women astronomers become "astronomettes" (p. 55). The NASA is likened to a river which "rises in a distant watershed in the taxpayer's pocket and flows with swirling megabucks" (p. 116). Albedo is derived from "the Spanish name of Albedo (=whiteness), possibly in honour of Spanish whiting" (p. 7), etc. Perhaps this sort of humor is necessary in a successful book for the masses, but I hope Mr. Firsoff is mistaken in this. In a small book, it is obviously impossible to give a detailed account of our present knowledge of the moon. The author evidently did not even try to do this. The first 45 pages of the book represent the only part which might be called strictly scientific. The rest is a mixture of solid science and wild speculation about the possible utilization of the moon in our earthly schemes. The moon is supposed to be "an ideal spacecraft carrier" and "an ideal site for an astronomical observatory." Also "there may be rare minerals and metals there" (p. 117), etc.

All this, with the discussion of Russian Luniks (Ch. 5) and American Rangers (Ch. 12) sounds very modern, but in fact is not. In 1737 Thomas Gray (*Luna Habitabilis*) predicted for the moon the happy fate of becoming a British colony, and even companies for the commercial exploitation of the moon were formed. In one of Jules Verne's novels, the hero (M. Ardan) proposed to take possession of the moon in the name of the USA. Scientists certainly cannot hope to compete in their flights of imagination with poets and novelists, and would do better to restrict themselves to genuine scientific matters.

N. T. BOBROVNIKOFF

Nerve, Muscle and Synapse. *Bernard Katz.* McGraw-Hill, New York. (paperback) 1966. 168 p. \$.25.

This book by Professor Katz represents a brief up-to-date summary of modern concepts of nerve and muscle physiology. In his preface Professor Katz states: "The purpose of this book is to explain in simple language what is known about the transmission of messages in the living body." He has been successful in a simple and concise manner. Various physical and biological analogies are cleverly incorporated into an explanation of nerve phenomena, and yet these analogies are not over-extended. The way that modern concepts have developed is frequently of interest. Professor Katz discusses some of the more important of the out-dated theories which have evolved into or become a part of the present explanations of neuro-muscular responses. Throughout this historical review of previous experiments, only major theories are presented so that the reader is not bored with a discussion of the irrelevant concepts which occurred on the pathway to present-day thinking.

This book will be of value to almost every investigator who attempts to assess neuro-muscular phenomena. To this reviewer, the book seems especially appropriate both for the advanced student, as well as for the general biologist who wishes to become familiar with the concepts currently entertained by neuro-muscular physiologists.

JAMES A. GROSSIE

BOOK REVIEWS

The Life of the Forest. *Jack McCormick.* McGraw-Hill Book Company. New York, 1966. 232 p. \$3.95.

With the recent upsurge in the number of profusely illustrated books on natural history, the buying public may now become selective. This book for the interested layman and the beginning biology student is well worth the price. The book is a masterful coupling of an exceedingly lyric text with beautiful illustrative material. The writing is pleasing without being teleological, factual without appearing erudite, and instructive without becoming pedantic. The 107 color and 45 black-and-white photographs, numerous line drawings, and color diagrams are appropriate to the textual material and are, with few exceptions, aesthetically pleasing.

The text is divided into three major divisions. In the first, the forest ecosystem is described. Emphasis is placed on the interrelationships of the various animal and plant populations. Basic concepts of ecology, including forest structure, food chains, and successional stages are presented clearly and carefully. In part two, changes that take place in forests in each season are described. This includes brief insights into such things as primary production, autumn leaf coloration and abscission, bird territorialism, and mammal hibernation. Part three contains brief descriptions of the major forest types in North America.

There are nine appendices of varying relevance and informativeness. A glossary and an index are included.

DERRY D. KOOB

Dictionary of Mathematics. *C. C. T. Baker, B.Sc.* Hart Publishing Company, Inc., New York. 1966. v+352 p. Cloth \$6.95; paperback \$2.65.

This is a small, very handy dictionary of mathematical terms and associated facts from the fields of algebra, arithmetic, geometry, trigonometry, coordinate geometry, and calculus. The lay reader is also helped by some practical information and memory aids. In addition there are extensive appendices of symbols, formulae, and tables.

The author apparently has utilized many years of experience to make his communication with the reader most effective. The approach is completely classical and a bit old fashioned, in a competent sort of way.

This is a nice volume for every private mathematics collection.

SAM E. GANIS

How To Use A Microscope. *Walter Shepherd.* Signet Science Library Books, The New American Library, New York. (paperback) 1966. 128 p. \$.60.

This Signet paperback is a first printing and is written for the layman or beginning science student who wants to learn the working principles of a microscope and how to use one. The book is well written, in nontechnical language, and has an abundance of drawings, diagrams, and charts to clarify the writing. Nine black-and-white plates are also included. The author uses a minimum of technical terms in his descriptions.

The book contains six chapters, the first of which deals with a brief description of optics and how optical properties are employed in a microscope. In addition the parts of a microscope and their functions are thoroughly described, with emphasis placed on degree of magnification, depth of focus, resolution, and field of vision.

Chapter two explains how to use a microscope to best advantage, emphasizing the advantages of top-lighting, dark-ground illumination, or transmitted light, depending upon the type of specimen to be viewed. The first two chapters comprise about half the book and are especially well written.

The remaining four chapters contain guides for the beginning microscopist: where to collect specimens, how to prepare and mount them, including how to stain where necessary, and the best ways to view them. The use of high magnification is explained so that the beginner might try viewing the finer details of such things as diatoms, bacteria, or the Brownian Movement. For those who might wish to go beyond the scope of this book, the author includes a list of suggested readings.

Throughout the book, the emphasis is on inexpensive and easily obtainable materials that anyone might procure. Care is taken to explain dangers that might damage equipment or harm one's self. The book is well worth its price.

JAMES F. GREGORY

THE OHIO JOURNAL OF SCIENCE 67(1): 57, January, 1967.

Giant Molecules. *Herman F. Mark and the Editors of Life.* Time Inc., New York 1966. 200 p. Illustrated, 72 p. in color, bibliography, index. \$3.95.

Giant Molecules is two books: a picture book interleaved between the pages of an essay. The tone of the work is established by the first chapter, "An Age of Plastics," and the accompanying pictorial section, "Wigs, Dams and Statues." The emphasis is on the prevalence of plastics in our life, and on the dollar size of the plastics industry. The second section, "Discovering the Molecule," mentions contributions of some 18th- and 19th-century chemists, and the picture portion correlates fairly well with this text. Surely two of the photographs, one showing the action of hydrochloric acid on marble and another showing the formation of a silver chloride precipitate, rank among the most beautiful photographs ever taken of chemical reactions. "Blueprint for the Polymer," the third section, promulgates an anthropomorphic view of how covalent bonds result from the "arms" of carbon atoms, and the view is sustained in a later picture section entitled "Cellulose." Following this there are sections that deal exclusively with a history of the DuPont company, and with Goodyear and synthetic rubber. Finally the special properties of Teflon, Spandex, cis-polybutadiene, Corfam, and other similar materials are discussed.

There is little continuity between succeeding essays; what continuity there is, has been reduced by the blocks of pictures. The authors do not appear to know what has gone before. For example, on page 157 the reader is told that in structural formulae, C stands for carbon, etc., although methane and other molecules were diagrammed with the same conventions on page 52, and on page 79 acetyl groups were abbreviated as (COCH₃). The text occasionally makes a point of careful definition, although smokeless powder is described as "colloided" (*sic*) cellulose nitrate, and yet what a colloid might be is nowhere indicated.

Composition by committee removed one of the main purposes of this book, the presentation of a point of view. As a result the text, in spite of the excellent photography is, at least to this reviewer, almost useless.

J. Z. FULLMER

Natural Vegetation of Ohio at the Time of the Earliest Land Surveys. Prepared by *Robert B. Gordon.* Colored map, 1 sheet, scale 1: 500,000, 1 inch equals approximately 8 miles. The Ohio Biological Survey, The Ohio State University, 124 W. 17th Avenue, Columbus, Ohio 43210. 1966. Folded \$1.03, rolled \$2.03.

Ten major natural (original) vegetation types are mapped and briefly described on this valuable map and portrayed in eight colors. Dr. Gordon compiled the extensive data on which the map is based with the help of many field assistants, advisors, and published studies. The sources of data are indicated and will be given more completely in the bulletin now in preparation that is ultimately to accompany the map.

E. D. RUDOLPH

John Torrey; A Story of North American Botany. *Andrew Denny Rodgers, III.* Hafner Publishing Co., New York, (facsimile of 1942 edition), 1965. 352 p. \$7.50.

The emergence of American botany on the international stage as a science on a par with that of Europe in the mid-nineteenth century is the story told in this work. John Torrey and his disciple Asa Gray were the leaders, among botanists, collectors, and explorers, of a movement that finally led to the systematic understanding of our native flora. Scholars and serious readers will be delighted to again have this documented work available, with its extensive quotations from letters and journals.

E. D. RUDOLPH

The Classical Moment Problem. *N. I. Akhiezer.* Translated by N. Kemmer. Hafner Publishing Co., New York. 1965. x+250 p. \$10.00.

This book deals with a somewhat specialized classical moment problem, but significant matter from associated areas is also included. The exposition is excellent and the translation skillful. A useful device is the gathering, at each chapter end, of "Addenda and Problems," permitting the reader a rapid survey by omitting these sections, or a thorough study by including them. The problems are not trivial but, in many instances, advance the exposition.

The scope of the book may be indicated by the chapter headings: Infinite Jacobi Matrices and their associated polynomials; The power moment problem; Function theoretic methods in the moment problem; Inclusion of the power moment problem in the Spectral theory of operators; Trigonometric and continuous analogues; an Appendix on Stieltjes continued fractions; a comprehensive bibliography, and index. The book can be recommended to the somewhat limited readership to which it is addressed.

F. C. OGG

Symbolic Logic and the Real Number System. *A. H. Lightstone.* Harper and Row, New York, 1965. ix+225 p. \$7.50.

Mr. Lightstone's book is a strong development of the real number system from the point of view of modern abstract algebra and symbolic logic. According to the author, this material is suitable for an undergraduate who has had at least two years of university mathematics. It would also seem sufficiently challenging at the early graduate level.

Chapter 1 develops the strict language of logic with which the various theorems are presented in the following chapters. Chapter 2 is a good treatment of sets, and abstract algebra comprises chapter 3. Chapters 4, 5, and 6 develop the real number system from Peano's axioms, using sequences including the limit concept. The appendix mentions cardinal numbers and complex numbers, at least the first of which could have been incorporated in the body of the study of the real numbers.

The book is well written and should appeal to the mature mathematical student. Its use as a textbook for undergraduate courses in the United States (Mr. Lightstone teaches in a Canadian university) is doubtful. No doubt it would be valuable in a reading course or as material for a seminar. It will be worth the time of any serious student desiring individual enrichment.

SAM E. GANIS

The Way of an Investigator. *Walter Bradford Cannon.* Hafner Publishing Co., New York. Reprint, 1965. 229 p. \$5.50.

This autobiography is a reprint of the 1945 edition, which has been out of print for several years. Its popular appeal rests in its unique quality of expressing, in restrained drama, a happy blend of *being* as well as *doing*. The subtitle, "A scientist's experience in medical research," explains the *doing*. Only a person in love with life can communicate the *being*. W. B. Cannon combines both into the making of a whole person. In the process, university traditions are both criticized and cherished. No young biologist can fail to be delighted that all of this art and science of medicine is again available for leisure reading.

A. E. WALLER

Integrated Principles of Zoology. *Cleveland P. Hickman.* The C. V. Mosby Co., St. Louis. 3rd Edition, 1966. xiii+965 p. \$8.50.

This introductory zoology text was revised to give the college student a concise, up-to-date, and usable book for classroom study. These aims are well fulfilled by the author.

The book is divided into six major divisions: Part One—Structural and functional organization of animal life; Part Two—Morphological and physiological principles of animal life as revealed by the various groups (phyla); Part Three—Résumé of organ systems with particular reference to man; Part Four—Origin and relationship of animals; Part Five—Adaptive and environmental relations of animals; Part Six—Development of zoology. Throughout the book the author refers to Chapter 7, in which he sets forth 35 generally accepted biological principles and concepts.

This edition is well written, nicely organized, and contains concise descriptions which are scientifically sound and well documented. In controversial areas, the author is quick to admit that more work needs to be done to solve these problems, and tends not to make any dogmatic statements. Historical credits are given whenever possible.

Outstanding discussions are presented on the origin of life, physical and chemical make-up of cells and their organization in the life scheme, energy requirements, ecology, adaptations, behavioral patterns, and reproduction, including the genetics of heredity. Of special merit is the outstanding treatment of evolution.

Part Two comprises almost half the book and is devoted to a detailed description of about twenty of the more important phyla, their major classes, and in many cases, orders. Readily available and characteristic specimens were chosen for the representative descriptions. The systematic treatment here makes it possible for the student to contrast the various groupings more easily.

Part Six is unique in that it is composed of a chronological listing of key discoveries pertaining to biology, and also includes a list of books which have influenced zoology. In addition, the author has included a carefully selected list of annotated references at the end of each chapter.

The 670 illustrations and 14 tables greatly enhance the text. The diagrams are especially effective, and the pictures are well selected and of good quality. An index and an adequate glossary are also included.

This is a fine college text that will not only serve the beginning zoology student, but will also be a valuable reference to the more advanced student of life sciences.

JAMES F. GREGORY

The Genus *Aspergillus*. *Kenneth B. Raper and Dorothy I. Fennell.* Williams and Wilkins, Baltimore. 1965. ix+686 p., 130 fig. \$20.00.

The molds in the genus *Aspergillus* are some of the most important of the imperfect fungi because of their common occurrence in varied habitats, their industrial or economic value, and their pathogenicity to man and other animals. This book is the third American treatment of this group. The previous ones, *The Aspergilli* by Thom and Church (1926) and *A Manual of the Aspergilli* by Thom and Raper (1945), treated 69 species in 11 groups and 77 species in 14 groups, respectively. The current work treats 132 species in 18 groups, some described here as new, which indicates the continued increase of knowledge about these fungi. The special chapter written by Peter K. C. Austwick dealing with pathogenicity is a notable innovation.

The stated purpose of this manual is ". . . to facilitate the identification of *Aspergilli* by providing descriptions of recognized species together with appropriate keys, to acquaint the reader with the pertinent literature, and to indicate the reasons for reduction to synonymy of many specific names." The authors achieve these aims and are highly successful. The early chapters are detailed discussions of morphology and study methods. There are two keys to the groups, one based primarily on morphology, the other on conidial color. Species are keyed and described in each of the groups. The photographs are excellent and discussions of occurrence and significance for each group provide useful summaries of economic importance. Where pertinent, the perfect stages are described and the names of the Ascomycete genera in which the species have been placed by others are provided. Because this manual is concerned with identification of the group of fungi with similar type of imperfect stages, the arrangement is based upon morphology of conidiophores.

This work is highly recommended to those interested in identification of common molds, and also to those who are interested in the biology of fungi, because of the wealth of information provided and the channels opened to them by the extensive (54-page) bibliography.

EMANUEL D. RUDOLPH

Flora of Bermuda. *Nathaniel Lord Britton.* Haffner Publishing Co., New York and London. 1965. (1918 edition). 585 p. \$12.00.

This facsimile of the 1918 edition contains simple keys and short descriptions of the families, genera, and native species in the Spermatophyta, Pteridophyta, Bryophyta, and Thallophyta of Bermuda. Many species, in all groups except the Thallophyta, are illustrated with small line drawings. Introduced species are described briefly, with a note of where they are autochthonous. A short discussion of the geology of Bermuda, a list of the plants originally described from the island, and a glossary are included.

Two features are included in this book that were generally not present in floristic works of this period and which are often missing in floras prepared today. One is a bibliography of 67 titles pertaining to Bermuda plants. The other is an account of the principal Bermudan plant collections, which includes a list of 25 collectors, the years during which they collected, the approximate number of plants obtained, and the present location of the specimens—the latter information being of extreme importance to botanists searching for types and other documentary specimens of taxa described from Bermuda.

The serious student seeking taxonomic data on specific genera or species must remember that the date of original publication was 1918, and that concepts of these taxa and their nomenclature may have changed since that date. Despite this early date, however, this volume still represents the only published summary of the flora of the island.

RONALD L. STUCKEY

Plant Hybridization before Mendel. *H. F. Roberts.* Hafner Publishing Co., New York. Facsimile of 1929 edition, 1965. xiv+374 p. \$6.75.

A better title for this important work, now reprinted in facsimile, might be, "Plant Hybridization through the Time of the Discovery of Mendel." It is a careful and detailed analysis of the published materials on this subject from Kolreuter's publication of 1763 through 1900, and includes numerous quotations from them. Mendel's own paper and those of his three discoverers, De Vries, Correns, and Tschermak, are included, as well as a final chapter concerning the contribution of William Bateson. All of the evidence is marshalled to show how Mendel's approach to hybridization in peas was a generation ahead of his time. The chapters dealing with the work of the three discoverers listed above are of particular interest because they include original information from each of the three about his actual discovery of Mendel's paper.

All who are interested in the history of genetics, botany, or biology, as well as historians of ideas, will be delighted to have this standard work again readily available.

E. D. RUDOLPH

Fundamentals of Geology. *John J. W. Rogers and John A. S. Adams.* Harpers Geoscience Series, Harper & Row, New York and London. 1966. xix+424 p. \$9.75.

This is another in the seemingly unending sequence of new introductory texts in Geology. This new book's *raison d'être* is that "an attempt has been made to develop a limited, but representative, number of geologic topics that belong in any educated view of the earth." The representation is limited, however, to topics in physical geology, though the title promises more. Actually, most of the topics usually treated in a physical geology text are included here, but the treatment is more generalized.

Unlike most physical geology texts, however, this book is intended for the student possessing a background in mathematics, physics, and chemistry. Thus, it serves best as an introduction to geology for non-geology science majors (or erudite "laymen") who want to broaden their background. The book achieves this purpose admirably, but is less well suited to introduce geology to potential geology majors, or to liberal arts students lacking a science background.

The text is well written and the discussion is clear, interesting, and up-to-date. The paper is of good quality and the line drawings are excellent. The photographs are generally very good, so that by contrast, therefore, a number of poor photographs (owing to bad contrast, lack of detail, or poor example) stand out, such as those on pages 8, 98, 103, 107, 123 and 390. Some topics are discussed "piecemeal" (e.g. faults are discussed generally in the chapter on Processes at the Earth's Surface, and again, in more detail, in the following chapter on Structural Geology) and other topics seem inappropriately located (e.g. vesicles are presented in the section dealing with intrusive rocks rather than in the preceding section on volcanic rocks; disintegration is discussed in two paragraphs in the middle of a long, detailed and excellent discussion of soils).

A few errors include an out-of-sequence set of photographs (p. 253), and a reference to a clearly-dendritic drainage pattern on a block diagram as illustrating no particular pattern (p. 270). It is unfortunate that there is no bibliography, except where references are noted as part of some figure captions, or collateral readings. Finally, it is interesting that, in this geology book, the index, which is minimal, does not include either the term "time" or "geologic time."

ARTHUR MIRSKY

The Chemistry of Plant Processes. *C. P. Whittingham.* Philosophical Library Inc. New York. 1965. 209 p. \$7.50.

The stated purpose of this book is the introduction of problems in plant metabolism to students with basic knowledge in the physical sciences and an elementary botany background. The book succeeds admirably. While the book is relatively short, there is no wasted verbiage and most of the salient aspects of plant physiology and plant biochemistry are included. The book is well referenced and contains a short appendix on the chemistry of the fundamental classes of organic compounds found in plants.

I believe the book could well be used as a basic text in a one-quarter or one-semester course in plant physiology or plant biochemistry.

J. W. A. BURLEY

Essays on Crop Plant Evolution. *Sir Joseph Hutchinson* ed. Cambridge University Press, Cambridge and New York. 1965. vii+204 p., 16 pl. \$9.50.

This slim book contains a great deal of information written by experts about the origin, evolution, and genetics of some temperate-region crop plants, as well as two general essays about economic botany. The two general chapters, "The beginnings of agriculture in North west Europe" by H. Godwin and "Crop plant evolution: a general discussion" by Sir J. B. Hutchinson, make exciting background reading. The crops covered are: maize by P. C. Mangelsdorf; sorghums by H. Doggett; temperate cereals by G. D. H. Bell; wheat by R. Riley; potatoes by K. S. Dodds; and forage grasses and legumes by J. P. Cooper. The one thing that could be desired is that this book contained more such essays about other temperate or even tropical crops such as rice, tomatoes, tobacco, or some of the fruits. Perhaps we can look forward to such a future volume.

Anyone interested in the evolution of our crop plants from wild ancestors during the past 9000 years (in the old world; 7000 in the new) would be wise to read this report, well-indexed and documented with a 13-page bibliography, presenting the state of our knowledge in this subject.

E. D. RUDOLPH

The Life of Fishes. *N. B. Marshall.* The World Publishing Company, Cleveland and New York. 1966. 402 p. \$12.50.

Quite often writers of textbooks on Ichthyology are faced with the dilemma of either choosing to include an encyclopedic amount of information in their book or sacrificing the size in order to make the book more palatable and interesting to the beginner. Regretably the first goal often overshadows the second, or vice versa, and the result is either a cumbersome catalogue or a form without substance. I feel Marshall's book comes closest to providing a solution to the dilemma. It is a skilfully written, searching examination into the ways and wherefores of fishes. The author examines their day-to-day life, life history, living space, and diversity. The fresh style of the books lends a novel approach and gives a fresh coat of literary paint to the subject. Consider some of the headings: the capture of oxygen, physical fishes, the sensory world! The number of question marks per page indicates something of the approach. Because nothing is so sad as a fish out of water, Marshall's effort to consider the fish as much as possible in its own "living space" is a commendable objective.

Though the chapter on diversity is placed last, albeit a more dramatic arrangement, in the realism of pedagogy, it will have to be considered much earlier by the reader who is just being introduced to the subject. A very bright spot is his use of marine and freshwater species from all over the world as examples. The system of classification above the family level that he has adopted for the book, however, is influenced by his British background.

The overall quality of the printing and binding is good. The bibliography is useful and moderately extensive, and the illustrations, both black-and-white and color, are a real asset.

I feel that Marshall had admirably handled the problem of reconciling information with readability and I commend the book to all who seek an exciting, questioning, and readable survey about all aspects of fish.

WALTER T. MOMOT

Arithmetical Algebraic Geometry. *Otto F. G. Schilling,* Editor. Harper and Row, New York. 1965. vii+200 p. \$6.50.

This book presents the proceedings of a conference held at Purdue University, December 5-7, 1963, and is edited by O. F. G. Schilling of Purdue. Each of the nine authors who contributed papers demonstrates an obvious interest in communicating with the reader. Each of the papers is topical (e.g. Orbit Spaces of Arithmetic Groups, Picard Groups of Moduli Problems, Zeta and L Functions) and largely self-contained within this volume. Specific outside references are given where needed.

This book is recommended for readers who have studied introductory courses in algebra (Jacobson) and topology (Kelley).

JAMES L. SMITH

General Biology, Seventh edition. *W. C. Beaver and G. B. Noland.* C. V. Mosby Co., St. Louis. 1966. xxii+604 p. \$8.95.

This seventh edition represents an attempt by the authors to update a rather traditional general biology text. The result is not likely to find favor with the majority of contemporary biologists. Recent advances in the biological sciences are generally mentioned briefly rather than examined in detail. For example, the relationship between nucleic acids and protein is superficially covered in a very few sentences. In some cases, topics of considerable importance are completely omitted. Behavior, population genetics, and homeostasis are ignored. The treatment of subjects generally indicates a handling which is not consistent with current emphases.

A serious shortcoming of the text is the lack of a unifying theme. It offers, initially, an abbreviated glimpse of general biology from the historical perspective. The text later attempts a survey of the plant and animal kingdoms, and finally becomes anthropocentric with the emphasis on applied aspects of biological science. Ecology appears in two of the final chapters in what appears to be an attempt to pull together the earlier diversity of topics.

The illustrations do not always enhance the narrative. The figures and tables tend toward excessive length and some of the photographs are not of good quality.

The first sentence of the preface, perhaps, provides an indication of why this book is inadequate: "So much progress has been made recently in biology that a new edition of this book becomes necessary." A more accurate statement would be that the recent tremendous changes in biology necessitate a new and fresh approach. A reordering of existing topics with a sprinkling of new information cannot sufficiently describe contemporary biology. As information from the various branches of the discipline impinge to form dominant unifying themes, major generalizations result. These deserve better treatment than they have received in this revision.

ROBERT W. MENEFEE