

BOOK REVIEWS

Immunology and Serology. 2nd ed. *Philip L. Carpenter.* W. B. Saunders Company, Philadelphia and London, 1965. viii+456 p. \$8.50.

This book begins with a chapter on infection and immunity which describes the factors involved in infectious diseases, especially the defense reactions of the host and the various types of immunity. Four later chapters deal with the specific mechanisms of acquired immunity, the protective aspects of antibodies, such as antitoxins, cytolytic antibodies, and complement, as well as the phenomena of phagocytosis and immunity to viral agents. Most of the remaining chapters are concerned with serology, including the nature and production of antibodies, the various antibody demonstrations, properties of antigens and the various aspects of antigen-antibody reactions. The final chapter describes the various hypersensitive or allergic phenomena, and is followed by an appendix containing sixteen experiments or procedures in serology useful in a teaching laboratory. It should be noted that the author has included throughout the book the modern and recent concepts of the nonprotective aspects of antibodies, such as immunologic diseases and immunologic unresponsiveness.

According to the author, the approach is traditional. However, the approach has also maintained proper emphasis on immunity and serology as biological phenomena, rather than on the specialized medical aspects and applications frequently observed in many texts. For this reason, he has succeeded admirably in his goal of a book directed toward the college senior and the first year graduate student.

MATTHEW C. DODD

Man on Another World. *Gösta Ehrensward.* The University of Chicago Press, Chicago and London, 1965. Translated by Lennart and Kajsa Rodén from the Swedish: "*Expansion: Liv i universum*" (1961). vii+182 p. \$5.95.

Professor Ehrensward is a biochemist at the University of Lund, Sweden, but this little book is not profoundly biochemical. A major portion of the text is very reasonable speculation about the problems of setting up manned bases on the moon, on Venus, Mars, and then perhaps "outposts" on a satellite of Jupiter. Further "expansion" extends to a consideration of other intelligent cultures in this galaxy (a convincingly likely probability) and the problems of communicating with them.

Since our sun will probably, sometime, get hotter, or cooler, making Earth uninhabitable, he seems to argue that it is our duty to prepare ourselves ultimately for a cosmic exodus. "Here under the night sky everything that seems so difficult to formulate, all subtle features of cosmic communion, becomes quite simple. It is communion with everything that is struggling and living, wherever and whatever it may be within the frame of the incomprehensibly great. It is not only an incitement to develop but to feel what is already a current concept within the respective worlds, so far from each other. Compassion. Perhaps."

This book contains unsophisticated discussions of the chemical nature of planetary environments and the problems of supporting life on planets and in space, as of 1961.

R. S. PLATT, JR.

Some Concepts and Methods of Sub-tropical Pasture Research. *The Staff of the Cunningham Laboratory C.S.I.R.O., Brisbane, Australia.* Commonwealth Agricultural Bureaux, Farnham House, Farnham Royal, Bucks., England. (cloth bound), 1964. 242 p. \$6.75.

This book is essentially a review of the pasture research program at the Cunningham Laboratory, Brisbane, Australia. Chapters include: General objectives, A review of environmental factors affecting pasture production in eastern Australia, Plant ecology, Soil surveys, Plant introductions, Plant breeding and genetics, Mineral nutrition of plants, Legume bacteriology, Plant physiology, Pasture development, Plant chemistry, Statistics in pasture research, and discussions of methods and facilities. Although chapters are authored by various staff members, the editorial committee has done a creditable job of compiling these individual chapters into a cohesive unit.

The book presents an interesting introduction into pasture research and development in eastern Australia. Many of the techniques discussed are applicable to pasture research in temperate as well as tropical or sub-tropical regions. The authors have highlighted important concepts but have made no attempt to write a detailed discussion of highly technical research techniques and methods.

The book will be of most use to the reader with some knowledge of biological science who seeks a general picture of pasture research problems and opportunities in a tropical or sub-tropical region.

GEORGE R. GIST

Dictionary of Herpetology. A Brief and Meaningful Definition of Words and Terms Used in Herpetology James A. Peters. Hafner Publishing Company, New York and London. 1964. xii+392 p., 30 illus. \$11.50.

This very special dictionary of over 3,000 terms is principally restricted to words associated with the study of amphibians and reptiles. Dr. Peters states (p. vi), "The primary criterion for inclusion or exclusion has been the achievement of maximum utility to herpetologists, with a minimum of repetition of terms defined in other dictionaries." Thus, many standard biological terms with special herpetological meanings are included, while other standard herpetological terms with wider use in biology are excluded. There is very complete coverage of terms used in describing external morphology, pigments, color patterns, scutellation, dentition, osteology, visceral anatomy, venom and skin secretion components, ecology, ethology, breeding, etc. There is no coverage of terms used in taxonomy, nomenclature, statistics, preservation, and especially myology. The last is a major omission, sorely needed.

The definitions are often documented with references to source, first user, or to changes in usage. These references span a huge segment of herpetological literature ranging from 1963 back to the very early 1800's, and include many works outside the main stream of herpetological knowledge. Where more than one meaning exists for a term, each is numbered, and often each has a bibliographic reference. The actual dictionary is followed by 32 pages of illustrations, mostly good line drawings, about half original, showing selected aspects of external anatomy, scutellation, color patterns, osteology, hyoid apparatus, development, and structural formulae of toad poisons, and then by seven blank pages for "notes."

This dictionary is astonishingly complete in those areas covered. It is necessary to really dig to turn up omitted terms, and most of these are minor—examples are: autophagy, oophagy, (although technophagy is included), psolidosis (psolidomeiomology is included), stirmorganectomy (stirnorgan is included), thermoregulation, and Clanton effect. Actually, only the last really violates the stated primary criterion for inclusion. Editorial checking and proofreading appear painstakingly accurate for only two very minor errors were found. The printing is very clear, the paper is satisfactorily heavy, and the binding is good for the signatures are individually sewn and well backed. Most important of all, the definitions are clear and concise, yet detailed explanations are given when necessary. This is a remarkably useful book, and will stand as a monument to the dedication and knowledge of its author.

BARRY D. VALENTINE

Four Genera of the World Gyponinae: A Synopsis of the Genera Gypona, Gyponana, Rugosana, and Reticana. Dwight M. DeLong and Paul H. Freytag. Bull. Ohio Biol. Surv., n.s. 2(3): iii+227 p., 372 illus. The Ohio State University Press, Columbus, Ohio. \$2.50.

Students of Cicadellidae will welcome this paper which deals with four genera of leafhoppers belonging to subfamily Gyponinae. The scope is world-wide, and the authors were able to travel abroad and make genitalia drawings of most types in foreign and domestic museums. This is the first attempt at a project of this kind.

The introduction includes geographic distribution and occurrence, historic data, economic considerations, structures used in classification and acknowledgments.

There are keys to genera, subgenera and species. The species keys are separate for male and female. One new genus, five new subgenera and sixty-five new species are described. There are 372 well-drawn, artistically arranged figures illustrating characters of the species.

A list of literature is cited as well as an index of genera, subgenera and species.

The format, paper and printing are good.

JOSEF N. KNULL

A Brief History of Science. A. Rupert Hall and Marie Boas Hall. Signet Books, New American Library, New York. 1964. 352 p., 14 figs. 75¢.

The Halls, a famous man and wife team of historians of science, lately of the University of Indiana, now at Imperial College, London, have compressed into this pocket paperback the history of science from Antiquity to the present. In the process of compression, some areas of science fare better than others: Astronomy has 21 page citations, biology 14, botany 2, chemistry 15, geology 3, physics 18, and zoology 4. The fault is probably not the authors', but space limitations imposed by the publisher. The Halls' style is stimulating and clear, as is true in all their writings, but the tyranny of condensation is evident on almost every page. Antiquity is covered in a mere 50 pages, the Middle Ages in 33, and the period from the Renaissance to about 1800 occupies 114 pages. The 19th century is given 100 pages; the first half of the twentieth, one chapter; the last half, 14 pages. The better features of this book lead us to wonder what the Halls could have done with 700 pages instead of the 350 of this little book.

AURÈLE LA ROCQUE

Life: an Introduction to Biology. *George G. Simpson, Colin S. Pittendrigh, and Lewis H. Tiffany.* Harcourt, Brace & World, Inc., 750 Third Avenue, New York 17, N. Y. 1957. xiv + 845 p. \$8.50.

There are texts on biology, texts on ecology, and texts on evolution; this book includes all subjects. Prepared in the style of an advanced high school or freshman college text, this book is well written, effectively illustrated, and extremely comprehensive. Of 33 chapters, 10 deal with life, the cell and the organ, and their function in various forms of life; 5 chapters present various aspects of reproduction; 3 chapters discuss evolution; 5 chapters describe the various plant and animal phyla; 6 chapters deal with ecology, the "Web of Life", population dynamics, and biogeography; 3 chapters survey the history of life, and one final chapter summarizes the history of biology. Although so many topics are handled, each is presented very adequately and very understandably. The figures are well done, also, both in terms of being effective presentations of information and of illustrating the material presented in the text. In addition, the writing throughout the book reflects the authors' mature understanding and deep perception of the basic interrelationships of all organisms, and also the part played by man, as animal and as scientific investigator, attitudes which add greatly to the value of the book.

Because of its length and comprehensiveness, some may prefer this book for a reference book rather than a text. Reference is aided by the inclusion of a very useful bibliography, organized according to the chapter headings, at the back of the book, where a list of the sources of all illustrations also appears. However this book is used, every biologist should be acquainted with it because it contains so many different major biologic subjects, each very well presented and well illustrated.

JANE L. FORSYTH

The Land and Wildlife of Tropical Asia. *S. Dillon Ripley and the Editors of LIFE.* Time Incorporated, New York. 1964. 200 p. \$3.95.

The discovery of organic evolution by Darwin and Wallace in the middle of the last century prepared the way for the application of rigorous scientific method to the study of natural history. In Wallace's case, the recognition of the significance of natural selection in the evolutionary process was gained by a study of the land and wildlife of tropical Asia. S. Dillon Ripley has provided a text for an outstanding collection of illustrations assembled by the Editors of LIFE that gives the reader an opportunity to make this important discovery for himself.

Following the general introduction, the geology and meteorology of the region are discussed. Included in this discussion is a consideration of the various biotic communities associated with the climatic conditions found in Southeast Asia. These vary from areas of desert scrub through tropical rainforests to massive littoral areas covered by mangrove swamps. More detailed discussions of the more interesting biotopes and animal groups are then presented. Of particular interest is the discussion of the development of gliding by the different animal groups living in the rainforest. The descriptions and photographs of the remarkable plants, animals, and insects of the region are well done.

The final chapter is devoted to the past and present human inhabitants of the land. Man has inhabited this region of the world for more than a half million years. In this region at the present time all stages of human culture, from the Stone Age to the Atomic Age are found.

This book represents an authoritative sample of scientific natural history from that part of the world where natural history is most fascinating.

G. W. WHARTON

Fishes of the World in Color. *Hans Hvass.* Translated from the Danish by Gwynne Vevers. E. P. Dutton and Co., Inc., New York. 1965. 156 p. \$4.95.

The author attempts to deal with both the common and rare species of fish one would expect to find in a popular zoological book, emphasizing the important recreational, commercial, and aquarium species of the world. These objectives may explain why some of the features one usually finds in a popular guide, such as a glossary of technical terms, are missing.

The color illustrations are adequate, but not outstanding. Use of the American Fisheries Society text of common names for North American species in the index of common names is commended, but there should also be an index of scientific names. There is also a problem in that the common name in the United States often differs from that used in England, e.g., *Salmo trutta*, called the brown trout in the United States, is listed as either brook trout or lake trout in the index. Some important omissions have occurred, e.g., *Salvelinus namaycush*, an important North American food and game species. At times, the data given for lengths of each species is confusing. The reader must interpret whether it means average or maximum length, e.g., 42 in., quoted on p. 108 for *Ictalurus punctatus*, is nearer the maximum rather than average for this species.

Assets of the book are its attempt to give world-wide coverage and the quality of its printing. Its main limitation is in its size, which is not commensurate with its objectives. The editorial sacrifice needed to meet this space factor detracts from its usefulness for both the layman and the professional student of the subject.

WALTER T. MOMOT

Ranger to the Moon, Willy Ley. Signet Science Library, New York. (paperback original). 1965. xiii+127 p. 60¢.

The success that Willy Ley has had in presenting good popular accounts of the problems and the achievements of space exploration is due only in part to his skill as a professional writer and his early associations with groups of rocket enthusiasts. His special ability is in writing imaginatively, but with such good judgment that the reader has confidence in the fairness of his account.

The first part of this small book is an interesting history of the mapping of the moon from the earliest observations to the elaborate projects now going on. After a description of the orbit and the surface of the moon, there is a chapter on the observations of apparent changes, culminating in the Russian photographs of the spectrum of hot gases in the crater Alphonsus in 1958 and the more recent visual observations at Flagstaff of glowing red spots in the neighborhood of the crater Aristarchus. The reader who is fascinated by the puzzle of the nature of these changes may be interested to know that, since this book was written, two men at the University of California in Los Angeles, Flamm and Lingselter, have collected in a letter to the journal *Nature* (vol. 205: 1301, 1965) some 23 observations reporting possible changes between 1783 and the present.

Ley rightly points out that current opinion strongly favors a meteoric origin for the larger craters and walled plains, but in mentioning Baldwin's 1949 book, *The Face of the Moon*, he does not make clear why this book was significant. What Baldwin did was to emphasize the consistency of the depth-to-diameter ratio over the whole range of sizes, from terrestrial bomb craters to the largest crater (Clavius, 146 miles) on the moon. This is evidence that they are all explosion craters; the inference that the lunar features are due to the impact of meteorites is plausible, but not necessary.

The last part of the book describes the Russian and American rocket programs that resulted in the first telemetered lunar photographs. Several good reproductions of the pictures taken in 1964 by Ranger VII are included among the 25 pictures (in addition to numerous sketches) that will add considerably to the pleasure of readers.

PHILIP C. KEENAN

Biogeography of the Southern End of the World; distribution and history of far-southern life and land, with an assessment of continental drift. Philip J. Darlington, Jr. Harvard University Press, Cambridge, Massachusetts. 1965. x+236 p. \$5.95.

In recent years there has been an increasing interest in the biogeography of the southern hemisphere, somewhat stimulated by the extensive scientific activities in Antarctica and the renewed interest in continental drift. Professor Darlington, a noted zoogeographer, has re-examined and synthesized the information now available relating to the biogeography of the southern cold-temperate and antarctic zones. The book is divided into four parts: existing geographic patterns; geographic patterns in relation to evolution and dispersal; records of the past; and inferences about the past. The discussion of the distribution of contemporary organisms centers upon the consideration of selected examples: the southern beeches, the peloridiid bugs, and the migadopine carabid beetles. The last two parts of the work are the most extensive and include an excellent summary of the present knowledge of the fossil record since Paleozoic times and its relationship to paleoclimatology and possible continental drifting.

The argument for limited continental drift is presented in a very persuasive manner by Professor Darlington, being based upon geological, physical, and biological evidence, and indicating the post-Permo-Carboniferous northward movement of all of the southern continents except Antarctica.

It is refreshing to read a book written in an analytical style which retains the personality of the author. At times it becomes a stimulating dialogue between the author and reader; for example, "to choose the simplest explanation because it is simple is like a surgeon choosing to cut a patient's throat with one razor rather than to perform a complex operation. Occam's razor should be used to make an exploratory cut into a problem, not to solve it. Nevertheless I have oversimplified because I have had to, and in so doing I may unintentionally have cut out essential facts or interpretations. Have I?"

This book will be indispensable reading for those interested in biogeography. Should others read it, they too are likely to become interested in the fascination of the unsolved problems so ably presented in this work. The eleven-page selected bibliography will certainly provide ample further reading for those who want more information.

EMANUEL D. RUDOLPH