

BOOK NOTICES

Beetles

This publication should be of invaluable assistance to research workers in entomology, especially those who are interested primarily in Coleoptera. The subject matter accumulated by the compiler contains citations to technical descriptions in literature of the egg, larva, and pupa of the Coleoptera of America North of Mexico. This paper supplements and brings down to date the work published by Wm. Beutenmuller in 1891, entitled "Bibliographic Catalogue of the Described Transformations of the North American Coleoptera" in the Journal of the New York Microscopical Society, Vol. 7, pages 1-52. The arrangement of the material is somewhat in conformity to the general plan followed by Henry Edwards in his "Bibliographical Catalogue of the Described Transformations of North American Lepidoptera," published in 1889 as U. S. National Museum Bulletin 35. Each reference includes the following information: name of genus; name of species, if known; name of author of original description of adult insect; notation of the various stages of which description is cited, as egg, larva, or pupa, and whether or not illustrations are included; biological data; name of author of additional descriptive material; periodical or other work in which description appears, with volume, page, and date. All references are arranged alphabetically, first by genera and then under each genus, alphabetically by species.—R. DAVIDSON.

A Contribution to a Bibliography of the Described Immature Stages of North American Coleoptera, by J. S. Wade. Mimeograph Number E-358 of the U. S. Dept. of Agriculture, Bureau of Entomology and Plant Quarantine, Washington, D. C., September, 1935.

Insect Enemies of Shade Trees

The author, in writing this book, brings together considerable information concerning insect injury to shade trees. There has been an increasing demand for such information, especially in recent years because of increased interest in forestry problems.

There are three introductory chapters: The Value of Shade-Trees and General Methods of Protection from Insect Attack; Materials and Apparatus for the Control of Tree and Shrub Insects; Suggestions for the Treatment of Weakened Trees. Following these a chapter is devoted to each of the important shade trees and shrubs giving the various insects which attack them, means of detecting their presence, their life histories, nature of attack, and the best means of control. An index to the trees and shrubs is given in addition to the general index. This cross-referencing increases the utility of the book. Many references to literature are given following the discussion of a particular insect problem. The book is well written and well illustrated on good quality paper.

It should serve not only as an excellent reference for members of State Departments of Agriculture, home owners, and Extension Entomologists, but for students of forestry and forest entomologists as well.—R. H. DAVIDSON.

Insect Enemies of Shade Trees, by Glenn W. Herrick. 417 pp. Ithaca, The Comstock Publishing Company. 1935.

Earth

For those who want a light and interesting but withal accurate tale of the earth, this new book by J. H. Bradley will be found suitable. Bradley has taken the story told by the earth and rewritten it in a manner which is easily understood. The entire history is dramatized, and as the picture is unfolded we find a delightful story dug out of the rocks and presented to us in charming and living style. It is very good reading, and well worth the time spent. The 8 illustrations are more or less modernistic.—WILLARD BERRY.

Autobiography of Earth, by John Hodgson Bradley. 348 pp. New York, Coward-McCann Inc. 1935.

Sound

This little book is an expansion of the author's presidential address before the Acoustical Society of America in 1932. It presents in an interesting style the contributions of important persons in this field from Pythagoras to the beginning of the 20th century. Short personal sketches of the pioneering efforts of outstanding contributors to acoustical problems are grouped under such headings as: harmonics and acoustics, early experimentation, music, the era of the calculus, the science of sound, theories of sound, etc. There are numerous illustrations of important personages, early apparatus, etc. It will prove interesting particularly to students beginning the study of acoustical problems, although as the title indicates it is by no means an intended or achieved comprehensive history of this field.—S. RENSRAW.

Anecdotal History of the Science of Sound, by D. C. Miller. xii+114 pp. New York, the Macmillan Co., 1935.

Science of Man by a Man of Science

The distinguished Nobel Prize Winner Alexis Carrel has turned his hand to a treatise on man, and the result is disappointing. The book is frankly teleological, metaphysical and metapsychical. It is crammed with facts and near-facts, but they are inextricably entangled with the author's personal opinions, which are, to say the least, unorthodox. An occasional plain misstatement of fact occurs, such as on page 90 and again on page 250, where the ovum in its development is said to eject half of each chromosome in the reduction division.

The author exhibits a sincere belief in clairvoyance, mysticism, telepathy, and the power of prayer over disease: strange beliefs indeed in a scientist; beliefs, however, which he hopes will not be merely laughed off, but investigated with the techniques of physics, physiology and medicine.

A chapter on adaptation uses almost entirely teleological explanations. The best chapter in the book concerns physiological time. There are several good discussions of the interactions of heredity and environment. Here and there one meets with surprisingly good eugenic suggestions.

The climax of the volume is reached in the final chapter on the remaking of man. The suggestions are unique, a strange mixture of clear insight and impractical subjective idealism. If the scientific reader can control his exasperation long enough to finish the volume, he will find the reading worth while if for no other reason than the controversial issues it raises. The lay reader, unfortunately, will find in the book justification and backing for many of his superstitions and dogmas.—L. H. S.

Man, the Unknown, by Alexis Carrel. xv+346 pp. New York, Harper and Brothers, 1935.

Genetics and Society

This little volume is a concise straightforward presentation of the facts, principles and legitimate inferences of genetics, leading to a discussion of eugenics. The author knows his genetics thoroughly, and expounds it well. He thinks clearly, and expects the reader to do likewise. For the eugenicist the author has nothing but pity. He feels that eugenics as now conceived is not only useless, but socially dangerous. The eugenicists, he claims, demand, with unabashed impudence, sterilization for the sole purpose of saving humanity from the misery of disease, deformities and incompetence, and yet find nothing but approval for an economic system which brings misery to the vast majority of mankind. The author pleads for a better social environment, which if attained, will not only be valuable for its own sake, but should make it possible to accurately determine the role of heredity in the production of human traits; an accuracy which is at present woefully lacking. He likewise contends that so long as an individual performs a socially useful task, he is on a par with any other member of society doing socially useful work. The genetics of the book is splendid; the eugenics is subject to some debate. The book should most certainly be critically read, however, by all biologists.—L. H. S.

Genetics and the Social Order, by Mark Graubard. 127 pp. New York, Tomorrow, Publishers, 1935.

Endocrines

Pioneering in the graphic presentation of informative material Miss Gregory has prepared this interesting and effective book dealing with the endocrines. The graphic methods of expressing a fact or conveying an idea should popularize the work and make it of interest to the general reader without any great sacrifice of scientific accuracy. The retention of scientific accuracy makes the work of value to the student and medical practitioner. The originality of this book lies in the method of presentation rather than subject matter. Each endocrine gland is taken up separately and its story told by a series of charts and diagrams. The last chapter presents information on glandular relationships in the same manner. A useful glossary is included.—T. S. SUTTON.

A B C of the Endocrines, by Jennie Gregory, 126 pp. Baltimore, The Williams and Wilkins Company, 1935.

Marching Deserts

During the last year dust has been blown into regions where no foreign dust had fallen in the memory of man. The newspapers told us of the great dust storms of the grain belt. Much was said of the storms, but little of the cause and still less of the cure. It remained for Professor Sears to give us the cause and effect and to discuss the means of a cure. In his "Deserts on the March" he traces the slow depletion of the soil and the lack of logical conservation of fertility of the land, due partly to lack of knowledge and partly to the careless habits of society. The effects are loss of pasture, loss of forest (and lumber) and finally loss of the productive soil, thus killing plants and animals both on land and in inland waters, besides causing floods and dust storms. What effect will this destruction have on our future population who will need food and water even as you and I? The cure is careful long range regional planning which will direct the users of the soil into the proper management of the land. It cannot be accomplished over night but, if we as a nation are to prevent the rape of the soil, we must allow and support intelligent investigations into uses of the land.

Professor Sears has presented marching deserts with the delightful fascination of a novelist. We hope this strongly written book will bring home the facts of the case to the persons concerned and help in showing all of us how to correct this growing loss.—WILLARD BERRY.

Deserts on the March, by Paul B. Sears, 231 pages. Norman, Oklahoma, The University of Oklahoma Press, 1935.

Fossil Invertebrates

The authors recognize 12 phyla of invertebrates. In checking over this dozen a paleontologist will miss our old friends "Vermes" which are here handled from the modern zoological classification, including Platyhelminthes, Nematelminthes, Trochelminthes, and Annelida. This is a logical move as it makes comparison of living forms much clearer. Another missing friend is Molluscoidea which is here divided into separate and distinct phyla; Bryozoa and Brachiopoda. This is not a new separation but it is pleasing to see that the authors have not fallen back on the older classification. The other phyla are stereotyped. In discussing the various phyla they are usually divided to the rank of orders and occasionally lower. The classes are the main units of discussion and the ecology and geologic history of each class are generally given; in some cases larger groupings are considered together. References are grouped at the end of the phylum discussions. The illustrations are both linecuts (some diagrammatic) and half-tones, well selected and many from quite recent publications. There are 175 "figures" some having as many as 27 illustrations per figure. There are also 11 charts showing geologic range of various groups. There is quite a complete index.

This new invertebrate paleontology is more detailed than any modern invertebrate texts in English. The discarding of "Vermes" and the use of the modern classification is excellent. For beginning students in invertebrate paleontology it should prove very useful. It is gotten up in the usual excellent style of the publishers.—WILLARD BERRY.

Invertebrate Paleontology, by W. H. Twenhofel and R. R. Shrock. xvi+511 pp. New York, McGraw-Hill Book Company, 1935.

Geology for Engineers

This book is divided into 3 parts. Part I is on building material, in which certain theoretical considerations are discussed, including the common rock-forming minerals, the principle rock types, their occurrence and physical character, and some 28 pages devoted to the choice of materials. Part II is on Field Operations. Here the earth's crust and earthquakes are discussed, followed by a treatment of landslides, quarrying, tunnelling, retaining walls both above and below ground and building sites. Part III takes up water supplies, including discussed rainfall, rivers, tides, surface and subsurface water, and the quality of water. The author uses many actual examples to bring out his ideas. The examples are usually well illustrated, either with diagrams or photographs. For instance, some 25 photomicrographs are used in Part I in the discussion of building materials. As would be expected the illustrations are largely drawn from the author's field experience, which is India.

There are a rather large number of what are evidently typographical errors which detract greatly from the book. On page 7 ultra-violet light is given as $4 \times 10^{-5} \times 10^{-7}$ whereas it should be 4×10^{-5} to 4×10^{-7} . On page 38 a table on chemical composition (of rocks) referred to Clarke's Data of Geo-Chemistry Bulletin 330, U. S. Geological Survey, p. 261, is found on page 31 of the Bulletin which was published in 1908. This bulletin has been revised 5 times since then, the latest being published as U. S. Geological Survey Bulletin 770 in 1924. The table in the later editions has been brought up to date as information has become available. The body of the table does not check with Clarke's table. In igneous rocks Clarke has Cl 0.07%; Fox gives 0.42%. In shales Clarke has alumina 15.40%; Fox gives 15.04%. Chlorine Clarke has as 0.00; Fox gives 1.49. In sandstones Clarke records no chlorine; Fox gives 0.12%. In limestone Clarke records chlorine 0.02%; Fox gives 0.12%.

On page 90 the refractive index of Canada balsam is given as 1.534 (should have decimal point not comma); in the following table the figure is 1.54, in same table on page 91 as 1.534, and on page 92 as 1.543. The usual index used for Canada balsam is 1.54.

Page 111 says ". . . most of which (20 percent) is in the form of silica, 25 percent of alumina . . ."; certainly 20% is not most, especially as 25% is definitely stated to be alumina. But why go on? The examples are numerous. In addition, the references are often incomplete, as for example, "The most recent of these ('Economic Aspects of Geology' by C. K. Leith) gives . . ." It may be most recent (being published in 1921), but no date of publication being given makes it difficult to locate the reference for one unacquainted with the literature (and the book is apparently for beginners). There is no collecting of references either as footnotes or at ends of chapters, or at the end of the book itself. As a textbook it gives too little geology to be called engineering geology. For a handbook of engineering practice it might pass, but this reviewer would never give it to students. All in all, it can not be recommended as a text in engineering geology.—WILLARD BERRY.

A Comprehensive Treatise on Engineering Geology, by Cyril S. Fox. 392 pages. New York, D. Van Nostrand Company, 1935.

Why and How?

It is a familiar phenomenon to research workers that the solving of one problem only serves to open up more and varied problems. In this volume the author undertakes to show how many unsolved problems there are in science, in spite of the rapid advance of knowledge in recent decades. Such problems range from the creation and the nature of the universe, to the origin of life and the nature of physiological processes. Some of these are inherently insoluble, others are subject to slow progress, and still others may be considered as approaching solution. For most of them, however, the scientist may well be content to discover what appears to be the basic economy of the natural world, and to learn, so to speak, how to oil the works when he can get at them. In an age in which rapid scientific advancement is taken for granted, such a book as this may well cause us to pause and consider some of the unsolved problems.—L. H. S.

Unsolved Problems of Science, by A. W. Haslett. xi+317 pp. New York, the Macmillan Co., 1935.

Structural Geology

Some time ago Bohuslav Stoces published a book in Czech and German on structural geology which was widely acclaimed. It remained for Charles H. White to elaborate the work of Stoces and publish it in English. This textbook of applied geology is divided into 2 main parts: primary structures of rocks, and induced or secondary structures due to orogenic movements in the earth's crust. The primary structures are discussed throughout 108 pages, in which are taken up structures of sedimentary and igneous rocks and associated mineral deposits. In the second part after a brief discussion of causes and results of movement, there are taken up folding, faulting, joints, veins, unconformities and associated surfaces, types of structures in folded and faulted regions, relation of folding to igneous activity and mineralization. The last 58 pages concern surveying and mapping structures, geophysical methods, geologic maps and influence of structures on mining practice. There is a short glossary and bibliography.

The authors make no attempt to explain exactly why and how the various structures originate. They try to tell what the structure is and how to recognize it. For this purpose descriptions and excellent illustrations, both diagrams and photographs, are used. (There are 664 illustrations in 460 pages.) The illustrations are largely European and a welcome relief to those accustomed to certain, much used illustrations of English structural geologies, being so very well illustrated. Because of elaboration and additions, especially of illustrations, it is an advance over Stoces' original Czech and German text on the same subject. As a textbook for geologic structures and as a dictionary of structures for the geologist it can be well recommended.—WILLARD BERRY.

Structural Geology, by Bohuslav Stoces and Charles Henry White. 460 pages. New York, D. Van Nostrand Co., Inc., 1935.

Predaceous Coleoptera

In the entomological literature throughout the world many valuable papers and notes occur which present data on the natural enemies of insects. Compilations of such information are of decided value to investigators interested in biological control. One of the first compilations on this subject matter in the English language has been assembled and published by Dr. Balduf in his excellent new book entitled "The Bionomics of Entomophagous Coleoptera."

The book presents in fairly complete form all the important and known biological information on fifteen or more families of predaceous beetles. For each family data on the following topics and others are presented, namely; general features, habitats, activities of the adults, natural enemies, food and feeding of the adults, mating, oviposition, incubation, hatching, activities of the larvae, locomotion, respiration, food and feeding of the larvae, economic importance, hibernation, aestivation, pupation and life cycle. Over one hundred figures of insects and their parts are inserted in the text. Those redrawn by Mrs. Balduf are clear cut and nicely drawn. The literature cited is presented at the end of the book under each family of Coleoptera. The author also has prepared a fairly complete index of authors, insects and other facts. The book is planographed, 8 x 11 inches, and bound in cloth.

This reviewer has had considerable experience in compiling information of this character, consequently he appreciates the great amount of tedious work and painstaking efforts needed to compile a book such as Dr. Balduf has produced. It is hoped that this author or others will continue to assemble the widely scattered information on other groups of entomophagous or parasitoid insects.—ALVAH PETERSON.

The Bionomics of Entomophagous Coleoptera, by W. V. Balduf. 220 pp. Published and planographed by John S. Swift Co. Inc., St. Louis, Mo., 1935.

The Study of Psychology

This is the tenth book in the Prentice-Hall Psychology Series, edited by F. A. Moss. The Study Outline follows no single textbook of general psychology but is intended for use with any one of thirty-five of the texts in most common use. Each of the thirteen chapters follows the same pattern: first, a summary of the content, then exercises and review questions, and finally a bibliography

with references to specific chapters in the textbooks of general psychology as well as to large numbers of books and articles pertinent to the subject discussed. The summaries are usually sound and to the point, the exercises and review questions provocative of thought, and the bibliographies show that the available sources have been well canvassed. With the exception of the field of motivation which is treated with too great brevity, *The Study Outline* covers the field of the introductory course very ably.

Physically the book is large, nine by fourteen inches, paper bound, and has wide margins for notes. All the leaves are perforated, thus allowing those used for assigned exercises to be torn out and handed in.—R. C. CHALLMAN.

Study Outline for General Psychology, by S. L. Crawley. ix+223 pp. New York, Prentice-Hall, Inc., 1935.

Eclipses of the Sun

The very earliest records of history have brought to us accounts of solar eclipses and indeed probably no other natural event has ever made such an impression on the human consciousness from the early primitive to the modern sophisticate. It is distressing, therefore, to find that this fourth edition of what might be the standard work in the field, continues to be a combination of travelog, popular-scientific and scientific record. There is much in the book that is good, entirely too much that is superfluous, omitted, or poorly balanced in relation to other subjects. The author has inadequately discussed the early history of eclipses: a pity, because of their importance in the establishment of early dates. There follows chapters on prediction and verification of eclipses, then two chapters on the history of the spectroscope which undoubtedly make interesting reading for the lay reader, but for which there is small place in a book of this title. After a few general remarks concerning the sun, there begins the travelog leading up through the author's personal experiences on a number of eclipse expeditions.

One of the outstanding faults of the book occurs in a twenty-page discussion on the structure of the atom. The reviewer is frankly astonished that any modern author of a book on physical science should devote space and emphasis to the Bohr circular orbit theory of the hydrogen atom when this theory has been quite obsolete for at least ten years, receiving mention nowadays only as an example of how an atomic theory ought not to be.

In brief then, the book leaves much to be desired as a contribution to scientific literature. This will not, however, prevent its being an interesting narrative to an uncritical lay reader who wants to learn something about the sun and its eclipses.—C. E. HESTHAL.

Eclipses of the Sun, by S. A. Mitchell. Fourth edition, revised and enlarged. xvii+520 pp. New York, the Columbia University Press, 1935.

The Invertebrates Revised

The first edition of this standard work was noticed in this journal (Vol. 32, p. 435). The revised edition is 80 pages longer, with much new material on physiology and more complete general discussions. The newly-added discussion of organism and environment, and the excellent revised summary of the comparative physiology and morphology of the metazoa may be mentioned. The chapter on the Insecta has been considerably enlarged, with additions on insect physiology and more detailed descriptions of the various orders. Minor changes and additions have been made in the classification, and a number of new figures added. Revision has produced a more complete and coherent textbook, with greater emphasis on life processes. It remains the most concise and well-written recent book in its field. As in the preceding edition, some of the descriptions of type forms seem insufficiently detailed, and the discussion of evolution and phylogeny is woefully limited.—HERMAN VON DACH.

The Invertebrata: A Manual for the Use of Students, by L. A. Borradaile and F. A. Potts, with chapters by L. E. S. Eastham and J. T. Saunders. Second edition. xv+725 pp., 483 figs. New York, The Macmillan Co. (Cambridge, at the University Press), 1935.

The Story of Multiple Stars

At least one star in every eighteen seen in the northern hemisphere through the 36-inch telescope of the Lick Observatory is a multiple system of two or more stars. A statistical study makes it seem very probable that about two-fifths of all the stars are multiple. From this the importance of the subject soberly and adequately discussed in this book can readily be inferred. The author, director and astronomer emeritus of the Lick Observatory of the University of California, is one of the leading contributors to this field of astronomy. He has achieved a well considered balance between the amount of space devoted to the historical development of the subject, exposition of the experimental and mathematical methods, and the discussion of the results so obtained.

The last four chapters in the book are devoted to a summary and interpretation of the known facts. A few of the most interesting systems are described in detail. The possible theories of origin of multiple stars are critically examined. The conclusion to which the author comes is that there is, as yet, no satisfactory theory. Although several thousand systems have been examined, the amount of data so far obtained is insufficient to provide a suitable foundation for an adequate theory.

The book is primarily intended for readers who have some training in astronomy and mathematics, but 140 of the 280 pages of text could be read by anyone with no other preparation than an interest in astronomy.—C. E. HESTHAL.

The Binary Stars, by Robert Grant Aitken. Second edition, revised. xii+309 pp. New York, McGraw-Hill Book Company, 1935.

What of the Future?

A visit to the Century of Progress Exposition impressed Dr. Furnas with the fact that while much seeming progress was shown, much of the progress and efficiency which one might reasonably expect was sadly lacking. So impressed was he by thoughts of this kind that he conceived the idea of a book on what our "Century of Progress" had failed to produce or to solve. The result is a very fine discussion of our unsolved problems. Beginning with biology, which he considers as less fundamentally important than physics or chemistry, but first in the public mind, the author continues through chemistry, physics, engineering and finally the social sciences. Dr. Furnas displays a profound knowledge of all of these subjects. He discusses them with clear insight, forceful logic, and delightful literary style. A fine sense of humor permeates the book, and breaks out irrepressibly at frequent intervals. This is one of the "must" books of the year.

—L. H. S.

The Next Hundred Years, by C. C. Furnas. xiv+434 pp. Baltimore, the Williams and Wilkins Co., 1936. \$3.00.

Another Astronomy for the Layman

Stimulated by the success of two prominent English authors who have written popular books on astronomy and physics, several authors have turned their attention in the same direction. One of these, the Astronomer Royal of England, is the author of this book. To the interested but uninformed reader, it will undoubtedly be worth the reading time. As a second book following one of those above referred to it will be a disappointment because the reader will already have been supplied with something better, though more difficult.

The book is written in a very simple, understandable style and should be popular with readers of Junior College age. There is a commendable chapter dealing with the question of life on other planets in which the author discusses the physical evidence for living conditions, discarding all planets, as do most authors, except Venus and Mars. Limitation of the discussion to the physical evidence is unfortunate. The biological factors should be given equal weight with the physical but perhaps this is too much to expect of an astronomer author. The book is liberally illustrated with the usual selections.—C. E. HESTHAL.

Worlds Without End, by H. Spencer Jones. xv+329 pp. New York, The Macmillan Co., 1935.