BOOK REVIEWS

The Grass of Many Waters

This book, to the layman and the general student, is the answer to the frequent question, "What are the Algae, and why should I be interested in them?" Due to the author's wide experience in the teaching profession where such questions are of common occurrence, and because of his subtle humor, he has been able to place before the public an interesting and understandable book. Although not written for those "who know all about the algae," such a specialist will find it to be a sound scientific treatment presented in such a manner as to be enjoyable reading.

Early in the book there is a discussion of the organisms which constitute the Algae. Interwoven with this is a comparison of the physiological processes of these organisms with those of the "higher" plants and animals. The greater part of the book is devoted to algal habitats and the economic importance of these plants to the associated organisms, as well as to man. Methods for collecting, preserving and studying the Algae are included, but as it is not taxonomic in nature, keys have been omitted. Excellent figures, photographs and colored plates add materially to the text for those who are unfamiliar with the group.

The book is a remarkably successful attempt to stimulate interest in, as well as to popularize a group of plants formerly considered to belong only to the specialist.

—*C. E. Taft.*

Algae, the Grass of Many Waters, by Lewis Hanford Tiffany. xii+171 pp. Springfield, Illinois, Charles C. Thomas, 1938. $3.50.

A Philosophy of Science

As a result of examining various historical and contemporary views of the interrelation of science and philosophy, the author concludes that instead of formulating the problem in terms of philosophy vs. science, it must be formulated in terms of a philosophy *of* science. This he proceeds to do, by means of problems in the logic of science, problems in the analysis of the concepts of science, and a series of speculative problems. The views of past and present writers on these various topics are constantly examined and interpreted with the author's own critical comments. A chapter on human freedom throws new light on this question, although no claim is made for a complete answer. The book closes with a chapter on the nature of reality, leaving in the mind of the reader, as all philosophical discussions must do, certain doubts and misgivings, but withal a sense of being, temporarily at least, swept free of cobwebs.—*L. H. S.*

An Introduction to the Philosophy of Science, by A. Cornelius Benjamin. xvi + 469 pp. New York, the Macmillan Co., 1937. $3.50.

Flying

American Wings describes in a popular style the development of modern aviation in America. It is of particular interest because it clearly brings out the many applications which are being made of aviation and the way in which planes must be designed to fit different purposes. Naturally a great deal of attention is paid to military aviation, but chapters also describe the work of the airlines, the service which the Coast Guard can render in emergencies to ships at sea, the growing use of planes for private use, and such special uses as mapping and advertising. Of interest is the description of the auxiliary facilities which are necessary under modern conditions such as the radio beacon, the illumination of airways and fields and ground operations. The book is written in a vein which will appeal particularly to the boy of high school age. In view of this appeal the book is to be commended because it gives a rather frank discussion of aviation as a career although it places its emphasis on piloting and dismisses engineering and other services with a paragraph. The book closes with a brief history of the past and a look into the future. It is profusely illustrated, pictures of military aircraft predominating.

—*W. L. Everitt.*

American Wings, by Captain Burr Leyson. New York, E. P. Dutton and Company, 1938. $2.00.

Twenty-five Years Later

For twenty-five years Walter's "Genetics" has retained a deserved popularity. The fourth edition, stream-lined and modernized, is now off the press, and will undoubtedly prove a worthy successor to the earlier editions. The author has an intimate way of "talking" to his readers in intriguing, sometimes humerous, always piquant style. A host of clever diagrams and illustrations add to the readability. The book is pitched at an elementary level, and can not but appeal to the beginning student. The subject is developed historically, using in their turn the observational, the experimental, the statistical, the cytological and the developmental avenues of approach. The book closes with two realistically presented chapters on human heredity and eugenics. A lengthy appendix contains 84 practice problems, some statistical constants and their use, the tracing of family histories, suggested topics for eugenic theses and numerous other facts and suggestions of use to the teacher.

—*L. H. S.*

Genetics, by H. E. Walter. Fourth edition. xvii+412 pp. New York, The Macmillan Co., 1938. $3.00.

Teaching Biological Sciences

Professors D. F. Miller (Zoologist) and G. W. Blaydes (Botanist) of the Ohio State University, have prepared a book on methods and materials for teaching elementary biological sciences which gives every promise of becoming a valuable guide and reference book for all biological teachers in training and in service. Part I of the book is designed primarily as a text for classes in special methods. The ten chapters in Part I cover those questions most frequently asked by student teachers. Some extremely interesting and important information and points of view are presented under the following headings: the biological basis of education, objectives of teaching, types of courses, methods of presentation, making a teaching plan, an evaluating program, lack of materials and equipment, visual education, how to choose a text and trends in the curriculum. Part II contains information primarily for the use of the teacher already in service. Chapter 12 is "chuck full" of suggestions on how to collect, preserve and culture common fauna and flora near any school. The chapters on laboratory aids and substitutes, preparation for the microscope, digestion, nutrition and growth, diffusion, circulation, respiration, water relations to plants, the response of organisms, reproduction and heredity, contain a great deal of information and suggestions on how much subject matter can be presented and detailed information on the preparation of demonstrations and experiments for lecture or laboratory classes.

The authors emphasize the importance of getting the student's mind away from the printed pages of a text book. So far as possible all facts and principles should be illustrated by visual demonstrations. Many fine examples are suggested in the various chapters of Part II. Briefly stated, the emphasis is "Study nature, not books." For all teachers of biology, especially for progressive individuals, this volume will be of decided value.—*Alvah Peterson.*

Methods and Materials for Teaching Biological Sciences, by D. F. Miller and Glenn W. Blaydes. xii+435 pp. New York, the McGraw-Hill Book Co., Inc., 1938. $3.50.

Insects of Citrus and Subtropical Fruits

For anyone seeking answers to questions on insects affecting citrus and other subtropical fruits (avocado, vinefera grapes, Persian walnut, almond, pecan, fig, olive, date, oriental persimmon, pomegranate, sweet cherry, etc.) undoubtedly the most satisfactory source of information will be Prof. H. J. Quayle's new book, entitled "Insects of Citrus and Subtropical Fruits." This book is the result of a life time study by Prof. Quayle of all the important insects throughout the world that attack commercial subtropical fruits. The author also has assembled the most important world literature in this field. The numerous drawings, diagrams, photographs, tables, keys to insects, and citations to literature make this volume an exceedingly valuable reference for any library housing biological books. An outstanding feature is the extensive and thorough-going presentation of the information about the natural enemies (diseases, predators and parasites) of the respective insect and other arthropod pests. This important phase of insect control is usually

omitted or merely mentioned in most volumes discussing insect pests of economic plants. The chapters on insecticide control, especially the chapter dealing with field fumigation where canvas is placed over trees or ground plants, bring together the latest information in these fields. All told, the author has prepared an excellent book which will be of decided value to entomologists, subtropical fruit growers and others.—*Alvah Peterson.*

Insects of Citrus and other Subtropical Fruits, by Henry J. Quayle. ix+583 pp. Ithaca, The Comstock Publ. Co., 1938. $5.00.

"Reptiles of Ohio" Brought up to Date

Roger Conant's Reptiles of Ohio has at last appeared! Naturalists of the state have for some time eagerly awaited this publication, so badly needed to bring our records up to date. This is the third list of Ohio reptiles to be published, dating from Smith's report in the Ohio Geological Survey of 1882, followed by Max Morse's paper of 1904, published in the Proceedings of the Ohio State Academy of Science. Conant's work is undoubtedly the most thorough-going study of Ohio reptiles yet made. The list includes 4 lizards, 10 turtles, and 25 snakes, based on records and specimens in collections throughout the state, supplemented by collections by the author in 80, and visits to 87, of the state's 88 counties. Each species is fully described along with its habitat and habits. A map of Ohio shows locality records, and a small U. S. map shows the general range of the species. A detailed list of all known specific records is given, with places and dates. This 200-page paper also includes a key to the species, a discussion of the physiography and geography of the state, a glossary, an extensive bibliography, notes on first aid in treatment of snake bite and suggestions for collecting and preserving specimens. The numerous excellent photographs are an attractive feature. It certainly deserves a place on the shelf of every naturalist's library in the state.—*J. W. Price.*

The Reptiles of Ohio, by Roger Conant. Cloth bound, reprinted from The American Midland Naturalist, 20: 1–200, July, 1938. Notre Dame, Indiana, The University Press.

College Physics

This is a text-book in college physics suitable for use in courses for technical students and for use by college sophomores who have had some introduction to the subject. The use of calculus is entirely excluded and only algebra and trigonometry are required. The material is treated in much the conventional order and each section is clearly illustrated. The expository material is written in concise and readable language and should appeal to the reader for whom it is intended. At the end of each chapter is found a list of problems with answers which are useful in clarifying for the student the principles which he has been reading about. As is the case with a great many other books of its kind, far more material is included than can efficiently be covered in two semesters or three quarters, but considered as a whole Dr. Perkins' book should prove itself useful in sophomore college courses in physics for technical and non-technical students.—*H. H. Nielsen.*

College Physics, by Henry A. Perkins. ix+820 pp. New York, Prentice-Hall, 1938. $3.75.

Abbreviated Physics

"The widespread antipathy on the part of most students to the application of mathematical methods" is the authors' reason for preparing "a brief, non-mathematical survey of the whole field of physics." Equations are relegated to an appendix, and replaced in the body of the text by equivalent verbal statements: "the distance covered by a body in uniformly accelerated motion, starting from rest, is equal to the product of half the acceleration by the square of the elapsed time." A four-page appendix tells of the influence of heat engines, electric power, electrical communications, and sound-motion pictures on civilization. Nine pages are devoted to topics of special interest to pre-medical students. As a text-book for short courses in physics, with demonstrations and discussions to make up for extreme brevity of the text, this book may find a useful place.—*Harold Knauss.*

Elementary Survey of Physics, by Arthur E. Haas and Ira M. Freeman. 203+ xii pages. New York, E. P. Dutton and Company, 1938. $1.90.

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