BOOK NOTICES

Sedimentary Petrography

This is a revised edition of Professor Tickell's book, which first appeared in 1931. It is essentially a manual of laboratory practice in the field of sedimentary petrography, presenting methods selected from the techniques developed not only by geologists, but also by investigators in other fields such as hydrology, chemical engineering, ceramics, and petroleum engineering. Successive chapters are devoted to size analysis, porosity and permeability, preparation of specimens, identification of minerals, and description of detrital minerals.

The only notable difference between this and the first edition is in the chapter on porosity and permeability, which has been rewritten in enlarged and improved form. Elsewhere there are only minor changes and additions, and for the chapter on size analysis the revision has been decidedly inadequate. Since 1931 extensive progress has been made in many fields of investigation concerned with the problems of size analysis, and the author's cognizance of this new material has been casual, to say the least. This chapter might well have been rewritten just as thoroughly as the one on porosity, not only for the addition of new and important material, but also to correct a certain lack of balance among important topics. For example, space is taken for types of curves that are rarely, if ever useful to the student of sediments, and a larger number of curves is represented than actually necessary in a work of this size, whereas no directions are given for the preparation of the frequency distribution curve, a bothersome question for the neophyte in sedimentary analysis. Another element missing in this chapter is treatment of the problem, highly important to the geologist, of disaggregating sedimentary rocks for size analysis.

The chapters on mineral identification contain much valuable material and should serve well as a guide to anyone who has had at least an introduction to the microscopic techniques involved, but that they would provide means of salvation for "one who has the ordinary scientific fundamentals" (to quote the author) without any special training in optical mineralogy may well be doubted. As basis for a laboratory course in the subject, with competent instruction, they should serve admirably.

Probably no single book could contain all that the laboratory student of sediments might desire, nor present the subject from all desirable points of view. Among the works now available, Professor Tickell's book should be on the shelf of every serious worker in sedimentary petrology.—*Edmund M. Spieker.*

The Examination of Fragmental Rocks, revised edition, by Frederick G. Tickell. x+154 pp. Stanford University Press, 1939. $4.00.

Another Biology Testbook

This book has a number of excellent features. Nearly every phase of biology (except animal behavior) is discussed. There is a brief but complete survey of the animal and plant kingdoms, and the various systems and processes in living organisms are discussed on a comparative basis. Human biology is stressed in the chapters on animals. Separate chapters are devoted to the ecology and economic importance of plants and animals, to applied biology, and to biochemical and biophysical processes—subjects often omitted from elementary texts. There is a very complete glossary, and an index of Latin and Greek word roots, features which will be appreciated by both student and instructor. At the end of each chapter is a list of review questions. The book is well bound, and is printed on the new "eye-toned" paper.

Even with its desirable features this book is disappointing. The author has attempted to cover too much ground, and as a result the treatment of most subjects is very sketchy. The discussion is teleological. The book contains many state-

ments that are either inaccurate or misleading; for example, in Chapter 8, in characterizing the triploblastic phyla of animals is the statement, "The body wall is triploblastic, being made of three cellular layers, ectoderm, mesoderm, and entoderm;" in characterizing the phylum Chordata, p. 159, is the statement, "Pharyngeal clefts (gill slits) are present for respiration purposes at some stage of the life history;" in illustrating predaciousness, p. 499, is the statement, "Chicken hawks are predacious on chickens." The illustrations in the book, except for a few that are borrowed, are very poor. In discussing the various organ systems in animals, the author does little more than list the structures composing these systems in 28 representative animals.

Except in the chapter on heredity (which is one of the best chapters in the book), the experimental approach to biological problems and principles is almost never used. Almost nothing in the way of experimental data, from which the student might draw his own conclusions, is given. Such an approach would seem particularly appropriate in the discussions of physiology, ecology, and evolution.

—*D. J. Borror.*

Fundamentals of Biology, by William C. Beaver. 896 pp. St. Louis, The C. V. Mosby Co., 1939. $4.50.

Essays in Philosophical Biology

Friends of the late William Morton Wheeler have gathered together some of his occasional papers and published them in book form. Reprints of some of the articles were exhausted and for many none existed. Consequently the publication of this volume fills the need of preserving these articles for posterity. All present day biologists are acquainted with his many contributions to science, but many may not have had the opportunity of reading some of the papers presented in this volume.

The contents by chapters are as follows: The Ant-Colony as an Organism; Jean-Henri Fabre; On Instincts; The Termitodoxa, or Biology and Society; The Organization of Research; The Dry-Rot of Our Academic Biology; Emergent Evolution and the Development of Societies; Carl Akeley's Early Work and Environment; Present Tendencies in Biological Theory; Hopes in the Biological Sciences; Some Attractions of the Field Study of Ants; Animal Societies. A foreword by Thomas Barbour and an obituary by his colleagues precedes the essays. An excellent photograph of Dr. Wheeler forms the frontispiece.

This volume should be read from cover to cover by every biologist, both young and old. It reflects the knowledge and philosophy of one who has achieved much in science. All the essays are excellent but it seems that the reviewer would be doing an injustice if he did not recommend especially the one entitled "The Dry-Rot of Our Academic Biology." This is cleverly written and reflects the inimitable style of Dr. Wheeler.—*R. H. Davidson.*

Essays in Philosophical Biology, by William Morton Wheeler, selected by Prof. G. H. Parker. xv+261 pp. Harvard University Press, Cambridge, Massachusetts, 1939. $3.00.

The Sun

This book is a translation of the book "Il Sole," by an Italian. It is a remarkable book in many ways, in its virtues and in its faults, both of which it possesses in good measure. Its chief virtues are that it is well written and profusely illustrated. It has, in fact, 157 illustrations in 350 pages. The style is straightforward and non-technical so that the reader with only a general scientific background can follow the presentation easily and profitably.

The faults of the book may be divided into two groups, those due to the publisher and those due to the author. Among the former are the following: The book is printed in glazed paper which catches the light and glares abominably into the reader's eyes. The index is inexcusably incomplete. Among the faults which may be laid to the author are, first, that too great an emphasis has been laid upon the Royal Observatory (Italian) at Arcetri. The reader distinctly gets the impression

that there are other observatories elsewhere but that the most important one is that of the author. Only passing mention is made of the work of the McMath-Hulbert Observatory of the University of Michigan which is generally conceded to represent the most outstanding development in solar observatories of recent times.

The same may be said of Mr. Abetti's discussion of diffraction gratings. Mt. Wilson Observatory furnished Mr. Abetti with a grating. This was in itself rather unusual, because Mt. Wilson Observatory does not make many gratings for other than its own use. The grateful author makes no reference either to R. W. Wood of Johns Hopkins or H. G. Gale of the University of Chicago, both of whom toil to supply the scientific world with gratings.

In short, Mr. Abetti creates the impression that he is a scholar and a master of his subject in spite of being insulated from the rest of the world. In the face of these rather harsh comments, the reviewer wishes to recommend the book, particularly to those who wish to read a well written, earnest account of what is known about our nearest star.—*C. E. Hesthal.*

The Sun, by Geiorgio Abetti, translation by Alexandre Zimmerman and Frans Borghouts. 360 pp. New York, D. Van Nostrand Co., 1938. $5.00.