

BOOK NOTICES

Pedigrees and Checkerboards

This manual contains more than 100 pedigree charts of various animals and plants, in which the genotypes are to be filled in as far as possible from the phenotypes of the various related individuals. It also includes nearly a hundred problems involving checkerboards. The plants and animals represent diverse species both of the laboratory and of the farm and home. The types of inheritance involved are widely representative, including unit factors, epistasis, sex-linked and sex-influenced factors, multiple alleles, linkage, and chromosomal aberrations. In the plant material nothing is said of xenia, and the endosperm and aleurone are treated as though they contained factors in pairs. As long as all the genes used manifest xenia, this omission of course makes no practical difference in the results of the problems. The distinction between sex-influenced and sex-limited behavior is not drawn. The problems are well chosen, and should be of very practical value to the beginning genetics student.—*L. H. S.*

Pedigrees and Checkerboards, by E. F. Barrows. 223 pp., planographed. Ann Arbor, Edwards Bros. 1940. \$1.50.

Physiology and Disease

The first edition of this very comprehensive treatise on medical physiology was reviewed in the *Ohio Journal of Science* for September, 1937. The fact that a second edition has appeared in only two years testifies both to the importance of the subject and to the success of the first edition. In addition to the many revisions in the text, a section has been added on special senses. This section comprises eight chapters, totaling nearly two hundred pages. The book admirably serves its purpose of bringing the principles of physiology into intimate contact with practical clinical problems.—*L. H. S.*

Physiological Basis of Medical Practice, by C. H. Best and N. B. Taylor. xvi+1872 pp. Baltimore, the Williams and Wilkins Co. 1939.

Exercises in Biology

Although the textbook, *Fundamentals of Biology*, may be used with profit in a non-laboratory course, Professor Haupt has prepared a manual of laboratory directions designed to accompany the material in his textbook. This manual, in the reviewer's opinion, does not attain the degree of excellence achieved in his textbook. The manual presents brief directions for 100 exercises. Since each is designed to be completed within a two-hour laboratory period, of necessity they must be sketchy. Where space is limited and large groups of students must be cared for this manual should prove satisfactory.—*Paul E. Schaefer.*

Laboratory Directions for General Biology, by Arthur W. Haupt. Third edition, 65 pp. New York, The McGraw-Hill Book Co. 1940. \$1.00.

The Fundamentals of Life

The great expansion and compartmentalization of scientific knowledge is raising more problems and increasing the difficulty of solution for the teacher of the general courses in the physical and biological sciences. The development of the "principles" method of organization has seemed a step towards a solution, but what shall a text for such a course be and where can it be found? Since no one specific pattern can cover all "principles" courses certainly no one specific pattern can be laid down for such textbooks. Several books have appeared which seem to achieve some measure of success in aiding the student to orient himself with respect to the scope of biological science, its influence upon his life and its role in society.

Amongst those texts which seem usable for such a course, Haupt's *Fundamentals of Biology* certainly should have a place. In this third edition, although a botanist primarily, Professor Haupt has not slighted the animals but has achieved a rather comprehensive picture of biology without blatant sketchiness. There is a unity of organization which yet permits a degree of flexibility. The language is quite readable, and the general mechanics of the book very satisfactory. This book doubtless will not please everyone, for what book could, but many should find it exceedingly usable.—*Paul E. Schaefer.*

Fundamentals of Biology, by Arthur W. Haupt. Third edition, 443 pages. New York, The McGraw-Hill Book Co. 1940. \$3.00.

Cosmic Rays and Mesotrons

This small paper-bound book is written from a research point of view and will be welcomed by graduate students who want a fundamental understanding of experimental cosmic-ray phenomena and their interpretations. The interpretations, however, do not extend to the questionable origin of cosmic rays.

A short chapter is devoted to experimental apparatus such as ionization chambers, Geiger-Müller counters, and Wilson cloud chambers. With these instruments data are obtained on the variation of cosmic-ray intensities with time and latitude, on the absorption of the rays in matter at high and low altitude, and on the penetration of cosmic rays to great depths. The most penetrating component of cosmic rays leads to the concept of mesotrons. The mesotron seems to be between 100 and 200 times as heavy as the electron. There is evidence that the average life of a mesotron is about one-millionth of a second.

In the chapter devoted to the application of the theory of electrons to cosmic rays, the subjects of ionization by collision, showers, and the production of secondaries in the upper atmosphere are effectively treated.

The ten tables and sixteen figures amply illustrate the text and help to make this book a very desirable one in the field of cosmic rays.—*M. L. Pool.*

Cosmic Rays and Mesotrons, by H. J. J. Braddick. 68 pp. Cambridge, at the University Press; in New York, the Macmillan Co. 1939. \$1.50.