BOOK NOTICES

Elementary Chemistry

The idea stated in the preface that this book results from a course "developed to emphasize the applications of chemistry, and designed to meet the need of the student who desires the chemical fundamentals in practical form" has been closely followed throughout the text. For special groups of students needing only a realization of the relationship between chemistry and their chosen profession, the work is excellent. As might be expected, the book does not consider to any extent the principles involved in most of the discussion. For that reason it would be very unsuitable for a general course in chemistry. The first half of the book deals with the fundamental nature of matter, inorganic substances, water, acids, bases, salts and solutions. The latter half discusses the important practical points about organic and physiological chemistry under the topics carbon and its compounds, foods and digestion, body fluids, textiles and cleaning of materials. This part is of especial value for nurses. The book is well printed on fine paper and well bound. The number of illustrations is small but well chosen.—*L. L. Quill.*

Elementary Chemistry, by Imo P. Baughman. 296 pp. Philadelphia, Lea and Febiger, 1937. $2.75.

Physics for Engineers

This work is a third edition of a physics text of the same name and is divided into two volumes; the first on Mechanics and Heat, suitable for a first semester of college physics for engineering students; the second, treating Sound, Electricity and Light, suitable for a second semester.

This work is quite lucidly written, plentifully illustrated with diagrams and actual photographs and demands no further mathematical equipment beyond the algebra. As the title implies, this work is especially suitable for students of technical subjects; many practical applications of the principles set forth being emphasized. The subject matter is, however, strictly classical physics; while the reviewer is fully conscious that little time is available in a course of this type for discussion of modern physics, it still seems unfortunate not to give to engineering students also a feeling of what modern physics treats and what its possible importance might be also in technical fields. Aside from this detail the work appeals to the reviewer and is sincerely recommended.—*H. H. Nielsen.*

Physics for Technical Students, by W. B. Anderson. 3rd ed., 2 vols. New York, The McGraw-Hill Book Co., 1937. $2.50 per volume.

Early Man

Laymen, scientists in other fields and even anthropologists themselves tend to feel confused and quickly "behind the parade" as the evidence concerning man's origin and early development rapidly accumulates. To all such persons, scientifically interested in the problems of human antiquity, this book is heartily recommended. It consists of the papers read before the International Symposium on Early Man held last March on the occasion of the 125th anniversary of the founding of the Philadelphia Academy of Natural Sciences. Thirty-five leading authorities, all actively engaged in actual field research, from all parts of the world, have contributed highly condensed reports of their latest researches and views. Consequently the volume contains a survey of scores of articles previously printed in many languages as well as a wealth of previously unpublished material. Sir Arthur Keith, the eminent British anatomist, carried the burden of summarizing such material for twenty years in his series of works dealing with human antiquity, the latest of which, "Recent Discoveries Relating to the Antiquity of Man," appeared in 1931. The subject has now progressed beyond the powers of any one man's

efforts, I believe, and it is to be hoped that volumes such as the present one will appear in the future at intervals of not less than five years.

The present reviewer's only serious complaint has to do with the grouping of the contributions in the book by chronological order of presentation rather than by subject. For instance, it would have been more helpful to have placed the three articles dealing with recent finds in Java together, rather than scattering them, as is the case, at pages 23, 315, and 349, respectively.

The question of man's origin and early life is as yet imperfectly understood. But the search for evidence and the interpretation of the available data form a fascinating field of research which may yet, by clarifying our past, illuminate our present and future.—*J. P. Gillin.*

Early Man, edited by George Grant MacCurdy. 362 pp. Philadelphia, J. B. Lippincott Co., 1937. $5.00.

Atomic Physics

This second edition supersedes the first edition known under the title "Atomic Physics" and is a text useful for students whose knowledge of physics is limited to that gained from the general course. In it the authors have seen an opportunity to rectify and improve much of the material in the former presentation and to include also discussions concerning more recent developments in physics.

Like its predecessor this volume discusses from an elementary point of view such subjects as kinetic theory, the atomic nature of electricity and radiation, atomic and molecular spectroscopy, earlier and later quantum theory, relativity and astrophysics. A chapter is, however, added in this second edition which is devoted to nuclear physics and more recent experiments on the nature of cosmic rays. While the second edition has been improved and modernized in many places, unfortunately certain other places remain out of date. For example, as an illustration of the spectrum of a diatomic molecule is given the curve of Elmer Imes. It would seem only natural to include the much more recent curve of Meyer and Levin in which complete resolution of the spectrum was accomplished.

The preparation of a text on Modern Physics for a class of students of the calibre for which this book is intended is no doubt a difficult one. This work is probably as good a one as is available, although it must be conceded that to avoid the use of mathematics a great deal of the clarity and accuracy has had to be sacrificed.—*H. H. Nielsen.*

An Outline of Atomic Physics, by O. H. Blockwood, E. Hutchisson, T. H. Osgood, A. E. Ruark, W. N. St. Peter, G. A. Scott and A. G. Worthing. 2nd ed. x+414 pp. New York, John Wiley and Son, 1937. $3.75.

A Modern Darwin

To this reviewer the new volume by Dobzhansky appears to be the most significant biological book of the past quarter-century. It is a thorough exposition of the implications for evolution arising from modern genetic theory. Since Darwin, himself, was one of the very few whose major interests lay in studies of the mechanism of evolution rather than in the historical problem, genetics rather than evolutionary morphology is heir to the Darwinian traditions. The book thus treats mainly of the dynamics of evolution. The three levels of evolutionary progress are carefully discussed: first, the occurrence of mutations and chromosomal aberrations; second, their fate as determined by the dynamic regularities of the physiology of populations; and third, the fixation of the diversity already attained on the preceding two levels. "Position effects" are treated in detail. There is a thorough discussion of the effects of random variations of gene frequencies. Here the conclusion is reached that the differentiation of a species into races may take place apart from the action of natural selection. This does not at all invalidate natural selection as an evolutionary agency, however. A chapter is devoted to hybrid sterility, and the book closes with a discussion of species as natural units. The author uses beautiful English, and has an exceptionally clear and readable style.

Because of his Russian birth and education, he has made available in the book much literature which might not otherwise reach an American audience. Illustrations are provided where needed, and a fairly complete list of citations is appended.
—L. H. S.

Genetics and the Origin of Species, by Theodosium Dobzhansky. xvi+364 pp. New York, Columbia University Press, 1937. $3.60.

Thermodynamics

This is a text book admirably suited for use in an intermediate course for students preparing themselves for careers in physics, chemistry or engineering. The background required for the comprehension of the subject matter by the student, as it is here presented, is limited to a course in general college physics and one in the calculus. In this respect the author is quite zealous, all mathematical equipment not contained in the calculus being derived when the demand for it arises. The first half of this book treats the fundamental concepts of thermodynamics; for example, temperature, the first and second laws of thermodynamics, work and heat, reversibility and irreversibility and entropy. The second half has as its purpose the application of the general principles discussed in the first half to certain specific problems in physics, chemistry and engineering as the heat engine and the refrigerator, the Joule-Kelvin effect, thermo-electric phenomena and phase change. This work is useful to the beginning student in that the subject matter is treated in much more detail than is customary, most of the intermediate steps being retained. Probably in no manner can the importance of the principles set forth so well be emphasized as by the actual solution of examples depending upon them. A most commendable feature of this book is the complete list, at the end of each chapter, of examples suitable for classroom discussion. Quite enthusiastically and without reservation can this book be recommended to the college teacher as actually doing what it sets out to do.—**H. H. Nielsen.**

Heat and Thermodynamics, by Mark W. Zemansky. xii+388 pp. New York, the McGraw-Hill Book Co. 1937. $4.00.