

Nevertheless there is much in the book to be commended. The discussion of the metals and of the practical applications of chemistry is as a rule fairly satisfactory. A text on chemistry with preface dated January, 1909, however, should not contain the statement that helium has not been liquefied.

WILLIAM MCPHERSON.

Die Härte der festen Körper und ihre physikalisch-chemische Bedeutung. VICTOR PÖSCHL. Dresden: Theodore Steinkopff. 1909. 8vo., 85 pp., 4 fig. Price, M 2.50.

There are undoubtedly intimate relations between the chemical composition, the crystal form, hardness and density of bodies. Of these properties hardness presents the least satisfactory data because no really accurate and widely applicable method of measuring hardness has been agreed upon. The old scale of Mohs of ten minerals ranging from diamond to chalk is too indefinite. The object of the author in this book is to set forth a method of measuring hardness which appears to give an accurate numerical expression of it and to summarize some of the relations which may be pointed out between hardness and tenacity, frangibility, solubility, composition and crystal form.

He defines hardness as the force which must be overcome to tear a particle of a substance from its neighbors. He gives a summary of the methods used heretofore in measuring hardness—planing, bending, impressing and grinding. His own method consists in making a "scratch" with a diamond under definite load and estimating under the microscope the *volume* of substance removed. In comparison to the scale, 1, 2, 3–8 he obtains 5, 21, 50, 167, 122, 240, 667, 1000 for talc, rock salt, calcite, fluorite, apatite, orthoclase, quartz and topaz respectively. Such a scale obviously offers a chance to express small differences of hardness such as obtain on different crystal faces or between polymorphs. The author of course has difficulties when he attempts to predict the hardness of a compound from the hardness of its elements, but the discussion along this line is interesting.

The book is a brief but suggestive contribution to the study of hardness.

ROGER C. WELLS.

A Text-book of Physics, edited by A. WILMER DUFF. Second edition, revised, 525 illustrations, xi + 698 pp. Philadelphia: P. Blakiston's Son & Co., 1909. Price, \$2.75 net.

The first edition of this book was reviewed in *THIS JOURNAL*, 31, 429. In this edition "The part on wave motion has been entirely rewritten and numerous changes have been made in several other parts." That the book is a successful one is indicated by the appearance of a second edition after so brief an interval.

W. A. N.

A Text-book of Physiological Chemistry, for Students of Medicine. By JOHN H. LONG, M.S., Sc.D., Professor of Chemistry in Northwestern University Medical

School, Chicago. Second Edition, revised, with 42 Illustrations. Philadelphia: P. Blakiston's Son and Co. 1909. Price, \$2.50.

A well-known writer (Professor Münsterberg) has recently called attention to the indifferent revision to which the average American text-book is subjected in the preparations of successive editions, in contrast with the more effective German editorial custom. This criticism cannot be applied to Professor Long's "Physiological Chemistry," the first edition of which was reviewed in THIS JOURNAL in 1906. It is satisfactory to note that the new edition has embodied the essential suggestions made in the reviewer's first criticism. The favorable impression there recorded is now enhanced by various useful additions to the volume. They embody a more adequate treatment of the subject of urine, including a chapter of well-selected reactions and methods applicable to urinary analysis. The subject of proteins has received a more up-to-date presentation. The classification and nomenclature introduced by the joint committee of the American Physiological Society and the Society of Biological Chemists (and which corresponds, with minor deviations, to that of the English societies) is referred to, but not followed by the author. In the reviewer's opinion it is to be regretted that Professor Long has not adopted this classification, which seems likely to find wide acceptance in American laboratories. The use of the word "albumin" in a generic sense, the retention of the term "proteid" now about to be discarded by international consent, the employment of the misleading term nucleo-albumin for such compounds (phosphoproteins) as casein and its consequent confusion with nucleoprotein (or Long's nucleoproteid) are unfortunate. The word protein is accepted by the author in many places, yet expressions such as Bence Jones proteid are still retained.

The text has been thoroughly revised, by appropriate omissions as well as by numerous timely additions. Even details in the laboratory directions have been subjected to improvement. As illustrations of this, the modified discussions of protagon, of absorption from the stomach, and of the digestion of fats in that organ, may be quoted. Although one may not always agree with the author's interpretation of certain minor topics which are still subject to controversy, it is safe to say that the revised text-book of Professor Long will meet with a favorable reception because it covers so well the field of instruction usually traversed in physiological chemistry.

LAFAYETTE B. MENDEL.

Grundlagen und Ergebnisse der Pflanzenchemie. Nach der Schwedischen Ausgabe bearbeitet von H. EULER. Zweiter Teil: Die allgemeinen Gesetze des Pflanzenlebens. Dritter Teil: Die chemischen Vorgänge im Pflanzenkörper. Braunschweig: Friedrich Vieweg und Sohn. Price, bound, 8 M.

The object of the second volume is to give a brief summary of those principles of physical chemistry which are known to exert an influence