

NEW BOOKS.

- (a) **The Numerical Data of Spectroscopy.** By L. BRÜNINGHAUS, with a preface by H. Deslandres. Published with the assistance of the Ministère de l'Instruction publique. Pp. 74. (b) **The Numerical Data of Electricity, Magnetism, and Electro-chemistry.** By P. DUROIR, W. C. McC. LEWIS and A. MAHLKE, with a preface by M. LeBlanc. Published under the auspices and with the assistance of the Ministère du Commerce, de l'Industrie et des Postes et Télégraphes, the Comité des Forges de France, the Société des Ingénieurs civils, and the Société Internationale des Électriciens. Pp. 79. (c) **The Numerical Data of Radio-activity.** By J. SAPHORES and F. BOURION. Published with the assistance of the Institut de Radioactivité de l'Université de Paris. Pp. 9. (d) **The Numerical Data of Crystallography and Mineralogy.** By M. L. J. SPENCER, with the preface by A. Lacroix. Published under the auspices and with the assistance of the Deutsche mineralogische Gessellschaft, the New York Academy of Sciences, the Société française de Minéralogie, the Société impériale russe de Minéralogie, The Mineralogical Society, and the Wiener Mineralogische Gesellschaft. Pp. 19. (e) **The Numerical Data of Biology.** By EMIL F. TERROINE, with a preface by E. Roux and an introduction by Dr. Delezenne. Published under the auspices of the Institut Pasteur de Paris. Pp. 17. (f) **The Numerical Data of Engineering and Metallurgy.** By S. L. ARCHBUTT, G. FIECK, W. HINRICHSEN, E. NUSBAUMER and A. PORTEVIN, with a preface by A. Mesnager. Published under the auspices and with the assistance of the Ministère des Travaux Publics, the Comité des Forges de France, the Groupe Franco-Belge de l'Association Internationale pour l'Essai des Matériaux, the Iron and Steel Institute, the Société des Ingénieurs Civils, and the Société Industrielle de l'Est. Pp. 74.

This series of six sets of tables is made up of data extracted from Volume 3 of the **Annual Tables of Physical Constants and Numerical Data** and is issued in this form in order that selected classes of data may be made available at a lower price and in a more convenient form. The books are issued by the University of Chicago press and are listed at the following prices: *a*, *b*, and *f*, 10 francs each; *c*, 2 fr. 50; *d* and *e*, 4 fr. each.

E. W. WASHBURN.

Handbuch der Mineralchemie. DOELTER, *et al.* Bd. II. No. 7 (Bogen 11-20). Theodor Steinkopff, Dresden and Leipzig. Price, M. 6.50.

In scanning these pages the reader is struck by the great amount of space devoted to the *formulae* of mineral substances. The remarkable fruitfulness of this form of study in the organic field has inevitably affected the development of mineral chemistry. To disparage work of this character would serve only to define the interests of the critic, but at least we may say that the results have not been at all commensurate with those in organic chemistry and that speculation so far from the facts as much of this is cannot be expected to advance science materially. It seems to the reviewer that much of the matter on this subject and mineralchemie might be condensed to advantage.

There are several subjects in this issue of Mineralchemie of more than average interest, notably the nephelite group of mineral and the ultramarines.

E. T. ALLEN.

A First Course in Chemistry. By WILLIAM McPHERSON and WILLIAM E. HENDERSON, Professors of Chemistry in Ohio State University. 12mo, x + 416 pages, 188 figures. Ginn & Co. Price, \$1.25.

The book is written "for the great majority—(one estimate makes it 93%)—of the students who never go further in the formal study of the science than the first year" though, "the requirements of the College Entrance Examination Board have been fully met" might seem to mean something else. The teacher who is bound by any requirements except the needs of his students and the limitations of his place cannot do his best work, but if he followed this text without thinking of entrance requirements at all he might be safe, whether his students carried the study further or not.

The work is unusually full in the matter of applications of chemistry. Theory is extended and fixed by reference to numerous interesting household, commercial and laboratory processes. The number of figures is especially large and with few exceptions they are good. The exercises and problems are well made and suggestions for theme writing—something entirely new in chemistry texts—are given at the end of each chapter and have an appendix devoted to them.

The "English" of the text is particularly good. The distressing lists of "properties"—*physical* properties, *chemical* properties, *acid* properties, *basic* properties, *metallic* properties, *analytical* properties—have disappeared and in place of them we find simply "properties" and "chemical conduct." *Chemical* compounds, *mechanical* mixtures, *metallic* metals, *calories of heat*, at standard conditions, etc., are "conspicuous by their absence" and adverbs are properly placed. Texts for students and especially for beginners in the subject should be models in language.

Paper and type are good and this interesting and up-to-date book will certainly make a place for itself.

C. M. WIRICK.

Foundations of Chemistry. By A. A. BLANCHARD, Massachusetts Institute of Technology, and F. B. WADE, Shortridge High School, Indianapolis. 475 pp. 75 figs. American Book Co., Cincinnati. Price, \$1.25.

After referring to the disciplinary value of the classics and the present tendency to substitute for it a multitude of vocational and informational subjects, likely to fail as a means of training, the authors say:

"With the ideal in mind of teaching the scientific method of thought, while considering the facts and principles of chemistry, the authors have striven to write a book the intelligent study of which will develop both the power of the pupil to think originally and his appreciation of the relation between the subject matter of chemistry and his daily life."

The arrangement adopted in carrying out this plan differs from that in most texts. Combustion is studied before oxygen is, water before hydrogen, hydrochloric acid before chlorine. Equations are discussed on page

155, acids, bases and salts, on page 207. Only 35 pages are given to metals. (Hydrogen is a metal though it is omitted from the Periodic Table); Compounds of carbon fill 30 pp., Ionic Theory, Electrolysis, etc., 34, Equilibrium, Reversible reactions, etc., 20. Most of the theoretical matter is toward the end of the book and the authors suggest that it be carried over from the first year and the study be thus given for three half-years. Whether the secondary school is willing to give it that much time, or whether it is worth that much if it could be secured, with our present courses of study may be seriously questioned.

Subject matter and illustration are excellent. Of course, such figures as those of native copper, chalcopyrite, galena, etc., give no idea of the substances themselves, but otherwise the matter as set forth is good and there is a good index. There are full summaries and questions and the book will appeal to those teachers who are not satisfied with the earlier texts.

C. M. WIRICK.

A Text-Book of Inorganic Chemistry. Volume I: Part 1, An Introduction to Modern Inorganic Chemistry. By J. NEWTON FRIEND, H. F. V. LITTLE AND W. E. S. TURNER. **Part 2, The Inert Gases.** By H. VINCENT A. BRISCOE. Philadelphia: Lippincott, 1914. Crown 8 vo, pp. xv + 385. Price, \$3.00.

This is the first of nine volumes, edited by Dr. Friend, and constituting a treatise and work of reference in inorganic chemistry. The other eight volumes will deal with the eight groups of active elements in the periodic table. Part I (289 pp.) contains an admirable account of the general principles and the experimental methods of inorganic chemistry. The treatment avoids excursions into physical chemistry, it is condensed yet wonderfully complete, it is thoroughly up to date (beyond the middle of 1914), and is provided with excellent bibliographies of each subject and numerous references. The subjects include the laws of gases, crystallography, allotropy, the colloidal state, relations of specific heats, solution and solubility, molecular weight and its determination, thermochemistry, chemical equilibrium and reaction speed, atomic weights and their determination, and the classification of the elements, including the structure of the atom and radioactivity. The student or teacher looking for the latest facts and views will find each of them classified in the right connection, briefly characterized, and accompanied by references to sources of more detailed information. There are few things to which exception could be taken. The opening page deals with two classes of changes, physical and chemical, in the conventional, ill-considered way, as if the classes were mutually exclusive, when in fact, the former includes the latter. The crystallography omits Lomonossov. The molecular weight unit, with its topic parameters, seems to be missing, although conceptions which are still in the stage of probation are discussed at length. What strikes one, however, is the skill and good judgment which have

been shown in every line, and particularly in the places where the literature is confused and most authors blunder more or less seriously. Part II (67 pp.) deals with the nonvalent group of elements. It gives a condensed, but lucid and very complete summary of all that is known about the inert gases. Judging from the initial volume, the whole book will be an indispensable work of reference that should be on the desk of every chemist.

ALEXANDER SMITH.