

follows: Part I. Molecular Motion and Its Energy, pp. 3-145; Part II. The Molecular Free Paths and the Phenomena Conditioned by Them, pp. 149-296; Part III. On the Direct Properties of the Molecules, pp. 299-352. The mathematical discussions connected with the treatment of these subjects are contained in the Appendices, pp. 355-466; they make no claim to completeness. While the contents of the book are limited to the same general range of phenomena considered in the first edition, an explanation on the kinetic theory of the resistance of air and of the reaction of a jet, together with an investigation concerning the influence of the dissociation of the molecules of a vapor upon its viscosity, have been inserted.

The author deserves much credit for the manner in which he has worked up the bulky literature of the subject which has accumulated during the past two decades. The translator has provided the English speaking public with a good translation of this valuable work. He has not added anything new except a few foot-notes, but he has provided an index that is an exceedingly valuable addition to the book.

Of late, criticisms of the kinetic theory of gases have frequently been heard, and it has even been charged that the theory has outgrown its usefulness and that it has done more harm than good. Nevertheless these very critics still gladly reach out for the kinetic theory whenever it can be used to explain some of their own pet theories, particularly those relating to the analogy between gases and solutions.

English-speaking scientists, and chemists in particular, will welcome this new English edition of Professor Meyer's excellent book.

The work of the publishers is very commendable.

LOUIS KAHLENBERG.

LABORATORY MANUAL. EXPERIMENTS TO ILLUSTRATE THE ELEMENTARY PRINCIPLES OF CHEMISTRY. BY H. W. HILLYER, PH.D., Assistant Professor of Organic Chemistry in the University of Wisconsin. 200 pp. New York: The Macmillan Co. 1899. Price \$1.90.

The "book is written for the use of college students of general chemistry." The first and much the larger portion of the book, (Part I.) is devoted to the preparation and properties of the elements and their compounds; another portion (Part II;) presents a limited number of quantitative experiments for the

verification of quantitative laws: the appendix contains needful data for the students' use. In the selection of experiments the author provides for beginners, for those possessing slight familiarity with the subject, and for those who have had a satisfactory laboratory course in the preparatory school. The experiments are well chosen and graded, the directions are carefully stated, and the questions are plainly those of a painstaking teacher. The directions to the student regarding his preliminary preparation for each laboratory exercise are, in particular, excellent. The book is well printed and excellently bound.

H. P. TALBOT.

VOLUMETRIC ANALYSIS, SPECIALLY ADAPTED TO THE REQUIREMENTS OF STUDENTS ENTERING FOR THE ADVANCED PRACTICAL CHEMISTRY EXAMINATIONS OF THE SCIENCE AND ART DEPARTMENT. By JOHN B. COPPOCK. London: Whittaker & Co.; New York: Macmillan & Co. 12mo. pp. 92. Price, 50 cents.

The nature of this book is sufficiently indicated in the title. There is nothing contained in it worthy of special mention. It is chiefly notable for its omissions. Such books are of little value except to those who wish to pass an examination and have no further interest in the subject.

E. H.

BOOKS RECEIVED.

Leitfaden für den Unterricht in der anorganischen Chemie. Didaktisch bearbeitet von Dr. Joachim Sperber. Erster Teil. Zürich: Verlag von E. Speidel. 1899. 120 pp. Preis, M 2.40.

A Description of Some Chinese Vegetable Food Materials and their Nutritive and Economic Value. By Walter C. Blasdale. Bulletin No. 68, U. S. Department of Agriculture, Washington, D. C. 1899. 48 pp.

Preservatives in Canned Foods. Bulletin No. 165. 8 pp. Butter Adulteration. Bulletin No. 166. 12 pp. The North Carolina College of Agricultural and Mechanical Arts, Raleigh, N. C. 1899.

A Treatise on Crystallography. By W. J. Lewis, M.A. Cambridge: At the University Press. 1899. xii+612 pp. Price, 14 shillings net.

The Urine; and Clinical Chemistry of the Gastric Contents, the Common Poisons, and Milk. By J. W. Hollaud, M.D. Sixth Edition, Revised and Enlarged. Philadelphia: P. Blakiston's Son & Co. 1899. vii+124 pp. Price, \$1.00.

Index to the Literature of Zirconium. By A. C. Langmuir and Charles Baskerville. City of Washington: Published by the Smithsonian Institution. 1899. 8vo. 29 pp.