

cal and mechanical properties of lead, general theory of corrosion stability, pure lead, lead alloys, technical lead and impurities, applicability of lead as corrosion resistant industrial material, a few special questions on the behavior of lead. A lengthy section on zinc pp. 596-670 by W. Wiederholt, discusses the electrochemical and chemical behavior of zinc in water, salt solutions and acids, in alkalis, in inorganic and organic compounds, in gases, in technical applications, and behavior of zinc alloys. Cadmium, pp. 671-685, and tin, pp. 686-721, by W. Wiederholt includes electrochemical and chemical behavior. Tungsten, molybdenum, and chromium, pp. 722-723, nickel and its alloys, and cobalt, pp. 724-764, are discussed by W. Rohn and C. Francke. They include general theory, testing procedures, nickel and its alloys in daily use and in the chemical industry, nickel and cobalt alloys with metals of the chromium group, nickel and its alloys at high temperatures, sulfur stable alloys, corrosion and aging of thermoelements. Corrosion of noble metals by L. Nowack and J. Spanner, pp. 765-827, is a long section covering introduction, physical properties, and uses of gold, gold alloys, gold as a metal coating, silver, silver alloys, silver as metal coating, platinum metals, alloys of mixed platinum metals, other alloys, platinum metals as coatings. There is a general discussion of noble metals and their alloys in the presence of various corrosive substances.

An author index of 12 pp. and a subject index of 60 pp. complete the volume. The present compilation is a valuable contribution to the literature.

MERLE RANDALL

The Chemical Analysis of Foods and Food Products. By MORRIS B. JACOBS, Ph.D., Chemist, Bureau of Food and Drugs, Department of Health, City of New York. D. Van Nostrand Company, 250 Fourth Avenue, New York, N. Y., 1938. xxiii + 537 pp. 56 figs. 16 × 23.5 cm. Price, \$6.00.

The general impression left after a perusal of this book is that in it the methods of food analysis have been brought thoroughly up to date, material being found which is included in no other text. Numerous methods, largely American, are described which first appeared in print as late as 1937, naturally with some danger that not all may have been sufficiently tested to be sure of their true worth. The standard methods of the A.O.A.C. have been drawn upon to a large extent.

The chapter on physical chemical methods covers an unusually wide range, considerable space being given to photoelectric colorimeters, spectrographs, electrometric determinations, surface tension apparatus, and other modern instruments, which are usually discussed only in special treatises. In the section on polarimetry it is regrettable, however, that the author did not include a discussion of the quartz wedge saccharimeter, which is much more widely used in commercial polarizations than the rotary polariscope. As a matter of fact, the "polarimeter" shown (Fig. 23), although stated to be for monochromatic light and to have a rotating analyzer, is actually a compensation saccharimeter using white light. By a curious slip the instrument is said to be capable of using a 40 *dom.* tube.

Other points of marked excellence are the discussion of

pasteurized milk, the chapter on jams and jellies, one of the best in the book, a chapter on chemical methods for estimating vitamins and numerous tables of the composition of foods. Especially noteworthy among the latter are useful data on the detection of adulteration in butter and olive oil and the alcohol table in the appendix, which combines in one table the data obtainable by both densimetric and refractometric methods. In the Munson and Walker method for reducing sugars the more desirable Given table is used rather than the one commonly found.

A few criticisms might be made, although they are largely matters of personal opinion and do not detract from the general excellence of the work. The discussion of the interpretation of milk analyses, if anything more than simple failure to comply with legal standards is to be shown, is practically negligible. It is rather strange, although perhaps to be expected, to see so much stress laid on the New York Board of Health lactometer instead of the more generally used Quevenne form. An anomaly certainly exists between the Ventzke normal weight of 26 grams (p. 259) and the Ventzke normal weight of 26.026 grams (p. 260), a discrepancy which, although based on the authority of the A.O.A.C., would be confusing to those not acquainted with the controversy which has raged over the Ventzke scale. Where starch is so commonly determined in various foods it would seem advisable to give some more general method than the special one for flours on page 291. Likewise, the only method given for pentosans is the very recent one of precipitation with thiobarbituric acid. The colorimetric tartaric acid method described under fruits is recommended only for use in a tartrate baking powder although no reference to the latter material is found in the index. The colorimetric method for vanillin is described in detail but no caution is given that it has been found notably unreliable with fortified vanilla extracts. The determination of glycerol in vinegar is described at great length although it has little practical value at the present time. No discussion of the range of glycerol in a normal vinegar, other than two figures in a table, is found. One wonders why a method is specified (p. 480) as for "Nitrates in Flesh Foods" when the preceding general method for nitrates is actually the A.O.A.C. method for nitrates in meats.

Other instances might be mentioned, but these are, in general, matters of relatively minor importance. The book is a distinct contribution to the literature of food analysis, the author has done a real service in assembling so much scattered recent material, and the reviewer, for one, is very glad to have the book on his shelf and within easy reach.

A. G. WOODMAN

Handbuch der Lebensmittelchemie. A. BÖMER, A. JUCKENACK and J. TILLMANS. Siebenter Band. **Alkoholische Genussmittel.** (Handbook of Food Chemistry. Vol. VII. Alcoholic Beverages.) B. BLEYER, Editor-in-Chief. Verlag von Julius Springer, Linkstrasse 22-24, Berlin W 9, Germany, 1938. xv + 828 pp. 115 figs. 17.5 × 24 cm. Price, RM. 99; bound, RM. 103.50.

Sponsored by a board of editors whose personnel includes the surviving member of the original group, A. Juckenack,

and three others, J. Grossfeld, E. Bames and B. Bleyer, there has now appeared another volume, the fifth in order of completion, of the "Handbuch der Lebensmittel-chemie."

Quite appropriately the subject matter of this volume is introduced by a chapter on alcoholic fermentation (31 pp.). The authors, B. Bleyer and W. Diemair, treat this topic first in its historical aspects, then from the standpoint of the morphology and the chemical composition of yeast and finally the course and products of fermentation. Following this, the book divides itself into three main parts, devoted, respectively, to beer (139 pp.), wine and other grape products (367 pp.), and distilled beverages (222 pp.). A digest of the pertinent German laws, compiled by H. Holthöfer, supplements each major chapter; those of the principal European countries and the United States in respect to alcoholic beverages have been briefly collated by E. Bames (38 pp.). A well-organized index (31 pp.) completes the book.

The whole volume appears to have been written with that suggestion of authority which can come only from the pens of those who write with the advantage of experience in their own fields. Bleyer and Diemair contribute also the chapter on beer. The subject matter begins with a discussion of the raw materials of the industry, continues with an exhaustive description of the manufacture of beer from malting to fermentation, and closes with a résumé of the properties and composition of beers. The chapter on wine represents the independent efforts of two scientists who are active in official capacities. To E. Vogt was assigned the task of discussing and describing this beverage, its various types and products, from vineyard to finished product. O. Reichard treats the subject from the two-fold standpoint of analysis and official control of traffic therein. The chapter on distilled beverages also is noteworthy. It is the work of G. Büttner. The subject is presented under the following headings: technical recovery of spirits, potable spirits of all types, composition and analysis.

This volume rightfully deserves a place among its predecessors in the series, for by condensing within one set of covers a vast amount of authoritative technical and legal matter it simplifies the work of the food chemist in need either of a reference book or a ready source of information on the subject matter in question.

H. A. SCHUETTE

BOOKS RECEIVED

July 15, 1938-August 15, 1938

- A. DAMIENS, Editor. "Halogènes et Composés Oxygénés du Chlore. Mémoires de MM. Scheele, Berthollet, Gay-Lussac et Thénard, H. Davy, Balard, Courtois, H. Moissan, Millon." Gauthier-Villars, Éditeur, 55 Quai des Grands-Augustins, Paris 6^e, France. 147 pp. Fr. 21.
- LUCIUS JUNIUS DESHA AND LARKIN HUNDLEY FARINHOLT. "Experiments in Organic Chemistry." McGraw-Hill Book Co., Inc., 330 West 42d St., New York, N. Y. 233 pp. \$1.75.
- R. J. W. LE FÈVRE. "Dipole Moments. Their Measurement and Application in Chemistry." Chemical Publishing Company of New York, 148 Lafayette St., New York, N. Y. 110 pp. \$1.50.
- REYNOLD C. FUSON, Editor-in-Chief. "Organic Syntheses. Vol. XVIII. 1938." John Wiley and Sons, Inc., 440 Fourth Ave., New York, N. Y. 103 pp. \$1.75.
- ROSS AIKEN GORTNER. "Outlines of Biochemistry." Second edition. John Wiley and Sons, Inc., 440 Fourth Ave., New York, N. Y. 1017 pp. \$6.00.
- LÉON GUILLET, Editor. "Les Métaux Légers: Aluminium, Glucinium, Magnésium, Métaux Alcalins. Mémoires de MM. Henri Sainte-Claire Deville, Héroult, Bussy, Gay-Lussac, Thénard." Gauthier-Villars, Éditeur, 55 Quai des Grands-Augustins, Paris 6^e, France. 166 pp. Fr. 21.
- JOSEPH J. JASPER. "Laboratory Methods of Physical Chemistry." Houghton-Mifflin Co., 2 Park St., Boston, Mass. 311 pp. \$2.50.
- HENRI LE CHATELIER, Editor. "La Dissolution. Mémoires de MM. Lavoisier, Gay-Lussac, Loewel, Gernez, Lescoeur, Raoult." Gauthier-Villars, Éditeur, 55 Quai des Grands-Augustins, Paris 6^e, France. 148 pp. Fr. 21.
- R. LESPIEAU, Editor. "Détermination des Poids Moléculaires. Mémoires de MM. Avogadro, Ampère, Raoult, van't Hoff, D. Berthelot." Gauthier-Villars, Éditeur, 55 Quai des Grands-Augustins, Paris 6^e, France. 165 pp. Fr. 21.
- W. D. TREADWELL. "Tabellen und Vorschriften zur quantitativen Analyse." Verlag von Franz Deuticke, Helferstorferstrasse, Wien, Germany. 283 pp. RM. 9.
- W. C. VOSBURGH. "Introductory Qualitative Analysis." Revised edition. The Macmillan Co., 60 Fifth Ave., New York, N. Y. 222 pp. \$2.25.
- ROGER J. WILLIAMS. "A Text-book of Biochemistry." D. Van Nostrand Co., Inc., 250 Fourth Ave., New York, N. Y. 525 pp. \$6.00.
- "Committee for the Study of Viscosity of the Academy of Sciences of Amsterdam. Second Report on Viscosity and Plasticity." Nordemann Publishing Co., Inc., 215 Fourth Ave., New York, N. Y. 287 pp. \$7.50.
- "Livre Jubilaire J. Böeseken." *Recueil des Travaux Chimiques des Pays-Bas*, Vol. 57, No. 6, 1938. D. B. Centen's Uitgevers-Maatschappij. N. V., Amsterdam, Holland. 348 pp. Dutch guilders 3.