

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.

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