

rubber trees, the physiology and formation of latex and its production. These chapters clearly show the earmarks of the present author. The composition and properties of latex are carefully worked out contributions followed by detailed discussions of latex coagulation, preservation, and concentration. In the latter chapter the latest process of concentration by electrodecentration has not yet been included.

The chapter on compounding of latex discusses in great detail dispersing agents for latex compounds and offers a series of such materials as examples. It is interesting to note that sulfonic acid derivatives of organic compounds are not mentioned, although today their extreme efficiency is an established fact.

In the discussion on the use of sulfur we find the statement that colloidal sulfur generally consists of an aqueous suspension containing from 50-60% dry matter, the particle size being several microns. Although this is a frequent misnomer, the reviewer feels that it should not be found in a scientific treatise. Disperse sulfur is the correct term.

The section treating accelerators can safely be considered as an entirely new contribution and should prove very helpful to every latex compounder. From the point of view of an impartial reviewer, it would have been commendable had somewhat more attention been given to accelerators and other special compounding ingredients placed on the market by other manufacturers than I. C. I.

Referring to the vulcanization of latex and specifically to the Vultex process, Dr. Flint makes it clear that in his opinion, also, the addition of ultra-accelerators to latex which results in a certain degree of vulcanization upon storage cannot be considered as a patent infringement. This is in accord with a recent decision by Judge Brewster in the District Court of Massachusetts, U. S. A.

Other chapters are devoted to the technical application of latex, such as dipping, impregnation of fibers and fabrics, latex thread,<sup>1</sup> sponge rubber, microporous rubber, moulded rubber goods, latex bonded hair, the use of latex in the paint and varnish industry. There are also chapters on adhesives, its use as an anti-corrosive coating, as a binder in the manufacture of brake-linings and abrasives, its application in can sealing, the production of artificial leather, its use in the insulation of cables, as an ingredient for road or floor coverings, and other constructional applications.

The last chapter is concerned with the physical testing of latex rubber and the production of artificial rubber dispersions and synthetic latices.

Dr. Flint's new book deserves high praise from all those interested in latex who wish to keep currently informed on the rapid development in this field. The author has taken pains to have literature and patent references as complete as possible in such a type of book. It may be deplored that the book followed the American custom of adding the references at the end of every chapter, instead of in the form of pagewise footnotes, as this is a disadvantage to the majority of readers.

The print of the book is easy to read and well set. From a detailed survey of the numerous figures and plates,

among which the reviewer could not help noticing those copied from certain publications of his own, the reproductions of this book must be considered excellent. There are practically no typographical errors. The subject index needs amendment if the book is to be of value for quick reference. However, these minor objections are by way of constructive criticism only. The book as a whole is highly recommendable.

ERNST A. HAUSER

**Die Korrosion von Nichteisenmetallen und deren Legierungen.** (The Corrosion of Non-Ferrous Metals and their Alloys.) Edited by Prof. Dr. Phil. OTTO KRÖHNKE, Berlin-Schlachtensee, and Prof. Dr. Phil. GEORG MASING, Göttingen. Verlag von S. Hirzel, Königstrasse 2, Leipzig C 1, Germany, 1938. xxx + 901 pp. 409 figs. 17.5 × 25 cm. Price, RM. 66.50; bound, RM. 69.

This, the second volume of a series of four [see, *THIS JOURNAL*, 58, 1508 (1936)], covers the corrosion of non-ferrous metals and their alloys. The space devoted to each of the several metals is roughly proportional to its technical importance as judged by the present requirements of science and technology (in Germany). Metals having no essential "technical importance," such as building materials, are not discussed at all.

A summary of the principal contents of the several sections follows. The methods of corrosion testing and research, pp. 1-59, are discussed by P. Brenner under the headings, general testing procedure, necessary data, under natural conditions, laboratory tests, measurements of the amount of corrosion, criticisms of testing methods, review of selected tests. Copper and copper alloys pp. 60-287, by O. Dahl and W. Wunder, copper pp. 60-149, brass pp. 149-227, tin bronzes pp. 227-248, aluminum bronzes pp. 248-263, copper-nickel alloys pp. 263-275, and ternary copper alloys containing nickel pp. 275-280, copper-silicon alloys, pp. 281-283, are separately discussed in detail under the headings, corrosion in general, in liquids, and in gases. There are also brief treatments of copper-beryllium alloys, pp. 283-286, alloys of copper with magnesium, cadmium, manganese, phosphorus, and silver, pp. 286-287.

The corrosion of pure aluminum by R. Sterner-Rainer, pp. 288-318, takes up the influence of impurities, of physical state, and of different corrosion agents. A section which deals in considerable length with the corrosion of aluminum cast alloys by R. Sterner-Rainer, pp. 319-384, includes the influence of the added alloy constituent on the chemical stability, resistance toward natural corrosion agents, corrosion by chemicals, influence of corrosion including surface coatings on aluminum cast alloys on specific properties. A long section on malleable aluminum alloys by P. Brenner, pp. 385-444, discusses alloy composition, review of malleable aluminum alloys, heat treatment and cold working, corrosion and simultaneous mechanical movement, testing procedure, corrosion stability of malleable aluminum alloys, metal clad industrial materials. Magnesium and magnesium alloys by W. Schmidt and W. Schultze, pp. 445-477, discusses the influence of alloying metals, atmospheric attack, various corrosion protective measures. A lengthy discussion of lead and lead alloys by M. Werner, pp. 478-595, includes the physi-

(1) Here the reviewer misses a reference to the manufacture of "constrolastic" thread, which in his opinion certainly constitutes one of the most interesting developments of the last years.

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. xxii + 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,