

But the impressions of painstaking thoroughness and evident mastery of his subject, displayed by Professor Carnot, in the first volume of this treatise are also evident in this, its successor, especially in the wide range of procedures presented and their applications to minerals and mineral products. Both volumes constitute valuable additions to our authoritative reference books and it is to be hoped that the author will find the time and strength to complete the third volume in the near future. H. P. TALBOT.

DIE CHEMIE DER ZUCKERARTEN. DRITTE VÖLLIG UMGEARBEITETE AUFLAGE. VON PROF. DR. EDMUND O. VON LIPPMANN, Direktor der Zuckerraffinerie Halle zu Halle. Braunschweig : Friedrich Vieweg und Sohn. 1904. Price, bound, 34 marks.

The third edition of this standard work appears in two volumes, numbering in all about 2,000 pages, which is nearly twice the size of the older work of 1895. Comparing the two editions one is impressed with the large amount of new material which has been added to our knowledge of sugars during the past decade. The work of revision and enlargement has been most thoroughly accomplished, bringing the work completely abreast of the times.

The author has accorded the chemistry of the different sugars his usual exhaustive treatment, approaching the subject from all standpoints—the general, analytical, physical, biological and industrial. The work will, therefore, possess an interest, not only for the specialist in sugar chemistry, but also for those engaged in other fields. The food chemist, the mycologist and bacteriologist, the agricultural chemist, and those interested in the technical sides of the sugar and fermentation industries will find the work invaluable.

The general method of treatment, laid down in the previous editions, has been followed throughout, the author holding fast to the principle of making the book purely a treatise on sugars, giving only such attention to allied compounds and derivatives as may be necessary to a thorough understanding of the subject. While this plan of treatment is not so comprehensive as that adopted in some other works, such as Tollens' "Handbuch der Kohlenhydrate" and Maquenne's "Les Sucres," where the various alcohol and acid derivatives of the sugars are given individual attention, the limitation is nevertheless a wise one. In a work of such special character the boundary lines must necessarily be closely drawn.

The first volume of the new book is devoted entirely to the monosaccharides, beginning with the dioses and passing up the

scale to the sugars of higher molecular weight. In the second volume the compound sugars are taken up—the di-, tri- and tetrasaccharides. The higher polysaccharides, starch, cellulose, etc., are placed outside the class of sugars and are, therefore, not given special attention.

Nearly 400 pages of the second volume are devoted to cane-sugar, and this part of the work alone is the most comprehensive treatise upon the chemistry of sucrose yet compiled. The opinion of von Lippmann, in regard to the much-debated question concerning the influence of temperature upon the specific rotation of sucrose is of particular interest. While criticizing, in part, the work of Wiley along this line¹ he is not at all prepared to accept the conclusion of Wiechmann that the influence of temperature is to be wholly disregarded.

In the concluding part of Volume II a number of chapters are devoted to the chemistry of sugars in general. The main facts concerning the constitution, configuration and synthesis of the various sugars are presented; the relations between the optical, colorimetric and other physical constants are also discussed. The various theories regarding the origin and formation of the sugars in the plant are fully presented, likewise the nutritive value of the different sugars and their physiological rôle in the animal organism.

Forty pages of addenda, consisting of abstracts made while the volumes were in press, bring the work completely up-to-date. A very satisfactory index, both of authorities and subject-matter, is given at the end of the second volume.

In the matter of nomenclature von Lippmann, as in previous editions, adheres to the old system advocated by Scheibler—a policy which is no doubt open to considerable criticism. The author, however, does not believe the time to be ripe for the more scientific and rational nomenclature of the sugars, advanced by Fischer. His objection to the term *glucose* and preferment for *glycose* upon purely etymological grounds are surprising when we note his own defiance of all etymological rules in substituting for *furfural* the new term *furol*. It is agreeable to note, however, that the author does not belong to that school of recent reformers who begin cellulose, cellose, etc., with z.

¹ This Journal, 21, 568.

As a reference work upon all that pertains to the chemistry of sugars, von Lippmann's "Chemie der Zuckerarten," already a classic, will occupy for many years a leading place.

C. A. BROWNE, JR.

THE OCCURRENCE OF ALUMINIUM IN VEGETABLE PRODUCTS, ANIMAL PRODUCTS, AND NATURAL WATERS. BY C. F. LANGWORTHY, PH.D., and PETER T. AUSTEN, PH.D. New York: John Wiley and Sons. 168 pp. Price, \$2.00.

In this book is found a citation of all known references to the occurrence of aluminum in food products and natural waters. The work is not to be considered as a complete bibliography of aluminum, since it deals only with the occurrence of this element in vegetable and animal products, natural waters and a few miscellaneous materials such as edible earths. The authors do not make any comment on the value of individual analyses, nor do they comment upon the probable effect of the quantity of aluminum salts found in the bodies mentioned upon the health.

The material is arranged alphabetically according to authors names. This arrangement would detract very much from the value of the book as a reference manual were it not for the very complete index which accompanies the text. This index extends over 36 pages and renders the finding of the occurrence of aluminum salt in any of the products mentioned, easy.

Part I of the book, pages 1 to 48 inclusive, treats of the occurrence of aluminum in vegetable products; Part II, pages 49 to 50 inclusive, in animal products; Part III, pages 51 to 130 inclusive, in natural waters; and Part IV, pages 131 and 132, in miscellaneous materials.

Many observers have reported aluminum as a natural constituent in the ash of cereals used in bread-making. For instance, Yoshida, on page 45, states that the ash of wheat contains 0.106 per cent. alumina, of buckwheat 0.113, barley 0.140 and rice 0.189. On page 45 it is also stated, on the authority of W. Blythe, that all bread contains more or less alumina.

According to Teller, pages 36 and 37, the presence of alumina in the ash of wheat and its milling products depends largely upon the character of the soil. Considerable quantities of aluminum oxide were found in the ash of wheat and its milling products when the wheat was grown in Arkansas, while a sample of wheat grown on a sandy plot in Michigan was found to be free of alumina.