

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.

The attempt lately made to use salts of alumina for preserving meat renders it of interest to know whether or not meat naturally contains this product. The information on this subject contained in the book is necessarily very meager. Aluminum has been found in the ash of milk where it exists in conjunction with oxide of iron.

It is stated on page 50 that a trace of alumina has been found in veal and in the ash of beef. Fifteen per cent. of the ash of egg albumin is stated by one author to consist of phosphate of alumina. The large quantity of alumina found in bat excrement, noted on page 50, may be wrongly interpreted as it stands. The excrement in question, as will be seen by consulting the *American Chemist* cited, contained a quantity of material which is stated by McMurtrie to be an accumulation of silicious clay. It is probable, therefore, that the greater part of the alumina, reported in this excrement, came from the earth and not from the bats. It is to be regretted that the data relative to the natural occurrence of alumina in edible meats are so meagre in chemical literature.

The occurrence of alumina in natural waters is not a matter of surprise and the data in regard to this are very full and complete.

The book will be found of interest, especially to analytical and physiological chemists and health officers.

It is evident from an inspection of the data in the book that the occurrence of traces of alumina in certain food products may often be expected.

H. W. WILEY.

THE ELEMENTS OF PHYSICS. VOL. I.: MECHANICS AND HEAT. BY EDWARD L. NICHOLS and WILLIAM S. FRANKLIN. Third edition, rewritten, with additions. New York: The Macmillan Co. x + 290 pp. Price, \$1.90 net.

As the earlier editions of this work have been previously reviewed in this Journal (25, 113), little more is necessary than to call attention to the appearance of the new edition, and to the facts that several important chapters have been rewritten, that a new one on the Transfer of Heat has been included, and that a valuable set of 66 problems has been added. The work is characterized by great conciseness of statement, by the definition of a vast number of physical concepts, and by the formal statement of many principles, which are discussed briefly and abstractly, and are mathematically formulated and demonstrated wherever this is possible. The work seems adapted far more to the advanced student of physics, who might desire to review and make more precise his conceptions of the subject, than to the ordinary college student.

A. A. NOYES.