REVIEWS.

FOOD INSPECTION AND ANALYSIS. For the use of public analysts, health officers, sanitary chemists, and food economists. By ALBERT E. LEACH, S.B. New York: John Wiley and Sons. London: Chapman and Hall, Ltd. Second edition, revised and enlarged. 1909. Price 31s. 6d.

THE first edition of this important work appeared in 1904, and during the past five years so much progress has been made in connection with food chemistry that the preparation of a revised and enlarged edition became a matter of necessity, if the work was to maintain its high position. This volume contains 167 pages more than the previous edition, the enlargement being partly due to the introduction of two new chapters, the one dealing with the refractometer and its application to food analysis, and the other describing a considerable number of flavouring extracts and their substitutes. During the past decade the subject of food analysis and control has attracted increasing attention in almost all civilised countries, and Governments and Local Authorities are at last beginning to realise that the food analyst is not merely an official concerned with bringing the adulterator to justice, but that on his activities depend to no small extent the health and physical welfare of the community. In no country, perhaps, has this been more fully recognised than in the United States of America; and if occasionally zeal has outrun discretion, the general trend has been altogether in the right direction. In 1906 the National Pure Food Law was passed, and since the commencement of 1907 the Federal Government has been actively engaged in enforcing that Act through the medium of the Bureau of Chemistry of the United States Department of Agriculture. In addition to the Central Laboratories at Washington, more than twenty branch laboratories have been established in the principal cities of the United States for the purpose of enforcing the provisions of the Pure Food Law, which regulates not only interstate commerce, but also the manufacture of food in the various States and its importation from foreign countries.

The Public Analyst in America is, in one respect at least, happier than his British confrère, since standards for the composition of foods have been fixed by many of the State Food laws, and he is thus free from the serious responsibility of forming his own. The author does not seem clearly to understand this, since he speaks of "legal standards" for vinegar in England. The earlier chapters dealing with the laboratory and its equipment and general analytical methods are well written, and will be found to contain many useful hints. To criticise this work adequately within the limits assigned to an ordinary review is obviously impossible, and all that the writer can do is to refer briefly to a few points which have attracted his attention during its perusal. Whilst extensive bibliographical tables and other references are to be found throughout the work, it is noteworthy that these are

THE ANALYST.

generally to American or German books and authors, and the apparent unfamiliarity of the author with the work of British chemists in this branch of analysis constitutes one of the most serious defects of the volume under review. Thus, in describing the methods for detecting and estimating arsenic in food-stuffs, no reference whatever is made to the labours of the Joint Committee of the Society of Chemical Industry and the Society of Public Analysts, nor to the published papers of any of its members. The ordinary Marsh apparatus is described and figured, and a brief reference is made to Sanger's original method of mirror-comparison published in 1891. Under "beer" the analyst is recommended to destroy the organic matter with nitric and sulphuric acids, and to *weigh* the arsenic mirror, if of sufficient size. From this it will be gathered that the treatment of this portion of the subject is totally inadequate. In dealing with the presence of tin in canned articles no reference is made to the valuable Report of the Local Government Board (Medical Department) published in 1908, nor to the very useful colorimetric method for estimating the tin devised by Schryver. In the section on malt extract Ling's work has been overlooked, and analyses are given in which the presence of dextrose is altogether ignored. Incidentally, it would be interesting to hear how the author arrives at the statement that malt extract made in a particular way "contains about 2 per cent. of diastase." In the section on whisky and other potable spirits no reference is made to the published papers of Schidrowitz, and in dealing with cider the work of Barker is ignored. Oil of lemon, again, is said to contain from 7 to 10 per cent. citral, and no reference is made to the use of lemon oil terpenes for adulterating the oil. All the work of Burgess, Parry, and others in this country might, in fact, never have been published. Other examples might be given, but the above will suffice to illustrate the manner in which the work of British chemists has been disregarded. The author states that yeast extract "has been sold as a substitute for meat extract, and has been reported in Germany as an adulterant therefor," but he does not appear to be aware that large quantities are manufactured and sold as such, nor does he deal at all adequately with the chemistry of that product.

The chapter on Sugar Analysis is, in the main, well written, but it is of interest to note that, whilst lengthy tables by Defren, by Munson and Walker, and by Allihn, are given for converting oxide of copper into its equivalents of dextrose, maltose, and lactose, no reference is made to the classical work of Brown, Morris, and Millar. The very useful ferrous thiocyanate indicator of Ling and Rendle does not appear, moreover, to be known to the author. In the section on butter very little reference is made to the possible presence of cocoanut-oil, notwithstanding the vast amount of work which has been devoted during recent years to the detection of that adulterant; and the statement is made that the Reichert-Meissl number "is conclusive, excepting in those rare instances where the admixture of foreign fat is so small as to cause the Reichert number to approximate that of pure butter." *Conclusive* is scarcely the word to apply to a number which with genuine butter may vary between such wide limits as 24 and 32.

The paper and the printing are good, but in quite a number of cases the names of authors are mis-spelt. Thus one meets with Plummer for Plimmer, Klocker for

Klöcker, Bourguelot for Bourquelot, Sangle-Ferriere for Sanglé-Ferrière, and Villavecchia for Villavecchia.

On page 756 a reference to leavening materials is given as page 275, which should evidently have been page 364. The photomicrographic illustrations at the end of the book are wanting in clearness and leave much to be desired. Attention has been directed in this review to certain defects in the hope that the author may see his way to rectify these in future editions, and by so doing to add materially to the value of a volume which has already come to be regarded as a standard work in this country, and doubtless in most other countries where food analysis is practised.

A. CHASTON CHAPMAN.

THE PUBLIC HEALTH SERVICE DIRECTORY AND YEAR-BOOK. Compiled by the Editor of the *Medical Officer*. London: Hodgetts, Ltd. 1910. Pp. 317. Price 6s. net.

This is the first issue of what is intended to be an annual production, and the object, as the title implies, is to supply in directory form the names and qualifications, etc., of all those holding appointments of a public or quasi-public nature in connection with sanitation, and also a list of the various bodies and institutions making such appointments, with their staffs.

It includes within its scope officers appointed by Sanitary and Education Authorities—i.e., Medical and Dental Officers, Public Analysts, Sanitary Inspectors, and Veterinary Officers, and, in addition, Health Visitors, School Nurses, and the Matrons and Nurses of Isolation Hospitals. With regard to each of these classes there is a short chapter setting forth the qualifications required for the appointment, by whom the latter is made, and the duties attaching to the office. The section dealing with Public Analysts is written by M. Wynter Blythe, and is clear, concise, and, where it deals with matters of fact, accurate.

At the end of the volume some fourteen pages are devoted to the various associations and societies in the work of which those coming within the scope of the Directory are likely to be interested.

The type is clear, the arrangement excellent, and the information given is as full and accurate as can be expected in a new issue of this sort, when the compilers are so largely dependent on the voluntary co-operation of the officials with whom the Directory deals.

C. H. CRIBB.