

ingested as food, or elaborated from proteid substances, or from carbohydrates. Doubtless the accounts of the experiments are often ancient history, going back, as they do, to researches of Hoppe-Seyler in 1859, of Pettenkofer and Voigt in 1869, and to various controversies in subsequent years. They serve, however, to give a connected survey of the whole matter.

The lipoids, it should perhaps be mentioned, are substances more or less closely associated with the fats, and extractible by organic solvents from various parts of animals and plants. Some—the phosphatides—contain both phosphorus and nitrogen; others contain nitrogen, but not phosphorus; others, again, contain neither of these elements. They are of much physiological importance, and during recent years have been much studied by Windaus, Diels and Abderhalden, Cousin, Rosenheim, and other workers. Cholesterol, phytosterol, lecithin, and cerebrin may be mentioned as some of the best-known representatives of the group. The author gives a full description of this class of substances and their compounds, though he regrets that lack of space prevents his discussing the behaviour of lecithin under hæmolysis.

The general chemistry of the fats and waxes is treated at considerable length. Besides the usual descriptions of the acids, alcohols, and glycerides which compose the oils, fats, and waxes, the text includes discussions of the constitution of some of the principal fatty acids, and of the properties of their salts and other compounds.

The remainder of the first volume is devoted to a description of the methods in vogue for the analysis of oils, fats, and waxes. An alphabetical order is adopted in tabulating the various physical and chemical data; this plan is convenient for ascertaining the characteristics of a known oil or fat, but for help in classifying an unknown article it might well be supplemented by a table arranged according to the values of the iodine number.

In the second volume the preparation and examination of the individual oils, fats, and waxes are dealt with. For each article an outline of its origin, method of preparation, and properties is given, followed by tables of the physical and chemical constants appertaining to the substance and to the fatty acids separable from it. The closing chapters are concerned with various manufactures allied to the fat industry, such as the making of soap, varnish, glycerin, and stearin.

The author's aim has been to produce a connected treatment of the whole subject, and his book is probably the most complete work of the kind yet published.

C. S.

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OUR BOOKSHELF.

Weights and Measures Act, 1904. Board of Trade Notices Annotated. By H. Cunliffe and G. A. Owen. Vol. i. Pp. viii+199. (Smethwick: H. Cunliffe, 1913.) Price 5s. net.

THIS work is intended for inspectors and others interested in the administration of the Weights and Measures Acts. Under the Act of 1904 the Board of Trade was empowered to examine as regards material and principle of construction such patterns of weights, measures, weighing or measuring instruments as might be submitted to it, and to issue certificates in cases where the patterns were found not to facilitate fraud. From time to time the Board issues notices setting forth its decisions with respect to such submissions, and the writers of the present volume have collected together the first fifty of these notices and publish them with criticisms and explanatory notes.

The authors are inspectors of weights and measures of considerable experience, and their book appears likely to be useful to persons preparing for the Board of Trade examination for certificates of qualification as inspectors, as well as to such acting inspectors as may find difficulty in identifying patterns from the information given in the Board of Trade notices. It is usual for the inspectors' examination to include a question requiring a description of the functions of the various parts of a pattern illustrated in one of the notices, but owing to the fact that some of the patterns represent instruments which have never been put on the market, or are in very restricted use, such information is rather difficult for a candidate to obtain.

The descriptive letterpress which accompanies the notices in this work is very complete, the annotations and detailed explanations as regards the various weighing instruments considered being particularly good. A few blemishes are noticeable here and there: for example, there is an omission on p. 6 in the citation of section 5 (a) of the Act, which renders some of the remarks on p. 8 not readily intelligible. The interpretation of instruction 35 given on p. 12 is forced and misleading. On the whole, however, the work appears to have been prepared with great care. The authors propose to deal with later issues of the notices in a subsequent volume.

Text-book of Zoology. By H. G. Wells and A. M. Davies. Sixth edition. Revised by J. T. Cunningham. Pp. viii+487. (London: W. B. Clive, University Tutorial Press, Ltd., 1913.) Price 6s. 6d.

THE supplement which Mr. Cunningham added to the fifth edition of this popular text-book has now been incorporated in the body of the work, and the section dealing with the Invertebrata has been rearranged so that the types follow in general the descending order in classification. Important additions have been made explaining the facts and theories of most importance to modern biologists in relation to the problems of evolution.