

Theories explained in the earlier part of the book are used in the second half in giving a full and clear description of reactions forming the classic group system of analysis for cations and anions. Division into chapters follows the group system, and each chapter contains a wealth of classified information, on the elements, cations, anions and compounds dealt with. Used in conjunction with a practical manual, this treatise should train the student to be a more intelligent and therefore a more efficient analyst.

#### The Structure and Composition of Foods

By Dr. Andrew L. Winton and Dr. Kate Barber Winton. Vol. 4: Sugar, Sirup, Honey, Tea, Coffee, Cocoa, Spices, Extracts, Yeast, Baking Powder. Pp. xxxiii+580. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1939.) 45s. net.

THIS volume completes the authors' extensive labours, of which the first, second and third fruits were noticed in NATURE in March 1933, March 1936, and February 1938. The contents are indicated by the title: the method of treatment is congruous with that adopted in the earlier parts. Addenda (pp. xix-xxiii) bring up to date some of the chemical information contained in volumes 1 and 2. To search for printer's errors and other slips would be ungracious and an admission that adequately to appraise a work of this scope and magnitude is beyond the powers of one reviewer at any rate. He has, however, noted that the authors do not appear to have recorded the presence of vitamin D, presumably calciferol, in or on the shell of the cocoa-bean, which has consequently been advocated as a cattle food to increase the antirachitic activity of cows' milk.

The four volumes as they stand now constitute a complete standard work of reference on the subject. Every laboratory concerned with the examination and control of food, with the morphology and chemistry of its natural sources, whether animal or vegetable, with its proximate analysis and detailed chemical composition, will find in "Winton and Winton" an indispensable weapon.

A. L. BACHARACH.

**Volumetric Analysis: including the Analysis of Gases With a Chapter on Simple Gravimetric Determinations.** By A. J. Berry. Fifth edition. Pp. vii+196. (Cambridge: At the University Press, 1939.) 7s. 6d. net.

THE principal part of Berry's well-known work on volumetric analysis remains unchanged in the fifth edition, following the usual division into chapters describing the use of the chief volumetric reagents and including a chapter on the theory of indicators as well as a short section on simple gravimetric analysis. The practical treatment adopted succeeds in its object of going beyond the scope of elementary text-books without entering into the mass of detail to be found in standard analytical reference works.

The chapter on gravimetric analysis contains new sections dealing with the determination of lead and

of phosphates; but the most important additions are to be found in the entirely new chapters devoted to modern developments and to the rudiments of gas analysis. The former includes sections on the more important new indicators, on the use of ceric sulphate as a quantitative oxidizing agent, and on direct titrations with potassium iodate, together with practical applications of these and several other new methods. In introducing this particular chapter the author has brought his course of analysis completely up to date.

#### Systematic Qualitative Organic Analysis

By H. Middleton. Pp. viii+279. (London: Edward Arnold and Co., 1939.) 8s. 6d. net.

THE title of this excellent book on qualitative organic analysis is fully justified by the contents, in which a remarkable degree of system has been introduced into the tests for single organic compounds. The schemes of analysis and tabulated properties of groups of substances should be of great value to all chemistry students in the final year of an honours course, and it is claimed by the author that particular attention has been given to pharmaceutical students in that rapid methods are given for identifying most of the organic compounds listed in the "British Pharmacopœia". In working through a course based on this book, the student would undoubtedly become familiar with all the operations commonly carried out by the organic chemist, and should acquire a good practical knowledge of many tests and preparative reactions. A feature valuable to supervisors and examiners is found in a list of hydrolysis times of some hundred esters.

Such criticisms as may be made are in a few matters of detail. Thus one cannot agree that acetates, given first of the derivatives of phenols, are the best medium for the identification of monohydric phenols, the acetates of which are generally liquids. Again, in the section on alcohols, melting points of the dinitrobenzoates might well have been given under each alcohol, instead of being referred to under special reagents.

The book contains a short section on the separation of mixtures of organic compounds and concludes with two indexes—one of the processes and one of the substances described.

#### A Course in Chemical Spectroscopy

By Dr. H. W. Thompson. Pp. vii+86+8 plates. (Oxford: Clarendon Press; London: Oxford University Press, 1938.) 6s. net.

THIS neat little volume is based on an elementary course in chemical spectroscopy recently introduced at Oxford for undergraduates reading the final honour school of chemistry. Eight experiments have been selected, and although no attempt is made to describe the technical details of construction of the various instruments used, sufficient information is given to enable a student to carry out each experiment successfully under the general supervision of the teacher.