Book Reviews

Advances in Carbohydrate Chemistry. vol. 9. M. L. Wolfrom, R. S. Tipson, and E. L. Hirst, Eds. Academic Press, New York, 1954. xviii + 426 pp. Illus. $10.50.

This volume continues the timely and well-documented presentations characteristic of its predecessors. In the first chapter R. U. Lemieux discusses "Some implications in carbohydrate chemistry of theories relating to the mechanisms of replacement reactions." The reactions of *O*-acyl derivatives of sugars, glycosides, and glycosyl halides are described. An attempt is made to generalize the various reactions that these compounds undergo, but the author is careful to point out known exceptions. This chapter will also provide many interesting ideas to those engaged in the synthesis of glycosides.

The chapter on "Alkali-sensitive glycosides," by C. E. Ballou, emphasizes mechanisms proposed for the hydrolysis of glycosides of phenols, enols, and beta-substituted alcohols.

"The 2-hydroxyglycals," by Mary G. Blair, is a brief review of the preparation, proof of structure, and chemical reactions of this series of compounds. A table of the properties of 2-hydroxyglycals and their conversion products is included. This chapter emphasizes that a great deal of work remains to be done in this field.

The chapter on "The methyl ethers of hexuronic acids," by G. O. Aspinall, continues the review of methyl ethers of sugars undertaken in previous volumes.

"The raffinose family of oligosaccharides," by D. French, is a well-written and thoroughly documented account. Following a discussion of the methods useful in oligosaccharide chemistry, the chapter relates the proof of structure of these compounds in order of their increasing complexity.

The inclusion of the chapter on "The conjugates of D-glucuronic acid of animal origin," by R. S. Teague, continues the discussion of these compounds undertaken in volume 8 of this series. Of considerable interest is a treatment of the intermediary metabolism of D-glucuronic acid and its conjugates.

"Paper chromatography of carbohydrates and related compounds," by G. N. Kowkabany, includes a useful correlation of R_f values with structural features. Color reagents, solvents, and methods of quantitative analysis are included. This chapter is probably the most thorough treatment of this subject available.

Other chapters include "Color and turbidity of sugar products," by R. W. Liggett, and V. R. Deitz, and "Carboxymethylcellulose," by J. V. Karabinos and Marjorie Hindert. I highly recommend this volume.

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L'Analyse Spectrale Quantitative par la Flamme. pt. I, Propriétés de la flamme. Réalisation et utilisation; pt. II, Analyse des émissions dans la flamme. R. Mavrodineanu and H. Boiteux. Masson, Paris, 1954. 247 pp. Illus. Cloth, F. 4.300; paper, F. 3.800.

The spectral emission of flames has assumed increasing importance in recent years, both for fundamental studies of combustion processes and for applications to the analysis of mixtures. This book is designed primarily for the analyst who is concerned with the field of flame applications and who is interested in the combustion process as it affects sensitivity and reproducibility of analytic determinations. However, there is an abundance of tabular and graphic information in this book that will interest the investigator of fundamental flame processes as well.

The book is divided into two parts: the first, by Mavrodineanu, covers the properties of flames, regulation of flow rate and pressure, burners, interferences, and photographic and photoelectric measurement of flame emission; the second, by Boiteux, treats the theory of atomic and molecular spectra, spectra of flames of air-acetylene and oxygen, and excitation of elements in the flame. This is followed by an extensive appendix giving tables of wavelengths and band heads observed in air-acetylene and oxygen-acetylene flames, 11 pages of plates showing the spectra of various elements in flames, a bibliography, a subject index, an author index, and table of contents.

The treatment of instruments and techniques is informative but incomplete, particularly with respect to modern flame photometers. Burners used in American flame photometers are mentioned but are not discussed in detail, probably because of the authors' unfamiliarity with this equipment. The theoretical treatment and the considerable amount of factual data are excellent. The serious investigator of flames and their analytic applications will find this book to be a useful contribution.

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The Chemistry of Portland Cement. Robert Herman Bogue. Reinhold, New York, ed. 2, 1955. xix + 793 pp. Illus. $16.50.

The author of this book has achieved well-deserved international eminence as an authority on cement chemistry. From 1924 until his retirement within recent months, he was director of the Portland Cement Association fellowship at the National Bureau of Standards.

The first edition was published in 1947 and filled a gap in the existing literature. This second edition, which follows the same pattern as the first, is still unique in its field. No other book in English provides such a thorough résumé of the research literature. Robert Bogue has not been content to present only the later material but has provided historical perspective throughout. He has been a faithful reporter of the various investigators' material. Indeed, one could wish that he had given the reader more of his own viewpoint. However, the volume of work that has been done by Bogue's own staff is extensive, and accounts of it occupy a significant, although not disproportionate, fraction of the book.

This is primarily a book for the research chemist; but it can be used profitably for reference by the operating chemist and by others also. The initial chapters present an interesting history of the cement industry, a survey of various types of cement, and a concise account of portland cement manufacture. The main content is in three parts: "The chemistry of clinker formation," "The equilibria of clinker components," and "The chemistry of cement utilization."

The new edition has been brought up to date by the incorporation of a large amount of recent material. The number of pages has increased from 572 to 793, but this is partly the result of the use of larger type, a distinct improvement. A better conception of the amount of new material can be gained from the nearly 50-percent increase in literature references. The total is now nearly 1300. Owing to some duplication of references from chapter to chapter, this figure is