

Book reviews

Carbohydrate Chemistry: 8th International Symposium on Carbohydrate Chemistry, Kyoto, 1976, edited by K. ONODERA, Pergamon Press, Oxford, England, 1977, v + 172 pages, £15.00, \$27.00.

This volume compiles the plenary lectures presented at the VIIIth International Symposium on Carbohydrate Chemistry in Kyoto, August 16-20, 1976. Of the eleven lectures, four were on mono- and di-saccharides, six on polysaccharides, and one on the direction of carbohydrate research in the future. This last paper is by Professor R. L. Whistler, who reviews recent achievements in the carbohydrate field and attempts to forecast the research trends during the next decade. Among the mono- and di-saccharide papers, two stand out. One, by S. Hanessian, describes the use of carbohydrates as starting materials for the synthesis of polyfunctional, chiral, natural products, where approaches to the synthesis of a complex, macrolide aglycon, erythronolide A, from D-glucose, using systematic, stereocontrolled introduction of functional groups, is discussed. The other, by H. Paulsen, is on the synthesis of amino and branched-chain mono- and oligo-saccharides, using the glycosyl bromides of 2-azido sugars for the synthesis of amino sugars, and the 1,3-dithiane method for the synthesis of branched-chain carbohydrates. Other interesting papers include one by B. Coxon dealing with a Fourier-transform, ^{15}N -n.m.r.-spectroscopic study of amino sugars, where various 6-amino-6-deoxy-D-glucose, 6-amino-6-deoxy-D-galactose, and 5-amino-5-deoxy-D-ribose derivatives labelled with ^{15}N have been prepared and their ^{15}N -n.m.r. spectra studied. Another, a paper by L. Hough and A. C. Richardson entitled "Recent Aspects of the Chemistry of Disaccharides", focuses on stereoselective, chemical manipulations of readily available disaccharides by replacement of specific hydroxyl groups by halogens, or by esterification.

The remaining six papers, on polysaccharides, include one on structural studies of some bacterial polysaccharides by B. Lindberg, who uses n.m.r. and mass spectroscopy to get insight into the structure of *Shigella flexneri* and *Rhizobium meliloti* polysaccharides, and *Haemophilus influenzae* capsular antigens. This is followed by a paper from the University of Michigan by I. J. Goldstein, L. A. Murphy, and S. Ebisu on lectins as carbohydrate-binding proteins. Their study deals with four 2-acetamido-2-deoxy-D-galactose-binding lectins. A paper by G. O. Aspinall entitled "The Selective Degradation of Carbohydrate Polymers" follows; it discusses procedures that give information on the sugar sequence and the nature of linkage by using base-catalyzed degradation to introduce acid-sensitive units. This is followed by E. D. T. Atkins' paper entitled "Conformations of Uronic Acid Containing Polysaccharides", wherein an analysis of X-ray diffraction patterns obtained from ordered specimens of a variety of glycuronans in the condensed phase is made, in order to examine the

molecular geometry. The simpler, homopolysaccharide components of alginic acid, and of the connective tissue, including polysaccharides, hyaluronic acid, the chondroitin sulfates, dermatan sulfate, heparan sulfate, and the blood anti-coagulant heparin, are discussed in detail. The last two discussions of polysaccharides are entitled "Structural Features of the *Bordetella pertussis* Endotoxin", by L. Szabó, and "Glycosphingolipids with Blood-Group A, H, and I Activity and Their Changes Associated with Ontogenesis and Oncogenesis", by S.-I. Hakamori, K. Watanabe, and R. A. Laine. In the former, graded hydrolysis of the endotoxin with acid was found to release two polysaccharides containing 3-deoxy-2-octulosonic acid, and in the latter, four sets of glycolipid variants of human A and O erythrocytes were isolated, and their structures determined.

The papers included in this symposium form a well-balanced selection of topics. They are essential reading for anyone working with carbohydrates, or interested in knowing some of the latest developments. Despite the fact that the book is a compilation of lectures on a wide variety of topics, the excellence of the contributions certainly compensates for the lack of continuity as one moves from one paper to the next, and, apart from some minor spelling and typing mistakes, the editor has managed to produce an excellent volume.

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Liquid Chromatography Detectors, by R. P. W. Scott, Elsevier Scientific Publishing Co., Amsterdam, New York, 1977, x + 248 pages, Dfl. 84.00, \$34.50.

In the introduction, the author states "the purpose of the book is to give the reader[s] a clear understanding of the principles of detection so that they may choose the most suitable detector for their purpose". According to the author "this book discusses the important detector characteristics that affect both the quality of the chromatographic separation and the precision of the analytical results obtained. It describes how these characteristics can be measured, and suggests optimal properties for specific chromatographic conditions. The most commonly used detector systems are discussed in detail, but the little known detection methods are also included, together with spectroscopic methods of detection".

In general, the author achieves his objectives. The book is a comprehensive, well written book describing the various types of detectors used in liquid chromatography, how they function, and their advantages and limitations. The book is divided into four parts. The first discusses the general characteristics of liquid chromatography detectors. The second and third parts are detailed descriptions of the various types of detectors used in liquid chromatography, and the final part describes the use of detectors in liquid chromatography.

By far the strongest feature of the book, in the reviewer's estimation, is that it provides a considerable amount of helpful and practical information about selection and use of liquid chromatography detectors. This is especially evident in Part 4, where the author has individual chapters describing how to select the appropriate detector and to make quantitative and qualitative analyses, and giving practical hints on detector operation. There are also excellent descriptions of transport detectors, and liquid chromatography interfaced with mass spectrometer systems.

There are sections of the book that are less satisfactory. The descriptions of the ultraviolet absorption detector and refractive index detector are very brief, considering their widespread use and versatility. These chapters should have been expanded to cover the known material more fully.

The references at the ends of the chapters are far from complete. Most of the chapters have relatively few references to publications in 1975 and 1976. For example, the chapter on transport detectors contains 11 references, with none later than 1974, and that on ultraviolet absorption detectors contains 5 references, with only 1 of them later than 1971. Despite these shortcomings, the book is currently the best available text on liquid chromatography detectors, and I strongly recommend it for those who are interested in, or work with, liquid chromatography.

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