

Book review

Advances in Carbohydrate Chemistry: Volume 23, edited by MELVILLE L. WOLFROM and R. STUART TIPSON, Academic Press, New York and London, 1968, xi + 474 pages + Author, Subject, and Cumulative Indexes, \$21.00.

Volume 23 of this well-known Series starts with an obituary of C. B. Purves written by A. S. Perlin. In addition to describing a fruitful career in England, the United States, and, finally, Canada, this chapter gives some most interesting information on the controversy between members of Haworth's and Hudson's laboratories on the ring sizes of carbohydrates. W. Pigman and H. S. Isbell's very authoritative review of "Mutarotation of Sugars in Solution" follows this introduction. This chapter, and the chapter on "Sulfonic Esters of Carbohydrates" presented later in the volume by D. H. Ball and F. W. Parrish, continues the rather unfortunate practice of splitting reviews into two parts, the second part of each of these being published in Volume 24. This treatment, required by the length of the subjects and the adherence to a tight publishing schedule, obliges the reader to use both volumes simultaneously in order to refer to the bibliography or to the formulas. Both of these chapters, as well as that of H. Paulsen and K. Todt on "Cyclic Monosaccharides Having Nitrogen or Sulfur in the Ring" are excellent reviews, of the high level generally expected from *Advances in Carbohydrate Chemistry*. The authors have vast experience in the fields that they describe, and, in the case of Paulsen and Todt's chapter, the authors extensively describe the results of such modern techniques as nuclear magnetic resonance and mass spectroscopy. In the Chapter on "Application of the Oxo Reaction to Some Carbohydrate Derivatives", A. Rosenthal describes a field in which he has been most active, and he includes some detailed practical information. The extent of the author's involvement with these compounds is shown by the fact that about 10% of the bibliographic references are quoted as "unpublished results" from his own laboratory. The chapter by C. T. Greenwood and E. A. Milne on "Starch Degrading and Synthesizing Enzymes: A Discussion of Their Properties and Action Pattern" is a far more extensive treatment of the subject than the one presented in Volume 17, and includes 385 references. The reader will be most interested in the conclusion of the authors that, despite years of activity in this field, little is as yet definitely established about these enzymes. In "Structural Chemistry of Fungal Polysaccharides", P. A. J. Gorin and J. F. T. Spencer report that 75,000 species of fungi are known and that each species may contain various polysaccharides, thus suggesting an incredible variety of polysaccharides. Some of these polysaccharides are identical with those isolated from other natural sources, such as cellulose, starch, glycogen, and chitin, but most of them are very dissimilar; despite numerous publications, this field of investigation

seems to have been barely touched. In the concluding chapter, on "Pyrolysis and Combustion of Cellulosic Materials", F. Shafizadeh treats, from the carbohydrate chemist's point of view, the combustion of wood and the interaction of flame-proofing materials; this discussion is preceded by a very interesting presentation of the history and economic consequences of the uncontrolled combustion of cellulose.

The high quality of the editing of this volume is exemplified by the observation that only one printing error has been noted, but the new printing type used in this volume is less readable than that previously used. This volume, like the previous ones of this Series, is an indispensable tool for anyone interested in carbohydrate research.

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