NEW BOOKS

Polysaccharide Chemistry

ROY WHISTLER AND CHARLES LOUIS SMART. xv + 493 pages. Academic Press, Inc., 125 East 23rd St., New York 10, N. Y. Price $10.80. Reviewed by W. Z. HASSID, University of California, Berkeley, Calif.

THE SIGNIFICANCE of the polysaccharides as a class of compounds is well expressed by Dr. M. L. Wolfrom in his introductory foreword when he states: "These substances are elaborated in a bewildering variety by plants and animals to serve as energy sources and as structural units. Great industries founded upon their utilization constitute a major portion of the civilization of our times."

With the rapid increase in the scope and content of polysaccharide chemistry during the last two decades, there has been a growing need to present this entire field as a unified division of carbohydrate chemistry. Whistler and Smart have successfully accomplished this.

They are the first to compile in one volume a critical survey of all the known polysaccharides.

The book is written in a concise and easily readable style. It is up to date and the literature survey is comprehensive, each chapter being documented with an abundance of well chosen references. It opens with a useful chapter on occurrence, nomenclature and classification. Here an attempt is made to introduce order into the somewhat confused nomenclature of polysaccharides by changing, whenever possible, the name endings from "—in" to "—an." Thus, *laminarin* and *sinistrin* become *laminaran* and *sinistran*, respectively. In order to conform to the generic term *glycan* for polysaccharide instead of *glycosan*, which is reserved for an inner anhydride of a simple sugar, the polysaccharides named *fructosans* in the literature are identified as *fructans*. This chapter also contains detailed tables summarizing the substances derived from higher plants: algae, bacteria, mammals and nonmammals. Another table classifies the polysaccharides according to composition and structure. All these substances which are systematically classified in the tables are treated in detail in later chapters.

The second chapter summarizes a vast amount of information concerning methods of characterization and proof of polysaccharide structure. Thirty-three chapters deal with individual polysaccharides. The chapters are developed under the following subdivisions: Occurrence, Composition and Structure, Properties, Derivatives and Uses.

Chapter III deals exclusively with cellulose, followed by chapters on hemicelluloses, xylan, nannans, pectic substances, arabans, and galactans.

Chapter X is devoted to the starch group, while the subsequent chapters cover fructose polysaccharides, galactomannans, plant gums, algal polysaccharides, pneumococcal and mycobacterial polysaccharides, dextrans, levans, and other polysaccharides produced by microorganisms.

Animal polysaccharides, such as chitin, chondroitin, mucitin, heparin, hyaluronic acid, and blood group polysaccharides are discussed in successive chapters, beginning with chapter XXVIII. The book concludes with a treatment of glycogen.

Inasmuch as cellulose, starches and pectic substances have been the objects of intensive investigation for many years, voluminous literature has accumulated on these subjects. The authors have therefore allotted the greatest space to these polysaccharides. They have been judiciously selective in citing pertinent biographical references from among many hundreds of papers.

This volume represents a valuable contribution to the literature of carbohydrate chemistry, and will be appreciated by chemists and biochemists alike.

Some Conjugated Proteins—A Symposium

73 pages. Rutgers University Press. New Brunswick, New Jersey. 1953. $1.75.

This book contains the lectures presented at the ninth annual conference on protein metabolism, held at Rutgers University on January 30 and 31, 1953. Each of the 6 speakers presented his experimental results and related these results to contributions of other workers in the various fields of protein metabolism.

The Topics of the 6 papers are: The Anatomy of Hemoglobin and Some Functions of its Parts. Cytochromes in the Mammal. On the Problems of Nucleoproteins. The Metabolism of Virus Infected Bacteria, Lipoproteins, Mucoproteins and Mucoids.