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Book review

The Polysaccharides: Volume 1, edited by GERALD O. ASPINALL, Academic Press, New York, 1982, xvi + 340 pages, $47.00.

The Polysaccharides is a multi-authored, three-volume account intended to "provide the most complete summary now available of the present knowledge of polysaccharide chemistry and related aspects of biochemistry". The hybrid subjects—glycolipids, glycoproteins, and nucleic acids—have been intentionally excluded as major topics. *The Polysaccharides* is "directed primarily to chemists and biochemists working on polysaccharides and other complex carbohydrates". Volume 1 consists of a general introduction to polysaccharide nomenclature and literature, a chapter on polysaccharide isolation and fractionation, three chapters on structure determination, and a final chapter on polysaccharide immunology.

The first two chapters (by G. O. Aspinall) deal with polysaccharide nomenclature and literature (Chapter 1) and isolation and fractionation (Chapter 2); they are short and introductory in nature, and are presumably directed to the newcomer to polysaccharide chemistry. Although these chapters are intended to be introductory, and references to more-thorough treatments are provided, it would seem that a more expanded treatment, particularly as regards nomenclature, might have better served the carbohydrate chemist.

Chapter 3, also by G. O. Aspinall, discusses the chemical characterization (including structure determination) and modification of polysaccharides. The chapter is, in general, well written, detailed, and amply documented. However, a few topics, such as determination of molecular weight and size, are treated too cursorily.

Chapter 4, by A. S. Perlin and B. Coser, deals with the use of magnetic resonance and infrared spectroscopies for the structural characterization of polysaccharides; the major emphasis of the chapter is on nuclear magnetic resonance spectroscopy. The chapter is thorough, clearly written, up-to-date (as, for example, in its coverage of 2D and solid-state n.m.r. spectroscopy), and amply documented.

Chapter 5 (by Rees, Morris, Thom, and Madden) is concerned with the shapes and mobility of polysaccharides, their self-interactions, and their interactions with other materials (*e.g.*, proteins). The chapter covers (*i*) conformational principles, (*ii*) experimental methods, and (*iii*) experimental findings. The authors' presentation is clear and logical, and is accompanied by a number of helpful illustrations and Figures. The chapter is very extensive in its coverage (indeed, it is the longest chapter in the book); happily, the authors are critical in their presentation.

The final chapter, written by Bishop and Jennings, covers polysaccharide im-

munology. The chapter consists of a brief introduction to the relevant aspects of immunology in disease pathogenesis and prevention, followed by a discussion of structural aspects of the immune response and the role of polysaccharides in human disease. The chapter is well written and serves as a fine introduction to this medically and historically important area of carbohydrate chemistry.

Volume 1 of *The Polysaccharides* is, in summary, a thorough and well-written reference work; its purchase, not only by active researchers in polysaccharide chemistry but also by interested organic and biological chemists, is strongly recommended. The editor is to be commended for this volume, and Volumes 2 and 3 are eagerly awaited.

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