

Book reviews

Developments in Food Carbohydrate—1, edited by G. G. BIRCH AND R. S. SHALLENBERGER, Applied Science Publishers Ltd., London, 1977, x + 189 pages, \$25.00.

This is an assortment of manuscripts, mostly from the Symposium on The Chemistry of Food Carbohydrates sponsored by the Division of Carbohydrate Chemistry of the American Chemical Society and presented in Chicago in August, 1975. In general, references are given through early 1975. In a symposium such as this, one hardly expects to find an integrated viewpoint, a uniform style of presentation, or even a homogeneous body of subject matter. Rather, the book contains a variety of scattered topics ranging from a detailed physical study of helical structure in polysaccharide gels to the explicit chemistry of nonenzymic browning to methods of making sugar cookies less harmful to the teeth! Other topics include glucose syrups, D-fructose production, heptuloses, lactose production, physiological effects of dietary carbohydrate, and the fate of starch fractions of rice during cooking. Each of these essays contains material of interest to a segment of food science. However, the book as a whole is of limited value as a reference work for food carbohydrates, because of the diversity and lack of connection of the topics covered, and by no means could it be used as a classroom textbook.

In the reviewer's opinion, the cause of science would have been better served had the individual articles been published in appropriate, refereed, scientific journals and thereby have been more conveniently available to the general scientific reader.

The overall quality of the production is just fine, the number of factual, typographical, or other errors detected running to only about a dozen.

*Department of Biochemistry,
Iowa State University—Ames*

DEXTER FRENCH

Extracellular Microbial Polysaccharides, ACS Symposium Series 45, edited by PAUL A. SANDFORD AND ALLEN LASKIN, American Chemical Society, Washington, D.C., 1977, 313 pages, \$19.50.

Rapidly increasing interest in the production of the exocellular polysaccharide from *Xanthomonas campestris* for industrial purposes fully justifies the symposium reported on in this monograph. To be sure, other bacterial polysaccharides of potential and ongoing use are also discussed, but about half the papers presented as chapters deal with "xanthan gum". The first six chapters deal mainly with the regulation of microbial growth and polysaccharide production. Here, the reader is made

aware of the inherent dangers and pitfalls, such as the frailty of micro-organisms and the chances for altered genotypes. A somewhat speculative paper on xanthan biosynthesis is included. The reader not very familiar with the field of commercially useful, bacterial polysaccharides might have wanted the inclusion of more information on the polysaccharide from *Methylobacter* — certainly, this reviewer did.

The next seven chapters deal with the physical chemistry of polysaccharides and with their conformational structures. They do so lucidly and concisely.

Following that, two chapters are devoted to the chemical structure of xanthan gum. The first of these deals with acetolysis as a tool for structural elucidation; although the article is adequate, this method is well known and needed no defence here. In this section, this reviewer would have appreciated a discussion of the work by Lindberg's group on the structure of xanthan gum.

The last part of the book (seven chapters) covers the industrial uses of xanthan gum and other polysaccharides.

All in all, this is an excellent collection of papers with up-to-date references, and the editors are to be congratulated on the organization of the monograph. All chemists interested in polysaccharides, be it as food additives or as aids in other, more exotic, industrial applications (such as oil recovery), will find this book an essential tool.

*National Institutes of Health
Bethesda, MD 20014*

CORNELIS P. J. GLAUDEMANS

Synthetic Methods for Carbohydrates: edited by HASSAN S. EL KHADEM, ACS Symposium Series 39, American Chemical Society, Washington, D.C., 1977, ix + 285 pages, \$19.50.

The vigor and breadth of modern research on organic synthesis with and of sugars are limned in this volume, which records the proceedings of an excellent symposium organized by Professor El Khadem at the centennial meeting of the American Chemical Society held in New York in April, 1976. The papers may be grouped, somewhat arbitrarily, in three categories. In the first category are reports of work, new at the time, on the chemistry of specific sugar derivatives or specific classes of substituted sugars. In the second, there are descriptions of recent progress on some of the major, classical problems of organic sugar chemistry. In the third group, in addition to presenting recent work, the authors review the fields they have been instrumental in developing.

Outstanding in the first two groups are the contributions of Köster and Dahloff on the novel and very interesting *O*-diethylboryl and *O*-ethylboranediyl sugars; of Horton and Weckerle on the scope and usefulness of the reaction of benzylidene acetals with butyllithium; and of Lemieux and co-workers on the use of 2-deoxy-2-phthalimido- β -D-glucopyranosyl halides in oligosaccharide synthesis. Also noteworthy is the inclusion of a paper on the chemistry of the phenylhydrazones and