

Book reviews

Industrial Gums, Polysaccharides and their Derivatives Second Edition, edited by R. L. WHISTLER and J. N. BEMILLER, Academic Press, New York and London, 1973, xix + 807 pages, \$45.00, £21.15

Since its first edition appeared in 1959, "Whistler" has been valued as a reliable reference book that covered, surprisingly comprehensively, the entire range of polysaccharides of industrial importance. Many a heart must have sunk sickeningly when "Whistler" was found not to include details of an unusual polysaccharide, or a derivative, or an application unknown to the person concerned.

But over the past 14 years the book had inevitably grown progressively more out-of-date, it has probably been of little real specialist value, although still useful as a general background text for students, in recent years. Professor Whistler realised that the answer was not a mere revision of the first edition, but rather a completely new book by contemporary, authoritative contributors, this is what he has now largely succeeded in giving us.

Externally, the appearance is little different, page numbers are up from 741 + 25 pp of index to 729 + 76 pp — the result of including a massive author index. There are now 42 contributors, including only 14 of those involved in the first edition. The number of chapters is unchanged at 31, but some of those in the first edition (*e.g.*, on corn hull gum, T₁ polysaccharide, and wheat gums) have been replaced by more topical chapters (*e.g.*, on solute-solvent interactions, furcelleran, scleroglucan, xanthan, and other biosynthetic gums).

The book is now organised more clearly by division into two parts. Part A (Natural Gums) is sub-divided into a general section (2 chapters) and sections on Seaweed Extracts (7 chapters), Plant Exudates (4 chapters), Seed Gums (4 chapters), Plant Extracts (2 chapters), and Animal Extracts (1 chapter). Part B (Prepared Gums) is sub-divided into Biosynthetic Gums (3 chapters), Starch Fractions and Derivatives (4 chapters), and Cellulose Derivatives (4 chapters). There are very few misprints, and the entire production is of the high standard consistently achieved by Academic Press.

Although most of the chapters give completely new and authoritative accounts, some (noticeably those on Gum Karaya and Locust Bean Gum) are simply mild revisions, retaining the precise structure of the corresponding chapters in the first edition. Nor are these revisions up-to-date by any standard. The locust bean chapter contains nothing more recent than 1964, that on karaya (also that on guar) does not refer to anything more recent than 1967. The treatment of starch dextrins fades out weakly at 1965-66. Herein lies the disappointing feature of this book for the specialist, it is already out of date! Only two chapters refer (once each) to information dated 1972, and only eight contain the odd reference (none has more than two) to 1971.

Seven chapters contain nothing more recent than 1969. Some chapters are long (67 pp) and some short (7 pp). The major ones are on Dextrans (Murphy and Whistler, 320 refs, 32 pp), Gum Arabic (Glicksman and Sand, 297 refs, 67 pp), Amylose (BeMiller, 245 refs, 22 pp), Carboxymethylcellulose (Batdorf and Rossman, 206 refs, 35 pp), and Algin (McNeely and Pettitt, 201 refs, 34 pp).

The overall impression is therefore of a book dealing somewhat unevenly with achievements of the late sixties. Everyone realises the frightening editorial difficulties involved in compiling a multi-authored text on the scale involved here, and perhaps those with the most up-to-date chapters held back the contributions of the others who had submitted by an agreed date. It has happened before! Whilst all credit remains with Professors Whistler and BeMiller for their massive effort on our behalf, one wonders why such a long gestation period did occur, and whether, at a cost of £21, those able to commit their own funds or (more likely) those of their employers are being let down just a little bit? At any rate, one thing is clear, it is time for Whistler and his boys to start on the 3rd edition if they are still resting on their laurels!

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Guthrie and Honeyman's Introduction to Carbohydrate Chemistry Fourth Edition, by R D GUTHRIE, Clarendon Press, Oxford, 1974, vii + 120 pages, £4 00, £1 50 (paperback)

Comparison of the first edition, which first appeared 27 years ago, with the present text reflects the tremendous progress that has been achieved, not only in carbohydrate chemistry but also in the style and presentation of this complex subject to the reader. This compact introduction to the subject has been given a complete overhaul by Professor R D Guthrie, who has rewritten and reorganised the whole text, deleting some historical data and introducing new material, to such an extent that, in reality, the present edition resembles the previous editions in title only. In keeping with the modern style, the classical approach is discarded, whilst retaining a link by quoting the Fischer proof of the structure of glucose in appendix form. Attention is focused on those areas of current and developing interest; thus, the chemistry of the glycosides has been enlarged and a chapter on carbohydrate antibiotics introduced. The chapter on spectroscopic techniques cites useful data on the chemical shifts of ^1H and ^{13}C n m r spectra.

The final chapter gives a number of excellent illustrations of structural analysis and synthesis of natural products by reference to the structures of the antibiotics gentamicin and everninomicin and to multistage syntheses of methyl abequoside and 5-amino-5-deoxy-D-allofuranuronic acid.

The difficult nomenclature of carbohydrates is skilfully introduced by a brief mention early in the book and then developed as required, including a system for pyranoid conformations. Notable features of this edition include the liberal use of good