

Book reviews

Cellulose Chemistry and Its Applications: edited by T. P. NEVELL AND S. HAIG ZERONIAN, Ellis Horwood, Chichester, Sussex, 1985, 544 pages + Subject Index, £55.00.

Cellulose Chemistry and Its Applications, edited by T. P. Nevell and S. H. Zeronian, is an excellent, multiauthor book on cellulose chemistry and technology. A book of this type is long overdue. The last similar kind of book was an update, in 1971, of *Cellulose and Cellulose Derivatives*, by Ott, Spurlin, and Grafflin.

Practically every important aspect of the broad area of cellulose science is treated in one or another chapter in this timely book. Although an in-depth treatment is certainly not possible in 544 pages, sufficient detail, along with excellent documentation, is provided to give the reader a thorough understanding of the important aspects of cellulose chemistry and its applications. The editors have gone well beyond their two main objectives, namely, "to depict cellulose as one member, albeit an important one, of a whole group of polysaccharides, which are themselves a sub-class of natural polymers; and the second, to indicate briefly some of its more important industrial applications".

Cellulose-chemistry fundamentals are provided by the editors in chapter 1. This is an excellent, although brief, overview of the developments in cellulose chemistry and technology since the time of Anselme Payen. Chapter 2 is a superb treatment of the functions and biogenesis of native cellulose. The supramolecular structure and swelling properties of cellulose are discussed in the four chapters following. Solvents, and uses for cellulose solutions, are described in chapters 7 and 8. In chapters 9–13, the degradation of cellulose by acids, alkalis, mechanical means, oxidation, heat, radiation, and enzymes is covered. Cellulose esters, ethers, cross-linking agents, and flame retardants are described in four separate chapters. Chapters 18 and 19 are devoted to cellulose fibers, with chapter 18 on regenerated cellulose fibers, and chapters 19 and 20 on mechanical properties of textile and wood fibers, and paper. The final chapter covers the degradative conversion of cellulose into useful products. Most of the chapter authors are scientists well known in their respective fields of cellulose specialization.

A minor criticism is that the chapter contents should have been listed in the Table of Contents, or at the beginning of each chapter. Only the chapter titles are given in the Table of Contents, which makes it difficult to locate specific topics in each chapter. It would also have been helpful to have the book divided into such sections as "Cellulose Degradation", "Cellulose Modification", etc. This would help readers, especially novices, to orient themselves more easily to the subject

matter. However, these omissions hardly detract from an otherwise excellent coverage of cellulose science.

The book has been well produced, and the figures are ample, crisp, and relevant to the discussion. There is a good balance between the chapters, and potential overlap has been handled well by the editors. For example, cellulose liquid-crystals are briefly discussed in the chapter on Cellulose Esters, and their possible applications are further described in the chapter on Mechanical Properties of Cellulose Textile-Fibers. The cost of the book is reasonable for a professional scientist, but would probably be too high for most students. However, *Cellulose Chemistry and Its Applications* would serve as a very good text for an advanced course on cellulose chemistry and technology. It is an imperative acquisition for the personal library of professional scientists, and may well become a classic contribution to cellulose chemistry and technology.

Department of Forestry
University of Wisconsin
Madison, WI 53706

RAYMOND A. YOUNG

Enzyme Nomenclature, 1984: prepared for publication by EDWIN C. WEBB, Academic Press, Orlando, FL, 1984, xx + 571 pages + Subject Index, \$19.50, £16.00.

This volume comprises the recommendations of the Nomenclature Committee of the International Union of Biochemistry on the nomenclature and classification of enzyme-catalyzed reactions, and is a revision of the recommendations of 1978. It begins with a glossary that provides systematic names for compounds having trivial names; this is followed by an alphabetical collection of the abbreviations used in the enzyme list, a historical introduction, and an explanation of the classification and nomenclature used for enzymes.

The enzyme list covers 6 categories, namely, (1) oxidoreductases, (2) transferases, (3) hydrolases, (4) lyases, (5) isomerases, and (6) ligases, and is followed by an appendix giving the nomenclature of electron-transport proteins, references for the enzyme list, and an index to the enzyme list. At the very end is printed a sheet that is not copyright; it is a report form for use by scientists to draw the attention of the editor to enzymes missing from the list, or to errors in existing entries.

It is obvious that all scientists who use enzymes in their work, and need to know, for any enzyme recognized herein, the EC number, the systematic name, other names, the reaction catalyzed, comments thereon, and references that give an indication of priority in its discovery, should have available a copy of this compi-