

Book reviews

Plant Biochemistry I (MTP International Review of Science, Biochemistry, Series one, Vol 11), edited by D H NORTHCOLE, Butterworth, London, and University Park Press, Baltimore, MD, 1974, xi+287 pages, \$19 50, £8 50

As a teacher of undergraduate students and a supervisor of postgraduates, I look forward to the appearance of all new publications in the MTP International Review of Science series. This present collection of reviews of plant biochemistry has not disappointed me.

The intention of the Consultant Editors, to try to counteract a situation wherein biochemists in one branch of the subject have increasing difficulties in comprehending other aspects, has been followed. In general, the reader does not have to be an expert in order to understand and to profit from reading the individual chapters, which are well written and are mostly introduced by a consideration of basic principles.

The subject matter is wide ranging, and includes, on the one hand, discussions concerned largely with enzymology, and, on the other, the less well understood, borderline area between biochemistry and physiology. In view of this coverage, it would be difficult for any single reviewer to comment in detail on the factual accuracy and scientific soundness of all of the chapters. I do believe, however, that the individual contributions are of a high scientific standard and well worthy of publication. The reviewer would have liked to have seen an author index, which presumably would not have added greatly to production costs.

The contributors to the volume are well known, international experts in their respective fields. D A Walker has provided a critical account of the transport of metabolites and coenzymes across chloroplast membranes, a subject which, at the present time, is poorly understood. Plant membranes are again considered by H Smith in his discussion of photomorphogenesis, where the role of light in many aspects of plant development is discussed. With this subject, there is a significant overlap of biochemistry and physiology, and this occurs again in the chapter written by D G Morgan and Clare B Morgan. They describe the occurrence, biosynthesis, and metabolism of the more important, known, plant-growth substances and their physiological effects. "Main-line" biochemistry in this volume is perhaps represented by the critical and concise account of carbohydrate (starch, sucrose, and hexose) breakdown in higher plants, by T Ap Rees, the review of methodology in this chapter contains useful information for all biochemists with intentions to start work on plant metabolism. Metabolism also underlies the description by G H N Towers of the enzymes involved in lignin and flavonoid biochemistry. In recent years, there has been a renewed interest in this field, and therefore a condensed account of some

of the more important features is welcome. A narrower group of enzymes involved in nitrate and nitrite reduction in plants and micro-organisms is considered in great detail by E. J. Hewitt. The chapter entitled "Chemistry and Biochemistry of Algal Cell-wall Polysaccharides" by A. Haug is more chemical than biochemical, for the reason that few biochemists have turned their attention to these complex materials.

In conclusion, this volume ought to be on library shelves for research and teaching purposes. It is not particularly expensive, bearing in mind the valuable collection of information it contains.

*Royal Holloway College
Egham, Surrey*

JOHN B. PRIDHAM

Plant Biochemistry II (International Review of Biochemistry, Vol. 13), edited by D. H. NORTHCOTE. University Park Press, Baltimore, MD, 1977, ix + 262 pages \$29.50.

This is the second volume on plant biochemistry in the second series of *International Review of Biochemistry*, and the general comments made in reviewing the first volume are still applicable. The high standard has undoubtedly been maintained and, again, the book should be welcomed by students of biochemistry as well as by researchers. I hope the Consultant Editors will not object if I say that the only part of the book that gave me trouble was the statement in their Note: this undoubtedly will send many biochemists scurrying to the nearest Department of Modern Languages for an accurate translation.

The subjects dealt with appear to be even more varied than in the previous volume. Readers with interests ranging from physical chemistry to botany are catered for. In the first chapter, D. Boulter and his colleagues pay particular attention to the structures of plastocyanins from various sources, and then continue with a description of phylogenetic implications. The review of transport across chloroplast membranes that can be found in the first volume of this series has a sequel in this second volume, where D. S. Bendall discusses the complex subject of electron- and proton-transfer in chloroplasts. Sucrose, one of the most ubiquitous of naturally occurring compounds still has its secrets: for example, the location of the sub-cellular site of synthesis: this and other "riddles" are discussed by H. G. Pontis. In some cases, osmotic regulation in plant cells also involves carbohydrate derivatives, and this subject, together with the roles of other organic materials and inorganic ions, is covered by H. Kauss. The metabolic events occurring before, during, and after infection of plants by pathogenic fungi are described by J. Friend. There is some reference to this topic in the next chapter (although this is not shown in the Subject Index!), in which R. G. Brown and W. C. Kimmins deal with plant glycoproteins,