

H. Smith. We still do not know why various physiological changes and alterations in enzyme activity occur in response to the illumination of plants. Inorganic pyrophosphatase, lipxygenase and that unlikely and esoteric enzyme phenylalanine ammonia lyase appear to be the only three enzymes that show such an immediate response to light that a causal relationship can be suspected. One wonders how many of these data will become trivialized when the true nature of photomorphogenesis is discovered. Naturally, one turns first to the section on phytochrome; it is exciting to read how this photoreceptor is now implicated in the modification of membrane properties, but it must be admitted that we still know practically nothing about its true mode of action.

In the "Chemistry and Biochemistry of Cell-wall Polysaccharides", by A. Haug, separate sections are devoted to the polysaccharides of the Chlorophyta, Chrysophyta, Bacillariophyta, Pyrrophyta, Phaeophyta and Rhodophyta and, where possible, cell wall structure is related to the taxonomic individuality of the algal division. Studies on the conformation and spatial relationships of polysaccharides within the cell wall are very well documented. The review has a certain monotony which is hard to avoid in the description of polysaccharides, but it is well referenced and well up to date for the time of publication.

"Pathways of Carbohydrate Breakdown in Higher Plants", by T. ApRees reviews the properties and distribution of key enzymes in carbohydrate breakdown, and discusses the pathways of carbohydrate breakdown in relation to energy metabolism and the provision of intermediates for biosynthesis.

"Plant growth substances" is an immense field and

cannot be adequately reviewed in a short chapter. The authors (D. G. Morgan and Clare B. Morgan) of this chapter recognise this limitation and they have surveyed selected topics, but even at the time of publication, the material presented was already rather dated. Particular emphasis is given to abscissic acid. Xanthoxin is also discussed at some length and brief mention is made of auxins, ethylene, cytokinins, lunularic acid and senescence factor. Kinetin is discussed in relation to its interaction with auxin. The role of giberellin in seed germination and the role of auxin in cell elongation are also discussed.

The chapter by E. J. Hewitt entitled "Aspects of Trace Element Requirements in Plants and Micro-organisms: The Metallo Enzymes of Nitrate and Nitrite Reduction", is a very welcome review of the dissimilatory and assimilatory reduction of nitrate and nitrite, with emphasis on the properties of the non-haem metalloenzymes, especially those containing molybdenum. There is no better account of this subject in existence. It is packed with information and lists 424 literature sources.

"Enzymological Aspects of Flavonoid and Lignin Biosynthesis and Degradation in Plants" is reviewed by G. H. N. Towers. This area is fairly well reviewed, especially in the organic-chemical, rather than the biochemical literature. By omitting the shikimic acid pathway and concentrating on the metabolism of phenylalanine and tyrosine, the author has nevertheless produced a review that fills a niche. Degradation is treated very briefly.

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Physiological and Pharmacological Biochemistry

Edited by H. K. F. Blaschko
Butterworths; London: University Park Press; Baltimore, 1975
ii + 276 pages. £10.45

The title of this volume is likely to provoke intense

curiosity as to its contents. It might well encompass

any physiological function or pharmacological action that currently merits explanation in molecular terms. In the event, the contents prove to be a very arbitrary selection of topics. No doubt this is inevitable and it would be foolish to criticise it for what it leaves out: better to judge it by the Series' own criteria as "a comprehensive and critical survey of progress in research". At this level it needs to stand comparison with other series designed to keep the average biochemist up to date. Here it seems to fall between two stools: it is neither as definitive in its survey as, say, Annual Reviews nor so unassuming of specialist knowledge as, say, Essays in Biochemistry.

Active Transport (W. Wilbrandt) is covered adequately, but rather too sketchily to make interesting reading. Membrane ATPase merits only half a page and mitochondrial active transport – both calcium and anion transport – need only two pages. In contrast the chapter on the mechanism of action of general anaesthetics (J. C. and K. W. Miller) is a much more detailed account of a specialized subject and proves to be more stimulating to read. The chapter on clotting and lysis in blood plasma (L. Lorand and K. C. Robbins) is an excellently concise and useful summary of the field. It differs from the other contributions in omitting text references in favour of a

classified list of references at the end. The account of renal excretion of strong electrolytes (G. Giebisch) is straight-forward physiology and might have seemed more appropriate to a volume in the physiology series. That on muscle contraction (A. Miller) brings us back to structural and biochemical aspects. Though adequate in coverage it suffers from being a little outdated – not necessarily the author's fault if publication was delayed. There is, for example, no mention of α -actinin. The contribution on monoamine deamination systems and mammalian tissues (M. B. H. Youdim) suffers from some irritating errors. The references in the text to fig.6.2 (p.181) and refs 355 and 229 (p.191) turn out to be incorrectly assigned. The last chapter on detoxication mechanisms (R. T. Williams and P. Millburn) is of doubtful value. It attempts a wide survey of different compounds and different mechanisms of conjugation. Yet it cannot, in the space available, hope to be a work of reference, such as the standard work by the senior author. In particular, it fails to emphasise that part of the subject – the general aspects, including the enzymology of drug metabolism – that would surely have been of much greater interest to most readers.

A. J. Turner

Biochemistry of Steroid Hormones

Edited by H. L. J. Makin

Blackwell Scientific Publications; Oxford, London, Edinburgh, Melbourne, 1975

x + 358 pages. £ 16.50

Medical students, teachers and those requiring an up-to-date introductory account of steroid biochemistry will welcome this excellent, well-produced book. Although much of the text refers to work on animals, this is a text orientated towards steroid biochemistry in human subjects. It provides a compact discussion of subjects relevant to medical and other students which was not previously available at this level. The authors are steroid research workers, most of whom hold teaching positions in medical schools.

The book covers steroid structure and nomenclature; biosynthesis and metabolism of cholesterol, corticosteroids, androgens and oestrogens; properties and cellular location of enzymes involved in, and the regulation of, steroidogenesis; steroid catabolism and excretion; and methods used in steroid analysis. The physiological and pathological aspects are covered by chapters on the pituitary-adrenal axis; the endocrinology of the menstrual cycle and pregnancy; inborn errors of corticosteroid biosynthesis; and the androgens. A