

publication time is debatable. Nevertheless, this is a useful collection of essays which has the merit of being up-to-date on a number of phytochemical topics and most phytochemists will find something of interest and value when dipping into it.

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**Naturally Occurring Quinones:** R. H. THOMSON. 2nd edition, Academic Press, London, 1971, 734 pp. £12.

**Plant Lipid Biochemistry:** C. HITCHCOCK and B. W. NICHOLS. Academic Press, London, 1971, 387 pp. £6.50.

**Polysaccharides:** G. O. ASPINALL. Pergamon Press, Oxford, 1970, 228 pp. £2.75.

THESE recent books share in common the fact that they are all excellently written, up-to-date monographs; each represents an important addition to the phytochemical literature and is highly recommended.

Since R. H. Thomson first wrote an account of the quinones in 1957, enormous strides have been made in their study and the present volume, which covers the literature up to October 1970, is really a new book. It represents a fantastic achievement in terms of scope and detailed coverage and will long remain the major source book for information on these pigments. It is also one of those rare books which one can pick up and read at random with both profit and pleasure. Almost every entry on the many and various known quinones has, besides data on structure, occurrence and physical properties, some interesting sidelight of a biochemical or a biological nature.

Three general chapters on distribution, biogenesis and identification procedures are followed by six further chapters which cover all the known quinones, some 450 of them, in order of increasing structural complexity. The remarkable close-up photographs, which illustrate the book, of a bombardier beetle discharging quinone vapours in the face of an attacking ant, are a reminder that quinones occur, too, in the animal kingdom, particularly in arthropods and echinoderms. However, the relative sizes of the zoological and botanical indexes at the end of the book show that they are primarily plant products. For example, practically all the 170 known anthraquinones have been isolated from lichens, fungi or higher plants; considering the few deliberate surveys for these pigments, there must be many more awaiting recognition in natural materials.

Some quinones, such as the plastoquinone group, are of universal distribution in plants and play an important role, particularly in association with lipids, as vital components in plant chloroplasts. This fact is brought out by Hitchcock and Nichols in an illuminating chapter on lipid function in the second book under review. Indeed, the production of *Plant Lipid Biochemistry* is alone justified if it draws attention anew to the gaps in our understanding of the role of lipids in the basic cellular processes of plants. Besides the account of lipid function, this monograph contains chapters on fatty acids, acyl lipids, their distribution, biosynthesis and metabolism, and on lipolytic enzymes. The final chapter contains an excellent summary of methods of detection and identification; this is a particularly valuable section, not least because the authors and their colleagues at the Unilever Research Laboratories, Colworth House have contributed so much to the development of modern analytical techniques. The book concludes with a supplementary list of research papers which brings the book up-to-date to July 1971.

The monosaccharide galactose provides a natural bridge between lipids and polysaccharides, since it is a common component both of plant glycerides and of pectins, gums and mucilages. Unlike the other two books under review, G. O. Aspinall's *Polysaccharides* does not aspire to be comprehensive; it is meant to be a general survey suitable for both students and interested research workers. There is perhaps a slight emphasis in the book on plant polysaccharides, but this does no more than reflect the research interests of the author. It is an excellent volume and should be very useful, for example, as a supplement to any teaching course in plant biochemistry. It should also be read more widely, since it provides within the compass of 200 odd pages an illuminating and spirited account of the variety of structural types found among these biologically important macromolecules.

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**Salinity and Water Use:** edited by T. TALSMA and J. R. PHILIP, Macmillan, London, 1971, 296 pp. £8.00.

IF WE wish to manipulate a land area subject to excessive saline input then we must know something about water movements in the area, both above and below ground and how this movement will effect the transport and deposition of salts. We cannot plant crops or graze animals in such an area, unless we know about the effect of salts on the soil and how these salts will affect the living organisms in the ecosystem. This book, which contains papers presented at a National Symposium on Hydrology, sponsored by the Australian Academy of Science, held on 2-4 November 1971, attempts to tell us how we should undertake the manipulation. The approach is more by principle than by precept, but that in itself should make the book attractive to scientists. The book certainly attempts to provide a total view of the subject, which is very much one requiring interdisciplinary attack if further knowledge is to be gained.

Ostensibly the papers are supposed to be understandable not only to fellow specialists but also members of other scientific disciplines. I found the book hard going. It suffers very much from the lack of a good introductory chapter which would set the scene and indicate to the reader what each paper contributes to a total understanding of the properties and utilization of saline soils. For instance, I am still at a loss to understand the real significance of the contribution of Denholm and Potter on the principles of metallic corrosion and its control in saline waters. I also do not understand why a contribution by MacFarlane talks about excessive salt uptake and is followed by one by Gage which is concerned with the classic story of sodium and membrane potentials, when he could have used the opportunity to indicate how excessive salt uptake affects nerve and muscle.

Indeed this book is just one more example of the unsatisfactory nature of published symposium papers. I would, therefore, recommend that only departments concerned with soil science should purchase it, for the very good (but fairly technical) papers, seven in number, on the nature and origin of salinity in soils and the chemistry and chemical and physical processes occurring in these soils. Specialists will find these papers valuable and I personally found the papers by Quirk, Phillip and Peck, on the physical chemistry of saline soils with special reference to their swelling and transport of salts very interesting. But I read them with a considerable amount of prior knowledge. Readers of *Phytochemistry* would gain benefit from the papers by Robinson on salinity and the whole plant, and by Campbell and Pitman on salinity and plant cells. In the former article, however, the effect of saline conditions on the water balance of plant gets little mention and the latter article