

Naturally Occurring Quinones III: Recent Advances: by R. H. THOMPSON, Chapman & Hall, 1987. 732 pp., £125.00.

As the author writes in his preface "Since the second edition of this book was published in 1971, the number of quinones isolated from natural sources has more than doubled to approximately 1200. The need for updating is therefore self-evident". What we have therefore in this volume is an account of all the new quinones, listed in order together with the earlier known quinones and appropriate cross references to the 1971 edition. New information (e.g. spectral properties, natural occurrences, chemical syntheses) of known quinones is thus provided as well as structural elucidations of all the new substances.

In the 1971 edition, there were separate chapters on biosynthesis and spectra. These have been omitted, but they are replaced by two appendices which list 11 reviews on quinone biosynthesis and eight papers on carbon-13 NMR spectroscopy. A third appendix lists new quinones published in 1985-1986. What appears to be the most

serious omission to a phytochemical audience is the lack of a separate account of the biological properties, particularly since the allelochemical effects of quinones are continually being documented in the literature of chemical ecology. For example, quinones have recently been identified as phytoalexins and as haustoria-triggering agents in plant-parasite interactions. To be fair to the author, he does provide appropriate references, e.g. to the allergenic effects of primin, when these are available for a given quinone.

One of the most valuable features is the careful listing of physical properties, including colour, melting point, UV-visible and IR spectra, proton NMR and MS data. The book is therefore a vital tool for anyone wishing to identify an unknown quinone. The book is an excellent production with a wealth of chemical structures and it has both a botanical and a subject index. It is an absolutely essential purchase for any phytochemical library.

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Insect-Plant Interactions: edited by J. R. and T. A. MILLER, Springer, 1986, 342 pp., DM158.

The title of this book is unfortunate since it suggests that it is a general text, rather than a specific account of the methodology for studying phytophagous insect feeding preferences. It is a little out of date in a rapidly moving field, especially with regard to the effects of plant tannins on insect feeding. Also the coverage could have been widened to include more on the phytochemical side. The only phytochemical chapter is that of Kubo and Hanke, which deals entirely with the methods of isolating and identifying phytoecdysteroids.

The book contains chapters on methods for behavioural observations on phytophagous insects, including studying their oviposition preferences and on electrophysiological recording of chemosensory responses, but

the major thrust is on determining feeding preferences via bioassay. Certainly there are many problems here—not least the variability of insect response—but several authors carefully enumerate the pitfalls awaiting the novice. Thus A. C. Lewis and H. F. van Emden discuss the various assays for insect feeding, while Isaac Ishaaya reviews the interaction between insect nutritional requirements and allelochemical effects. However, for me, the most thought provoking review is that of May Berenbaum on the post-ingestive effects of phytochemicals on insects. She considers how far these effects support or otherwise the coevolutionary hypothesis of Ehrlich and Raven. This is the sort of chapter which is a delight to read and which one will want to refer back to again and again.

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Perspectives in Chemoreception and Behaviour: edited by R. F. CHAPMAN, E. A. BERNAYS and J. G. STOFFOLANO, Springer, Berlin, 1987. 207 pp., price DM 125.

One procedure for honouring a well-known and much respected scientist is to throw a party on his birthday and publish the proceedings of the gathering in book form. This volume stems from such a gathering held in

Amherst, Massachusetts, in May 1985 on the 70th birthday of Vincent Dethier, a pioneer in the study of the physiological basis of insect feeding behaviour. His friends and colleagues, in 11 general essays, provide here a worthy tribute to his leadership in this field. The titles of the various contributions range from: What makes a caterpillar eat? (L. M. Schoonhoven), Chemoreception in the Fly—the search for the liverwurst receptor (F. E.

Hanson), *Animal Motivation—the beginning of the end* (J. S. Kennedy) and the *Strange Fate of Pyrrolizidine Alkaloids* (D. Schneider). It is a most enjoyable, entertaining and instructive book to read, has some nice illustrations and is highly recommended to all phytochemists

working on insect-plant relationships.

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Progress in Botany, Volume 48: edited by H. D. BEHNKE, K. ESSER, K. KUBITZKI, M. RUNGE and H. ZIEGLER, Springer, Berlin, 1986. 443 pp., DM 258.

This review series occupies an important niche in the botanical literature, since it is largely complementary in its coverage to that other popular publication read by all plant scientists—the Annual Reviews of Plant Physiology. As in the Annual Reviews, most topics are covered on a two to four year cycle. In fact, sulphur metabolism was last discussed in *Progress in Botany* in 1968 so that Ahlert Schmidt's succinct review of the enzymology of sulphate assimilation in plants is especially welcome. Recent developments in photosynthesis research, needless to say, are reported on a more regular basis. This year's review by Erwin Latzko and his colleagues concentrates on the regulatory role of fructose 2,6-bisphosphate and on the natural distribution and the metabolic fluctuations of CAM plants. Other articles in the physiology section deal with water relations, mineral nutrition, amino acid biosynthesis, indole alkaloid biosynthesis,

phytochrome, calmodulin, auxins and ethylene.

The taxonomy section this year is mainly devoted to lower plants: M. Melkonian reviews the algae, W. Gams and W. Dulich the fungi, J. Hafellner the lichens and K. Kramer the ferns. The contributions of chemistry to algal classification appear to be on the increase and it is apparent that both macromolecular and molecular (carotenoids, lipids) data are providing new insights into the systematics and evolution of these organisms. The genetics section has much of interest, including accounts of replication, recombination, transcription, mitochondrial inheritance and the genetics of pathogenicity. Other sections deal with microtubules, cytosymbiosis, the xylem and mycorrhizae. Thus there is something here for everyone, and while stylistically *Progress in Botany* is not yet in the same league as Annual Reviews, it does provide a valuable review service. There are both organism and subject indexes.

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ANNOUNCEMENT

In the review of 'Progress in Terpene Chemistry': edited by D. Joulain [(1987) *Phytochemistry* **26**, 3379], the price was mistakenly given as FF 550 whereas it should have been FF 375.