Phytochemistry, 1972, Vol. 11, pp.1869 to 1872. Pergamon Press. Printed in England.

BOOK REVIEWS

Pharmacognosy and Phytochemistry: edited by H. WAGNER and L. HÖRHAMMER. Springer-Verlag, Berlin, 1971. 386 pp. DM 48.00.

THIS soft-covered illustrated volume contains sixteen review papers presented at an International Congress held in Munich in the Summer of 1970. The reviews, four in German, the remainder in English, deal variously with phytochemical methods, advances in plant biosynthesis and studies of pharmacologically active plant substances. The first two papers, for example, are on TLC (E. Stahl) and GLC (A. Baerheim—Svendsen) and are both illustrated with references to the separation of essential oil components. Two of three papers on synthetic chemistry are devoted to the flavonoids: the synthesis of *C*-glycosylflavones (J. Chopin) and the use of transacylation reactions in flavonoid synthesis (L. Farkas). The third synthetic chapter by P. W. Thies covers the synthesis of iridoids, their biosynthesis being discussed later in the volume by H. Inouye in a useful up-to-date survey with emphasis on the author's own many contributions. Also under the heading of biosynthesis, M. H. Zenk provides an excellent account of the formation of various quinones in plants and E. Brochmann–Hanssen considers the biosynthesis and chemistry of the opium alkaloids.

Curiously, chemotaxonomy is represented in the volume by two chapters on almost the same theme—the sesquiterpene lactones of the Compositae. However, the two authors V. Herout and W. Herz have quite different approaches to the topic so that their two accounts are largely complementary. It is, however, surprising that the Symposium editors did not choose a paper on alkaloid distribution patterns, since sesquiterpene lactones as a class have only limited pharmacological activity.

The remaining six chapters are more exclusively concerned with pharmacognosy. Perhaps the most valuable is a wide-ranging review by G. H. Marini-Bettolo 'New Natural Substances of Pharmacological Interest" which includes a mention of almost every type of chemical structure from the choleretic dicaffeoylquinic acid of the artichoke to the hallucinogenic harmine alkaloid of *Banisteria*. R. Tschesche also covers several classes of compound under the title "Antibiotic Substances from Higher Plants" but he deals especially with physiologically active triterpenoids. The other chapters deal more specifically with limited groups of plant constituents. E. Hecker covers the co-carcinogens of croton oil in 19 pages, G. H. Svoboda discusses the *Vinca* anti-tumour agents in 35 pages, H. A. Linde and K. Meyer the bufadienolides also in 35 pages. This latter chapter concludes with a catalogue of 45 structures, with m.ps. and NMR data, which seems a little out-of-place in a work of this type. The final chapter by G. Vogel is a refreshingly iconoclastic account of the bioflavonoids and their alleged effects on capillary permeability and the lymphatic system.

In order to publish this volume within a few months of the Symposium, the publisher and editors have foregone some of the niceties of good publication. Thus, errors are rather common and the English style is decidedly uneven in places; furthermore, that are no indexes. Whether it is worth sacrificing these points in order to save a couple of months on

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.