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BOOK REVIEWS

Introduction to Ecological Biochemistry: by J. B. HARBORNE. 2nd edn. Academic Press, New York, 1982. xvi + 278 pp. £12.80 clothbound, £5.50 paperback.

The first edition of this book had a rapturous reception, and deservedly so since it provided an excellent (and timely) account of the new discipline of ecological biochemistry. Five years have elapsed, and the subject is, like the universe, still expanding at an enormous rate, and hence the need for a new edition. The overall format remains unchanged, with nine chapters covering all types of interactions that occur between organisms or that affect their adaption to the environment. Most of the original subject matter has been retained, but there is increased coverage of many key areas. There is a completely new section on the biotransformation of xenobiotics in mammals, and this reflects the rapidly growing interest in the fate of plant toxins and other foreign compounds that comprise part of a mammal's diet. The role of nectar receives extra attention, with new sections on the lipids and toxins present, and an account of the importance of extrafloral nectaries. Plant–insect interactions have always attracted much interest, and none more so than those involving cardiac glycosides and pyrrolizidine alkaloids, so it is good to see further expansion of the text in this key area. Other areas where much new information is provided are phytoalexins and the evolution of feeding deterrents in higher plants, now split into two sections: plant defence, and insect response. This last section includes some interesting conjectures concerning the predilection of certain insect species for strains of *Cannabis sativa* with high levels of THC—some store the toxin and use it in their own defence, but others become 'hooked' with lethal consequences. Throughout the text there are many new tables and structures, and of course the references have been updated.

This second edition, like its predecessor, is an excellent teaching text. Each chapter is self-contained, and the book can be read in almost any sequence. It will continue to be the book of choice for interdisciplinary courses, but ecological biochemistry is also of increasing interest to purists. In her foreword to this (and the first) edition Miriam Rothschild speaks of the "infectious enthusiasm and ebullient writing" of the pioneers of ecological biochemistry—Jeffrey Harborne maintains this great tradition and his book provides eloquent testimony of this.

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Progress in Botany, Volume 43: edited by H. ELLENBERG, K. ESSER, K. KUBITZKI, E. SCHNEPF and H. ZIEGLER. Springer, Berlin, 1981. 382 pp. DM 129.

Although plant biochemistry does not figure as a major research area in *Progress in Botany*, biochemical work on plants is extensively covered under other headings and most plant biochemists will do well to consult the latest volume in this useful series. Under morphology, for example, glands with terpenoid and phenolic secretions are discussed by E. Schnepf. The five physiology reviews are all biochemically orientated and cover the photosynthetic reaction centre (J. Amesz), the metabolism of malate (M. Kluge), inorganic nitrogen metabolism (E. Kessler), tyrosine- and phenylalanine-derived alkaloids (H. R. Schutte) and growth hormones (N. Amrhein). In the latter chapter, Professor Amrhein describes recent work on the gibberellins and the cytokinins and introduces a new group (?) of plant growth substances, the brassinolides. Of course, it is not yet clear whether these steroids have a general hormonal function *in vivo* but the report of the occurrence in rape pollen of brassinolide itself opens up the question again of whether the steroid hormones, which are so important in controlling growth and development in animals, have any place in plant physiology.

In the taxonomy section, there is a wide-ranging review of the systematics and evolution of seed plants by H. H. Poppendieck. This author is rightly critical of those taxonomists who have 'gone overboard' on cladistics and he provides a helpful discussion of the continuing problems there are in producing a meaningful phylogenetic reconstruction of higher plant evolution. This article includes a contribution on chemosystematics by K. Kubitzki, which is mainly concerned with the implications of the ecological role of secondary substances in plant–animal interactions on their use as taxonomic markers. Chemosystematics is also dealt with in detail in a special article by Uwe Jensen on proteins in plant evolution and systematics. It is a valuable guide to the recent literature on amino acid sequencing of proteins and to comparisons of storage protein and isozyme patterns in plant extracts.

The other special topic in this volume, namely floral ecology by S. Vogel, has much of interest for ecological biochemists and includes a review of recent investigations on plant scents and resins, on UV patterning in flowers and on nectar constituents. Space forbids mention of all the other excellent reviews in this volume, but there is a central core of six genetical chapters which will be of special value and interest to those molecular biologists working on plant systems.

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