

BOOK REVIEW

Biochemical Aspects of Plant and Animal Coevolution: edited by J. B. HARBORNE. Academic Press, London, 1978. xviii + 436 pp. £24.60.

Following so closely on the Editor's own *Introduction to Ecological Biochemistry*, this symposium puts flesh on the bones of many aspects of that admirable summary. The dust-cover itself could not more aptly illustrate the theme. It shows the Monarch butterfly attracted to the flower of an orchid by a scent mimicking that of the female pheromones peculiar to that species! The ability to create such an intimate relationship demands a virtuosity of almost unlimited variability which is implicit in the concept of evolution, and it is the task of the authors of the 14 contributions to the symposium to provide and elaborate examples of the expression of this variability in chosen areas of plant biochemistry and physiology. Some of the chapters cover familiar ground brought up to the immediate date, but others deal with relatively novel areas identified in plant-animal interactions only during the last few years: such as, for instance, the sesquiterpene lactones especially characteristic of the Compositae, of which more than 600 are known. Much attention is rightly given to the ways in which animals cope with the many substances of no value to them as nutrients, especially those which would otherwise be helpful to the plant in avoiding predation. The history of the ingenuity of the plant in evolving such repellents and the ensuing consequences to the populations of animal predators, so far as this is known or can be inferred, is a fascinating one and is dealt with by T. Swain in the introductory chapter. This is followed by an

account of cyanogenesis in plants, why it occurs so commonly, and is so variable within species. The purely quantitative importance of nitrogen in often influencing the selection of plants by insects is emphasized by McNeill and Southwood; E. A. Bell deals with toxins in seeds and D. H. Janzen with seed chemistry and seed predation. The subject of the cover illustration is followed up by G. Bergström who, in discussing the pollination of *Ophrys*, mentions also the visual mimicry of the bee orchid as an instrument in securing pollination in this species. Miriam Rothschild exposes the mysteries of the mutual functions of carotenoids in plants and insects, and Feltwell discusses their distribution and function in insects.

Together with a comprehensive discussion of plant-fungal interactions, these essays provide a formidable development in detail of some of the ecological themes outlined in the Editor's own book. As the plot thickens, one has to cling tenaciously to the simple guide-lines—the need for sustenance on the one hand, the need for procreation and dispersal on the other. Both animals and plants, moreover, are faced with internecine warfare, and these internecine battles must also be taken into consideration when considering the interactions between the two kingdoms,—the cut-and-thrust, the rough-and-tumble, you scratch my back, I'll scratch yours—call it what you will—which forms the subject matter of the present fascinating book.

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