Phytochemistry, 1978, Vol 17, p 842 Pergamon Press Printed in England.

Herbicides—Physiology, Biochemistry, Ecology: edited by L. J. AUDUS. 2nd edition in two volumes, Academic Press, London, 1976. 608 and 564 pp. £19 and £17.50.

To many, the weedkiller *par excellence* is paraquat. Its dramatic dependence on light for its toxic activity is splendidly illustrated on the cover of this new edition of Audus' *Herbicides* by pictures of paraquat-treated broad beans grown for 3 hr in light and dark; while the leaves of the illuminated plant are completely black and beginning to desiccate, those of the other plant show no traces of toxic symptoms. Selective action, of course, is an essential prerequisite of any modern organic herbicide and selectivity in relationship to metabolism and uptake are but two topics among the 32 chapters of this extensive work. It is quite impossible to summarize in a short space the contents of this new edition. One can only comment that every conceivable aspect of herbicides seems to be dealt with somewhere. Indeed, the editor has performed a superb task in co-ordinating the efforts of his many contributors. It is unfortunate that herbicides, in spite of their considerable economic importance in agriculture, are rarely given much exposure in botany courses at University. It is hoped that the appearance of this fine new edition will encourage University teachers to include some of the present material available here in their lectures. Progress in understanding the fate of herbicides in plants has been considerable in recent years, for example, and a coherent picture of their transport and *in vivo* metabolism has now emerged.

It is commonplace for reviewers of advanced scientific textbooks to comment adversely on the high prices charged by publishers. To me at least, this book seems to be moderately priced for a work which is so packed with information, handsomely produced, amply illustrated and well indexed.

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Progress in Botany, Volume 38: edited by H. ELLENBERG, K. ESSER, H. MERXMÜLLER, E. SCHNAPF and H. ZIEGLER. Springer–Verlag, Berlin, 1977. 377 pp. DM 120; about £30.

This series continues as before to provide review articles over a wide range of botanical topics. The physiology section of volume 38 contains eight articles: plant lectins (H. Kauss), ion transport (H. Marschner), carbon path of photosynthesis (E. Latzko and G. J. Kelly), organic acid metabolism (M. Kluge), inorganic nitrogen metabolism (E. Kossler), ammonia assimilation (T. Hartmann), monoterpene biosynthesis (H. R. Schütte), auxins, dormins and ethylene (K. Dörffling) and developmental physiology (G. Fellenberg). These are all written in English (unlike some of the articles in other sections) and I found them all useful accounts of the last two years' literature. A few lack style or critical acumen but most are excellent and well worth reading.

The question of duplication in coverage between Progress in Botany and other Annual Review Series has sometimes been raised but I believe that this rarely occurs. When it does, it is often beneficial, since with controversial topics it is essential to have more than one viewpoint. The inclusion of these reviews with those in different disciplines (such as anatomy), may also be critized but nevertheless cross-fertilization is not possible unless this is done. In volume 38, physiological topics are also interestingly dealt with in some detail in a chapter on experimental ecology (W. Schmidt). Readers will inevitably benefit from scanning articles in other fields to their own.

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Plant Biochemistry II: edited by D. H. NORTHCOTE. Volume 13 in the series *International Review of Biochemistry*. University Park Press, Baltimore, USA, 1977. 262 pp. £21.25.

In the original plan of the MTP review series on advances in science, biochemistry was covered in twelve volumes, with one volume specifically devoted to plant biochemistry. The series editors H. L. Kornberg and D. C. Phillips have now decided to expand the original plan and this volume, the first supplement on plant biochemistry, contains seven essays ranging in topic from the chemistry of plastocyanin to the transport of ions in plant cells. Perhaps the most intriguing title is 'Riddle of sucrose' chosen by H. G. Pontis to discourse on the enzymology of sucrose metabolism. The riddle: why the plant kingdom should be based on sucrose rather than glucose as its most important sugar perhaps has no answer but it is tempting to question why sucrose is invariably used for translocation and storage while glucose would apparently do the job just as well.

Glycoproteins are very topical macromolecules and it is appropriate that what little is known of their structures in plant tissues should be reviewed here by Brown and Kimmins. Besides their role in cell wall structure, they are considered to be important in recognition phenomena in both symbiotic associations and in floral incompatibility. One other role new to me but mentioned in this review is their possible contribution to frost resistance in plants. Another timely review is that by D. Boulter and his