Phytochemistry, 1969, Vol. 8, pp. 939 to 941. Pergamon Press. Printed in England

# BOOK REVIEWS

**Quantitative Paper and Thin-layer Chromatography:** Edited by E. J. SHELLARD. Academic Press, London, 1968. 140 pp. 42*s*. 6*d*.

THIS volume contains the eleven review papers presented at a Symposium held in London on 3 and 4 January 1968 and the editor and publishers are to be congratulated on producing the publication of the proceedings so speedily. Scientists in general often fail to give precise details of their experimental procedures in published papers so it is refreshing to find in this volume that all is revealed—every conceivable snag that might arise during the quantitative estimation of plant products by chromatographic means is accounted for. As Professor Fairbairn points out in the opening chapter, major errors, which are often overlooked, may arise during the spotting-up of chromatograms. Use of most of the standard syringes and micropipettes can involve errors in accuracy and mechanical application is recommended by the author.

Although the title mentions both paper and TLC, it is TLC which is given most attention and five of the ten succeeding chapters deal with quantitative aspects of TLC using densitometry, fluorimetry and direct and indirect spectrophotometry. The final three chapters deal with the measurement of radio-active materials after separation on TLC. All these methods require expensive apparatus and are more or less time-consuming and C. A. Johnson, in a later chapter, rightly puts in a special plea for visual assessment in cases where a high degree of accuracy is not required. A rather amusing sidelight on the sex war is introduced here when Johnson reminds us that in the visual assessment of colours, women outshine men and accordingly should always be employed for comparing the intensities of coloured spots on chromatoplates.

Most authors limit their discussion to a single class of natural product, usually the alkaloids, and the reviewer would have welcomed a summary chapter assessing the relative merits of the different techniques as applied to each of the major classes of plant substances. Perhaps this was asking too much of the organizers of this particular Symposium. Nevertheless, this is a very useful book, nicely produced with diagrams, figures and an adequate index, and it will be required reading for all phytochemists contemplating the quantitative estimation of low molecular weight plant constituents.

J. B. HARBORNE

**Recent Aspects of Nitrogen Metabolism in Plants:** Edited by E. J. HEWITT and C. V. CUTTING. Academic Press, London, 1968. 280 pp. 80*s*.

THERE is a notable shortage of good books on plant nitrogen metabolism; apart from the monograph of H. S. McKee, published in 1962, but which is mainly devoted to the older literature, and the S.E.B. Symposium Volume of 1959, one is forced to turn to Annual Reviews and similar sources for the most recent developments in this field. From its title, the present volume would appear to fulfil the need for an up-to-date account of the subject,

but, alas, examination of the contents does not support these hopes. This book is, in fact, the published proceedings of a Symposium held at Long Ashton Research Station, Bristol, in the summer of 1967, and it suffers from all the usual faults of such volumes. Thus some papers are so short that they are valueless while others are clearly research papers which should have been published in an appropriate journal in the normal way. Furthermore, there are introductory addresses, votes of thanks etc., which the general reader hardly wants to have to wade through. Fortunately, there are also some excellent review papers in the book and these are sufficient to justify its appearance on the plant biochemists' bookshelf.

The first of the three sections the book is divided into is devoted to nitrogen fixation and includes a valuable discussion by Hewitt and his co-workers of the status of hyponitrite and hydroxylamine as possible intermediates in nitrite reduction. There is also a fascinating account by Sims, Folkes and Bussey of the complex mechanisms involved in the regulation of nitrogen assimilation by the plant. It is clear, however, from the introductory chapter by Chatt that we are still abysmally ignorant of the basic chemical processes involved in nitrogen fixation itself.

In the second section on amino acid and protein synthesis, D. D. Davies provides a useful summary of what is known of amino acid metabolism in higher plants. Following two routine papers on the biosynthesis of putrescine and the properties of diamine oxidase, there is an authoritative review by Fowden and his colleagues on the specificity of amino acid biosynthesis, knowledge of which has mainly been gained by metabolic studies of the non-protein amino acids of plants. The third section covers the physiological aspects of nitrogen metabolism and contains useful review papers by Luckwill (effect of plant growth regulators), Markham (effect of virus infection), Pate (photosynthetic aspects) and Hill-Cottingham (effect of environment).

Some of these later chapters are very good and active workers in the field of nitrogen metabolism will want this book on their shelves; other plant biochemists will do well to dip into it. However, a well-balanced modern account of this field of research, which is not only fascinating biochemically, but also of immense practical importance in agriculture, has yet to be written.

J. B. HARBORNE

**Transport and Distribution of Matter in Cells of Higher Plants.** Edited by KURT MOTHES, EBERHARD MULLER, AXEL NELLES and DIETER NEUMANN. Akademie-Verlag, Berlin, 1968. 215 pp.

I READ through the papers of this symposium with increasing disappointment. When I first received the volume and read the title, I turned to the text with a great deal of anticipation. The facts about the movement and distribution of solutes in higher plant cells continue to elude us and I had hoped that the papers, which were presented at the meeting held at Castle Reinhardsbrunn in East Germany in October of last year, would go some way towards separating fact from fiction and towards suggesting future work in this most important field of plant physiology. It was not to be and my hopes have in no way been realized.

The reader of this review can gauge my dissatisfaction with this symposium volume if I say that of the twenty-two articles, five are devoted to ion relations of algae, two to model systems and one to regulation of transport in bacteria. The remaining articles are of variable