

BOOK REVIEWS

Nutrition of the Angiosperm Embryo: by DAVID R. MURRAY, pp. viii + 246, Research Studies Press Ltd, 1989. Price: £32.60.

This volume describes a subject generally either neglected or considered only very briefly in other texts: how the embryo of the angiosperm grows and develops and in particular how it obtains its nutrients. The book contains nine chapters: 1. Introduction, 2. Identification and Classification of Nutrients, 3. Assimilation and Translocation of Nutrients, 4. Translocation Mechanisms, 5. Fruit Development, 6. The Nutritive Function of Seed Coats, 7. Phloem Unloading, 8. Construction of Media for Embryo Growth *in vitro* and 9. Embryogenesis and Prospects for Plant Improvement.

The heart of the presentation is in chapters 5–7. These contain a wealth of information dealing with all aspects of the developing embryo. The chapters draw quite heavily on the work of the author and present data never previously assembled. Many of the problems of the nutrition of the embryo, what function the seed coat fulfils and how translocation into the developing embryo and fruit takes place are described and analysed. This part of the book presents a very well balanced and critical review of present knowledge, with a quite welcome personal impact of the author's views.

The other chapters are somewhat less successful. Chapters 2 and 3 deal with problems of general plant nutrition and some peculiar slips have crept in. For example phytochrome is stated to contain copper, (no reference given), but cytochrome oxidase and ascorbic acid oxidase are not mentioned as copper enzymes. Nickel is dealt with at length but it is not clear why it is regarded as important in embryogenesis or nutrition. Chapter 3 has a useful

summary on assimilation and translocation and in part deals with the source of certain compounds which end up in the embryo or seed. The treatment of translocation mechanisms in chapter 4 seems a little sketchy. Chapter 8 contains information on media for embryo culture and spells out general principles. It has curious omissions, e.g. the work of Obendorf and co-workers on embryo growth and pod-cultures. The last short chapter does not really add very much and seems to be a bit of an afterthought.

Presentation and lay out of the book are generally clear and there seems to be very few misprints. However Evenari is consistently misspelled. The publisher has clearly used some modern computerised system for production. This has probably speeded up publication; references are up to 1986, but the addenda contains only one reference from 1987. However, visually the printing process used leaves something to be desired, e.g. by not straightening right margins and the rather pale printing of this reviewer's copy. There is no author index and a separate plant index would have been welcome.

I recommend this volume to anyone interested in the problem of seeds and seed development. It contains much information and undoubtedly focusses attention on many unsolved problems. Many readers of *Phytochemistry* will find something to interest them. However, the price of £32.60 means that only those directly concerned with germination or embryo growth will purchase it for their personal libraries. Most phytochemists will be content to browse through it in their libraries.

Department of Life Sciences,
The Hebrew University,
Jerusalem.

A. M. MAYER

Studies in Natural Products Chemistry: Volume 1: Stereoselective Synthesis (Part A): edited by ATTA-UR-RAHMAN, Elsevier, 1988, pp. ix + 739. Price £117.40.

My initial impression upon opening this book was that it contained yet another collection of plenary lectures from an obscure conference—another assault upon the over-stretched budgets of scientific libraries. Such is not the case. The book contains seventeen specialist reviews of particular areas of natural products synthesis, some of them covered for the first time, and many of them of particular contemporary interest. Most of the accounts emphasize the particular achievements of the authors, and summarize work that has hitherto only been available as preliminary communications.

The first five chapters concentrate upon the indole alkaloids, including the relatively rare indole carbazoles (J. Bergman) and indolo[2,3-*a*]quinolizines (G. W.

Gribble), together with the indoloquinolizidines (M. Lounasmaa) and the complex *Strychnos* alkaloids (J. Bosch and J. Bonjoch). Pride of place must go to the chapter on the use of vinyl azides for the construction of indole and isoquinoline alkaloids (C. Moody). Though brief, it includes elegant approaches to a diverse array of structures. More isoquinoline synthesis appears in the next chapter (M. Hanaoka); and this is followed by a mammoth 80-page chapter (Y. Nishimura) on pyrrolizidine and indolizidine chemistry, which also includes a timely summary of routes to the glycosidase inhibitors like castanospermine and swainsonine. Another important contribution by A. Matsuda and S. Terashima provides details of several successful syntheses of sesbanamide together with some data on anti-tumour profiles for the natural product and certain analogues. Finally, the first half of the book concludes with two chapters on alkaloid synthesis via [3 + 2] cycloadditions (W. H. Pear-