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Book Reviews

Biochemistry and Physiology of Plant Hormones (second edition)

T.C. Moore.
Springer-Verlag, New York. 1989. xv + 330 pp.
Illustrated, hard cover. DM98.00. ISBN
3-540-96984-5.

The object of this book is to summarize in a reasonably balanced and comprehensive way, the state of our fundamental knowledge regarding the major kinds of plant hormones, and the phytochrome pigment-system. The book opens with a chapter containing largely basic information on growth and development of the whole plant throughout ontogeny. Further chapters are devoted to auxins, gibberellins, cytokinins, abscisic acid and related compounds, ethylene, brassinosteroids, and phytochrome. In each case, the discovery of the hormone, its structure and occurrence, biosynthesis and metabolism, physiological effect, and possible mode of action are described.

Although the author states that biochemical aspects have been given priority, these are clearly subordinate to physiological considerations. This is in fact, the strength of the book, in that it provides a general review of hormone physiology from a historical perspective. The various aspects are described in a clear style and illustrated with many well-produced, simple, yet informative figures. Inevitably, in a single-author text dealing with such a broad field, there is unevenness in the detail with which the various subjects are described. Newer developments are not always adequately treated. In contrast, the descriptions of the varied physiological effects are generally excellent, and the author is careful in pointing out possible alternative interpretations of the activities of the various hormones. Very little is mentioned however, about hormone determinations or of the need to invoke additional regulatory-substances to be able to fully understand plant-growth and development. There is little discussion about the molecular mechanisms of hormone action and, consequently, a unifying picture of hormonal regulation does not emerge. Nevertheless, as an introduction to plant hormones for advanced students in biology and agronomy, it quite well illustrates the current state of our knowledge about hormonal phenomena. I used this book to advantage in the preparation of a lecture course on the regulation of plant growth and development. In scope and depth, it fills the gap between the considerably shorter '*Plant Growth Regulators*' by J.A. Roberts and R. Hooley and the multi-author treatize '*Plant Hormones and Their Role in Plant Growth and Development*', edited by P.J. Davies. Both discuss plant hormones primarily on the basis of plant developmental processes.

L.C. VAN LOON

The Plant Diversity of Malesia

P. Baas, C. Kalkman and R. Geesink (eds).
Kluwer Academic Publishers, Dordrecht, Boston, London. 1990. xii + 420 pp. Illustrated, hard cover. Dfl125.00, US$74.00, UK £44.00. ISBN
0-7923-0883-2.

This book presents the proceedings of the Flora Malesiana Symposium entitled 'The Plant Diversity of Malesia' and commemorating Professor C.G.G.J. van Steenis; this symposium took place in Leiden, August 1989. It includes contributions by 36 authors from all over the world. The articles are divided into various categories described below.

1. *Flora Malesiana–past, present, and future.* In the first chapter, Kalkman gives a description of van Steenis' botanical career, approximately 60 years of which were spent with FM (Flora Malesiana). His two main ideals were: 'to be practical and scientific', ideals which are still valid today. In chapter 2, Geesink discusses a 'hot point', namely the unacceptably long time (*c.* 160 years) estimated to be needed for completion of FM. He proposes therefore, more 'global' rather than 'semi-monografic' work. That should result in a completion of FM in the next 50 years.

2. *Progress in Malesian botany.* There are nine chapters covering this topic. Two interesting chapters are concerned with the urgency of more taxonomic work (in the field and in the herbarium) on Malesian rattan palms and bamboos, two groups which are of great importance to the local population. It is worthwhile to know that almost half of the Malesian palms (430 species) consist of rattans. Other chapters include research on families, such as the Elaeocarpaceae and the Pandanaceae. In chapter 10, Hegnauer notes that FM is the first flora-project of global importance also dealing with aspects of phytochemistry.

3. *Vegetation and floras.* These nine chapters include studies on the vegetation of various FM-regions. One of the amazing conclusions by the author of chapter 12 (Kartawinata) is that: 'much floristic and ecological study on the vegetation of Indonesia is still needed and that the most complete study on this subject is by ... van Steenis ... dating from 1935'.

4. *Biogeography.* The three contributions to this section include studies on areas of endemism in E. Malesia, biogeographic relationship of Australia and Malesia, and elements of pacific phytodiversity.

5. *Conservation.* One of the chapters (by Meijer) deals with the role of van Steenis in conservation. The other three Chapters cover conservation in Malaysia and Java.

6. *Economic botany.* These two chapters cover gene-banks in the FM-region and the origin of Cocos nucifera.

7. *Concepts in taxonomy.* Four contributions, the first of which is that by Kornet, who evaluates van Steenis' famous essay on specific and infraspecific delimitation, much followed by plant taxonomists. The book is nicely executed by the three Leiden editors. It contains much valuable information on various disciplines, and it is of interest not only for those working on the Flora Malesiana region but for anyone involved in tropical botany. It is a volume worthy of van Steenis, the nestor of Malesian botany whom it commemorates.

P. J. M. MAAS

Genetic Aspects of Plant Mineral-Nutrition

N. El Bassam, M. Dambroth and B.C. Loughman (eds).
Kluwer Academic Publishers, Dordrecht. 1990.
xi + 558 pp. Illustrated, hardback. Dfl.400.00, US$235.00, UK £145.00. ISBN 0-7923-07-852.

This book contains 76 papers presented at the 3rd international symposium on genetic aspects of plant mineral-nutrition in 1988. The book is divided into five parts covering aspects from physiological and biochemical mechanisms associated with the utilization of major nutrients, genotypic responses to deficiencies or excess of elements, genetic variation in symbiotic systems, screening techniques for detection of nutritional deficiencies and excess, and germplasm resources for specific environments. The mixture of review papers and case studies gives the book an increased value. It would however, be more efficient if an introductory keynote had highlighted the prominent issues of the various parts and if papers with only a marginal genetic background of mineral nutrition were eliminated.

The book can be recommended to plant physiologists, plant geneticists, plant breeders and plant ecologists not only as a source of information, but also for the regeneration of new ideas on realizing 'low-input cultivars'.

W.H.O. ERNST

Plant Form: An Illustrated Guide to Flowering Plant Morphology

A.D. Bell, with line drawings by A. Bryan.
Oxford University Press, Oxford 1991. xiii + 341 pp. Illustrated, paperback. Dfl.94.00, UK £25.00; hardcover: Dfl.182.00. ISBN 0-19-854279-8 and 0-19-854219-4 (pbk.)

This book describes the morphology of flowering plants. In doing so it relies a great deal on a number of illustrative methods namely, colour photographs, excellent and most accurate line-drawings as well as diagrams. The book is divided into two parts: morphological description and constructional organization. The first part includes leaf-, root-, stem-, reproductive-, seedling-, and grass morphology as well as vegetative multiplication and misfits. The second part deals with the meristem, its position, potential, activity and disruption, but also with plant branch-construction.

This beautiful book can be used as an illustrated dictionary. Each topic is covered by a concise text and representative illustrations.

Some minor points of criticism of this well-written book with superb illustrations are its inconvenient format; the unusual views on bark, grass spikelet and floret structure; and the fact that epiphylly is mentioned but concaulescence and recaulescence are omitted.

In conclusion this book can be highly recommended for botanists interested in plant morphology and for botany teaching, and should be available in libraries which cover this field. The hard-cover version is, however, expensive.

R. W. DEN OUTER