

BOOK REVIEW

Physiology of Plant Growth and Development: edited by M. B. WILKINS. McGraw-Hill, London, 1969. XXI + 695 pp. £6 6s.

PLANT PHYSIOLOGISTS have been well provided for in recent years with encyclopedias covering their subject and with introductory texts suitable for the first-year undergraduate. There has been, however, a dearth of one-volume textbooks covering the subject in the depth required by the advanced undergraduate, the postgraduate and the research worker. The present volume is therefore especially welcome since it exactly fills this need. Furthermore, such is the quality and authority of the contributions written by a team of eighteen leading plant physiologists, under the able editorship of M. B. Wilkins, that this book is bound to become a standard reference for years to come.

The field of plant physiology is very difficult to define, as anyone who has taught the subject at university level will know, since it merges imperceptibly in one direction into biochemistry and in another into biophysics. In order to keep the volume within reasonable bounds, the present editor had to make a choice of topics and he has rather wisely decided to give the book a biophysical bias. This is sensible, since most biochemical aspects of plant physiology are covered in J. Bonner and J. E. Varner's *Plant Biochemistry* (1965), which in many ways can be regarded as a companion volume to the present work.

The phytochemist reading this book will undoubtedly turn first to the beginning chapters on growth regulators and there are excellent, definitive and up-to-date accounts of the auxins (K. V. Thimann), the gibberellins (R. E. Cleland) and the cytokinins (J. E. Fox). The two growth-regulators of most recent discovery, i.e. abscisic acid and ethylene, do not get separate chapters but since it is impossible today to discuss any one type of regulator in isolation from the others, they are dealt with indirectly in the above chapters; in one on regulator transport by M. H. M. Goldsmith and also in P. F. Wareing's account later in the book on Germination and Dormancy. The fact that photosynthesis (Bessel Kok) gets only 44 pages whereas phytochrome and photomorphogenesis (H. W. Siegelman and H. Mohr) get 67 pages is no reflection on the skill of the different authors at compressing their material within the bounds imposed; these are all excellently conceived and beautifully illustrated chapters. The more biophysical aspects of plant physiology are covered in chapters on water and ionic relations (J. Dainty), photoperiodism (W. S. Hillman), circadian rhythms (the Editor), translocation (M. Zimmermann), stomatal movements (O. V. S. Heath and T. A. Mansfield), phototropism (G. M. Curry), nastic responses (N. Ball), geotropism (L. J. Audus) and apical dominance (I. D. J. Phillips).

Each chapter is prefaced by a few well-conceived introductory paragraphs and concludes with a bibliography listing books and reviews for further reading, as well as giving the usual textual references. The book is attractively illustrated with many tables, figures and diagrams and its stout binding should survive the rough handling it will undoubtedly receive from students. It is a pity that the chemical formulae are not drawn in a uniform way throughout the book; benzene rings appear in both the new style and in the Kekulé form and again the isoprenoid formula, for example, of abscisic acid on p. 64 has a different appearance from that on p. 625 and this might confuse student readers. This is, however, a trifling blemish in what is otherwise an outstanding textbook, which will surely become compulsive reading for all experimental plant scientists.