

Growth and Differentiation in Plants: by P. F. WAREING and I. D. J. PHILLIPS. 3rd edition. Pergamon Press, Oxford, 1981. Soft back £9.00; hardback £20.

This third edition follows less than three years after the second edition. The reason for this remarkable haste is not difficult to find, for the value of the second edition was severely reduced by the extremely low standard of reproduction of the photographs, many of which were so bad as to be unrecognizable as their purported subjects. Happily, these problems have been overcome in the new edition. This, I am pleased to say, is excellently produced in a new, larger format with the apparently now obligatory two-column page layout which we are all supposed to find easier to read. A larger, clearer type face is another definite gain.

The text too has been updated and rewritten in part, though not so much as appears at first sight. The strengths and weaknesses of the previous edition are very much as before and in a number of cases the new material seems to have been grafted uncomfortably on to the existing stock. It is a pity too that the opportunity was not taken to correct some of the misprints from the previous edition; for example, poor Dr. Kendrick is even more often Dr. Kendrew than before in the new version of the photomorphogenesis chapter! Even so, many who enjoyed the first edition will welcome this new edition, not least because the authors' considerable effort is now matched by an appropriate standard of presentation.

*Plant Science Laboratories,
University of Reading*

C. B. JOHNSON

Fungal Physiology: by D. H. GRIFFIN. John Wiley, New York, 1981. 383 pp. £24.25.

The fungi are of interest to phytochemists as the source of a remarkable variety of secondary metabolites, some of which are of industrial, medical or horticultural importance. Some fungi, such as those on which the pioneering phytochemical work of Harold Raistrick was carried out, grow well on simple media, but others are nutritionally demanding. Some may produce the desired secondary metabolites only when sporulation occurs: this may require different nutritional and physical conditions from vegetative growth. Even when good growth and the required metabolites can be obtained on simple media, attention to the balance of the various nutrients and to culture conditions can greatly increase yields. A reliable source of information about the facts and methods of fungal physiology can hence be of great value to phytochemists as well as to mycologists, plant pathologists, industrial microbiologists, geneticists and biochemists. A work that at one time met this need admirably was *Physiology of the Fungi*, by V. W. Cochrane, published by John Wiley; it dates, however, from 1958 and has had no obvious successor. It seems from the size and layout of the present book that David H. Griffin and the firm of John Wiley have set out to remedy the deficiency, although no statement to this effect is made.

The first four chapters, 'Introduction to the Fungi', 'Chemistry of the Fungal Cell', 'Molecular Architecture' and 'Metabolism' are in my view the least satisfactory. The introduction is superfluous for a mycologist and difficult for anyone else. The following three chapters devote much space to features of cell structure and

biochemistry that are common to most organisms (and are to be found in elementary text books) and relatively little to aspects unique to the fungi. The fifth chapter, 'Growth', stresses the consequences of a special feature of fungi, the hypha, and the sixth, 'Chemical Requirements for Growth', has a critical approach to methodology. Chapters on the 'Absorption of Nutrients' and 'The Physical Environment and Growth' complete the treatment of vegetative growth and metabolism. Four chapters follow on various aspects of sporulation, asexual and sexual. Chapter 13 'Fungicides', deals with the effect of various natural and artificial compounds on fungi and Chapter 14, the final one, entitled 'Fungal Attack Mechanisms' deals with the effects that compounds produced by fungi have on other organisms.

It is easy for any reviewer, confronted with a work of nearly 400 pages, to point out errors, omissions or instances where the author appears unfamiliar with recent work, especially in the area of the reviewer's enthusiasms. Phytochemists, for example, might notice the omission of any reference to mycosporins, sporogenic substances produced in some fungi in response to illumination. Given the scope of the work, however, omissions and errors are few. Production is also of high quality, with very few typographical errors. Dr. Griffin has produced a book that is a worthy successor to that of V. W. Cochrane, and one that will be a useful source of information for many years to all who wish to grow and study fungi.

MICHAEL CARLILE
*Department of Pure and Applied Biology,
Imperial College of Science and Technology*