

Because of the vanishingly small amounts of phytochrome present in plant tissues, its chemical study is difficult and two central problems remain. Although its general formulation as a biliprotein is well established, its precise chemical structure has yet to be determined. Also the chemistry of the photoreversible change it undergoes needs much further elucidation. Its role as a trigger mechanism in controlling the effects of light on plant growth and development is extremely well documented and the review papers in the present volume very adequately cover what is now familiar ground. The relationship of phytochrome to the biochemical pathways of the plant has been less studied, although it is known to control the activity of a variety of plant enzymes. One area of active research is the photocontrol of flavonoid synthesis and, in an excellently written chapter, Harry Smith provides a lucid and fascinating account of recent developments in this field.

The book has been well edited and there is hardly any overlap between the various contributions. There are both author and subject indexes. The volume is very reasonably priced and should command a wide readership among plant scientists.

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**Secondary Metabolism in Plants and Animals:** by M. LUCKNER (translated by T. N. VASUDEVAN and J. L. WRAY), Chapman & Hall, London, 1972. £8.00.

THIS BOOK gives a good general account of secondary metabolism in plants and animals from the chemical rather than the biological viewpoint. It is, as might be expected from Dr. Luckner, precise, informative and comprehensive. But, it suffers from three drawbacks for the audience at which it is aimed, third year undergraduates: price, lack of information on the role of secondary products, and having been originally written in 1968. I realise that, with increasing costs, hard back books are fast getting beyond the reach of students' pockets. I also know that the saving on soft covers is minimal. But I believe that no publisher should *consider* producing a book for undergraduate students costing more than £5.00 (most students would halve this). The lack of information about the multifarious roles of secondary products is expectable but a great pity. Students should be given information about the host of examples of the importance of secondary products in controlling interactions between organisms and not that these compounds 'may be considered as excretions which are of no importance to the living organisms which produce them'. Such ideas are patently absurd and would cause their study to degenerate into a mere diletantism, eliminating the need for text such as this. The third drawback is less important. Dr. Luckner has included a few new references in this edition, although the text does not always reflect these. However, so much useful and accurate information is included in this book that such criticism should be regarded as something to take into consideration for the next edition. The whole volume forms a comprehensive survey of the interconnections between primary and secondary metabolites. No important class of compounds is ignored and the inclusion of all organisms, rather than just plants or animals, gives a much more rounded view than consideration of any one Kingdom alone. I certainly hope that the University libraries will be able to buy two or three copies and that the publishers can produce a reprinting at a fraction of the price.

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