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**Commentaries in Plant Science:** edited by HARRY SMITH. Pergamon Press, Oxford, 1976. 286 pp. £9.00.

The twenty-one short reviews collected here were published originally in the monthly issues of 'Current Advances in Plant Science' during the period 1973–1975. Together, they present a useful overall picture of where the growing points are in plant science today. It is, of course, difficult to write mini-reviews of the type presented here, which are intended to interest a wide audience of scientists and not just specialists in the particular topic. Broadly speaking, I believe the authors have largely succeeded in the editor's avowed aim of providing entertaining and stimulating, as well as instructive reading.

Most of the topics come in the area of plant biochemistry or plant physiology and phytochemically orientated readers will be particularly interested in reading J. Coombs on carbon assimilation in $C_4$ plants; R. J. Ellis on Fraction 1 protein; I. Zelitch on photorespiration; D. Boulter on cytochromes *c*; R. K. Downey and D. I. McGregor on breeding plants for fatty acid composition; J. A. Callow on plant lectins and W. Greenaway and F. R. Whatley on microbial resistance to systemic fungicides. Each review is followed by a list of references and the book itself is also well indexed.

This new venture in publishing is to be highly applauded and since there are so few comparable publications today, it is to be hoped that the series will be continued. It is unfortunate that the publisher has chosen such a drab format and the wide page used here is also a feature some will dislike. At £9.00 for 286 pp. it seems to be mainly geared for libraries, which is unfortunate since it will be appreciated most by the individual research worker or University teacher having it at hand to browse through at odd moments.

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**Light and Plant Development**: edited by H. SMITH. Butterworths, London, 1976. 516 pp. £15.00.

This volume presents the Proceedings of the 22nd University of Nottingham Easter School in Agricultural Science, which was held in 1975 at Sutton Bonington. The choice of topic was apt for it reflects the worldwide interest in the response of plants to the most vital and variable element of their environment. The subject matter which could have been included under the chosen title is of enormous breadth but the invited contributions were deliberately concentrated for the most part upon the control by light of the growth and development of higher plants. That the coverage is even more specific than this, with virtually the whole of the volume being concerned with phytochrome, is totally justifiable in terms of the present pattern of our knowledge. The contributing authors come from ten different countries, many of them being eminent scientists of international repute. The net result is an excellent volume which provides a comprehensive and up-to-date presentation of detailed evidence from fundamental research, which ultimately has great potential importance for crop production.

The 31 papers are divided up into six sections which inter-relate to one another. Section I (Perception of Light) contains a review of the evidence concerning the nature of the blue light receptor(s) in higher plants and fungi and draws attention to the need for a great deal of further research. Also contained in this section are important contributions on the photochemical properties of 'large' and 'small' phytochrome, the nature of the intermediates in photoconversion of phytochrome, and a consideration of the high irradience reaction. Section II (The Site of Phytochrome Action) comprises several contributions concerning the association of phytochrome with cellular membranes and one on the important immunological approach to the visualisation of phytochrome. While compelling evidence is available to support the hypothesis that phytochrome is functionally associated, at least in its $P_{fr}$ form, with one or more cell membranes, the necessity to establish the relationship between observations concerning the membranes of particular organelles and the *in vivo* situation is clear. Section III (Cellular Aspects of Phytochrome Action) presents evidence from the use of the elegant electron microprobe technique for rapid light-induced ion movements through membranes, together with papers concerned with the nature of the photocontrol of development of particular cell organelles. Section IV (Physiological Aspects of Phytochrome Action) focusses attention upon the rapid transmission of stimuli, such as plant growth substances, following absorption of light. In Section V (Photoperiodism, Endogenous Rhythms and Phytochrome) the authors tackle the problems of the long-known but most complex and intractable aspects of development. The possibility that phytochrome influences some circadian rhythms and photoperiodism by virtue of its control of the properties of cell membranes is of particular interest. Section VI (Ecological Aspects of Photomorphogenesis) contains important contributions on the spectral distribution of light within canopies and within leaves, and new data which support the hypothesis that in nature, phytochrome serves as a detector of shading, modifying development in response to the