Plants and Mineral Salts: by J. F. SUTCLIFFE and D. A. BARKER. Edward Arnold, London, 1974. 60 pp. £1.70 (paperback 85p).

This volume is No. 48 in the Institute of Biology's introductory texts for students in biology, a series which is aimed mainly at students and teachers in biology at school and in the first year of university. It was started some 7 years ago and some of the earlier volumes have been very successful; that on plant taxonomy by V. H. Heywood for example, has sold over 20000 copies and, in addition, has been translated into five languages. The present account of plant and mineral salt relationships deserves equal success since it has an excellent text covering an important, often neglected topic, which is amply illustrated with fine photographs and clear figures.

The book consists of five chapters which deal in turn with salt supply, salt requirements, ion absorption, ion uptake and ion transport. In a subject which is often controversial, it is refreshing to find authors who are willing to discuss rival theories impartially. One salient feature which emerges from this short book is that we are still considerably ignorant of many of the finer details of mineral nutrition and ion transport. Hopefully it will stimulate interest in a field which is of fundamental importance in both plant physiology and plant biochemistry.

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Progress in the Chemistry of Organic Natural Products, Volume 31: edited by W. HERZ, H. GRISEBACH and G. W. KIRBY. Springer-Verlag, Vienna, 1974. 693 pp. DM 231 or £41.

The present volume in this excellent series contains ten chapters in which fifteen experts review a range of currently important topics in natural product chemistry. The chapter which will perhaps command the widest audience is the one by G. A. Swan on the melanins, their structure, chemistry and biosynthesis. This is a well-documented up-to-date account of these polymeric, mainly black, pigments which are widely and diversely distributed throughout living organisms. Three groups are now recognized: the catechol-based allomelanins of plants, the nitrogen-containing eumelanins of the animal kingdom, and the N- and S-containing phaeomelanins, hair pigments in animals and humans. The practical problems in purifying and characterizing melanins are still very considerable; as the author points out, there is no means of proving that two melanins are identical and classification is still perforce based on comparisons of products of oxidative degradations. Considerable practical problems of separation and purification also had to be overcome before the cocarcinogens present in croton oil could be identified. As E. Hecker and R. Schmidt describe in their masterly chapter on this topic, this is one of the few areas where countercurrent distribution methods have been of invaluable assistance. Chemical study of these tetracyclic diterpenes esterified with fatty acids was held up by their instability but, once the compounds were obtained pure, they soon yielded up the secrets of their structures, following the application of spectral measurements and determination of their chemical reactions.

No less than three chapters in this volume are devoted to fungal products of pharmaceutical importance. Thus there is a 50-page review of recent developments in the chemistry of the penicillins by D. N. McGregor. This covers the period 1964–1972 and deals partly with the products obtained by modifying the sidechain at the 6-position in the penicillanic acid nucleus but mainly with those in which the chemistry of the penicillanic acid moiety itself has been altered. The second fungal chapter by Ch. Tamm of the university of Basle describes the chemistry and biosynthesis of the antibiotic verrucarins and roridins, products of the soil fungus *Myrothecium*. The third chapter by J. C. Roberts reports on the well known carcinogenic mycotoxins derived from *Aspergillus*, the aflatoxins and the sterigmatocystins. This is a useful, necessarily brief, account of their structural elucidation, synthesis and biogenesis.

Two of the remaining five chapters describe higher plant constituents. One by H. Wagner outlines the glycosidic complexity of the flavonoid pigments and includes methods of their laboratory synthesis, an area of research where the author in collaboration with L. Farkas has made considerable progress in recent years. The other