Phytochemistry, 1967, Vol. 6, pp. 319 to 320. Pergamon Press Ltd. Printed in England

BOOK REVIEW

Comparative Phytochemistry: Edited by T. SWAIN. Academic Press, New York, 1966. 360 pp. 93*s*.

WHY not call it "Plant Chemotaxonomy"? Possibly because the editor has been responsible for a volume titled after this fashion in 1963. His title is propounded by R. E. Alston (who would prefer "biochemical systematics": perhaps the title for the next similar publication?) as it "implies a greater latitude in the recognition and pursuit of certain problems spun out of comparative phytochemical investigations". Current biological interest lies in compounds which seem to have a systematic utility and can now be recognized by rapid and efficient screening techniques.

This book is based on papers presented at a NATO sponsored meeting of the Phytochemical Group held in April 1965, with some added notes in proof, and the editor regards it as "not an advertisement for a new branch of science, but as a necessary up-to-date report showing the present state of the art". The three introductory and fifteen specialized chapters are of varying quality, some showing more evidence of being originally a lecture than others. This is an unfortunate by-product of the publication of symposia in book form, together with the often disconnected nature of the contents, making many contributions of limited value. The virtue of the system is in the collection of contributions from a distinguished range of scientists.

It is probably possible to criticize all the specialist contributions, depending on the interests of the reader. For example, the reviewer would have liked more on oxygen-containing monoterpenoids than the one page from G. Weissmann in his chapter on terpenoids, and feels that the significance of the *cis* isomer (nerol) of geranyl pyrophosphate in forming cyclic terpenoids needs emphasis. The formulae of these two alcohols are given incorrectly on p. 102.

C. Mentzer's biogenetic classification of compounds as basic, secondary (acetate-, isoprenoid- or shikimate-derived) or miscellaneous is difficult to maintain, and he appears to classify phorbic acid (an obscure dilactonic acid obtained from a *Euphorbia*) as a basic compound. In the opinion of the reviewer, basic substances surveyed in this book are amino acids (by E. A. Bell) and polysaccharides (E. Percival). Other substances of "basic" interest also covered include alkaloids (R. Hegnauer), carotenoids (T. W. Goodwin) and flavonoids (J. R. Harbourne, with *C*-glycosides by H. Wagner). Specialized topics include alkanes (A. G. Douglas and G. Eglinton), dihydrochalcones (A. H. Williams), hydroxyquinones (C. Mathis), polyacetylenes (J. D. Bu'Lock) and ranunculin (H. W. L. Ruijgrok).

All aspiring phytochemotaxonomists should read the valuable introductory papers by Alston and V. H. Heywood. The latter warns them that

> " . . . phytochemical characters are frequently considered as more basic . . . than other classes of characters . . . (but) there is no reason to believe that such features are not suceptible to . . . all the other 'defects' which the more traditional taxonomic characters show . . . Morphological (data) . . . are normally confirmed and tested hundreds or thousands of times by direct observation . . . : their variability is fairly

well known . . . But in comparative phytochemistry we do not yet know all the major features let alone the details."

Heywood appeals for improvement of existing, static, phenetic classifications ("providing fodder for pigeon-holing"), and would probably approve of the restraint shown in the taxonomic remarks on the distribution of iridoids by E. C. Bate-Smith and T. Swain, and on sulphur compounds by A. Kjaer. Alston is interested in phylogenetic speculation and notes the provocative restriction of betacyanins to the ten families of the order Centrospermae (T. J. Mabry). However, Harbourne's remark that the Iridaceae and the Leguminosae "have independently reached about the same stage in evolution" might make both of them blink.

This interesting book is well indexed, there being separate entries for authors, genera and species (and families, etc.) and compounds.

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