Recent developments in the chemistry of natural phenolic compounds: Edited W. D. OLLIS, Pergamon Press, 1961, 70s.

PRIOR to 1939 polyphenolic compounds would probably have brought to mind the flavone group, lichen acids, possibly tannins but only the chemistry of the first two of these groups had been worked out. The recent book of a Plant Phenolics Symposium will show how much the subject has developed since that time.

Broadly speaking the book is in two sections: one reviewing the organic chemistry of tannins from algarobilla, biflavonyls, antibiotics related to the tetracyclines, phenolic C-glycosides in plants and an introduction to the betacyanins in the *Centros permae* and the other discussing the biosynthetic and biogenetic relationships of the various polyphenols. The chapter on isoprenoid units in natural phenolic compounds extends over both fields.

It is in the field of biosynthesis that great advances have been made and R. W. Rickards gives a very clear picutre of the way acetic acid units are combined to produce polyphenolic nuclei. This was orginally suggested in 1907 by J. N. Collie and has been developed with much experimental evidence by Prof. A. J. Birch.

The B ring and C_3 unit of the flavone group originates via shikimic acid while the A ring arises through condensation of acetic acid units. Rearrangements of these to isoflavones is reviewed by H. Grisebach. The chapter on Isoprenoid units in phenolic compounds (Ollis and Sutherland) is the longest and demonstrates the remarkable number of ways in which isoprene units can be combned with aramatic nuclei and also the importance of phosphate groups in the condensations.

A further example of the use of one unit to produce many compounds is found in the chapter on Tannins from Algarobilla (O. T. Schmidt). Ellagic acid, brevifolin, chebulic acid and brevilagin are all built from units of gllic acid.

The chemistry of the tetracyclines is generally known but it is useful to have the structures and relationships in this volume.

The problem of nomenclature is avoided by his use of trivial names but any difficulties in reading the text is largely overcome by the generous use of clearly presented formulae. It might be assumed that because so much is known, structurally and biogenetically, of these compounds that the subject is drawing to a close. Nothing could be farther from the truth—the fact that acetic acid units (to mention only one type) can be modified in so many ways inevitably makes one wonder how one enzyme, starting from acetic acid, can produce a tetracycline, while another enzyme will produce cholesterol. W. B. Whalley (p. 55) suggests that the enzymes concerned in these synthese have a maximum active area equivalent to the simultaneous accommodation of 18 C atoms. The plant phenolics group obviously have much to challenge them in the future.

The book is well set out and can be recommended to all more thoughtful biochemists and indeed to final year honours students.

K. S. KIRBY

Genetics of micro-organisms: Scientific Editor W. HAYES (*Brit. Med. Bull.* **18** (1) 1–84 (1962).

THIS issue of the British Medical Bulletin is indeed very timely: the continuous progress of microbial genetics makes it a subject of great interest not only in all specialized fields of microbiology, but in general biology, fundamental genetics and molecular biology as well.

Although the series of excellent papers offered under the eminent scientific editorship of W. Hayes cannot be expected to give an exhaustive treatment of the matter within the 84 pages provided, they never-the-less adequately cover all the important facets of current investigation in the field, being at the same time factual and thought-promoting.

An introduction by Sir Macfarlane Burnet recalls the microbiological origins of chemical genetics and stresses the unexpected variety of genetical processes discovered among microorganisms. The