Book Reviews

Lehrbuch der Paläobotanik. Walther Gothan and Hermann Weyland. Akademie-Verlag, Berlin, 1954. 535 pp. Illus. DM 46.

The book is a delayed revision of Potonié and Gothan's *Lehrbuch* of 1921. Subject matter is organized around the major plant groups which are arranged according to conventional schemes of classification. Four short introductory chapters deal with the history of paleobotany, kinds of plant fossils, fossilization processes, and pseudofossils. Some of the common research techniques are described. These chapters are followed by others on Algae, Algomycetes, Fungi, and Bryophyta. Coverage of vascular plants begins with the Psilophytales, and proceeds through Filicales, Hydropteridales, Noeggerathiales, Articulatae, Lycopodiales, Gymnospermae, and Angiospermae. The concluding chapter discusses geologic, geographic, ecologic, and climatologic aspects of ancient floras.

The bulk of the manuscript was prepared several years before publication, and the numerous *Anhängen* reveal efforts to bring the subject matter up to date. North American literature of the last 25 years is very incompletely covered and selections are somewhat random. The same may be said of much of the postwar literature of western Europe. As inevitably happens in a book of comprehensive scope, one sees an occasional error of fact. For example some fossil fern stems belonging to three genera are stated (p. 171) to be growth stages of one genus and the statement is made (p. 174) that *Azolla* is known in the fossil state only from interglacial deposits.

With few exceptions the illustrations are ample. Most of the figures are taken from other sources and many are rather crude pen sketches of previously published photographs. The halftones are substandard. Some are too small and others are muddy, partly because of the inferior quality of the paper. Otherwise, the book is well printed, with few typographic errors. It is written in a readable style and can be understood by one fortified with only a moderate knowledge of German.

C. A. Arnold
Department of Botany, University of Michigan

Organic Syntheses. vol. 34. William S. Johnson, Ed. Wiley, New York; Chapman & Hall, London, 1954. vi + 121 pp. Illus. $3.50.

Volume 34, which maintains the general excellence and style of earlier volumes in this well-known series, contains checked laboratory directions for preparing the following compounds:

2-*p*-Acetylphenylhydroquinone, azelanitrile*, β-(*o*-carboxyphenyl)-propionic acid, cetylmalonic ester*, 2-chloro-1,1,2-trifluoroethyl ethyl ether, cycloheptanone (two methods), di-*tert*-butyl malonate*, 3,4-dihydro-2-methoxy-4-methyl-2H-pyran*, 9,10-dihydrophenanthrene, *p,p'*-dinitrobibenzyl, 1,4-dinitrobutane*, dimethylfurazan, diphenylacetylene*, diphenyl succinate, ethoxyacetylene*, ethyl chlorofluoroacetate, ethyl enanthylsuccinate*, ethyl β,β-pentamethyleneglycidate, hemimellitene, *o*-methylbenzyl alcohol*, 2-methylbenzyldimethylamine*, N-methyl-1,2-diphenylethylamine and hydrochloride, methylisourea hydrochloride, 3-methyl-1,5-pentanediol, 3-methylthiophere*, phenanthrenequinone, 1-phenylpiperidine*, *o*-phthalaldehyde, sodium β-styrenesulfonate and β-styrenesulfonyl chloride, tetralin hydroperoxide, *p*-toluenesulfinyl chloride *p*-tolylsulfonylmethylnitrosamide, *o*-xylylene dibromide.

The starred (*) compounds are prepared by directions stated to be applicable to one or (usually) more similar compounds. Cycloheptanone is prepared from cyclohexanone by two different ring-enlargement methods, one of which uses diazomethane prepared from *p*-tolylsulfonylmethylnitrosamide. Only the preparation of diphenylacetylene has appeared in earlier volumes, but the present preparation from benzil presumably affords a purer product than the earlier preparation from stilbene. Workers in phenanthrene chemistry will be pleased with the preparation of phenanthrenequinone from technical (or recrystallized practical) phenanthrene and with the description of the special purification of phenanthrene which is so essential for its successful reduction to dihydrophenanthrene.

The extent to which *Organic Syntheses* expedites laboratory work cannot be measured. Volume 34, like its predecessors, will be in every organic laboratory.

I. Moyer Hunsberger
Chemistry Department, Antioch College

Chemical Pathways of Metabolism. vol. II. David M. Greenberg, Ed. Academic Press, New York, 1954. viii + 383 pp. Illus. $9.50.

Whereas the first volume of *Chemical Pathways of Metabolism* dealt essentially with C, H, O compounds, the second volume concerns primarily the stepwise origin and fate of nitrogen compounds in the animal body or more often in isolated enzyme systems. Volume II has eight chapters (9–16), and more than half the pages are devoted to the amino acids and derivatives. The review draws heavily upon results obtained with isotope tags within the last 10 or 15 years and bears witness to the greatly increased use of microbiological preparations in the study of biochemical mechanisms.

In the opening chapters, "Nitrogen metabolism of amino acids," by P. P. Cohen, "Carbon catabolism of amino acids" and "Synthetic processes involving amino acids," both by D. M. Greenberg, the presentation proceeds logically from the metabolism of the common —NH_2 group, to the degradation of the unique carbon skeletons of amino acids, and finally to special features of the biosynthesis of amino acids and