

oxidation catalysts and pertinent reactions are discussed for the oxidation of ammonia to oxides of nitrogen, of ammonia and methane to hydrocyanic acid, of carbon monoxide, and of sulfur dioxide. In chapter five, comprising about a dozen pages, mechanisms of catalytic oxidation are presented in terms of solid state theory. Here the catalytic properties of metallic oxides are related to their structures as semiconductors. Miscellaneous catalytic oxidations are tabulated in chapter six, which covers five pages.

The present book maintains the high standards set early in this series. The discussion of the various aspects of hydrocarbon oxidation is especially timely in view of the great interest currently in dealing with exhaust vapors from gasoline engines. It is to be regretted that this final volume could not have presented a more complete discussion of the implications of modern solid state theory for catalysis.

Professor Emmett and the cooperating authors are to be thanked for the contribution which they have made to the field of heterogeneous catalysis in summarizing, clarifying and interpreting past work, and in stimulating further research.

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The Alkaloids. Chemistry and Physiology. Volume VII. Supplement to Volumes II, III, IV, and V. Edited by R. H. F. MANSKE, Dominion Rubber Research Laboratory, Guelph, Ontario. Academic Press Inc., 111 Fifth Avenue, New York 3, N.Y. 1960. xiii + 559 pp. 16 X 23.5 cm. Price, \$17.00.

Volume VII of "The Alkaloids" attempts to bring up to date the chemistry of the alkaloids covered in volumes III, IV, V and part of II, and is really a continuation of volume VI since the prefaces are the same. The topics covered are the Indole, Erythrina, Quinoline (except Cinchona), Quinazoline, Lupin, Steroid, Ipecac, Isoquinoline, Phthalideisoquinoline, Bisbenzylisoquinoline, Aconite, Delphinium, Garrya, Lycopodium, unclassified and minor unknown alkaloids. Except for a few addenda (compliments to those authors) the chapters summarize progress to the end of 1957, the preface was written June, 1959, but the book did not appear until the middle of 1960. Thus the reader is left unaware of the substantial advances made in the last two years within the Indole, Steroid and Lycopodium groups. In fact the fast growing subject matter of the former group would have benefited considerably from a complete rewrite rather than the preparation of a supplement.

In order to read this volume properly, the reader must have before him the previous volumes in the series, since the numbering of the references and formulas are often continuous with the corresponding chapter in the earlier work. It is free of major errors and the formulas are well set out, but there are occasional irritations and omissions. Where a full paper can be cited, this is surely better than a thesis reference, for example p. 520, ref. 18, Thesis, 1956, covers work in the *J. Chem. Soc.*, 1044 (1955). In the chapter on Aconite and Delphinium Alkaloids no reference is made to the authoritative review by Wiesner and Valenta, "Progress in the Chemistry of Organic Natural Products," Vol. 16, 1958; also line 14, p. 73, in the Indole chapter is incorrect. Finally the reviewer has always felt that the subtitle of this work has been misleading since, with the exception of some specialized chapters in Volume V, the pharmacological aspects have not been adequately treated. Despite this last comment and the delays in publication, Manske is to be congratulated for bringing out these supplemental volumes, which along with the

previous five and Henry's book are a must for the library of the chemist interested in natural products.

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