

## BOOK REVIEWS

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JEAN MATHIEU and ANDRÉ ALLAIS: *Cahiers de Synthèse Organique. Methodes et Tableaux d'Application*. Vols. 1, 2 & 3, Edited by LÉON VELLUZ. Masson et Cie, Paris, 1957. 232 pp., 322 pp. & 266 pp. respectively.

THESE books are the first of a series of ten to twelve volumes, the object of which is to describe all types of reactions in the field of synthetic organic chemistry. The subject matter is well selected and arranged in a novel and systematic manner. In each volume, each part is preceded by a tabulated synopsis including the code number of the type of reaction involved and the page number, and followed by an elaborate table listing alphabetically numerous examples of each type described. These tables mention the starting materials, the product obtained, the catalyst, yield, reference and code number. Each book also contains an alphabetical index of the chemical functions dealt with. This index is cumulative and includes the material covered in the previous volumes.

At the beginning of each chapter little space only is devoted to the mechanism of the reactions described, but reference is made to a separate volume by the same authors entitled *Principes de synthèse organique* (printed by the same publishers) which deals with the modern theories of organic chemistry. It has thus been possible for the authors to keep the *Cahiers* within reasonable size while at the same time making them easy to consult. The literature coverage is very wide and is complete to 1954-1955.

The title suggests a similarity with *Organic Syntheses*. The object of the work, however, is quite different from that sought by the Editors of *Organic Syntheses*. The *Cahiers* do not describe specific experimental procedures but are more general in nature and classify synthetic organic chemistry according to the reactions involved. They thus possess a pedagogical value to which *Organic Syntheses* cannot pretend, but they cannot quite be considered as a laboratory manual.

In that sense, the title may be slightly misleading. If taken together with the preliminary theoretical volume, the *Cahiers* could be more aptly described as a text of advanced synthetic organic chemistry arranged according to a novel and very rational system.

The volumes are well presented, well printed, easy to read and to consult and should provide a valuable addition to the libraries of all institutions where research in organic chemistry is pursued.

LÉO MARION

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**Unit Processes in Organic Synthesis (5th Ed.).** Editor-in-Chief P. H. GROGGINS. McGraw-Hill, London, New York, 1958. x + 1070 pp. £6. 15s. 6d.

LOOKING it up in GROGGINS has become almost instinctive with students and chemical engineers when faced with a problem in organic synthesis, so the appearance of this new edition is most welcome. The development of the new techniques in this field and the appearance of new organic compounds of industrial importance have both been so rapid in recent years that the book has had to be virtually rewritten and a number of new authors have contributed articles which, taken together, represent a cross-section of present practice in the American organic chemical industry.

Its objective is to provide a wide survey of the various techniques and processes which are available to the chemical engineer in each of the main fields of organic synthesis such as nitration, halogenation, oxidation, hydrogenation, hydrocarbon synthesis, and polymerisation. In each section the methods available are illustrated by a number of examples of the unit processes involved in the production of individual compounds including short descriptions of the plant and the material problems involved in its construction but not attempting to deal with such technical details as heat transfer coefficients or plate efficiencies.

New introductory chapters have been added dealing with the thermodynamics of unit processes and process kinetics and throughout the book much emphasis is rightly placed on the thermodynamics and the kinetics of each process and their influence on the general design of plant, all of which the student will find most valuable.

The chapter devoted to the synthesis of aliphatic hydrocarbons and oxygenated compounds by the Fischer Tropsch and Oxo processes gives in addition to a study of the scientific and economic background of both an up-to-date account of modern developments including a description of the Brownsville and Sasol plants and a survey of the existing Oxo plants in the United States. In view of the rapid progress of polymer science and practice the two chapters dealing with this field of organic synthesis are of special interest and each section has been written by authors directly concerned in this development. The first contains an excellent account of polymer chemistry and of the mechanism and kinetics of the various types of polymerisation. The second deals with a number of the processes in actual operation today for making polymers of different types and with the properties of their products. It thus provides a most useful survey of the polymers that are of industrial importance.

The editor-in-chief has shown his customary skill in the selection of his collaborators and the result is a well-balanced volume covering this wide field in a most illuminating way. It is well documented with references. Its value as a reference book depends to a large extent on the completeness of the index and while in general that seems adequate, there is no reference under acetylene to its production, although this is described on p. 526.

HAROLD HARTLEY

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W. THEILHEIMER: *Synthetic Methods of Organic Chemistry*, Vol. 12. S. Karger, Basel/New York, 1958. XVI + 546 pp., SFr. 92.

THE most depressing aspect of modern science—for those who claim to be scientists—is the speed with which it expands each year. If one considers only a specialised branch of chemistry such as Organic Chemistry, it remains true that there are very few intellects capable of remembering all the pertinent papers published in any one year let alone those which appeared in preceding years. Fortunately only a relatively small proportion of the literature in Organic Chemistry represents really new and significant facts or theories so that if these can be abstracted in some way from the mass of material which, although sound and acceptable on the basis of current publication practice, does not contain any real element of novelty, then one can still hope to keep abreast of the literature. There is, therefore, a real need for review journals and books especially if these are critical in nature.

THEILHEIMER'S *Synthetic Methods of Organic Chemistry*, which has now reached the twelfth annual issue, serves a well-known and useful purpose in providing a survey of new methods of real or potential value in synthesis. The volumes also include many examples of known methods applied to new problems. The latter kind of facts are difficult to locate in American Chemical Abstracts and Theilheimer's survey would be justified for this alone. The volume under review, like its predecessors, has a good index and there are many cross-references to earlier volumes in the series. There can be no doubt that the latest volume is a valuable addition to the organic literature.

The most serious criticism that can be made of this book is the question of choice of material and in some cases the uncritical acceptance by the author of interpretations in the literature. Perhaps it would be better if reactions to be included in 'Theilheimer' are submitted by (and to) a panel of experts drawn from the whole of Organic Chemistry. This would help in ensuring that nothing lacking in originality was lost and that the trivial and obvious were more carefully excluded. It would also avoid the occasional repetition of erroneous formulae which are taken from the literature without sufficiently critical appraisal. These remarks are intended to show how 'Theilheimer' could be made even better. The latest volume, like its predecessors, still remains a most useful work of reference.

D. H. R. BARTON