Chapter 2, "The Gattermann Synthesis of Aldehydes," by William E. Truce, is limited to the hydrogen cyanide synthesis and does not include the carbon monoxide synthesis, which usually is called the Gattermann–Koch reaction; 36 pages, 100 references.

Chapter 3, "The Baeyer–Villiger Oxidation of Aldehydes and Ketones," by C. H. Hassall, summarizes results on the conversion of aldehydes to acids and of ketones to esters or lactones by means of hydrogen peroxide or peroxy acids; 34 pages, 64 references.

Chapter 4, "The Alkylation of Esters and Nitriles," by Arthur C. Cope, H. L. Holmes and Herbert O. House. The authors limit themselves to the carbon alkylation of malonic esters, cyanoacetic esters and mononitriles by all alkylating agents except amines and ammonium salts. It does not include the alkylation of β-keto esters. This chapter is an excellent example of the extent to which the aim to treat the subjects exhaustively has been fulfilled. Despite the above limitations, it covers 225 pages and lists 1080 references.

Chapter 5, "The Reaction of Halogens with Silver Salts of Carboxylic Acids," by C. V. Wilson, covers the Hunsdiecker, Simonini and Prevost reactions; 56 pages, 103 references.

Chapter 6, "The Synthesis of β-Lactams," by John C. Sheehan and Elias J. Corey, reports procedures developed since the preparation of the first β-lactam in 1907; 21 pages, 43 references.

Chapter 7, "The Pschorr Synthesis and Related Diazonium Ring Closure Reactions," by De Los F. De Tar, covers not only phenanthrene syntheses, but also the synthesis of other cyclic compounds such as derivatives of fluorene, dibenzofuran, dibenzothiophene, phenanthridone and aporphine; 54 pages, 225 references.

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Symposium on Techniques in Polymer Science. Lectures, Monographs, and Reports 1956. No. 5. Introduction by C. H. BAMFORD, M.A., Ph.D., Sc.D., A.R.I.C. The Royal Institute of Chemistry, 30 Russell Square, London, W C 1, England. 1956. 79 pp. 24 × 15.5 cm. Price, $1.15.

This book consists of eight short chapters which outline most of the principal physical techniques employed in polymer science. The chapter by P. F. Onyon on light scattering and osmometry is rather elementary but the main ideas and general references are presented. The chapter on chromatographic fractionation by S. R. Caplan includes frontal analysis, gradient elution, crystallographic chromatography and paper strip chromatography, as they apply to high polymers. These polymer fractionation methods have rarely been utilized by American chemists. The chapter on infrared techniques by A. Elliott discusses the effect of crystallinity on the spectra and the use of polarized light. The mechanical properties of polymers is outlined by R. B. Beevers in a neat fashion and dynamic methods of mechanical testing are described. The results of conventional surface film techniques as applied to hydrophilic polymers form the main portion of the chapter by P. F. Holt. Some applications of tracer techniques to polymer chemistry are presented by J. C. Bevington, but no references are given. The chapter by A. D. Jenkins on kinetic techniques describes some of the new British methods for automatically following the course of polymerization reactions especially when the degree of conversion is small.

Altogether, this is a fine collection of reviews of topics of interest to all physical chemists and high polymer specialists. The literature cited is mainly of European origin but this is advantageous for the American reader.

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Fundamentals of Chromatography. By HAROLD GOMES CASSIDY, Associate Professor in Chemistry, Yale University, New Haven, Connecticut. Technique of Organic Chemistry. Volume X. Edited by ARNOLD WEISSBERGER, Research Laboratories, Eastman Kodak Company, Rochester, New York. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1957. xvii + 447 pp. 23.5 × 16 cm. $9.75.

Fundamentals of Chromatography is the latest volume of a well known and useful series. It is an extension and expansion of that portion of Volume V which covered chromatography, although it is not to be considered a revision but rather a new book.

The first four chapters consist of a treatment of the definitions and theories involved in the various methods which are presented in the following chapters. The depth of the theoretical development varies from a simplified explanation of chemical bonds to a formal mathematical treatment of the chromatographic process.

The next seven chapters cover discussions on particular methods of chromatography. The section on gas–liquid partition chromatography is not as complete as the present state of development of the subject would seem to indicate, but this is understandable in view of the considerable amount of work which has appeared in recent publications. The chapters on paper partition chromatography and adsorption chromatography are the most extensive ones, especially in their presentation of some practical information that a newcomer to the field would be interested in. The last four chapters are concerned with the qualitative and quantitative evaluation of zones, the relationship between distribution and molecular structure, and with simple rules and examples on how to select the proper chromatographic system in order to solve the various problems which may be encountered.

There are over one thousand literature references cited by the author including some forty-five papers originating from 1955 or 1956.

The book is a helpful review of the various chromatographic methods now available. It should be useful to anyone who wishes to attain a certain proficiency in the field before undertaking an extensive search of the original literature.

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