

journals has increased and the job cannot be delegated or replaced by reliance on abstracts. Chemists should have this book in order to become thoroughly acquainted with sources of information and methods of searching.

THE CHEMICAL LIBRARY
THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

F. LOWELL TAYLOR

Isomerismo E Isomerizacion de los Compuestos Organicos.

By ERNST D. BERGMANN, Director del Instituto de Ciencias Weizmann. **Transposiciones Moleculares Y Combinaciones Organicas Con Isotopos.** By ANIBAL R. MARQUEZ, Profesor titular de Química Orgánica, Universidad Nacional de la Plata—Universidad Tecnológica Nacional Facultad Regional de Buenos Aires, Colegio Militar de la Nación, Director de Indoquímica S.A., ex-Director de Galeno Química, Ind. Quím. Arg. Yatay, Fea. Nacional de Productos Químicos de la Nación, etc. Librería Hachette, Buenos Aires, Argentina, South America. 1956. xiii + 288 pp. 16 × 23.5 cm. Price in \$n. arg. 110.—.

This book is a translation and enlarged edition of the original work "Isomerism and Isomerization of Organic Compounds" (Interscience Pub. Inc., New York, N. Y., 1948) and the reviewer may thus consider the contributions made first by Dr. E. D. Bergmann and then by Dr. A. R. Marquez.

The original work of Bergmann consists of six chapters in which the following topics are discussed: the phenomenon of resonance in organic molecules; *cis-trans* isomerism and *cis-trans* isomerization; isomerization of olefinic structures; mechanism of substitution reactions, racemization and Walden inversion; isomerization of paraffins and related phenomena; mechanisms of intramolecular rearrangements. The discussion of the above-mentioned topics is stimulating because it is based on numerous personal observations, and it includes many literature references and suggestions for future investigations. The chapter on resonance does not pretend to be a profound physico-chemical treatment but rather is descriptive in nature. It is unfortunate that the author retains several structural formulas with pentavalent nitrogen atoms on pp. 27-29, 47, 49 and 147. In the second chapter the discussions of allenic systems and of thermochromism are noteworthy. The heading of the third chapter is somewhat misleading since here the author cites a series of reactions of olefinic substances in the course of which the initial, classical double bonds become dislocated. Aside from 1,4-addition reactions to dienes and the Diels-Alder reaction, the author employs a number of examples which are seldom encountered in other texts. The chapter dealing with the mechanism of substitution reactions, racemization and Walden inversion is not as stimulating as the preceding chapters. This is probably so because it deals descriptively with a subject which has received so much emphasis in most of the modern textbooks of organic theory. Also, the arguments cited on p. 94 to explain the two different dehydration products of diphenic acid are not convincing. The fifth chapter deals mainly with reactions of alkanes and alkenes studied by Ipatieff and his successors, although a few reactions involving free radicals also are mentioned. The last chapter reviews a number of intramolecular rearrangements some of which, such as the Claisen rearrangement of allyl aryl ethers, the pinacol-pinacolone rearrangement, and the rearrangement of 1,2-aminoalcohols in the presence of nitrous acid, have been subject to careful studies since the publication of the original text.

Dr. Marquez has supplemented the descriptive text of Dr. Bergmann with lengthy footnotes in which he presents the physical aspects of atomic and molecular structure as well as summaries of more recent studies. Noteworthy among the latter are the comments concerning the chemistry of cyclooctatetraene, ferrocene, triphenylmethyl radicals, the activation energies of *trans-cis* isomerizations, the reaction of osmic acid with aromatic hydrocarbons, the reactions of peroxides, as well as the little known studies of Marquez and students concerned with the reactions of organic halides with sodium arsenite. Dr. Marquez also contributes to the original bibliography by citing numerous recent literature references. Finally, Dr. Marquez has added an ample, 100 pages long "Appendix" which consists of two chapters. In the first of these he discusses molecular rearrangements

some of which are already dealt with by Dr. Bergmann in his last chapter. In the reviewer's opinion the unity and compactness of the book would have been improved if the first chapter of the "Appendix" were integrated with the last chapter of Bergmann in the same manner in which Marquez amplified the first five chapters of the original work. The second chapter of the "Appendix" is entitled "Isotopes in Organic Reactions" and is an extremely useful and up to date review of the uses of isotopes in the study of organic compounds. Included in this review are numerous isotope effects studied in recent years, nuclear transformations caused by irradiation of organic compounds, and the use of isotopes in the elucidation of the mechanisms of organic reactions. This last chapter is without doubt the most significant contribution which Dr. Marquez makes to the book under discussion.

The book is well presented except for the unfortunate use of poor printing ink which causes several pages to be blurred.

The scarcity of modern chemistry texts in the Spanish language makes the appearance of this book especially noteworthy. It will have a stimulating effect on the much needed development of modern organic chemistry in Latin America. Also, it may help many American chemists to learn chemical Spanish, a language of increasing importance in view of the growing investments of U. S. chemical industry below the Rio Grande.

UNIVERSIDAD DE ORIENTE
SANTIAGO DE CUBA, CUBA

H. HARRY SZMANT

The Defect Solid State. By T. J. GRAY, D. P. DETWILER, D. E. RASE, W. G. LAWRENCE, R. R. WEST and T. J. JENNINGS, State University of New York, College of Ceramics at Alfred University. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1957. vii + 511 pp. 16.5 × 23.5 cm. Price, \$11.00.

This work attempts to explain phenomena associated with reactions in the solid state such as sintering, catalyses and corrosion processes in terms of the defect nature of solids. The presentation of the material associated with these topics is detailed enough to make the book worthwhile for those interested in this specialized field. The book cannot be read, however, as a general exposition on the defect nature of solids. The chapters on the general properties of solids, such as semi-conductivity, ionic conductivity and magnetic properties are too brief and the material in them has been presented in a more satisfactory manner elsewhere.

INSTITUTE OF OPTICS
UNIVERSITY OF ROCHESTER
ROCHESTER, NEW YORK

K. TEEGARDEN

Vapour Phase Chromatography. Proceedings of the Symposium Sponsored by the Hydrocarbon Research Group of the Institute of Petroleum held at the Institution of Electrical Engineers, London, on 30th May-1st June, 1956. Edited by D. H. DESTY. Assisted by C. L. A. Harbourn. Academic Press, Inc., 111 Fifth Avenue, New York 3, N. Y. 1957. xv + 436 pp. 16 × 25.5 cm. Price, \$12.00.

This volume is a collection of the 36 papers presented at the Symposium on Gas Chromatography held in London on May 30th and June 1st, 1956, together with the discussion by the participants at the symposium, and the recommendations on nomenclature proposed by a committee of scientists prominent in this field. More than half of the papers are from England, but contributions from workers of seven other nations testify to the universal and growing interest in gas chromatography.

A wide range of subjects is covered by the articles presented. Dr. Martin's introductory paper outlines the directions for future developments of the field. The succeeding four papers deal with the factors determining the separation of materials by gas chromatography. Eight papers are concerned primarily with the properties of various types of detectors, including Scott's flame detector, the Martin gas density balance, and the beta ray detector. Other topics considered in various contributions are apparatus for high temperature chromatography, large scale and continuous operation, and for the use of programmed column heating. The analysis of specific mixtures, descriptions of new column