

tein. (2) It was converted to an L-valine precursor, α,β -dihydroxyisovaleric acid, by an appropriately blocked mutant^b in the presence of L-valine (which blocks the accumulation of this precursor if glucose or pyruvate only are supplied). (3) Like other 5-carbon precursors of L-valine, it inhibited the growth of *E. coli* strain K-12 but not of valine-resistant mutants and (4) the inhibition

was non-competitively reversed by L-isoleucine. Further studies on the importance of this enzyme system in biosynthesis are in progress.

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RECEIVED APRIL 24, 1957

BOOK REVIEWS

Chemistry of Carbon Compounds. Volume III, Part B. Aromatic Compounds. Edited by E. H. Rodd, D.Sc., F.C.G.I., F.R.I.C., D. Van Nostrand Company, Inc., 126 Alexander Street, Princeton, New Jersey. 1956. xx + pp. 687-1670. 16.5 × 23 cm. Price, \$25.00.

This volume continues the excellent treatise on organic chemistry which began appearing in 1951, and which seems destined to be the standard reference on the subject for the next decade or two.

It completes the treatment of aromatic compounds begun in Volume IIIA and is largely devoted to polyfunctional benzene derivatives (some of which were treated in Volume IIIA) and polycyclic aromatic substances. A major share of the preparation of this volume has fallen to W. J. Hickinbottom who has prepared six of the twelve chapters. Other contributors are Z. E. Jolles, R. F. Garwood, M. F. Ansell, S. H. Harper, G. L. Buchanan, R. A. Raphael, E. H. Rodd, J. van Alphen, S. Coffey, G. M. Badger and J. W. Cook. It is highly recommended.

DEPARTMENT OF CHEMISTRY
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MARSHALL GATES

Perspectives in Organic Chemistry. A volume dedicated to Sir Robert Robinson, prepared by friends, colleagues and former pupils under the editorship of SIR ALEXANDER TODD. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1956. x + 527 pp. 16 x 23.5 cm. Price, \$7.50.

Sir Robert Robinson has been one of the giants of the art and science of organic chemistry, and it is altogether fitting that a distinguished group of leaders in the practice of this art and science have been banded together under the leadership of Sir Alexander Todd to honor Sir Robert on his 70th birthday by the publication of this series of essays.

One of the most pleasant characteristics of the book is the frankly speculative nature of some of the chapters. Others are masterful syntheses of the state of knowledge in particular fields. These characteristics seem peculiarly appropriate in a book dedicated to Robinson, who has always been at his best and most forceful when advancing inspired speculation and when assembling and interpreting the widely divergent and often conflicting evidence applicable to problems falling within his interest. Likewise, the very breadth of the fields covered reflect Robinson's own catholic tastes.

Chapters have been contributed by Linus Pauling, Paul D. Bartlett, Wilson Baker, D. H. R. Barton, V. Prelog, A. J. Birch, R. B. Woodward, Karl Ziegler, E. L. Hirst, Sir Alexander Todd, L. Ruzicka, C. W. Shoppee, E. Schlittler, J. W. Cornforth, Karl Folkers, James Walker, Holger Erdtman and A. Butenandt.

The book is stimulating and entertaining.

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MARSHALL GATES

Photoconductivity Conference. Held at Atlantic City November 4-6, 1954. Editorial Committee: R. G. BRECKENRIDGE, Chairman, B. R. RUSSELL and the late E. E. HAHN. Sponsored by University of Pennsylvania, Radio Corporation of America, Office of Naval Research. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1956. xiii + 653 pp. 16 × 23 cm. Price, \$13.50.

This large volume is a compilation of thirty papers which were presented at a conference in Atlantic City a little more than two years ago. As stated in the forward, "The purpose of this conference was to advance the science of photoconductivity through plenary discussion among the leading workers in the field. . . . Sensing keenly a gap in the literature, the sponsors considered it particularly desirable to publish the papers presented, together with pertinent discussions, as a comprehensive treatise on photoconductivity." There can be little doubt that the papers in this book span the science of photoconductivity no matter what definition of this field one chooses to use, and that there is at present no other source which can give one such a complete view of all of the avenues of research leading to an understanding of this complex phenomenon. However, it would be nearly miraculous if any collection of separately conceived papers in a new and controversial field could be arranged in such a manner as to give the reader a systematic exposition of all of the facts and principles involved, *i.e.*, a treatise. This is not the sort of book one starts at the front cover and finishes at the back cover. Any worker in this field will find some papers of immediate interest, other papers useful in gaining perspective for his own field, and still others of rather negligible interest. In many cases, the table of contents is not a sufficiently reliable guide to the selection of those papers in which one is most interested. Fortunately, almost all of the papers are concluded with brief summary paragraphs, and many of them have introductory paragraphs which are nearly abstracts.

The book has been divided into five sections: I. Phenomenological Theory of Photoconductivity (2 papers); II. Photon Absorption Process (6 papers); III. Electron Processes (6 papers); IV. Photoconducting Materials (7 papers); and V. Current Topics (9 papers). The first paper in Section I, by Rose, comes about as close as anything in the book to being a general introduction to photoconductive phenomena, and also gives sufficient warning that the subject is one of great complexity. The second paper in this section, by Petritz, is considerably more specialized, treating signal-to-noise problems in the use of photoconductors as signal detectors. The second section is the domain of the solid-state theoretical physicist, being an account of the quantum-mechanics of the interaction of photons with semiconductors and insulators and their imperfections (including phonons). The first article, by Herring, is fairly readable for the non-theoretician and gives one at least a feeling for theories of centers. Section III is largely concerned with the application of transistor physics to photoconduction and is of primary interest to the experimentalist. There does not appear to be much of a division between the subject matters of the last two sections,

as both sections deal with the properties of particular photoconductive materials. Here one can perhaps better distinguish between groups of materials: the elemental semiconductors, germanium and silicon; the III-V compounds; lead sulfide, selenide and telluride; and ionic compounds such as zinc oxide. The degree to which the photoconductive phenomena can be discussed in terms of a detailed physical model is, not surprisingly, in direct proportion to the state of advancement of semiconductor technology for the material under discussion. At one end of the scale one finds the finely detailed study of minority carrier trapping in silicon by Haynes and Hornbeck and at the other the necessarily more speculative interpretation of experiments on zinc oxide by Mollwo and by Miller. In most of the papers, photoconductivity is treated as a bulk process, however for thin-film detectors of the lead sulfide group, and for sintered powders of zinc oxide it is pointed out that the important processes are localized at the inter-crystallite surfaces.

The art of actually making a useful photoconductor for a particular purpose is really never explicitly discussed, but this is probably a subject for another book.

BELL TELEPHONE LABORATORIES
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A. R. HUTSON

Technique of Organic Chemistry. Volume III. Second Completely Revised and Augmented Edition. Part I. Separation and Purification. Editor, ARNOLD WEISSBERGER, Research Laboratories, Eastman Kodak Co., Rochester, New York. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1956. ix + 873 pp. 16.5 x 23.5 cm. Price, \$17.50.

The former Volume III of this series has been divided into two parts in order to permit addition of new chapters and more intensive treatment. Part I concerns Separation and Purification Methods, and Part II, which will appear later, deals with Laboratory Engineering techniques. Chapter I of the present book concerns Diffusion Methods. Four topics are included, three of them new. A. Letcher Jones describes the techniques of Thermal Diffusion of Organic Liquids; Karl Kammermeyer, Barrier Separations; R. Eliot Stauffer, Dialysis and Electrodialysis; and E. MacWilliam, Zone Electrophoresis. Chapter II is an expanded treatment of Laboratory Extraction and Countercurrent Distribution by Lyman C. Craig and David Craig. A new part (61 pp.) has been added to this topic by Edward G. Scheibel who discusses Liquid-Liquid Extraction for Increased Quantities. Chapter III, Crystallization and Recrystallization by R. Stuart Tipson has been expanded from 122 to 167 pp. Two new authors, C. M. Ambler and F. W. Keith, Jr., have revised and expanded Chapter IV on Centrifuging. The treatment of Filtration (Chapter V) also has been expanded by A. B. Cummins and F. B. Hutto, Jr. The last chapter (VI) concerning Solvent Removal, Evaporation and Drying by G. Broughton has been revised and increased from 30 pp. to 52 pp.

This second edition brings up-to-date the information, data and references on these useful techniques. The book is especially valuable for the excellent coverage of the literature by each of the authors. The revision has been well done and well edited. The discussions are good and

the diagrams and illustrations are excellent. A good index to this volume is provided followed by Cumulative indices to Volumes I through IX, both Author and Subject. Although the material is primarily slanted to Organic Chemistry, the techniques of Separation and Purification and the discussions will be useful to inorganic and physical chemists also. This is a valuable reference volume for all research chemists.

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RALPH L. SHRINER

BOOKS RECEIVED

April 10, 1957-May 10, 1957

C. J. GORTER, edited by. "Progress in Low Temperature Physics." Volume II. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1957. 480 pp. \$10.75.

E. A. GUGGENHEIM. "Thermodynamics. An Advanced Treatment for Chemists and Physicists." Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1957. 476 pp. \$9.75.

H. P. KAUFMANN. "Medicaments de Synthèse." Masson et Cie, Editeurs, 120, Boulevard Saint-Germain, Paris VI^e, France. 1957. 853 pp. 11.500 Fr.

A. I. M. KEULEMANS. "Gas Chromatography." Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y. 1957. 217 pp. \$7.50.

EDGAR LEDERER AND MICHAEL LEDERER. "Chromatography. A Review of Principles and Applications." Second, Completely Revised and Enlarged Edition. D. Van Nostrand Company, Inc., 120 Alexander Street, Princeton, New Jersey. 1957. 711 pp. \$12.75.

E. H. ERICH PIETSCH (Editor). "Gmelins Handbuch der Anorganischen Chemie. Calcium. Teil A. Geschichtliches, Vorkommen, Element, Legierungen. System-Nummer 28." Verlag Chemie, GmbH, Weinheim/Bergstr., Germany. 1957. pp. 69-488. \$55.68.

E. H. ERICH PIETSCH (Editor). "Gmelins Handbuch der Anorganischen Chemie. Platin. Teil D. Komplexbindingen mit Neutralen Liganden. System-Nummer 68." Verlag Chemie, GmbH, Weinheim/Bergstr., Germany. 1957. 638 pp. \$90.00.

E. H. ERICH PIETSCH (Editor). "Gmelins Handbuch der Anorganischen Chemie. Zink. Supplement Volume. System-Nummer 32." Verlag Chemie, GmbH, Weinheim/Bergstr., Germany. 1956. 1025 pp. \$138.00.

RALPH W. G. WYCKOFF. "Crystal Structures." Volume II. Chapter XI. "Miscellaneous Inorganic Compounds." Chapter XII. "Structure of the Silicates." Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1957. 261 pp. \$7.00.