# NEW BOOKS

GAS CHROMATOGRAPHY, 1962, M. Van Swaay, ed., (Butterworths, 411 pp., 1963, $19.95). This book contains the proceedings of the 4th symposium organized by the Fachgruppe Analytische Chemie of the Gesellschaft Deutscher Chemiker and the Gas Chromatography Discussion Group of the Hydrocarbon Research Group of the Institute of Petroleum, held at Hamburg, Germany, June, 1962. In addition to the three provocative opening lectures by R. Kuhn, A. J. P. Martin and A. V. Kiselev, a total of 27 individual papers are included under the headings of theory, apparatus and technique, and applications. Almost all of the volume is in English.

Of particular interest is the emphasis given to gas-solid chromatography, including a number of studies on adsorption characteristics on solid support. Practical methods are presented for flavor volatiles, boron alkyls and hydrides, phenolic mixtures, milli-micro liter analysis of permanent gas mixtures, and for analysis of hydrocarbons by thermal cracking.

This book will be of interest primarily to scientists interested in advances in gas chromatography.

All analytical chemists, however, will be intrigued by the speculative remarks of Nobel Laureate A. J. P. Martin in his address on microscale operations.

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UNDERGROUND PROCESSING OF FUELS, translated from Russian and edited by the Staff of Israel Program for Scientific Translations, Ltd. (Program for Scientific Translations, 14 Shammar Street, Jerusalem, Israel, 162 pp., 1963, $5). This book consists essentially of 23 papers which appeared in Proceedings of the Institute of Fossil Fuels by researchers of the Academy of Sciences. It gives a rather detailed and critical treatment to the restricted field of pyrogenic decomposition and underground gasification of lignite and coal primarily from the viewpoint of laboratory and pilot plant studies that involved radioactive isotopes in the study of reactions between air, water, carbon monoxide and carbon dioxide and carbon, as well as studies related to thermal conductivity of solid fuels, electroosmosis, gaseous losses underground, and different well arrangements. A brief but interesting paper or chapter deals with the production of germanium from coal.

The book is written on good quality, semi-gloss paper with cloth binding. Since the book consists essentially of an assemblage of technical papers of a research character, the style of writing is strictly scientific with data illustrated by numerous tables and graphs. This book deserves a place in libraries concerned with utilization of lignite, coal and petroleum hydrocarbons, but it would have only a limited use for those working in the fields of animal and vegetable fats and oils.

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EMULSIONS AND WATER SOLUBLE PAINTS AND COATINGS Charles R. Martens (Reinhold Publishing Company, 160 pages, 1964, $10.50). This book contains seventeen chapters, numerous tables of data, graphs and photographs, a glossary of terms, an Index, and a bibliography at the end of each chapter.

The chapter titles include Types of Aqueous Coatings, General Properties, Organic Binders, Surfactants, Protective Colloids and Thickeners, Pigments, Emulsion Formation, and five chapters on applications of Aqueous Coatings.

Since this book attempts to cover a very broad and highly technical field, it is obvious that the author cannot give each individual subject any treatment in depth. However, he gives many general principles, coupled with specific examples and numerous references. This allows the technical research scientist a starting point for further literature searches while permitting the non-technical man or executive to grasp enough of the subject matter so they are familiar with the technical language and methods used in aqueous coatings. The author devotes most of the book to descriptions of various matters relating to aqueous coatings. Very little space is devoted to formulating techniques, trouble shooting or production problems.

This book will be of value to 1) students who want to get a brief picture of the coatings industry, 2) sales trainees and salesmen who will be or are selling paints, additives, polymers, pigments etc. to the paint industries, 3) beginning research people who can use the book as a supplement to training manuals, 4) management people who want to keep abreast of the overall water thinned paint field, 5) purchasing agents who want to become more familiar with water thinned paints.

Most technical people involved with the coatings industry will want to have a copy of this book readily available simply because it is a ready source of reference for a brief, easily understood description of Emulsions and Water-soluble Paints including a short history, a description of most of the ingredients and a description of common applications plus a glossary of terms used.

The major criticism of the book is its relatively high cost—$10.50 for only 160 pages.

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FATTY ACID METABOLISM IN MICROORGANISMS by Dr. Hofmann (John Wiley and Sons, Inc., New York, 71 pp., 1964, $3.25). This book is a collection of lectures presented by Dr. Hofmann at the Institute of Microbiology, Rutgers University. The lectures are part of the E. R. Squibb lectures on the Chemistry of Microbial Products which were established in 1955 with the support of The Squibb Institute for Medical Research.

(Continued on page 14A)

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## *New Books . . .*

(Continued from page 10A)

This book is a summary of the author's experiences on the rapidly-expanding knowledge of the metabolism of cyclopropane fatty acids in microorganisms. The first chapter should be of interest to the organic and lipid chemists. The author presents his investigations which led to the discovery of lactobacillic acid and establishment of its structure. One would have to admire the author's step-wise logic approach in his experiments to establish the structure of lactobacillic acid. The presence of cyclopropane ring was first shown. Comparison of infrared absorption maxima of lactobacillic acid and laboratory-synthesized fatty acids containing the cyclopropane ring followed by x-ray chrystallographic studies showed beyond doubt that D- or L-*cis*-11,12-methyleneoctadecanoic acid was identical to lactobacillic acid. The first chapter also contains a brief mention of the occurrence of lactobacillic acid and its homologues in bacteria and the microbiological activity of cyclopropane fatty acids. This portion should be of interest to microbiologists.

The second chapter deals with biosynthesis of cyclopropane fatty acids. Biochemists and microbiologists alike who are investigating fatty acids metabolism in microorganisms will find this chapter of great value. The author's presentation of his investigations on fatty acid interconversion in lactobacilli and establishment of the position of the cyclopropane ring is excellent. Of particular importance in this chapter is a brief, but stimulating discussion on the rather novel biosynthesis of lactobacillic acid from *cis*-vaccenic acid. In the reviewer's opinion this discussion should encourage much-needed research in this area.

The third chapter deals in general with biosynthesis of fatty acids by microorganisms. It is divided into three parts. In the first part, the biosynthesis of unsaturated fatty acids by lactobacilli is investigated. The author advances a hypothesis for this synthesis which he proves to be correct in the second part by radioisotope experiments. In the third part, the major metabolic role of monounsaturated fatty acids in bacteria as precursor for biosynthesis of cyclopropane fatty acids is illustrated.

Although the book does not provide comprehensive summary of the literature, a list of pertinent references is conveniently located at the end of each chapter.

All in all, the book should be a valuable addition to the library of any biochemist, lipid-chemist or microbiologist.

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