BOOK REVIEWS

Annual Review of Biochemistry. Volume XXI. By J. MURRAY LUCK, Editor, Stanford University, HUBERT S. LORING, Associate Editor, Stanford University, and GORDON MACKINNEY, Associate Editor, University of California. Annual Reviews, Inc., Stanford, California. 1952. ix + 781 pp. 16.5 × 23 cm. Price, $6.00.

This useful series of annual reviews of the rapidly developing and ever widening fields of biochemical research has, with this twenty-first volume, now attained its majority. Dr. J. Murray Luck, the founder and editor-in-chief of the periodical since its inception, is to be felicitated not only on the coming of age of his creation but on the valuable contribution it has made to the progress of biochemical science.

In this number the international character is maintained by the inclusion of six chapters by European authors, three from Belgium and three from Britain.

Volume 21 contains twenty-three chapters, or two more than the preceding issue, in a commensurately greater number of pages of unchanged size and style. The price, however, is unaltered. On the other hand, the scope of the subject matter reviewed is gradually becoming more restricted as a result of relief in cognate fields afforded by newly organized Reviews such as those devoted to Microbiology and Plant Physiology. The titles of six of the chapters are apparently perennial: biochemistry of neoplastic tissues; biological oxidations; carbohydrate chemistry; carbohydrate metabolism; chemistry of amino acids and proteins; chemistry of lipids. Others have appeared at least twice during the past four years: antibiotics; chromatography; fat metabolism; hormones; nucleic acids, purines and pyrimidines; nutrition; protein metabolism; proteolytic enzymes; other non-oxidative enzymes; steroids; water-soluble vitamins. Topics newly introduced, or not recently covered, are: alkaloids; carotenoids; chemistry of muscle; comparative biochemistry; fat-soluble vitamins; interrelationships of lipid and carbohydrate metabolism.

Much latitude has been given to the authors with respect to the character of their presentations. Gratifyingly few have limited themselves to the preparation of mere uncritical summaries; the majority, being recognized authorities in their respective fields, have not hesitated, especially in the chapters on antibiotics and neoplastic tissues, to evaluate trends and even criticize specific interpretations. The "Annual Review of Biochemistry," therefore, serves specialists not only as a guide to the literature, but as a synthesis of current thinking, in fields other than their own.

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Methodes et Reactions de L'Analyse Organique. Volume II. Méthodes de Caractérisation. By MAURICE PESEZ, Chef du Département analytique aux Usines chimiques des Laboratories français, and PIERRE POIRIER, Chef du Service analytique aux Laboratories français de Chimiothérapie. Masson et Cie, Editeurs, 120 boulevard Saint-Germain, Paris-6e, France, 1953. 278 pp. 17 × 25.5 cm. Price, 2590 frs.

This is the second volume of a projected three-volume treatise on the analysis of organic compounds published under the editorship of Leon Velluz. Volume I described the general procedures, qualitative and quantitative for analysis of carbon compounds. The present volume (II) is devoted exclusively to the preparation of derivatives of various classes of compounds.

The material is organized into seven sections according to the type of reaction used or final product obtained as the derivative. Each section contains a discussion of the reactions, a section on preparation of the reagents, typical procedures for making the derivatives and tables giving melting points of the derivatives. The tables are quite extensive (about one-half of the book) and are of value for quick reference.

The literature coverage up to 1951 is quite good; references are given in all sections, including the tables. To assist users, the authors have provided a good composite index showing by means of different styles of type, the pagination to reactions, procedures and tables of melting points. A separate index to the preparation of the reagents is given. A table of contents appears at the end.

This volume is a useful reference work since it has collected in one place most of the information on derivatives. The writing is clear and very concise. It is useful as a reference book to research chemists and for students taking courses in the identification of organic compounds.

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Advances in Cancer Research. Volume I. By JESSE P. GREENSTEIN, National Cancer Institute, U. S. Public Health Service, Bethesda, Maryland, and ALEXANDER HADDOW, Chester Beatty Research Institute, Royal Cancer Hospital, London, England (Editors). Academic Press, Inc., Publishers, 125 East 23rd Street, New York 10, N. Y. 1953. xi + 590 pp. 16.5 × 23.5 cm. Price, $12.00.

Cancer as a disease was known by the ancients and has been investigated continuously through the ages. During the past few decades, there has been an increased effort to bring various scientific specialities into the fight against cancer. Then, as the editors of this first volume of "Advances in Cancer Research" state in their preface "it is the hope that rational men, confident in the scientific method, that if only a phenomenon (cancer) were understood, it could be controlled. Few more notable expressions of this faith in our time are evident than in the public and private support granted in many lands to the subject and field of cancer research." Since this effort was a conscientious one with faith placed in basic research, many specialists in diverse basic scientific fields have been stimulated to apply their disciplines to the study of cancer.

Each specialist must of necessity remain an expert in his own field and, at the same time, must broaden his horizon to take into account the activities of his comrades in other disciplines who are simultaneously tackling the problem of cancer. This volume serves admirably in the latter aspect since the plan of the editors is to rely on "distinguished authorities in various branches of cancer research to review, synthesize and interpret the advances in their individual areas of investigation." Thus, each of the reviews serves as excellent background material for those actively engaged in cancer research. However, several of the reviews are of particular interest to the chemist or biochemist and these chapters are worthwhile even for those not immediately concerned with the cancer problem. For example, the review of "Electronic Configuration and Carcinogenesis" by C. A. Coulson of the Wheatstone Physics Department, Kings College, London, is an excellent dissertation on this subject because it discusses rather fully the inadequacies of the theory as well as the correlations that are obtained by considerations of an active K region in carcinogenesis. The chapter on "The Chemistry of Cytotoxic Alkylating Agents" by W. C. J. Ross of the Chester Beatty Research Institute, Royal Cancer Hospital, London, contains much information concerning the mechanisms, products and kinetics of the reactions of the 2-chloroethyl sulfides (sulfur mustards), the 2-chloroethylamines (nitrogen mustards), and the 1,2-epoxides. A few other alkylating agents are mentioned also in passing.

Several reviews are of more biochemical interest. The "Applications of Radioisotopes to Studies of Carcinogenesis and Tumor Metabolism" by Charles Heidelberger of the McArdle Memorial Laboratory for Cancer Research, University of Wisconsin, is concerned with the metabolic pathways of the biologically important substances, as they have been shown by the use of radioactive tracers. The review

of the "Carcinogenic Aminoazo Dyes" by James A. Miller and Elizabeth C. Miller, of the McArdle Memorial Laboratory for Cancer Research, University of Wisconsin, is a complete review of the subject. It contains a section on the effect of structure on the carcinogenicity of these substances which is of interest to the chemist concerned with the structural relationships of physiologically active substances. A large number of variations in the basic structure of the aminoazo dyes has been studied and the information is summarized here. The metabolism of the dyes, including the problem of chemical binding of the dye to proteins, is also discussed; the "Plasma Proteins in Cancer" by Richard J. Winzler of the University of Illinois College of Medicine, Chicago, is a very well organized summary of what has been found concerning the differences in the plasma proteins in cancerous and normal humans.

Other reviews of more biological nature are the following: "Epidermal Carcinogenesis" by E. V. Cowdry, of the Wernse Cancer Research Laboratory of Washington University, St. Louis, "The Milk Agent in the Origin of Mammary Tumors of Mice" by L. Dmochowski of the University of Leeds, England, "Hormonal Aspects of Experimental Tumorigenesis" by W. U. Gardner of the Yale University School of Medicine, New Haven, "Properties of the Agent of Rous No. 1 Sarcoma" by R. J. C. Harris of the Chester Beatty Research Institute, Royal Cancer Hospital, London, and "Nutrition in Relation to Cancer" by Albert Tannenbaum and Herbert Silverstone of the Medical Research Institute, Michael Reese Hospital, Chicago.

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Progrès Récents de la Chromatographie. Deuxième Partie —Chimie Minerale. By MICHAEL LEDERER, Institut du Radium, Paris. Hermann and Cie, 6 Rue de la Sorbonne, Paris, France, 1952. 131 pp. 16.5 × 25.5 cm. Price 1,200 fr.

In this second part of a work dealing with the recent progress of chromatography the attention is wholly devoted to chromatographic separation of inorganic anions and cations. The first part, published in 1949 and already translated into Spanish, dealt with the application of chromatography in organic and biological chemistry.

The work is organized in 3 parts dealing with (1) adsorption chromatography, principally on alumina; (2) partition chromatography, principally on paper, and (3) chromatography on resins. Under each of these divisions the book gives a straightforward account of the now surprisingly wide applications of chromatography in the field of inorganic separations. There is a bibliography of 361 references (said to be complete to 1951) and in each area treated, some attention is devoted to descriptions of technique. This is particularly true of the sections devoted to chromatography on paper for which various familiar devices are described and such supplementary techniques as electrophoresis on paper are outlined.

The book contains much detailed information, *e.g.*, data of movement of specific ions in different solvents (*i.e.*, R_f values) and details of the spot tests and reagents used to detect them. Comparative data are given showing the behavior of different resins and eluants. Thus the book will enable those about to enter this field to gain ready access to much of the information that they may require. While the book is not devoid of theory it will be these practical details that the reader will probably find most useful.

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Encyclopedia of Chemical Reactions. Volume V. By C. A. JACOBSON, Late Professor of Chemistry, West Virginia University (Editor); CLIFFORD A. HAMPEL, Consulting Chemist, Chicago, Ill.; and ELBERT C. WEAVER, Dept. of Chemistry, Phillips Andover Academy (Assistants). Reinhold Publishing Corporation, 330 West 42nd Street, New York 36, N. Y. 1953. viii + 787 pp. 16.5 × 23.5 cm. Price, $15.00.

This is the fifth volume in a series designed to encompass all known inorganic reactions and is concerned with those of nickel to ruthenium, inclusive. Reviews of the first two volumes [THIS JOURNAL, 68, 1678 (1946); 71, 2278 (1949)] have described adequately the over-all features of this series and have quite properly called attention to certain limitations and questionable aspects of an undertaking of the type represented by these volumes.

Volume V chances to include information relative to areas in inorganic chemistry with which this reviewer is particularly familiar. It requires, therefore, no great amount of time or effort to reach the conclusion that this compilation is far from complete; examination of Volume V also suggests that the originally intended degree of completeness of coverage of the chemical literature is unlikely to be accomplished through the compilation of supplements. For example, there are only 24 entries under *Rhodium*. The only ammine of rhodium mentioned is chloropentamminerhodium-(III) chloride; it is incorrectly formulated, and reactions of synthesis are not included for either this compound or its precursor. It is not practical here to enumerate the many similar errors of omission that are all too readily apparent.

This volume, as well as its predecessors, has the merits of neither an abstract nor a literature review. The best that can be said for these volumes is that they may serve as a useful supplement to, but by no means a substitute for, the kind of exhaustive literature search that the research worker must make. Perhaps the single most useful feature will be that these volumes may help one to minimize the possibility of overlooking important references to the primary literature. One can scarcely examine these volumes in detail and escape the very real question as to whether the time involved in producing this series would not be much more profitably expended in the preparation of truly comprehensive reviews and critical evaluations of more limited areas of the subject matter.

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