

ulins which are omitted from this subject index. These defects limit the use of this volume as a source for reference.

In spite of this criticism the book of Stauff is a commendable attempt to present the field of colloid science in a modern way. With a few exceptions, all the most important modern theoretical and experimental approaches are presented in this volume. It does not read easily in most of the sections, but it will be appreciated by those advanced postgraduate students and research workers who enjoy theoretical thinking and want to go to the very bottom of the matter. One of the most charming aspects in the new colloid science is the unsettled state of affairs, the many unsolved problems so challenging to the investigator. Professor Stauff has succeeded in showing some new possibilities in solving these problems, although he also had to admit that at this moment there are wide gaps between theories treating idealized systems and reality.

The production of the book is fine, the illustrations are instructive, and the abundant references are conveniently placed at the bottom of the pages where they belong. Only a few misprints were noticed, *e.g.*, in formulas on p. 585 and 589, and in Tables 67.I (p. 469) and 84.III (p. 624).

UNIVERSITY OF TEXAS  
M.D. ANDERSON HOSPITAL AND TUMOR INSTITUTE  
HOUSTON 25, TEX. BRUNO JIRGENSONS

**Chromatographie en Chimie Organique et Biologique. Volume II. Applications en Chimie Biologique.** By E. LEDERER, Professor à la Faculté des Sciences de Paris. Masson et Cie., 120, Boulevard Saint-Germain, Paris 6, France. 1960. xiv + 876 pp. 18 × 25.5 cm. Price, broche, 130,00 NF; cartonné toile, 140,00 NF.

The first volume of this work, which is being edited by E. Lederer, dealt mainly with certain applications of chromatography to organic chemistry. The second volume is now concerned in its 16 chapters with different classes of biologically important substances. Under the editor's supervision, 15 authors have contributed to the compilation of this work, which has both author and subject index and a table of contents. The interest of the first volume is thus sustained in the second, which will be a useful reference work for those who use chromatographic methods in biological research.

Each chapter deals with a special group of compounds, *viz.*, sugars; phosphoric acid esters; amino alcohols; amino acids; peptides; amino acid derivatives; proteins, purines, pyrimidines and their derivatives; pigments; fat- and water-soluble vitamins; hormones; antibiotics, etc. For each class of compound much information is given concerning the different techniques which are available, and there are copious tables of  $R_f$  data based on the compounds named and their derivatives and that also relate to many solvents. For example, the presentation shows how the separation of sugars as acetylated sugars or of amino acids as their phenylthiohydantoins can be contemplated. Each chapter gives much necessary technical detail for the systematic separation of the compounds with which it deals, but an adequate idea of the content can hardly be presented in this short review. Where it is known that the absorbent used in column techniques of separation affects the nature of the substances being separated this is wisely stressed. The tables may assist in tentative identification of the structure of compounds being chromatographed both on the basis of  $R_f$  values and of reactions which are more or less specific for the class of compounds in question. Again, it is wisely suggested that such identifications be supported by the elution of the compound in question, the preparing of derivatives or the use of specific reactions or confirmatory measurements based on such techniques as spectrophotometric measurements. All this cautions against too facile identifications based only on a one-solvent system. The bibliography at the end of each chapter, sometimes as much as 400 to 500 titles, will prove to be a useful feature, and these bibliographies have been kept up to date by the inclusion of additional material when the proofs were corrected.

If there are criticisms, it may be that the reader receives a mass of information about techniques applicable to each class of compounds, whereas careful and detailed guidance on which of these it is best to adopt might have been more profitable. Some repetition occurs. For example, chroma-

tography of co-enzyme A appears in three different chapters. The chapter on chromatography of water-soluble growth factors is strangely lacking in reference to those which have been discovered in plants. Also, the chapter on chromatography of organic acids is not as full as their importance in plants merited. Nevertheless, this book will be welcomed by those who need a compendium of the accumulated information in this now large and diverse field.

DEPARTMENT OF BOTANY  
CORNELL UNIVERSITY  
ITHACA, NEW YORK F. C. STEWARD  
H. M. DURANTON

**The Chemistry of Heterocyclic Compounds. Volume 14. Pyridine and its Derivatives. Part One.** Edited by ERWIN KLINGSBERG, American Cyanamid Co., Bound Brook, New Jersey. ARNOLD WEISSBERGER, Consulting Editor, Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1960. x + 613 pp. 16 × 23.5 cm. Price, \$49.00; Subscription price, \$42.00.

The volume of recorded literature in organic chemistry is a source of both pride and despair: pride in the tremendous accomplishment which generations of organic chemists have achieved and despair in the hopelessness of maintaining an adequate picture of the present status of almost any area of organic chemistry. The book under review not only brings this situation into focus but also points a way out of the dilemma. As the title indicates, this book is the first of four parts dealing with pyridine and its derivatives. It is proposed to treat this topic in sixteen chapters and part one consists of two chapters. Chapter I, prepared by R. A. Barnes, is devoted to a discussion of the Properties and Reactions of Pyridine and its Hydrogenated Derivatives. This chapter provides a unifying account of their chemical properties and supplies a sound basis for the understanding and appreciation of the more detailed treatment which is to follow in subsequent chapters. A careful study of this chapter will be most rewarding.

Chapter II deals with Synthetic and Natural Sources of the Pyridine Ring and is written by Frederick Brody and Philip R. Ruby. The classification of synthetic methods with which they are confronted is a difficult matter and has been accomplished in an admirable fashion. Relatively short treatments of each class of synthetic procedures followed by tables indicating the specific transformations which have been carried out makes this chapter particularly valuable. An impression of the magnitude of this task may be gained from the fact that there are one hundred and thirty-two tables, which bring the literature coverage up to the middle of 1956. Eighteen hundred and fifty one references (a number of which refer to patents) are cited. Certainly, this material has been rendered more accessible by these authors and organic chemists must become increasingly more dependent upon treatises of this kind. The authors and publishers have performed a valuable service.

DEPARTMENT OF CHEMISTRY  
UNIVERSITY OF MINNESOTA  
MINNEAPOLIS 14, MINNESOTA W. M. LAUER

**Methods in Geochemistry.** Edited by A. A. SMALES, Atomic Energy Research Establishment, Harwell, and I. R. WAGER, F.R.S., Department of Geology and Mineralogy, University Museum, Oxford. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1960. vii + 464 pp. 16.5 × 23.5 cm. Price, \$13.50.

This book has been written as a survey of newer methods of geochemical analysis but it should be read by and has a value for a much wider audience.

Our knowledge of the composition of the earth's crust, given from early in the century by the monumental works of Clarke and of Washington, was based on standard chemical methods of analysis and was accordingly subject to their inherent limitations. A generation ago geochemistry made a great stride forward with the help of optical spectrography. It is now making what will prove to be a still more impressive step ahead using new methods of analysis that are largely products of the growth of nuclear physics.

The Editors and authors of this book are drawn from a group of investigators associated with Harwell and nearby