

will be forced to obtain (by purchase, presumably) all three volumes.

Volume III of *The Vitamins* is a series of six chapters on recognized vitamins and one chapter on compounds either relatively new to the field or as yet unidentified. The chapters are as follows: *p*-Aminobenzoic acid (five authors); Pteroylglutamic acid (three authors); Pyridoxine and Related compounds (eight authors); Riboflavin (five authors); Thiamine (five authors); The Tocopherols (three authors); New and unidentified growth factors (one author).

The plan of presentation throughout the series is uniform for all compounds and includes nomenclature, chemistry, industrial preparation, biochemistry, estimation and standardization, occurrence, deficiency effects, pharmacological considerations and requirements. This becomes monotonous, but when one considers the series as reference material it must be admitted that this style and uniformity is most easily used.

The editors and publishers have produced an invaluable series, and volume III maintains the high standard set by volumes I and II, wherein one may find essentially all the important published material on the compounds which have the status of vitamins (and some which do not). In choosing the specialists for the various sections, the editors have been wise, and the result is the focusing of attention on the compounds, in all their intricate facets. From the biochemical standpoint this emphasis circumvents the concentration on any one phase of interest and any one group of organisms.

This reviewer finds it difficult to single out any one section for special praise, although the one on *p*-Aminobenzoic Acid is particularly valuable because this special subject has not been adequately reviewed elsewhere. The series will be of interest to all students of metabolism and should be extremely helpful to the organic chemist, not only for the review of reactions leading to the syntheses of metabolically active compounds, but because it will allow him to gain understanding into the complex relations between the products of his reaction flask and the reactions within the organism.

The printing is clear and the figures are well executed. Extensive bibliographic references are carried as footnotes for each subchapter, which leads to extensive duplication. Inevitably a few errors appear to have escaped the proof-readers (*e.g.*, a triaminohydroxypyridine, instead of the corresponding pyrimidine on page 105). Most, however, will not lead to confusion.

BIOLOGICAL LABORATORY  
AMHERST COLLEGE  
AMHERST, MASSACHUSETTS

GEORGE W. KIDDER

**Substances Naturelles de Synthèse.** Volume VIII. Edited by LÉON VELLUZ, Docteur ès Sciences Physiques. Masson et Cie, Éditeurs, Libraires de l'Académie de Médecine, 120, Boulevard Saint-Germain, Paris VI, France. 1954. 157 pp. 16 × 22.5 cm. Broché, 1,800 fr.; Cartonné toile, 2,200 fr.

**Substances Naturelles de Synthèse.** Volume IX. Edited by LÉON VELLUZ, Docteur ès Sciences Physiques. Masson et Cie, Éditeurs, Libraires de l'Académie de Médecine, 120, Boulevard Saint-Germain, Paris VI, France. 1954. 186 pp. 16 × 22.5 cm. Broché, 1,800 fr.; Cartonné toile, 2,280 fr.

These latest volumes in this useful series follow the pattern of earlier volumes. Each is divided into three sections: Preparations, Methods, "Practical Note." Volume VIII gives detailed procedures for preparing nicotinic acid, DL-tuberculoic acid, dicoumarol, hydrocortisone, tryptamine and DL-tryptophan. Volume IX contains synthetic methods for 3-indoleacetic acid, DL-cystine, DL-hydroxylysine, spermine, testosterone-4-C<sup>14</sup> and thymine. The experimental directions are those given in the journal literature. Each procedure is preceded by a short historical and explanatory introduction and is followed by interesting and useful notes discussing reactions involved in the preparation described, other methods for synthesizing the product, related compounds and their preparation, and similar topics. Each volume contains a frontispiece with photomicrographs of four of the compounds for which preparative procedures are given.

The second section of volume VIII consists of concise reviews of (1) reduction by means of double hydrides and (2) the synthesis of saturated aliphatic monocarboxylic acids. The subjects considered in this section of volume IX are (1) the synthesis of labeled natural products and (2) the resolution of racemic forms. Each review has tables listing examples of the methods discussed together with literature references. Although the illustrations are numerous and varied, the value of these tables would be considerably increased if they gave a more comprehensive coverage of the literature and if yields were indicated.

Procedures for the preparation of lithium aluminum hydride, lithium borohydride and sodium borohydride constitute the third section of volume VIII, while the corresponding section of volume IX describes methods for preparing sixteen optically active reagents used to resolve racemic forms.

The volumes have the pleasing format of preceding ones.

CHEMISTRY DEPARTMENT  
THE UNIVERSITY OF ROCHESTER  
ROCHESTER 3, NEW YORK

R. W. HELMKAMP

**Ephraim's Inorganic Chemistry.** Sixth Edition—Revised and Enlarged. Edited by P. C. L. THORNE, M.A. (Cantab.), M.Sc., Ph. D. (Lond.), F.R.I.C., Formerly H. M. Staff Inspector for Chemistry, Ministry of Education, Sometime Lecturer in Chemistry at Sir John Cass College, London and at Woolwich Polytechnic, and E. R. ROBERTS, A.R.C.S., Ph.D. (Lond.), Ph.D. (Minnesota), D.I.C., Senior Lecturer in Chemistry at the Imperial College of Science and Technology. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1954. xii + 956 pp. 17.5 × 24.5 cm. Price, \$6.25.

In this edition of Ephraim's well-known reference book on inorganic chemistry, the novel and instructive approach which characterized the earlier editions has been continued without alteration. By presenting together as classes elements or compounds of similar types and characteristics, this type of approach achieves a degree of logic and a type of systematization not to be found in many other treatments. A wealth of information, especially of a descriptive type, is presented, and no library on inorganic chemistry should be considered complete without a copy of this reference.

It is debatable, however, whether one who owns an older edition of the book would find it desirable to acquire this edition. Except for a few minor changes, particularly in relation to atomic structure, the bulk of the book has been reprinted without alteration and is thus scarcely a revision in the absolute sense of the word. A detailed check of references to papers appearing since the preceding edition reveals that only a very small segment of the tremendous inorganic literature which has accumulated in this fruitful period has been covered. This the reviewer regards as unfortunate because it subordinates important new concepts and discoveries and creates the impression that progress in inorganic chemistry has been immeasurably less than is actually true. The authors' limitation of the net increase in size of the book to some seventeen pages is commendable, but to say that this "has been made possible by skilful replacement of old by new matter made available since the last edition" (Preface) is not completely indicative of what has been done. It is to be hoped that in future editions more thorough revision with adequate and completely indexed literature coverage will seem desirable to the authors.

The book is well and clearly printed in a type size which is not tiring to read. All in all, it is an attractive volume.

NOYES CHEMICAL LABORATORY  
UNIVERSITY OF ILLINOIS  
URBANA, ILLINOIS

THERALD MOELLER

**Nuclear Theory.** By ROBERT G. SACHS, Professor of Physics, University of Wisconsin. Addison-Wesley Publishing Company, Inc., Cambridge 42, Massachusetts. 1953. xi + 383 pp. 16 × 23.5 cm. Price, \$7.50.

This introduction to theoretical nuclear physics is intended for persons already possessing a knowledge of quan-