

results of other physical-chemical studies are equally inaccessible. To some extent these difficulties could be alleviated without a major change in point of view by the inclusion of a more comprehensive subject index. Some readers might also feel that an authors' index would be useful, even though the book may contain only a fraction of the important work of a given scientist.

The book appears to be relatively free of both factual and typographical errors. The present edition has been improved by the use of a larger and more readable size of type.

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**Arbeiterinnerungen.** By HERMANN STAUDINGER. Dr. Alfred Hüthig Verlag, Heidelberg, Germany. 1961. xi + 335 pp. 16 × 23 cm. Price, DM. 28.—.

In this interesting volume Professor Hermann Staudinger, Nobel Prize winner in chemistry in 1953, gives a condensed presentation of his extensive contributions to organic and polymer chemistry. In the introduction he first describes his training and tells of his original desire to become a botanist. He mentions the many teachers under whom he studied and credits each with his contribution to Professor Staudinger's development. Throughout the book he inserts personal experiences and discussion of his work which makes this a unique report of his research.

In Part A of the text Professor Staudinger covers his early work on low molecular weight compounds. This includes the work on ketenes; aliphatic diazo compounds; organic phosphorus compounds; reaction of methylenes; autooxidation of organic materials; work on oxalyl chloride; explosives; synthesis of isoprene; insecticides, particularly his work on pyrethrum and its constituents; synthetic pepper; the aromatic constituents of coffee; synthetic drugs; asymmetric synthesis; and a few other problems.

In Part B Professor Staudinger covers his highly original contributions to the field of macromolecular chemistry which brought him the Nobel Prize. First, he reviews the early work done in 1920-1930; then, in order, he treats macromolecular chemistry, a new field in organic chemistry in which he develops his ideas of the structure of large molecules; colloidal solutions; methods of studying macromolecules; molecular weight and its relation to viscosity; macromolecules in the solid state; methods of polymerization; synthetic macromolecules; natural macromolecules; and macromolecular chemistry and biology.

In Part C Professor Staudinger's Nobel Prize Lecture is reproduced.

In this book Professor Staudinger coordinates in an interesting fashion his many unpublished theses with his extensive published works so that this represents a summary of his many contributions to chemistry. This report documents his role as the founder of the science of polymer chemistry.

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**Vitamin B<sub>12</sub>.** By E. LESTER SMITH, D.Sc., F.R.S., Senior Biochemist, Glaxo Laboratories. John Wiley and Sons, Inc., 440 Fourth Avenue, New York, N. Y., 11 × 17 cm. Price, \$3.00.

This latest of Methuen's Biochemical Monographs, as stated in the foreword, is intended "to be rather more than a review but less than a detailed monograph" and to serve both as an introduction to the subject for the student and a source of more advanced information for the research worker. Dr. Smith has accomplished all these objectives most admirably. He is well qualified to do this since many years of his own research have been devoted to vitamin B<sub>12</sub>.

During the more than twenty years of chemical work on the antipernicious anemia factor, at least nine independent lines of research were pursued, and the problem was further complicated by the close biological interaction of vitamin B<sub>12</sub> and folic acid. The author first delineates these various ap-

proaches and explains their interrelationships, and then proceeds to discuss each phase of the work from the point of view of scientific unity rather than chronology.

The account of the chemistry and structure determination is discussed in the light of final results, but experimental details are given to show how this classical work was accomplished. Here, as throughout the book, important contributions and original references are cited together with references to the number of more extensive and specialized reviews which are available.

Sufficient discussion of megaloblastic anemia and the role of vitamin B<sub>12</sub> in human and animal nutrition is given to allow an appreciation of its important functions, but these sections are relatively brief.

Considerable space is devoted to assay methods, both because this is a complicated problem *per se*, and because any attempt to evaluate data on the origin and distribution of vitamin B<sub>12</sub> necessitates a knowledge of the assay method used.

Preparation and biological activity of the numerous derivatives and analogs of vitamin B<sub>12</sub> are covered thoroughly.

The section on mechanism of action is of necessity mostly a discussion of hypotheses and compilation of experimental data on which these are based. As Dr. Smith points out, much active work is still in progress and many important questions must be left unanswered at present.

Although this book is intended primarily for biochemists, it is the first review of this subject which treats all phases of the problem with equal emphasis. It is an excellent work for anyone wishing to acquire a general knowledge of vitamin B<sub>12</sub> as well as a good starting point for a more detailed study of any particular phase of the problem.

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**Advances in Chemical Physics. Volume III.** Edited by I. PRIGOGINE, University of Brussels, Brussels, Belgium. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1961. ix + 372 pp. 16 × 23 cm. Price, \$11.50.

This is the third annual volume which has appeared in this series. It consists of eight articles as follows: I, Mechanisms of Organic Electrode Reactions by Elving and Pullman; II, Nonlinear Problems in Thermodynamics of Irreversible Processes by Bak; III, Propagation of Flames and Detonations by Hirschfelder and Curtiss; IV, Large Tunnelling Corrections in Chemical Reaction Rates by Johnston; V, Aspects Récents du Diamagnétisme by Pacault, Hoavau, and Marchand; VI, Powder Electrodes and their Applications by Tomassi; VII, Variational Principles in Thermodynamics and Statistical Mechanics of Irreversible Processes by Ono; and VIII, Electron Diffraction in Gases and Molecular Structure by Bastiansen and Skancke.

These are authoritative articles written by experts in their respective fields. It is not necessary to discuss the contents of the various articles here because the above titles furnish a fair description. The editor in his introduction states that it is his purpose "to ask an expert to write a comprehensive article in which he explains his view on a subject freely and without limitation of space." Articles I, IV, V, VI and VIII are personalized review articles within this framework and they should enjoy a wide reading audience. Articles II, III and VII are very mathematical in nature although they also adhere to the above concept of the editor in that they are probably more detailed than the usual publications of this nature. The following statement is not meant to be a criticism of the latter articles; however, they are rather difficult to read for the non-theoretical chemist and probably will not appeal to most chemists.

Individuals should bear in mind that Articles II, III and VII contribute over 150 pages to the 362 pages of textual material of this volume. The book is, however, certainly a "must" for all chemistry libraries.

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