

cuss general topics: metal-bearing respiratory pigments of invertebrates (14 pp.), mineral composition of skeletons (10 pp.), the regulating influence of oceanic salt on the composition of marine organisms (10 pp.), and fundamental changes in the elementary composition of marine organisms during geological time (12 pp.). Concluding the monograph, there is a most impressive bibliography of more than 2000 titles that is largely the work of Mrs. Virginia Odum. Regrettably the topical subdivision of chapters, which is listed in the table of contents, provides the only means of entrance to the welter of information that is interwoven through the text as a whole, for there is no index—an omission that greatly impairs the usability of this enormously factual book.

For all who wish information as to the more than 60 elements recorded from living things, this will prove a useful and informative volume. It will help orient the reader, and perhaps enliven his interest in the ways in which organisms accumulate, limit, or reduce constituents in terms of the relative abundance of the elements in their immediate environment. Unfortunately little is known of the ways in which organisms effect this control, and Vinogradov's orientation to the subject permits scant consideration of mechanisms. But the problems are pointed out, and there is great advantage to having the background information available in one source. Although there are many biologists who will place quite different interpretations or emphasis upon the phylogenetic significance that Vinogradov attributes to certain correspondences among organisms in elemental accumulations, few will feel the discussions of these problems unrewarding. Perhaps the chief complaint concerning the text, if any need be made, lies with the general diffuseness of Vinogradov's treatment, and his willingness to discuss or record much that seems trivial. This criticism is dispelled, however, when it is recalled that we are dealing with a reference work that encompasses a literature of more than 2000 titles. To Vinogradov, and to his translators and collaborators, much gratitude is owing for this useful, expensively manufactured, and beautiful book.

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Physical Properties of Solid Materials. By C. ZWIKKER, Director, National Aeronautical Research Institute, Amsterdam. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1954. viii + 300 pp. 16.5 × 25 cm. Price, \$8.75

In the preface of this book the author states it is his purpose to give a summary of the physics of solids, to consider the theoretical concepts involved with a minimum of mathematical detail, and to consider as examples a few practical applications of the theories. He has adhered to this purpose with remarkable consistency. Consequently the book covers a wide range of subject matter and is a useful reference. The broad coverage makes it particularly useful to those whose main interests lie in other branches of science or as an introductory book for those primarily interested in solid state physics. On the other hand, the work is too condensed and the mathematics too abbreviated to satisfy the specialist interested in completeness and scientific unity; such a reader will probably feel that interrelations between the various phenomena have not been sufficiently emphasized.

The author has directed his discussions primarily at the beginner in solid state and has included several unusual explanations to clear up points which are frequently bothersome. For example, on page 102 (Chapter VI) after a good discussion of the concepts of elasticity and elastic waves, he has given an unusual drawing to illustrate the identity of long and short waves in an atomic chain. This is one particular item that is invariably confusing to the beginner and is seldom cleared up by the textbooks.

The text is clearly written and for a technical book is very readable. The author's apology for his language difficulties is entirely unnecessary as few English speaking scientists have written more clearly.

In particular the chapter on thermal properties is better than that found in most comparable books and provides the reader with some feeling for the problems and the various

simplifying assumptions which have been employed in solving the problems. In comparison with earlier books less attention has been given to the electronic properties of solids and the band theory. This may well represent a current trend in emphasis rather than the author's personal viewpoint.

As a minor matter of convenience the publishers could have put the chapter and paragraph numbers on each page.

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Structure Reports for 1950. Volume 13. General Editor: A. J. C. WILSON, University of Wales, Cardiff, Great Britain. Section Editors: N. C. BAENZIGER (Metals), University of Iowa, U. S. A.; J. M. BIJVOET (Inorganic Compounds), University of Utrecht, Holland; J. MONTEATH ROBERTSON (Organic Compounds), University of Glasgow, Great Britain. N. V. A. Oosthoek's Uitgevers MIJ., Domstraat 1-3, Utrecht, Holland. 1954. viii + 643 pp. 17.5 × 25 cm. Price, 80.—Dutch florins.

This newest volume of "Structure Reports" maintains the general excellence of its predecessors in the series. The reporting of essential structural results is critical and adequately detailed, with many excellent diagrams contributing to clarity. As "Structure Reports" is sponsored by the International Union of Crystallography, diffraction studies of crystalline structure naturally preponderate, and the coverage of such matters apparently is complete. Many data related to and even somewhat peripheral to this main theme are included, however. For example, there are reported numerous electron diffraction studies of gaseous molecules, several microwave studies of simple organic molecules, phase diagrams for many systems (metals particularly), studies of texture and epitaxy, etc. The convenience and utility to the student of crystalline structure of having "Structure Reports" at hand scarcely can be overestimated. As a reliable and easy to use guide to what has been done in the field, "Structure Reports" is warmly commended to the attention of the non-specialist.

It may be useful to note that with the appearance (also during 1954) of "Structure Reports" for 1945-46, volume 10, the gap in coverage between the last volume of "Strukturbericht," volume 7 (1939) and the "Structure Reports" has been narrowed to the period, 1940-44. "Structure Reports" for 1942-44, volume 9, now is being prepared for publication.

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Monomeric Acrylic Esters. By E. H. RIDDLE, Rohm and Haas Company, Philadelphia, Pennsylvania. Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y. 1954. vii + 221 pp. 16 × 23.5 cm. Price, \$5.00.

This book is a practical guide to those who wish to use monomeric acrylic esters in polymerization on almost any scale, or in synthesis. Emphasis is on the four acrylic and seven methacrylic esters which are commercially available. By concentrating on operations and observations, and by reducing theoretical considerations to simple generalizations, much practical information has been included in moderate space. In general, journals and patents have been covered adequately through 1952, but there are many references to more recent or unpublished work.

The first three chapters tell how the monomers are made commercially, handled, stored and freed from inhibitor, and list their physical properties. The last chapter describes in detail analytical methods for the monomers and inhibitors. More than three-quarters of the book is devoted to the remaining three chapters on polymerization, copolymerization and other reactions. The reviewer's impressions are that the author writes well, that he knows his subject, that he has summarized the many patents briefly and rather optimistically, but that he has made little effort to evaluate the relative importance or usefulness of the numerous patents. Perhaps one should not expect the author to state the ad-