

Book Reviews

Shock Waves and Detonations in Gases. By R. I. SOLOUKHIN, University of Novosibirsk. Translated by BORIS W. KUVSHINOF, Applied Physics Laboratory, The Johns Hopkins University. Mono Book Corporation, 2315 Hollins St., Baltimore, Md. 1966. xvi + 176 pp. 15.5 × 23.5 cm. \$7.00.

In this monograph Professor Soloukhin describes the use of shock waves for the study of high-temperature gas reactions with particular emphasis on the ignition of gas mixtures, the transition of combustion to detonation, and the structure of detonation waves. These are subjects in which he himself has made important contributions. A short book cannot be comprehensive, and the author has chosen to present an introduction to the experimental procedures and results with only a very limited amount of theoretical background.

The book is largely a translation of the original Russian edition which appeared in 1963, so for the most part the literature references are to work published in 1962 or earlier. For the English edition the author has made some revisions, particularly in his discussion of the structure of detonation, and has included descriptions of some more recent work.

The most attractive parts of the book are the ones containing the fine photographs which show with impressive detail the complicated behavior of those high-temperature gas reactions in which enough heat is released so that ignition and detonation may occur. These pictures show clearly the deviations from one-dimensional flow and the importance of turbulence in detonations. Progress is certainly being made in this complex field, but many unsolved problems remain.

Unfortunately, as is often the case, the book would have been more useful if still more work had gone into its preparation. There are no indices, the equations are unnumbered and therefore difficult to refer to, their derivation is often obscure, the notation is not uniform, and symbols are occasionally introduced without definition. More information in the titles of tables and figures as well as more labeling of the structure visible in the photographs would have been helpful in clarifying the author's discussion.

Nevertheless, the book is a concise and interesting presentation of the problems and progress in the study of an important kind of gaseous combustion. Anyone who is studying the detonation process may find useful material in it.

Edward F. Greene
Brown University
Providence, Rhode Island

The Chemistry of Gallium. By I. A. SHEKA, I. S. CHAUS, and T. T. MITYUREVA. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York, N. Y. 1966. viii + 302 pp. 14.5 × 21.5 cm. \$21.00.

This volume, one of a series of Elsevier monographs dealing with topics in inorganic and general chemistry, covers in successive chapters Natural Occurrence, Properties, and Applications; Hydrogen Compounds; Oxide, Hydroxides, and Gallates; Halides and Their Complexes; Compounds with Sulfur, Selenium, and Tellurium and Their Acids; Compounds with Elements of Group V; Reactions with Carbon and Its Compounds; Interaction with Metals; Methods of Preparation; Coprecipitation; Catalytic Properties of Compounds; and Aspects of Analytical Chemistry. The coverage is extensive, largely descriptive but with the inclusion of much physical data, and not highly critical. Some 728 references to the original literature, many of them to the Russian literature, are included.

The styling is good and the material readily readable. Although the book bears a 1966 publication date, no literature citations after 1963 are given, and only four have the 1963 date. As a consequence, certain portions of the text, for example, those dealing with hydrides and III-V compounds, must be read with the understanding that more recently completed work has negated certain items that are reported as completely authoritative. Those references that are listed are representative, but not completely indicative, of patterns of research in gallium chemistry. A reader will find it advantageous to check the original literature for verification of material described in the text. Thus, reference 451 is completely in error both with regard to authorship and what it purports to describe. Use of the volume as a general background source rather than as definitive authority is recommended.

The book suffers immeasurably from the inadequacy of its index. The printing, binding, and presentation are up to the good standards established by the publishers for the series. However, neither the content of the volume nor its physical attributes can justify the remarkably high price quoted for it. This item alone will reduce materially the attractiveness of the book to many potential buyers.

Therald Moeller
Noyes Chemical Laboratory, University of Illinois
Urbana, Illinois 61801