sections in each chapter are devoted to the metals—occurrence, preparation, uses, chemical and physical properties. This is followed by a discussion of the compounds listed above. The last three sections in each chapter pertain to the spectroscopy of the metal and its compounds, the analytical determination, and finally the biological properties.

Twenty-five experts in the various areas contributed the respective sections with complete literature review for most sections until 1955. Tables and diagrams are used liberally throughout the sections.

The physical properties discussed for the metals, for example, include structure and atomic and ionic radii, density and thermal expansion, mechanical and elastic properties, surface properties, dispersion and colloidal properties, viscosity, diffusion, thermodynamic properties, electrode and ionization potentials, electron affinity and electronegativity values and optical and photoelectric properties.

For the compounds, the preparation, physical properties, chemical properties, applications and uses, and analytical determinations are described.

The sections generally speaking are well written, logically presented, and well referenced; however, in most cases, no critical evaluation of the references is attempted in line with the policy followed in the original volumes of Mellor.

This volume is a "must" for all technical libraries.

DEPARTMENT OF CHEMISTRY
TULANE UNIVERSITY HANS B. JONASSEN
NEW ORLEANS, LA.

Organic Peroxides. By ALWYN G. DAVIES, Ph.D., D.Sc., Lecturer in Chemistry, University College, London. Butterworth Inc., 7235 Wisconsin Avenue, Washington 14, D. C. x + 215 pp. 16 × 25 cm. Price, $9.25.

Organic Peroxides. Their Formation and Reactions. By E. G. E. HAWKINS, D.Sc., Ph.C., F. R. I. C., Distillers Company, Ltd., Research and Development Dept., Great Burgh Epson, Surrey, Great Britain. D. Van Nostrand Company, Inc. 120 Alexander Street, Princeton, New Jersey. 1961. xiv + 434 pp. 16 × 25 cm. Price, $12.50.

Reiche's "Alkylperoxyde und Ozonide" stood as the only book on peroxide chemistry from 1931 until the brief survey by Tobolsky and Mesrobian's "Organic Peroxides" in 1954. An up-to-date, comprehensive treatment of this subject was obviously needed.

Now we have two excellent new books on organic peroxides, both of which cover identical ground with only small differences in organization, and both of which are authored by men who are authorities in this field of specialization. Both are executed in an extremely competent fashion and the reviewer was struck immediately with the thought that there was a great need for one of these books, but not for both, and that much effort, both on the part of the authors and, even more important, on the part of the many readers, would have been saved if by some means a single book had appeared. It is a sacred responsibility of authors and publishers alike to guard the time of the potential reader in any scientific field by publishing only those books which will be the very highest quality (which these two are) and which are really needed. There is no referee system among publishers to see that unnecessary duplication will not occur, nor would we want such a system; the ultimate decision must rest with the conscience of the authors. In the present case such unnecessary duplication has arisen, and most readers (and libraries) must make a choice between these two books, since only those doing extensive research in the field of peroxide chemistry will want to read both or to use both for reference purposes.

Both books have chapters covering Hydroperoxides, Dialkyl Peroxides, Peroxy Acids, Peroxy Esters, Diacyl Peroxides and derivatives. Both have selected sections on Autoxidation and on Analysis and the Detection of peroxides. Davies treats the mechanisms of decomposition of peroxides in five separate chapters, while Hawkins covers the same material in a manner integrated with the particular peroxide being discussed. This latter treatment leads to some duplication.

Davies has achieved a more concise treatment, 215 pages with about 1,000 references, as compared to 434 pages with about 1,700 references by Hawkins. The larger number of references in Hawkins results only in part from reference to the same paper in two or more places, and there are about three hundred references in Hawkins' book not mentioned by Davies. To a considerable extent, this results from a rather careful survey of the patent literature and from a bit more emphasis on some of the industrial aspects of peroxide chemistry by Hawkins, which has been done rather sparingly, but critically, by Davies. A rapid survey of the author index of both books indicates that each has a fair number of references not in the other.

The condensation achieved by Davies has been accomplished by the generous use of tables for listing compounds and properties, by a more critical selection of literature, and by a very concise style of discussion. Both books give a full theoretical treatment of the mechanisms of peroxide syntheses and decompositions; more discussion accompanies Hawkins' treatment, but the reviewer feels that Davies' treatment is the more critical. For example, Davies considers the Dakin reaction (p. 155) and proposes a mechanism not found in the literature, while this reaction is not indexed or referred to by Hawkins.

A reader of either book will receive an excellent and thorough introduction to all aspects of peroxide chemistry. Because this will be done with the expenditure of less time by reading Davies' book, this book may be the more valuable to the general student and to the person who is not doing extensive research in the field. For the person in industry working in some aspect of this field, especially along the lines of autoxidation, the somewhat more detailed discussions of Hawkins may be preferable. A person wanting to use such reviews for leading references into some particular aspect of peroxide chemistry will probably want to refer to both.

DEPARTMENT OF CHEMISTRY
STANFORD UNIVERSITY HARRY S. MOSHER
STANFORD, CALIFORNIA

The Chemistry of Nucleic Acids. By D. O. JORDAN, Angas Professor of Physical and Inorganic Chemistry, Univ. of Adelaide, South Australia. Butterworth, Inc., 7235 Wisconsin Avenue, Washington 14, D. C. 1960. ix + 358 pp. 14.5 × 22 cm. Price, $10.50.

As stated by the author, this book places its emphasis on the chemistry and structure of nucleic acids. No attempt has been made to deal with biological function to any significant extent, since a rather voluminous treatise would be required. The value of the latter, in any event, would be questionable because of the rapid pace in the various areas of nucleic acid research. Fortunately, the chemistry rests on more stable ground and the author's attempt is justified. There is an overlap of material both with "The Nucleic Acids" (Editors, Chorgoff and Davidson) and "The Polynucleotides" (Steiner and Beers); however, this is not a serious matter, particularly because Jordan's treatment tends to be more critical.

Chapter I serves as an historical and orientative introduction. Chapter 2 deals with the isolation of nucleic acids. While this material is of value for teaching purposes, it probably cannot serve as a substitute for original literature, where other methods and details are often sought. Chapter 3 covers heterogeneity and fractionation. This is an extremely active area, and unfortunately the material is out-dated to a considerable extent. New and apparently better fractionation procedures have since been devised and are not recorded. Chapters 4–7 cover the chemistry of the nucleic acid components and should be useful to interested investigators. The isolation of purines, pyrimidines, nucleosides and nucleotides is discussed, including various chromatographic methods. The structure and synthesis of nucleosides and nucleotides is also discussed. Finally, the acid–base properties of the nucleic acid components is covered in some detail. The structure of nucleic acids begins on p. 140, Chapter 8, and continues nearly to the end, Chapter 14. The material is covered in a clear and systematic fashion. Briefly it is as follows: The internucleotide bond, Chapter 8; X-ray diffraction, Chapter 9; thermodynamics, and hydrodynamics of nucleic acids, including molecular weight, acid–base properties, viscosity and sedimentation measurements, Chapter 10. The material covered in Chaper 10, which includes much of Jordan's work, is extensive and the discussion is useful since it tends to evaluate results. Chapter 11 deals with denaturation and degradation. Here too the discussion is extensive and enlightening. Chapters 12 and 13 deal with RNA. In these chapters the author's specialty betrays itself, for much pertinent material is omitted, *i.e.*, that dealing with soluble and "messenger" RNA. Chapter 14 contains an adequate discussion of the synthetic polynucleotides. Chapter 15 represents the only attempt by the author to include biological function.

This book is well written and, despite the fact that some parts are already out-dated, it should be owned by every serious student of nucleic acids.

SLOAN-KETTERING INSTITUTE
FOR CANCER RESEARCH LIEBE F. CAVALIERI
RYE, NEW YORK

The Irreducible Tensor Method for Molecular Symmetry Groups. By J. S. GRIFFITH, Fellow of Kings College, Cambridge. Prentice-Hall, Inc., Englewood Cliffs, New Jersey. 1962. ix + 134 pp. 16 × 23.5 cm. Price, $7.50.

Almost every worker in the field of molecular quantum mechanics has at one time or another muttered to himself, "If only there existed tables of coupling coefficients for the construction