

tains a reference to eq. 5, which apparently pertains to the source of the figure, rather than the present book.

To sum up, the book is likely to be of importance only to chemists interested in the solid state or in magnetochemistry at a sophisticated level.

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B. N. FIGGIS

Advances in Inorganic Chemistry and Radiochemistry. Volume 5. Edited by H. J. EMELÉUS and A. G. SHARPE. Academic Press Inc., New York, N. Y. 1963. ix + 429 pp. 16 × 23.5 cm. Price, \$14.50.

Each of the preceding volumes of this series contains several chapters of considerable interest to me, and now I eagerly look forward to examining each new volume in much the same way that I look forward to reading each new issue of *Inorganic Chemistry*. I have not been disappointed by this volume.

R. S. Nyholm and M. L. Tobe have written a short chapter on "The Stabilization of Oxidation States of the Transition Metals" in which about one-third of the space is spent on rather elementary considerations of energetics. A chapter by M. Schmeisser and K. Brändle rather thoroughly covers the chemistry and properties of "Oxides and Oxyfluorides of the Halogens." N. N. Greenwood reviews "The Chemistry of Gallium," particularly emphasizing low oxidation states, semiconducting binary compounds, structures, and organo compounds. I. G. Campbell has written on "Chemical Effects of Nuclear Activation in Gases and Liquids"; both bond rupture and bond formation (resulting from nuclear transformations) are discussed. O. Glemser and H. G. Wendlandt discuss "Gaseous Hydroxides"; most of this chapter is devoted to high-temperature studies of metallic hydroxides. E. K. Mellon and J. J. Lagowski have comprehensively summarized the chemistry and physical properties of "The Borazines." M. F. Hawthorne discusses a rapidly moving field: the chemistry of "Decaborane-14 and its Derivatives." R. F. Hudson correlates "The Structure and Reactivity of Organophosphorus Compounds."

Many chemists will want this volume on their bookshelves; all chemistry libraries should subscribe to the series.

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WILLIAM L. JOLLY

Technique of Inorganic Chemistry. Edited by H. B. JONASSEN and A. WEISSBERGER. Volume 2. **Nuclear Chemistry.** By NOAH R. JOHNSON, EUGENE EICHLER, and G. DAVIS O'KELLEY. John Wiley and Sons, Inc., Interscience Division, 605 Third Ave., New York 16, N. Y. 1963. xiv + 202 pp. 16 × 23 cm. Price, \$8.00.

"Nuclear Chemistry" was written by three knowledgeable Oak Ridge scientists "principally for the student and research worker with little or no previous radioisotope experience." It is nonetheless true that, as anticipated by the authors, much of the information is of interest and value to experienced nuclear chemists. In particular, this book is designed to acquaint persons interested in using isotopes with the methods of the nuclear chemist, whose concern is the properties of the nuclei themselves. Experimental procedure, and especially modern innovations, are emphasized and are accompanied by sufficient discussion of underlying principles, plus mention of associated topics of interest. The authors have succeeded well; by careful study of this book, an experienced scientist can indeed equip himself adequately to select suitable isotopes for use as tracers, etc., and choose methods for their production and detection.

The nature of radioactive decay is taken up first, with stress on lifetime consideration, decay modes, and decay schemes. This section is logically followed by a discussion of the interactions of radiations with matter. Attention is then given to methods of producing and separating isotopes. Finally, a major portion of the book is devoted to the critical topic of detection and measurement of radioactivity and the associated problems of source preparation. "Nuclear Chemistry" was not intended as a textbook so no problem sets are included.

A really outstanding feature of the book is its bibliography, a careful screening of the voluminous material on the subject, but comprehensive to the purpose at hand. The practical aspects of radiation detection are especially well presented. The section on isotope production provides a clear view of how to select a suitable reaction to produce the isotope of interest, and the descriptions of special techniques and abnormal behavior associated with the production and chemistry of carrier-free radioelements furnishes adequate warning of the experimental pitfalls to be expected.

Any criticisms are minor. The person for whom this book was designed would undoubtedly have benefited from a brief discussion of counting statistics and their limits on the accuracy of experimental results. He might also have profited from a few more two-sentence hints about potential applications of nuclear phenomena, as was done for the Mössbauer effect, since the necessary groundwork was laid. The section on positrons seems to imply that a nucleus must muster a minimum energy of twice the electron mass, in accordance with Dirac theory, for β^+ decay to be possible, whereas the factor of $2mc^2$ is a result of basing energy calculations on atomic rather than nuclear masses. And finally, it's tough to have to pay \$8.00 for a 202-page book, albeit such a very good one.

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LARRY HASKIN

Compound Semiconductors. Volume I. Preparation of III-V Compounds. Edited by ROBERT K. WILLARDSON and HARVEY L. GOERING. Reinhold Publishing Corporation, 430 Park Ave., New York 22, N. Y. 1963. xxii + 553 pp. 17 × 25 cm. Price, \$25.00.

A chemistry book that costs 5¢ per page, when the standard rate runs about 2 to 3¢, must really be saying something worthwhile. This is a slick job, a work of art, evoking the Italian connoisseur edition of "Tutankhamen." When confronted with it, the ordinary chemist, the one without a fur-lined pocketbook, is likely to feel a sense of indignation. What are these publishers up to? Do they think we are made of money? Why should I buy *that*?

Aye, there's the rub! Because we need it. There is nothing quite like it and, once you get past the whopping price tag, you find a gold mine of original material on the structure, preparation, and properties of the III-V materials. It's all there: the design for a liquid helium resistivity probe with 0.013-in. wall 0.25-in. stainless steel tubing with four wireleads wrapped with Teflon and tape; the beautiful half-tone cut showing claw growth from poor seeds of GaAs; the 1:3 H₂O₂:tartaric acid recipe for an etchant for InSb with rate 0.05; 1172 items of a III-V bibliography; etc. The only thing that's missing is the advertising, which even our beloved *Inorganic Chemistry* accepts as a way to cut costs.

Over 60 authors have contributed to this work, in many cases reviewing areas in which they themselves have made notable research contributions. These areas have been grouped in ten sections; crystal structure and bonding, purification of the elements, detection of impurities, preparation of compounds, single crystal growth, thin films, diffusion, segregation, surfaces, and thermodynamic properties. Each of these sections is in turn composed of several independent articles, wherein each author cov-