Code Center since its establishment in 1960. The Center maintains a library of computer programs for the solution of problems in nuclear physics, reactor design, and engineering, and has pioneered in the development of standards and practices to facilitate the exchange of computer programs. Mrs. Butler currently serves on the ANS Publications Committee and was Chairman of the Society's Mathematics and Computation Division in 1966-67.

Title Sources of Tritium and Its Behavior upon Release to the Environment

Author D. G. Jacobs

Publisher Clearinghouse–TID 24635, US Department of Commerce, Springfield, Virginia 22151

Pages 90

Price $3.00

Reviewer Benjamin M. Ma

The book (or report) is the first in the USAEC Critical Review Series. The author has reviewed published information on tritium and provided a concise account of the information on the sources of tritium production, the behavior of tritium release in the environment, and the potential use of tritium as a fuel for a controlled fusion reactor when thermonuclear power becomes a reality.

Beginning with the introduction and the properties of tritium and its compounds (Chaps. 1 and 2), the author proceeds with the sources of tritium production and its release, the procedures for tritium enrichment, and the monitoring practices, instruments for the detection and assay of tritium (Chaps. 3 through 5). Chapters 6 and 7 discuss the movement of tritium in the environment and projects tritium production in a nuclear power economy and its impact upon local and worldwide populations. The book concludes with a short summary and conclusions (Chap. 8). Related and reasonable references have been given at the end of each chapter except Chap. 8.

Most of the material presented in the book is descriptive and informative. Since the book was prepared by the Nuclear Safety Information Center, it purposes are to comply with the setup for the principal services of the Center. The nuclear safety of radioactive tritium will naturally cause public concern when large amounts of the projected tritium production in fuel reprocessing plants of fission reactors comes into effect.

A thoughtful question is often asked: Will fission reactors be eliminated when economic nuclear power of fusion reactors becomes a reality? Since large amounts of tritium can be produced as a by-product in fission reactors (espeially light and heavy water reactors) to supply fuel for fusion reactors, it appears that, in principle, fission and fusion reactors will cooperate and compensate for each other.

Benjamin M. Ma (PhD, Iowa State University) currently teaches in the Department of Nuclear Engineering at Iowa State University and is a regular consultant to Argonne National Laboratory.

Title Engineer's Guide to High-Temperature Materials

Author Francis J. Clauss

Publisher Addison-Wesley Publishing Company, Inc.

Pages ix + 401

Price $14.95

Reviewer Monte V. Davis

This compilation is a graphic example of the adage "Don't get it right—get it written." There is a paucity of reference work in the technological area this book purports to cover, i.e., presenting high-temperature materials to an engineer; however, this work does not mitigate the problem. In the first 71 pages the high temperature materials discussed are primarily lead, aluminum, and carbon steel.

Throughout, the book is a collection of manufacturer's specifications that are nonuniform with regard to units. The omissions of many specifications are bad. For example: only the American Lava and General Electric data on alumina are displayed with nothing from the other organizations that fabricate equivalent products.

Early in the book (p. 2) misprints and errors creep in. Some are only irritating such as misspelled words; however, others are more serious. On p. 165 all trade names are omitted from the table and independent variables are not listed on the following page.

In the 401-page book there are only 74 pages devoted to molybdenum, columbium/niobium, and tungsten. Following the above-mentioned 74 pages on refractory metals there are only 32 pages discussing oxides, intermetallics, and cermets. (The author presents most carbides as cermets.)

Major omissions that are particularly unfortunate are the other much used high-temperature materials, particularly tantalum, titanium, zirconium, and alloys using these refractories as a base.

The only value for the book is that it compiles some manufacturers' literature into a single volume. It is too abbreviated and poorly proofed and contains too many manufacturers' data to be a text. However, it is of some value as a reference because it contains the tables and graphs of useful data.

Monte V. Davis, Professor of Nuclear Engineering and Director of the Nuclear Reactor Laboratory at The University of Arizona, received his BA from Linfield College, and MA and PhD from Oregon State University. Dr. Davis was previously employed as Senior Engineer for the General Electric Company, Richland, Washington, then as Group Leader and Project Engineer of Advanced Technology for the SNAP program at the Atomics International Division of North American Rockwell. He is currently active in research in high-temperature direct conversion of heat to electricity, primarily by thermionic emission, and in the effects of high-temperature and high-nuclear radiation fields on the physical properties of metal oxides.