Book Reviews

Power Reactor Technology By J. K. Pickard, F. H. Warren, W. W. Lowe, and S. McLain. Van Nostrand, Princeton, New Jersey, 1961. $11.25.

This volume is one of a series under the general editorship of Dr. J. G. Beckerley covering the papers presented at the Second United Nations International Conference on the Peaceful Uses of Atomic Energy held in Geneva in 1958. The authors are all independent consultants with extensive experience in the development and engineering of power reactors.

The book condenses, summarizes, and extracts materials from the very large number of technical papers presented at the Conference. This material is grouped according to the popular classifications; e.g. Boiling Water Reactors, Pressurized Light-Water Cooled Reactors, Gas Cooled Reactors, etc.; and into two general chapters of prime importance, Economic Outlook for Nuclear Energy Sources, and Safety and Containment.

The material selected is generally quite pertinent and is presented clearly and with a minimum of ambiguity—something of an accomplishment considering the variety of source material. The quality of the illustrations is generally rather poor which reflects the variable and usually poor quality of the illustrations in the original papers as published.

The information presented is basically that of interest to a reactor development or design engineer interested in a convenient summary identifying the principal characteristics of the design and performance of the various experimental and prototype power reactors under design, construction, or in operation in the period 1955–1958.

While it has been necessary to utilize considerable judgment in selecting the material presented, the authors have not attempted to evaluate or "color" the material presented to any noticeable degree. The opinions and conclusions given are those of the authors of the original papers.

One obvious problem in preparing a well-balanced presentation is that the papers presented did not necessarily always provide the coverage which might be desired. The authors have corrected this somewhat by incorporating data from contemporary papers, but limited their considerations, as much as possible, to the Conference papers.

The most serious criticism that this reviewer has with respect to the book is that much of the material is out-of-date. More than two-and-a-half years have elapsed since the Conference and many, if not almost all, of the Conference papers were prepared many months before the Conference. In a field in which the technology is developing as fast as it is in nuclear power, the passage of three years makes much of the data either obsolete or of only historical interest.

This book is a useful reference book for the reactor engineer and serves as a unique guide to the papers of the Conference for those needing a convenient method of finding scattered data in the Conference papers relating to a particular type of power reactor.

W. Kenneth Davis
Bechtel Corporation
San Francisco, California

(Editor's Note: W. Kenneth Davis is a vice president of Bechtel Corporation, in charge of nuclear and advanced engineering work. Prior to this he was for three and a half years director of the Reactor Development Division of the AEC. He was educated as a chemical engineer and spent several years in research development, and design in the chemical, petroleum, and nuclear industries, and also served as a professor of engineering at the University of California.)

Directory of Nuclear Reactors. Vol. III. Research, Test and Experimental Reactors. International Atomic Energy Agency, Vienna, Austria, 1960. 354 pp., $4; 24s.

This volume is an updated and expanded sister to Volume II which was issued in 1959. Volume III of the directory has been prepared under the auspices of the International Atomic Energy Agency, as was Volume II, and all data and information has been reviewed by authorities from the member states to insure accuracy and completeness.

Although this volume contains information on 96 world-wide reactors, in the main it does not duplicate or repeat information on reactors described in Volume II. A total of 173 reactors are described in the two volumes. This third volume, together with Volume II, forms by far the most useful, comprehensive, complete, and accurate source of information on research, test, and experimental reactors issued to date. It is particularly useful for technical and administrative personnel in the United States in that detailed information on reactors designed and built in Europe and Asia is presented in accurate and complete form.

For those reactors having little similarity with any other reactor, or for the first in a series of similar type reactors, full details are given on six pages. Full details comprise reactor physics, core, and fuel element data, and sketches of vertical and horizontal sections of the reactor and experimental facilities; core heat transfer data, a simplified flow diagram, control and reactivity data, shielding material and geometry, over-all dimensions, and in most cases construction and operating cost data; information on research and experimental facilities; and most important, a bibliography where additional data may be obtained. For those reactors having great similarity to those described in full detail, general information and major modifications are presented on two pages.

The drawings and layouts do not cover the construction or design details but the designer or engineer requiring those

details has, at his fingertips, references to documents prepared by the owner or constructor which do give much additional information. In the case of United States reactors, reference is often made to the Summary Hazards Report.

This directory, together with its predecessor—Volume II, meets the needs of most technical and administrative workers in the atomic energy field who require in one or two volumes a wealth of information presented in a uniform and systematic manner. Internationally accepted terminology and definitions have been used wherever possible. Conversion factors and monograms are provided to facilitate comparison of the various units of measurement in which the data was reported by the project concerned.

This directory will be a valuable and necessary addition to those libraries all over the world which serve scientific establishments, governmental offices, industrial organizations, and designers interested in the atomic energy field.

LAWRENCE C. WIDDOES
Internuclear Company
Clayton, Missouri

(Editor's Note: Lawrence C. Widdoes, president of Internuclear Company since 1960, began his nuclear engineering career in 1950 with a year at ORSORT. Following this training period he joined the Monsanto Chemical–Union Electric Atomic Power Study Team, and in 1953, on leave, served as project engineer for the design of the University of Michigan Ford Nuclear Reactor in Ann Arbor. He was one of the founders in 1955 of the Internuclear Company and was its vice president from 1955 to 1960 prior to assuming his present position.)