The authors obviously intended their work to be a guide to radioisotope applications rather than a primary text, and in this respect they have been eminently successful. The reader will find a wealth of applications mentioned; scarcely any topic or use is cited without a reference to a paper on the subject. It is virtually impossible to read this book without being impressed by the power and scope of radioisotope applications.

H. R. Lukens is responsible for several research projects and for TRIGA reactor-based analyses in GA's Activation Analysis Service group. With an AB in biochemistry (1945, U. of Cal.) he entered radiochemistry in 1948. He has contributed to activation analysis, liquid scintillation counting, and radiotracer studies in organic, physical, and petroleum chemistry at Tracerlab, Shell Development, and, since 1962, at General Atomics.

TIMELY HANDBOOK

Title Fast Reactor Technology: Plant Design

Editor John G. Yevick; (A. Amorosi, Associate Editor)

Publisher The MIT Press, 1967

Pages xviii + 754

Price $35.00

Reviewer Leon Green

This timely book, a compilation of information covering 15 years of fast-reactor technical development, comes at a crucial time and will be of most interest to those actively engaged in fast-reactor programs. Because of the large body of information presented in this book, it will also be of general interest to almost everyone in the nuclear reactor field. Broad coverage is clearly indicated by the listing of 12 authors and 68 contributors who represent practically every organization that has been active in the fast-reactor program. The subject (Fast Reactor Plant Design) has been divided into 11 almost independent chapters. The text is arranged handbook style with each chapter well sectionalized and preceded by a table of contents. In addition, each chapter is followed by a comprehensive list of references. Because of the multi-author approach, the chapters are somewhat uneven in style, some sections being only descriptive and some very detailed, containing many charts, tables, and illustrative examples. However, this heterogeneity detracts very little from the value and purpose of the book.

Chapter II, which deals with coolant properties, heat transfer, and fluid flow, and Chap. IV, which considers heat-transport system design, give complete coverage of the use of liquid sodium as a fast-reactor coolant. Little mention is made of alternate coolants such as helium or steam. This omission is probably due to the editors' decision to limit the coverage to operating reactors or reactors under construction.

Chapter III covers structural analysis in a more or less descriptive manner so that the reader will have to look to the extensive reference list at the end of the chapter for more detailed information. Reactor designers will find Chap. VII, Fuel Handling, and Chap. VIII, Shielding, particularly comprehensive since these two subjects are well covered in a detailed handbook style. Chapter X on Economics presents information based on costs of experimental and prototype reactors, but unhappily it will be difficult to use this information to extrapolate costs of commercial-size plants.

Chapter I, the Introduction, and Chap. XI, Description of Fast Reactors, give a concise resumé of the fast-reactor programs up to the present time. The editors chose to omit any detailed description of fuel elements and core design since it was felt that coverage of this subject would require a separate volume.

Except for some minor editorial errors, this volume is a well-presented and illustrated reference book that covers an important subject in great detail.

Leon Green (BS, Che, Drexel Institute of Technology) is a Senior Officer in the Division of Nuclear Power and Reactors in the International Atomic Energy Agency, Vienna. In 1956 he joined Brookhaven National Laboratory (Nuclear Engineering Department), and for ten years was involved with design and analysis of a number of advanced reactor concepts. Before taking his two-year appointment with IAEA, he headed the Evaluation and Technical Assistance Group at BNL.

CONVENTIONAL BUT EXPENSIVE

Title Radioisotope Measurement Applications in Engineering

Authors Robin P. Gardner and Ralph L. Ely, Jr.

Publisher Reinhold Publishing Corp., 1967

Pages xii + 483

Price $16.00

Reviewer V. Lawrence Parsegian

A major byproduct of the atomic age has been the large increase in man-made radioactive isotopes of the conventional elements. These radioactive forms of elements, which number over a thousand, offer unique advantages for many industrial and research applications. When incorporated in chemical, metallurgical, and biochemical systems, radioactive isotopes usually behave much the same way as do their corresponding stable cousins. But because they emit ionizing radiation, even minute quantities of radioactive isotopes can be detected or *traced* by the tracer technique. These same isotopes can also become sources of penetrating, ionizing radiation which can be utilized for gauging the thickness of materials or used in place of x-ray sources for making radiographs of parts. These uses are discussed in this volume.

Although tracer research, gauging, and radiography have assumed considerable importance in many industries and laboratories, with few exceptions graduates from science