Three of the reactor systems, Dragon, BR-3, and the Savannah, are presented as foldouts of large size (19 in. by 29 in.) which are suitable for framing with their excellent detail and contrasting color schemes. Apparently the book is designed to facilitate easy removal of the single sheet reactor descriptions since the binding consists of only staples although there is an incongruous hard cover which one would expect with a more permanent type of binding.

The listing of reactor data leaves much to be desired. As in most such compilations, the data is usually of little importance to the serious reactor designer. No reference is made to the quality of data, viz., whether the presented data is empirical or calculated. Cross comparisons also become difficult because of a lack of uniform data presentation. In this reviewer's opinion, there is little justification for the separate publication of this compilation outside of the previously mentioned advantage of possibly framing a reactor illustration.

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Introduction to Nuclear Engineering. By RAYMOND L. MURRAY. *Prentice-Hall*, Englewood Cliffs, New Jersey. 384 pp. $12.00.

Those acquainted with Dr. Murray's first edition (first printing March, 1954) are aware that it was one of the first texts available that covered subject matter, properly arranged, (at that time) to be called an introduction to nuclear engineering.

Dr. Murray is well qualified to author this book. He and Dr. Beck designed and literally built the first reactor on a U.S.A. campus. Their water boiler at North Carolina State led the parade of University reactors. Dr. Murray's physics background plus his experience as a consultant on many types of reactors puts him on the somewhat exclusive list of those who have both a good theoretical knowledge and practical experience.

I have used his first edition as a text for senior level, nuclear students for six semesters. I selected Murray's book after making a thorough check of all available texts. I found it to be at the proper level for this use and it had the best coverage of material for an introductory course. My students had a prerequisite nuclear physics course that prepared them for this text and, in fact, reduced the importance of the first two chapters. The first two chapters provided a good review, however, and was useful. I am glad to see this material retained in the second edition.

As of 1960, some sections of his first edition were becoming dated, other new texts were available, and after seven printings it was becoming obvious that Dr. Murray's book needed updating.

In the second edition, Dr. Murray not only updated his book, but took advantage of the opportunity to rewrite the text and consolidate related chapters to give better continuity. More comprehensive treatment has been given such subjects as particle accelerators, fuel costs, properties of new materials, shielding analysis, reactor experiments, isotope use, direct conversion, ion propulsion of space vehicles, and thermonuclear devices.

The content is well organized and covers the subjects that I consider well chosen for an introductory text. These subjects include a one-group model reactor analysis and design, various reactor concepts, fuel production, reactor operation, reactor materials, heat transfer and fluid flow, health physics, shielding, detectors, controls, isotope uses, kilowatt generation, nuclear propulsion and fusion, plus a good appendix on reactor theory for those who desire to go farther into reactor theory. The details of the book including binding, paper quality, printing and index are very well done.

Old Chapter 12 covering application of theory from other chapters to the design of a liquid metal cooled reactor was deleted. While it would be helpful to the student to have the material retained in the second edition, the author chose to delete the chapter. This released 28 pages for new material without increasing the bulk of the book. Other appropriate deletions include old Chapter 7, the water boiler and swimming pool reactors; and old Chapter 20, building heating.

Important additions include an up-to-date Chapter 5 covering reactor concepts, such as: PWR, sodium graphite; EBWR, homogeneous reactor and the fast breeder and EBR. Fig. 5.5 is the EBR, not Enrico Fermi, as captioned. The addition of the build-up factor discussion in the shielding section is very desirable.

The book is well illustrated with 17 major illustrations and 123 charts and sketches. Arithmetical examples worked out in detail in the chapter text help the student understand the application of the theory.

The problem sets at the end of each chapter in the first edition left much to be desired. In the new edition, the problems have been improved by the addition of new problems and revision of the old problems. A manual of problem solutions is available which will be helpful to instructors.

It was a mistake to devote an entire page to table 3.1, uranium prices, in the second edition. These prices have changed since the book was published and the book is already dated. Increasing the price of the book to $12.00 makes it a little expensive for an introductory text. However, in my opinion, it is worth it, and I like it for a classroom text and a reference for advanced junior and senior college level students.

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(About the Reviewer: Glen Schoessow received his M.S. degree in engineering from Purdue in 1933. He began his career in nuclear engineering starting with the Brookhaven reactor modification in 1947. Since that time he has accumulated experience in the submarine program, power reactors, and research reactors. Since 1958 he has been teaching graduate courses and the undergraduate course mentioned above, directing research, and operating the reactor in the Nuclear Engineering Dept. at the University of Florida.)