

Book Reviews

Reactor Operation. By J. Shaw. Pergamon Press, Elmsford, N.Y. (1969). 269 pp. \$6.25.

This is one of the few available textbooks on reactor operation, but it has limited utility for American students or professional workers, since it deals primarily with British graphite-moderated CO₂-cooled reactors. However, for graduates who will work on this type of facility, the book is likely to be quite useful. Procedures for fuel loading, startup, rod calibration, and power measurements, differ from those of most U. S. systems, both because of the reactor type and the special equipment involved.

The titles of the nine chapters are: General Problems of Reactor Operation, Principles of Control and Operation, Nuclear Instrumentation, Reactor Start-up, Prenuclear Commissioning, Reactor Physics Experiments, Control Rod Calibrations and Temperature Coefficient Measurements, Fuel Element Leak Detection, and Operation at Power.

What background the reader is presumed to have is not indicated. The early discussion of control and operation would be essentially meaningless to a person without some foundation in reactor principles and analysis. Formulas for k_{eff} in terms of materials and geometric properties are stated without proof and used freely; however, detailed derivations are given for ¹³⁵Xe poisoning.

The reviewer found the text to be clear and statements generally correct as best could be ascertained. However, it was not evident (p. 52) how temperature measurements can be used to determine neutron fluxes. A few misleading diagrams are presented, e.g., Fig. 6.2, indicating that the placement of a BF₃ counter next to the source in a reactor startup is "typical"; Figs. 2.2 and 2.3, which do not consistently bear out the statement that the reactivity change per unit length of rod motion is very small; Fig. 2.6, which does not indicate the existence of a prompt jump in a reactor transient.

Raymond L. Murray

North Carolina State University
Raleigh, North Carolina 27607

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About the Reviewer: Ray Murray has been teaching at North Carolina State University since the early fifties where he is now Head of the Nuclear Engineering Department. During World War II, Dr. Murray was in Oak Ridge associated with the program for separating uranium isotopes by the electromagnetic method. He completed his graduate studies at the University of Tennessee.

Practical Scientific Russian. By S. Kaganoff. Gordon and Breach Science Publishers Inc., New York (1968). 346 pp. \$16.00.

The wide knowledge of English by Soviet scientists, the inclusion of English language abstracts in many Soviet journals, and the study of English by essentially all Soviet

science students suggests the possibility that the title of this book may be inappropriate. Can "scientific Russian" really be "practical" for an English speaking person? Is there really a "scientific Russian" language that is distinct from, say "literary" Russian?

The answer, of course, changes from "no" to "yes" as one descends the scale of mastery of the language from comprehensive fluency to rudimentary reading ability, applied to a narrow band of the human activity spectrum. In either case, this book would probably be a useful adjunct to a Russian language study program after an initial introduction through class work and perhaps a more elementary text. The approach here is to vault over the "ЧТО ЭТО?—ЭТО КНИГА" (What is this?—this is a book) gateway of the usual beginners texts, to pronunciation of fairly formidable nouns and cognates right on page 4.

Chapter 2 jumps into formation of words, including all the parts of speech and alternation of phonetic stress as occurs in declension of nouns. For the rank beginner this may be overambitious, but for an adult working with a good teacher and perhaps two quarters of evening class behind him, this could be a most beneficent reintroduction.

In Chapter 3 the book finally comes to grips with the basic structure of nouns and with the "typical question" mnemonic framework for declensions on page 19. This, of course, is the way Russian kids do it, and the American who has similar linguistic ambitions quickly discovers on the pages that follow that six cases plus four different word ending patterns, add up to lots and lots of work.

However, the determined student with a keen interest in acquiring a Russian vocabulary in physics and electronics, will find this book an excellent study guide. Both the examples of grammatical usage and the vocabulary are consistently pertinent to these fields and are very well chosen.

The final pages contain a reader, while the appendices contain subject titles from The Abstract Journal—Physics and a Russian to English cumulative vocabulary. The student who has truly worked his way through to these, will by that time be reading contemporary selections in his own field.

Joseph Lewin

Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830

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About the Reviewer: Joseph Lewin is a 1951 graduate of Cooper Union Institute in Mechanical Engineering. After some time in the aircraft industry he joined the Oak Ridge National Laboratory in 1958 where he has been associated with the General Engineering, Thermonuclear, and Neutron Physics Divisions. In his "spare" time he has taught the Russian language to adults at Oak Ridge and Knoxville during the years 1958-1965 and has served the U.S. Atomic Energy Commission as an interpreter during a dozen exchange visits by Soviet scientists and technologists to the United States. Mr. Lewin was a member of a U.S. group that visited Russia in 1964.