

# BOOK REVIEWS

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Selection of books for review is based on the editor's opinions regarding possible reader interest and on the availability of the book to the editor. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



## **Textbook of Nuclear Medicine, 2nd Edition**

Volume I: **Basic Science**

Volume II: **Clinical Applications**

<i>Editors</i>	John Harbert, M.D., and Antonio Fernando Gonçalves da Rocha, M.D.
<i>Publisher</i>	Lea & Febiger, Philadelphia, Pennsylvania (1984)
<i>Pages</i>	Volume I, 526; Volume II, 724
<i>Price</i>	Volume I, \$80.00; Volume II, \$95.00; Volumes I and II together, \$155.00
<i>Reviewer</i>	Raymond L. Murray

The invitation from the editor of *Nuclear Technology* to select a book to review is always welcome. There is sure to be at least one book that piques the curiosity. Once committed to review it, one is obligated to read, study, and thus learn. The task is especially rewarding when the book is of the high quality of *Nuclear Medicine*. The authors, editors, and publisher clearly sought and achieved excellence, for which they are to be congratulated.

The two volumes describe many aspects of the use of radiation from radionuclides for the diagnosis of disease. Little is said in the books about treatment, but this is consistent with the statement in the brochure issued by the American College of Nuclear Physicians, "the emphasis in all Nuclear Medicine departments is on diagnosis of disease."

Volume I contains 20 chapters. The first four deal with basic atomic and nuclear physics and methods of measuring radiation. The chapter on compartmental analysis is really about the modeling of complex radioactive decay chains. The next two chapters on imaging systems and computer use carry the reader to the forefront of diagnostic technology, including descriptions of positron emission tomography and Fourier analysis of dynamic time-activity curves. Two chapters cover radionuclide production by accelerators and reactors, with special attention to the molybdenum-technetium radionuclide generator, but with some discussion of several others. A long chapter on radiopharmaceutical chemistry

treats the labeling of technetium and iodine compounds, and is followed by three chapters on dose calculations, radiation hazards, and radiation protection methods. The chapter on radioimmunoassay as an example of competitive binding analysis poses the same problem to the reader as do other references (including Rosalyn Yalow's own writing). Missing is an elementary explanation of the basic function and relationships between antigens and antibodies. The next several chapters become even more specialized, including radio-microbiology, activation analysis, brain blood-flow studies, ultrasonography, computed tomography, magnetic resonance (note that doctors have abandoned the word "nuclear"), and digital subtraction angiography. The final chapter on perception is reminiscent of the human factors concepts used in nuclear station control room design.

The 26 chapters of Volume II are devoted to the special methods applicable to specific organs of the body—thyroid, adrenals, brain, eye, muscles and skeleton, gastrointestinal tract, pancreas, liver, gall bladder, lungs, heart, blood system, genitourinary system, and lymph system, ending with diagnosis of tumors. In each case emphasis is on the appropriate nuclides and technique. Here the terminology becomes a barrier to understanding, but the reader is left with the distinct impression that the authors of the chapters are highly knowledgeable and capable.

The books are aesthetically pleasing with their high quality paper, large clear type, and abundant diagrams and photographs. The textbooks can be viewed from several perspectives. The medical student will probably regard them as challenging but comprehensive. The physician will appreciate the wealth of references. For example, there are 177 references on thyroid diagnosis and 260 on the hematopoietic (blood forming) system. Titles of papers and books are consistently referenced. As a textbook author with chapters on radiation applications in progress, this reviewer found the first volume useful in its description of modern medical technique. Teachers in nuclear engineering programs should find it similarly useful.

Nuclear practitioners would profit from looking through the books. Those of us who deal primarily with reactors tend not to realize that great progress has been made and still is being made in the production of pharmaceuticals and computerized imaging systems for diagnosis. In fact, we probably fail to take full advantage of these positive aspects of

nuclear technology as we discuss the problems of nuclear power with the public. Laymen are not likely to read the books; even so, we owe it to them to continue to emphasize the societal benefits of nuclear medicine.

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### The Nuclear Suppliers and Nonproliferation

<i>Editors</i>	Rodney W. Jones, Cesare Merlini, Joseph F. Pilat, and William C. Potter
<i>Publisher</i>	Lexington Books, D.C. Heath and Company, Lexington, Massachusetts (1985)
<i>Pages</i>	249
<i>Price</i>	\$32.00
<i>Reviewer</i>	John A. Wethington, Jr.

The genesis of this book is best summarized by quoting from the Preface:

This book grew out of a seminar on Nuclear Suppliers and Nuclear Nonproliferation that was held on June 28-29, 1984, in Washington, D.C., under the auspices of the Georgetown University Center for Strategic and International Studies (CSIS). The seminar was a collaborative effort from the start, being cosponsored by the Istituto Affari Internazionali (IAI) of Rome, Italy; the Center for International and Strategic Affairs (CISA) of the University of California at Los Angeles; and Los Alamos National Laboratory, which is also affiliated with the University of California.

The use of acronyms is immediately apparent; 60 of these, varying from ACDA to WOCA, appear on three pages preceding Chap. 1. Readers should make a photocopy of these for use while reading the book.

The book is organized in six parts. Theoretical perspectives on the nonproliferation regime; perspectives from individual advanced nuclear supplier countries; and the problems for the nonproliferation regime of emerging or second-tier suppliers or "new" exporters of nuclear materials, devices, and technology (South Africa, Argentina, Brazil, India, Pakistan) constitute the first three parts, and the main thrust of the book. The fourth part is devoted to industry-government cooperation on nuclear supply issues. This section is thought-provoking and reveals the striking contrasts between the close ties between government and industry in France and the arm's length and uneven U.S. relationship between government authorities and industrial firms in nuclear-export issues and nonproliferation policy. Part V focuses on those countries that are often identified as opposed—or at least uncommitted—to the principles of the nonproliferation regime: India, Pakistan, several Latin American states, South Korea, and Taiwan. Part VI examines preparations for the forthcoming nonproliferation treaty (NPT) review conference and the issues likely to be raised there.

All 24 chapters are written by "experts." After reading the entire book, two chapters stand above the others. I enjoyed the technical excellence of "Second-Tier Nuclear Suppliers: Threat to the NPT Regime?" by Ram R. Subramanian. Two of the six tables in the book appear here, and in contrast to many of the other authors in the book, Subramanian deals with hard numbers. He states that the Nuclear Supplier's Group (NSG) remains a Caucasian club. Indian authors in the nuclear weapons field seem to have a habit of injecting race into the proliferation issue. I wonder if the laws of physics recognize color? The other exceptionally interesting chapter is "The Delicate Balance: Government and Industry Cooperation in Enforcing Nonproliferation," by Francois Bujon de l'Estang of France. He discusses provocative ideas about the decline of the nuclear industry in the United States and its loss of influence throughout the world. In de l'Estang's opinion, President Carter's policies regarding advanced nuclear technologies in the United States raised serious questions about the reliability of U.S. nuclear commitments, and, as a result, its voice in international circles has diminished proportionally.

This 283-page book contains six tables, one figure, and zero equations. The authors must exist in a nontechnical world. On the other hand, perhaps they see a bigger picture than our technical associates do. I could not find this big picture, but I think the message is that the Nonproliferation and Tlatelolco treaties represent our best and only hope for a future without nuclear weapons on every street corner.

This book represents a useful addition to a library; it is not clear to me who will really use it. Perhaps a political scientist or two will study it!

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