Nuclear Medicine. Robert Henkin, Mark Boles, Gary Dillehay, James Halama, Stephen Karesh, Robert Wagner, Michael Zimmer, eds. Mosby Yearbook, St. Louis, MO, 1724 pages, 1996, $289.00.

This two-volume text utilized the talents of 153 contributors to author the 106 chapters that comprise this 1724-page tome. The text is amply illustrated, with 2941 photos and graphs. The book is organized in a traditional fashion, starting with an introduction to nuclear medicine, progressing to its scientific foundations and then to the clinical applications. The two volumes are divided into eight parts, comprised of the following sections:

1. Introduction–this section is comprised of three chapters covering history, decision making and informatics, and radiation safety.
2. The scientific basis of nuclear medicine. This section devotes 36 chapters to physics, radiation detectors, collimation, computers, quantitation, tracer kinetics, dosimetry, radionuclide production, radiochemistry, adverse reactions, radiobiology and radioassays.
3. Immunologic aspects of nuclear medicine devotes nine chapters to radioimmune studies.
4. Clinical organ system studies are described in 44 chapters.
5. Special oncologic studies devote four chapters to the use of gallium, thallium and MIBI, lymphoscintigraphy and PET.
6. Therapy with unsealed sources devotes four chapters to treatment.
7. Diagnosis of inflammatory disease is presented in five chapters on the detection of infection and inflammation.
8. Two chapters on pediatrics.

The text is encyclopedic. It is not meant to be read from cover to cover, but rather to serve as a reference source to answer specific, detailed questions about a particular area. Several chapters provide detailed information of particular interest to investigators on topics that are rarely found in general texts of nuclear medicine, such as the chemistry of technetium and the metallation of proteins, radiolabeling of formed elements in blood, techniques of iodination, determination of microbiological purity and adverse reactions to radiopharmaceutical agents. Several arcane subjects have their own chapter such as whole-body counting, details of collimator design, pathway for FDA approval of new radiopharmaceuticals and SPECT display techniques. Several chapters cover radioimmune imaging and therapy, which is a bonus to the book.

The largest section of the book, Chapters 49–91, is devoted to clinical organ system studies. Chapters generally begin with a general introduction to the topic, followed by a detailed, well-illustrated discussion. The references are up-to-date (generally through 1993) and often include citations of classic works in the area. The chapters run the gamut from relatively straightforward explanations often emphasizing the "how to" aspects of a technique, with less emphasis on the "what for," to the postgraduate level discourse on a particular topic.

In general, the figures and drawings are well-done and make a point. As with any multi-authored text, there is variation in the quality of each contribution, although most of the chapters provide meaningful insight into their subject area. There are, however, some striking omissions. One of these is the absence of a discussion on diuretic renography. Another is the relative paucity of information on studies in pediatrics. Although two chapters are presented on pediatrics, one on radiopharmaceuticals and the other on skeletal imaging, the major area of pediatric urologic disease is barely mentioned in the chapters on kidney studies.

Overall, this is a comprehensive work. The radiopharmaceuticals sections are the best. Several of the clinical chapters are among the best I have seen, such as the treatise on skeletal scintigraphy in non-neoplastic osseous diseases, the two chapters devoted to pulmonary studies and the detailed discussion on the measurement of glomerular filtration. The editors have done a wonderful job putting together a vast amount of material. The minor omissions can be readily overcome when the second edition is published.

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Radiation Protection in the Health Sciences. M.E. Noz and G.Q. Maguire, Jr, eds. World Scientific Publishing Company Pte Ltd, Singapore, 304 pages, 1995, $66.00.

This textbook is a straightforward exposition of the basic physics, technology, practice and regulatory aspects of radiation protection. It contains 12 chapters and numerous tables, illustrations and photographs presenting:

1. Radioactivity and interaction of ionizing radiation with matter (briefly discussed).
2. Gas-filled, solid-state, semiconductor and scintillation radiation detectors (including survey and calibration instruments and personnel dosimeters such as film badges and thermoluminescent dosimeters).
3. Radiation, radiation protection quantities and units.
4. Internal radionuclide radiation dosimetry.
5. Practical and regulatory aspects of radiation protection (i.e., time, distance and shielding) for radionuclides as well as external radiation sources.

The figures and figure legends are generally adequate. Although the mathematically oriented chapters (on shielding and internal radionuclide dosimetry) include several solved numerical examples, more examples would have been helpful. Each chapter concludes with a series of review and problems questions (with the answers to the latter presented in an appendix).

In addition, there are five other appendices: a tabulation of important quantities and units, an exposition of the relationship between the roentgen and the rad (which should have been incorporated into the chapter on radiation quantities and units), a logarithm table (which seems somewhat anachronistic in this era of scientific calculators and PCs), a thorough annotated glossary and a useful bibliography which includes the relevant authoritative publications of national and international organizations. The table of contents and the index are thorough and accurate.

The book is generally clearly written, but occasionally the presentation of material is too abbreviated, particularly in the chapters on radioactivity and interaction of ionizing radiation with matter and on radiation biology. The lack of material on radiation biology is particularly noteworthy. A separate chapter on this topic, including a discussion of stochastic and nonstochastic effects, is certainly warranted.

Although virtually all of the material in this book is presented in several readily available sources, it is a useful, relatively brief

introduction to medical radiation protection. Despite its brevity, it is remarkably comprehensive.

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Principles of Nuclear Medicine. H.N. Wagner, Jr., Zsolt Szabo, Julia Buchanan, eds., W.B. Saunders, Philadelphia, PA, 1995, Contact publisher for price information.

The editors of this text have successfully completed a monumental undertaking in coordinating the contributions of 175 authors in the many fields related to the practice of nuclear medicine. It will be of value for both physicians and basic scientists and also of interest to students of medical and scientific history. The extent of the work covered in the 51 chapters, some of which have been broken down into a total of 70 sections, can be gauged in part by the 7800 publications referenced in the bibliographies of the separate chapters and sections, ranging up to 1131 titles in the chapter on the heart, which includes 313 titles in the coronary artery disease section alone.

The references cover the background of nuclear medicine development through the early 1990s and are limited only by the delays in the preparation and review of manuscripts for publication. Organ systems and disease-specific chapters and sections comprise approximately one-half of the text, the remainder being devoted to relevant scientific, technical and biological material.

Detailed evaluation for the scope of the text was done by this reviewer for only a limited sample of the numerous chapters and sections. Of particular current interest are the sections dealing with neurology, cardiology, oncology, nephrology and infectious diseases. Future trends in these different clinical areas are discussed. We are introduced to new concepts, such as molecular nuclear medicine, molecular messengers and genetic modeling in human disease.

This volume is highly recommended as an excellent textbook and in-depth resource on all aspects of the practice and science of nuclear medicine. The only caveat that may be offered to those acquiring this book is to be equipped with a comfortable chair, a sturdy desk, good lighting and possibly a magnifying glass with which to survey the bibliographies.

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Nuclear Medicine: Diagnosis and Therapy. John C. Harbert, William C. Eckelman, Ronald D. Neumann, eds. Thieme Medical Publishers Inc., New York, New York, 1234 pages, 1996, $195.

The study of medicine is a science; its practice, frequently, art. A clinical textbook of a medical science should serve to connect, if not bridge, these two sometimes incompatible attributes; it also should seek to become the standard reference work containing paradigms for direction and thought.

The art of clinical medical science, however, can be explained in different ways. One *genre* of textbook brings together the diversity of current clinical science and research; another attempts to lay down the science and the practice of the clinical specialty as established by a group of clinical researchers working in concert over a significant period of time.

This textbook of nuclear medicine has been put together in the latter mold by respected nuclear medicine researchers who have contributed significantly to the development of the specialty. Their familiarity with the field is evident in the steady progression of chapters from the basic sciences section through clinical sciences and finally therapy. Chapters are detailed without being esoteric; attention is paid to standard clinical practice and promising avenues in careful measure. References are exhaustive and as current as can be in a text. Not only are individual chapters enlightening, but the overall structure speaks of thoughtful editing. Indeed, within the chapters is an organization that allows varying depths of understanding without loss of the thread (of nuclear medicine) through the textbook.

The editors have embellished the book with outstanding chapters by a diverse selection of authors. Basic sciences ends with a an in-depth look at radio-microbiology. The nuclear cardiology section is superb; Drs. McNeil and Rutter have elucidated, simply yet exhaustively, the principles of medical decision-making and its role in the development of optimized diagnostic algorithms. The importance of algorithms in nuclear medicine therapy is also underscored in the excellent chapter by Dr. Harbert, who presents the multiple facets of radioiodine therapy in differentiated thyroid carcinoma, without bemoaning the relative lack of firmly established therapeutic principles.

The careful (and timely) attention paid to nuclear medicine therapy is enhanced by inclusion of several Appendices, including radiocolloid properties and common beta dose rates. The absence, however, of a section on current thinking in quantitation of *tumor* dosimetry is puzzling.

The thoroughness with which the book has been put together is further reflected in well-illustrated plates. Many of these illustrations are additionally placed in context, in a gray scale image, a novel and helpful feature. Appropriate attention has also been devoted to nuclear medicine regulations and laboratory safety practices.

Decay schemes (though I was surprised to see ^{188}Re but not ^{186}Re), physical data tables (where ^{186}Re *is* tabulated), and nomograms in the Appendices are detailed without being burdensome; and welcome additions are iodine contents and diets (and, of course, the Memorial Sloan-Kettering Cancer Center dosimetry protocol for thyroid cancer).

If the book may be faulted for anything, it may be for offering too much. Appendices detailing conversion units, a universal decay table for ^{99m}Tc, "common abbreviations," are perhaps excessive. Eckelman's chapter is perhaps too detailed for the average nuclear medicine physician; for an interested researcher, however, it is priceless.

Several nuclear medicine textbooks have recently been published, and, in these cost-conscious times, it may not be feasible for one to possess all. However, this text is probably most important for the nuclear medicine practitioner with an interest in therapy, and it must proudly stand on every department library shelf, for its elucidation of standard protocols as well as for its reference lists.

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