Brain Imaging: Applications in Psychiatry. Nancy C. Andreasen, editor, American Psychiatric Press, Inc., Washington, DC, 396 pp, $80.00.

Finding the proper PET or SPECT textbook makes some people feel like Goldilocks trying to find what was just right at the bears'. Most seem either too technical or too basic, either written for the first-year resident or for the clinico-mathematician at the institute across town. The publication of this book is a welcome event for those who have felt themselves in this predicament.

The book consists of five chapters; computed tomography, nuclear magnetic resonance imaging, computerized EEG and evoked potential mapping, SPECT, and PET. Each chapter begins with a clear introduction to the method, a review of important procedural and technical concerns, and finally a summary of applications to psychiatric disorders. I was impressed by the uniform clarity of the writing. The literature is summarized through about 1986–1987. The book is particularly useful since it discusses the entire range of noninvasive neuro-imaging methods.

In her introduction, Dr. Andreasen states that her goal is to clearly and accessibly describe the technical and clinical aspects of CT, MRI, PET, SPECT, and EEG mapping in a variety of psychiatric applications. Remarkably, given the ambitiousness of this goal, the authors have succeeded. This book contains, in one volume, sufficient technical and clinical coverage of these imaging areas to satisfy all but the dedicated imaging specialist. This coverage ranges from basic principles to comparative strengths and limitations, data reduction, and clinical application. Each chapter stands as a unit, yet the format permits both the technical or clinical sections to be read in isolation without too much loss on context. The clarity of the presentations on PET and SPECT alone recommends this book as an introduction for those new to these methods. Many non-radiologist nuclear physicians will value the chapters on CT and MRI, since they place PET and SPECT in a wider imaging perspective. The information about EEG mapping, although brief, will be of interest to almost any imaging specialist.

I highly recommend this book to nuclear medicine practitioners or radiologists performing PET and SPECT studies of the brain. It will clearly interest psychiatrists interested in the imaging methods of the future.

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Radiation Protection. A Guide For Scientists and Physicians, Third Edition. Jacob Shapiro. Harvard University Press, Cambridge, MA, 1990, 494 pp, $35.00.

This detailed and authoritative text is probably the most readable and thorough radiation safety manual available anywhere. The first edition (1972) evolved from a basic course first offered to university personnel handling radionuclides in the early 1960s and has been updated at nine-year intervals in 1981 and now 1990. The new edition like the second edition is organized into six parts, which progress from the basic physics of ionizing radiation produced by radionuclides and x-ray equipment and the fundamental concepts of radiation protection to a detailed review of radiation dose computation and radiation measurements. These sections set the scene for the most useful part of the book, which discusses the regulatory requirements of a radiation safety program with practical advice on meeting them. Finally, the impact of radiation on society is presented in its several facets: the biologic effects of radiation and the sources and levels of radiation, including accidental exposure and the potential exposure from nuclear warfare.

The author clearly regards his mission as a teacher and throughout the text introduces cogent numerical problems to illustrate the use of scientific principles to evaluate radiation safety problems. For example, the section on radiation dose contains 36 working examples, and the section on radiation measurement another 14. The book can therefore be used–and is used–for self study. Indeed, at the end of the book, there is a collection of 25 problems complete with answers which could constitute an examination in radiation safety. The book is also conceived as a reference work and is notable for its 70 tables, many of which contain information that is hard to find; a good example is on p. 308 detailing the maximum activities of radionuclides that may be mailed through the U.S. Postal Service. The sub-title of the book indicates that it is more than a "how to" manual. It is obviously written by a physicist with considerable erudition who uses calculations to make his points. The book's audience extends therefore well beyond the laboratory or clinic using radionuclides and includes professional health physicists through its treatment of specific problems (for example, release of radioactive effluents through a stack and subsequent dilution of the resultant plume). However, the author stops short of providing rigorous mathematical analyses of these problems.

A large fraction of the new edition is unchanged from the previous edition. The major changes are introduced because of new concepts introduced by the principal regulatory agencies and advisory bodies, such as the Nuclear Regulatory Commission, the International Commission on Radiological Protection (ICRP), and the National Council on Radiation Protection (NCRP) whose policies are intertwined. Thus, the concept of effective dose equivalent, which supplements "whole body dose" as an index of hazard, is discussed whereby the dose to different body organs is weighted according to the relative cancer (and genetic) risk and then summed. Similarly, the concepts of derived air concentration (DAC) and annual limit on intake (ALI) have been introduced to replace maximum permissible concentration and maximum permissible body burden. The new edition also contains the new NRC training standards for medical use of radionuclides. In the area of public health, there is reference to the increased estimates of cancer risk arising from the revised dosimetry of the Japanese A-bomb survivors (1986) and their further follow-up (through 1985). The book's revision was completed after the publication of the United Nations 1988 report on cancer risk, but before the release of the U.S. National Academy of Sciences (NAS) report on the same subject (1990). One problem with the revision is the detailed inclusion of cancer risk estimates dating from 1980

from NAS in juxtaposition to the updated U.N. risk estimates. The earlier material on risk could have been substantially pruned for this new edition with more discussion of the new material. Indeed, my major criticism of the new edition, which arises with many updates of older books, is the continued inclusion of older material that has been superseded. Thus, the discussion of radon, which was updated in the second edition, still carries the imprint of older work from the 1950s and 1960s and tends to overlook more recent work appearing in several books and NCRP reports. However, the complete listing of reports from the NCRP and ICRP and of NRC Guides is a useful compensation. All in all, this inexpensive book remains a "standard work," particularly in the medical environment.

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Books Received

Professional Self-Evaluation and Continuing Education Program—Nuclear Radiology (Fourth Series) Test and Syllabus, *James H. Thrall, editor, Philip O. Alderson, Manuel L. Brown, R. Edward Coleman, Robert J. Cowan, Barbara J. McNeil, and Barry A. Siegel, American College of Radiology, Reston, VA, 684 pp, $110.00 (members), $90.00 (resident members), $175.00 (nonmembers).* ($5.00 postage and handling charge on each order.)

MIRD Primer for Absorbed Dose Calculations, *Robert Loevinger, Thomas F. Budinger, and Evelyn E. Watson, The Society of Nuclear Medicine, New York, NY, 128 pp, $35.00.*

Nuclear Medicine Procedure Manual, *William Klingensmith III, Dennis Eshima, and John Goddard, Oxford Medical, Englewood, CO, $125.00 (printed version), $95.00 (software version).*

Introduction to Radiology, *Maurice Tubiana and Dutreix Wambersie, translated by D. R. Bewley, Taylor & Francis Group, Bristol, PA, 371 pp, $110.00 (hard cover), $42.00 (soft cover).*

Clinical Phyics and Physiological Measurement: Quantitative Imaging In Vivo (Journal), *The Institute of Physical Sciences in Medicine, York, England.*