

**Imaging 1990**

*F. A. Mettler Jr. Little Brown, Boston, 1990, 275 pp, \$85.00*

"Imaging 1990" provides an excellent encapsulation and reference source for the last decade in radiology and the sibling sciences of nuclear medicine, ultrasound, magnetic resonance imaging, and interventional radiology.

As one who is as near to a general radiologist as can be tolerated in a large teaching institution, I found Dr. Mettler's book to nicely recap the more recent findings, innovations, and questions to be answered as of the 1988 Meeting of the RSNA, and in some areas since that meeting. The topics in the book remain current despite publishing lag time. Each chapter is referenced by pertinent publications in keeping with the scope and nature of the book. The illustrations are generally excellent, however, the examples of digital radiography are a bit small. I would find a few more illustrations helpful, particularly if more heavily labeled and captioned for those less well-acquainted with the various subspecialties. The index was useful but could benefit from expansion by more cross-referencing and greater depth. The use of more extensive titles and subtitles might similarly prompt the reader as to what to expect in the ensuing paragraph as well as serving as an aid in the use of the table of contents and index. I recommend this book to the generalist struggling to stay abreast and to the specialist who needs to broaden his scope. Board candidates might want to keep it nearby.

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**A Non-Mathematical Approach to Basic MRI**

*Hans J. Smith and Frank N. Ranallo, Medical Physics Publishing Corporation, 203 pp, 1989, \$35.00*

Magnetic resonance imaging (MRI) has evolved rapidly over the past decade, and is now an integral part of the radiologic armamentarium. However, this modality can be confusing and frustrat-

ing to those who are unfamiliar with the basic principles. This paperback textbook is designed to provide technologists, residents, and radiologists with a non-mathematical approach to the fundamentals behind MR image production, and bridges the gap between oversimplified models and extensive mathematical formulations. Although "Mathematical Interludes" are included in several chapters for those who have an interest in derivations, even these sections are limited to relatively simple equations. Omission of these interludes by the reader disrupts neither the clarity of the explanation nor the continuity of thought.

The book is divided into three sections. The first is entitled, "Basic Principles of NMR," and contains several chapters that are devoted to the discussion of nuclear spin, and both classical and quantum models of magnetic resonance. The concept of a rotating frame of reference is also introduced. The authors conclude this section with an overview of how the free induction decay (FID) signal is produced. The concepts being presented are illustrated by diagrams that are simple and well annotated. The second section, "Relaxation and Image Contrast," introduces the principles of T1, T2 and T2\*. Its chapters explain in a comprehensible fashion how these properties are manipulated in various pulse sequences to produce image contrast. An overview of both inherent and administered paramagnetic substances is also included in this portion of the text. The third section, "MR Imaging Methods" describes how spatial information is gathered and converted into magnetic resonance images. The authors' concise explanation of the fundamentals of Fourier transformation is successful without resorting to extensive mathematic models. An introduction to fast scanning, flow images, and chemical shift completes this section. The color-coded diagrams help to clarify these often difficult concepts. The final pages of the text are devoted to definitions of various symbols and abbreviations utilized throughout the book, an extensive reference list, and a well-organized index.

As indicated in the preface, this book is designed as an introductory text and does not attempt to be a comprehensive reference for the field of magnetic resonance imaging. Thus, clinical radiographic examples as well as the more complicated aspects of MR are omitted. The few spelling errors can be overlooked. Overall, this text succeeds in its effort to provide a solid, nonmathematical approach to the basic principles of magnetic resonance imaging. The ease of reading and the brevity of the text, in addition to the reasonable price, make it a valuable initial reference for anyone facing the challenge of understanding this important modality.

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**Books Received**

*Magnetic Resonance Imaging and Computed Tomography of the Head and Spine. C. Barrie Grossman, Baltimore, Williams and Wilkins, 465 pp, 1990, \$125.00.*

*The Radiology Word Book. Theresa Indovina and Wilburta Q. Lindh, F. A. Davis Company, Philadelphia, 504 pp, 1990, \$22.95.*

*Magnetic Resonance Imaging of the Spine. Michael T. Modic, Thomas J. Masaryk, and Jeffrey S. Ross, Year Book Medical Publishers, Chicago, 280 pp, 1990, \$110.00.*