

1986 YEAR BOOK OF NUCLEAR MEDICINE
B. Hoffer. Chicago, Year Book Medical Publishers, Inc. 1986.

Once again Dr. Hoffer and his able associates—Drs. Gore, Gottschalk, Sostman and Zaret—have compiled a valuable synopsis of the current literature in the field of nuclear medicine published through July, 1985. The 300 well-chosen articles represent selections from 63 scholarly journals encompassing both those oriented toward diagnostic imaging *per se* as well as those serving the more clinically oriented specialties. The 15 chapters of the year book reflect these respective interests. Recent developments in the technologic aspects of nuclear medicine are reviewed in chapters on magnetic resonance, physics and instrumentation, radiochemistry and radiopharmacology, health physics, and radiation biology. Organ system related topics are addressed in chapters devoted to the cardiovascular, peripheral vascular, pulmonary, gastrointestinal, genitourinary, musculoskeletal, hematologic, endocrine and central nervous systems. Finally, individual chapters address the topics of oncology and infection. As in the previous volume, the year book begins with a keynote review article on a topic of special interest. This year the topic is “Thallium-201 Stress Scintigraphy: Is Quantitative Analysis Worth the Trouble?”

The format of previous volumes is wisely preserved presenting the salient points of each article reviewed followed by brief, insightful editorial comments designed to provide a sense of perspective drawn both from the accompanying articles and the reviewer's experience. Indeed, the organization of the individual chapters frequently juxtaposes articles on similar topics, often with direct comparisons in the subsequent commentaries. This enhances the value of the volume as a review of current literature. Finally, the decision to assign individual chapters to specific editors adds to the balance and coherence of the effort.

The publishers have again provided a quality product in a conveniently sized volume. Reference information is isolated as a discrete block of copy with the title in boldfaced print, which greatly facilitates reviewing individual chapters for articles of interest. Commentaries are similarly distinguished by their own unique type font. Images, figures and tables are well-rendered. Both subject and author indices are provided for the reader's convenience.

The *Year Book of Nuclear Medicine* remains a valuable addition to the personal library of every physician active in the field who requires a familiarity with the breadth of new information available from the literature but lacks the time or resources to obtain it directly. Residents in diagnostic imaging, and physicians in related clinical specialties who frequently utilize nuclear medicine in their practices will find it a welcome short cut to current information. For these reasons, it is a recommended addition to the library of every hospital or department offering nuclear medicine services.

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NUMERICAL RECIPES: THE ART OF SCIENTIFIC COMPUTING.

W.H. Press, B.P. Flannery, S.A. Teukolsky, W.T. Vetterling. Cambridge, Cambridge University Press, 1986, 818 pp. \$39.50

Numerical algorithms are tools for the solution of problems. The worker in medical imaging often needs a working routine quickly without wading through the technicalities of its derivation. This book saved me hours one Sunday afternoon when I discovered that my image processing computer did not have a random number generator in its subroutine library.

The authors address most of the significant topics in practical numerical methods. Chapter topics include the solution of linear algebraic equations, interpolation and extrapolation of data, the integration of functions, evaluation of functions, a discussion of special functions, random numbers, sorting techniques, root finding and nonlinear sets of equations, finding the extrema of functions, eigensystems, Fourier transform methods of spectral analysis, the statistical description of data, modeling of data, integration of ordinary differential equations, two point boundary value problems, and partial differential equations. Each chapter begins with an introduction which describes the issues of the chapter and in the process defines terms and symbols followed by a section or two which reviews the basic concepts of the chapter. The intention of the authors is to present the reader with techniques which will solve the reader's problem. Each chapter begins with relatively simple techniques and then presents more elaborate ones. The authors consciously restrict themselves to the techniques which they consider to be best. As a consequence, the reader is relieved of the task of figuring out which of many presented methods to use on the problem at hand. The most useful feature of the book is the abundance of working subroutines. Not only does the book tell one what tool to use on a problem, but it also provides the tool, both in FORTRAN and in Pascal.

The chapters on random numbers, numerical integration, spectral analysis, and data modeling are the ones which this reviewer has used. The techniques are presented in a straightforward manner. The authors resort to relatively unknown sources if necessary to achieve their aim of presenting the best methods. The programs given work.

Programmers using the C language, which is similar to Pascal, will be disappointed to discover that the Pascal routines are literal translations of the FORTRAN originals. As a consequence, array indices start with unity and this is assumed in all of the array index arithmetic. A simple way around this is to translate the Pascal code directly into C and to decrement at the start of the function any array pointers passed to the function. Then the calling program can use arrays indexed from zero. Another pitfall for C translations is the lifetime of variables within functions. One should declare variables which must retain their values from one function call to another to be of “static” types.

This book is indispensable to anyone who wishes to employ numerical techniques quickly and confidently without becoming an expert in applied mathematics. The authors' clear, non-sense style also makes the book attractive to those who