BOOK REVIEWS

RADIONUCLIDE METABOLISM AND TOXICITY. P. Galle, R. Masse, Eds. Paris, Masson, 1982, 321 pp, $36.00

Proceedings of symposia rarely have lasting value, even to specialists. At best they are "snapshots" of the current status of the field and, consequently, go out of date rapidly. Usually the papers constitute either compendia of data the authors had been unable to publish elsewhere or they are hastily written reviews of previously reported material. Thus, these overpriced tomes languish unused on library shelves for decades until, unlamented, they are discarded. Presumably sales to gullible librarians enrich the publishers and encourage the process.

Happily, *Radionuclide Metabolism and Toxicity* does not fit this dismal mold. It is, in nearly every respect, an admirable effort to assemble the contributions of a group of specialists and create a synthesis of knowledge in a well-defined area. This volume deserves a place on the shelf of any scientist interested in the biological fate of radioisotopes. Since it covers the proceedings of a 1982 symposium of specialists from France, Great Britain, and Germany (organized by the French Biophysical and Nuclear Medicine Society and the IRU—Environment of the University of Paris), the book is current. It is clear that the editors intend that this volume be a standard reference work, because seemingly minor details are included for the benefit of the reader. For example, conversion factors between old radiation units, such as rad, curie and rem, to the new MKS units, Grey, Bequerel, and Sievert, have been included for those of us still having difficulty with modern units. Similarly, the decay schemes of isotopes are displayed as they are discussed.

The individual papers are very informative. Following two introductory papers on human exposure to radionuclides, there are 16 separate papers on individual radioactive elements or groups of elements. Chapters on iodine, cesium, strontium, noble gases, ruthenium, rare earths, tritium, carbon, plutonium, americium, curium, einsteinium, neptunium, californium, uranium, radon (and daughters), and thorium are included. Extensive lists of references follow each paper. The book concludes with more general chapters that cover the risks of radionuclides to human populations. Because these chapters reveal the French leaning toward nuclear power, they may distress readers on this side of the Atlantic who are concerned about nuclear safety.

Each author has made an effort to present the material in a clear, concise, and comprehensive manner. Many papers are written with the obvious goal to be interesting as well as informative. For example, Thomasset, in a short article on strontium delves into the history of the element, noting that it was discovered around 1787 in a Scottish lead mine in the village of Strontain, the source of its name. These touches abound and make reading a pleasure.

The major deficiency of the book is its lack of an index; however, the organization is sufficiently good to permit one to find nearly any topic of interest by simply consulting the table of contents. A minor deficiency is the occasional cumbersome translation from French to English.

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A CLINICAL AND MATHEMATICAL INTRODUCTION TO COMPUTER PROCESSING OF SCINTIGRAPHIC IMAGES. M. L. Goris, P. A. Briandet. New York, Raven Press, 1983, 296 pp

The authors state their intent is to "define an epistemology that allows one person or team to integrate the disciplines relevant to clinical application." They distinguish the organization of this text as "top-down," where clinical applications are presented first, then the mathematical basis for the computer methods, and last the computer technology itself. Such an arrangement is distinctive from other introductory texts on computer methods in nuclear medicine that are organized in a "bottom-up" fashion, where computer technology is explained, mathematical methods derived, and clinical applications demonstrated. I do not believe this text can be characterized as introductory, since it begins with examples of complex functional imagery, followed only much later with the methodology used to derive them. In general, the organization is better described as "middle-middle," with very little introductory or new material. An experienced nuclear medicine computer user can benefit from the first section, "Clinical Applications of Quantitative Scintigraphic Analysis," especially to reveal the perspective of another experienced computer user in addressing scintigraphic approaches to the diagnosis of heart disease, renal, and pulmonary disorders.

The second section, "Mathematical Derivations," was disappointing and cannot be recommended. Many familiar concepts, including digital filtering, convolution, and background correction, are not presented clearly. Integral formulations are widely used, despite the fact that nuclear medicine is a truly discrete imaging modality.

The third section, "Processing Methods of Scintigraphic Images," will interest those responsible for the implementation of functional imaging software. If the reader has sufficient clinical, computer, and mathematical background, these pages are likely to be the most valuable in the volume. The methods of harmonic analysis and several unique approaches to dynamic image analysis and edge detection are informative.

The final section, "The System," is relatively brief and superficial. The material presented here should already be familiar to the reader if he is to comprehend the preceding three sections.

The text is indexed and has 172 references, many of which are recent, collected in a single section. This book will have the most appeal to those with a specific background and interest in dynamic functional analysis, especially if one is to appreciate it from the perspective of an experienced nuclear medicine computer user. It is definitely not a reference text.

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ATLAS OF SECTIONAL HUMAN ANATOMY. J. G. Koritké, H. Sick. Baltimore/Munich, Urban and Schwarzenberg, 1983, Vol. 1, 165 pp; Vol. 2, 183 pp, $165.00 ($89.50 each volume)

With the advent of transmission computerized tomography, ultrasonography, and emission computerized tomography, an

appreciation of sectional anatomy has become a necessity for clinicians as well as for anatomists and radiologists. Although all physicians have studied gross anatomy during their medical school training and other specialists have extensively considered topographical anatomy during their postgraduate training, few have covered sectional anatomy with the intensity required for the interpretation of tomographic images. Clinical interpretation of the data from the newer diagnostic modalities requires a knowledge of the anatomy and relationships as viewed from several sectional perspectives.

This atlas by Koritké and Sick comprises two volumes, one covering head, neck, and thorax and the other the abdomen and pelvis. The high quality of the material presented is directly related to the attention devoted to the preparation of the specimens. The subjects used were predominately young adults without known abnormalities, thus providing sections that are complete and without pathologic variables. Depending on the requirements of the plane, sections were made from 1.5 cm to 2.5 cm in thickness.

In both volumes the format is constant—on one page there is a photograph of the anatomical section and on the opposite page a line drawing of the section with leaders. In a pocket on the inside back cover, an index of each section lists the abbreviations for the leaders. Each anatomical section is reproduced to a specific scale, and a transparent rule that contains the several scales is furnished. The volumes present horizontal, frontal, and sagittal sections of the entire body except the extremities. The photographs of the cut sections of the body are consistently superb, offering outstanding detail. The accompanying diagrams display the main characteristics of the section without excessive detail and confusion.

The attention extended by the authors to the selection of subjects, the methods of tissue preservation and sectioning, the processing of the body sections to maintain anatomical relationships, the photography, and the correlative diagrams have resulted in one of the finest atlases of this type yet published. These volumes are highly recommended to all clinicians and basic scientists who have a need for such reference material. The authors are to be commended on the results of their endeavors.

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COMPUTED BODY TOMOGRAPHY. Joseph K. T. Lee, Stuart S. Sagel, Robert J. Stanley, Eds. New York, Raven Press, 1982, 602 pp, $80.00

Computed Body Tomography provides the radiologist with a very much needed standard reference textbook of body CT. The editors and contributors are well-known pioneers and authorities in this field. The contents are conveniently divided into chapters according to anatomical region. In each chapter there is discussion of normal anatomy and of a variety of common pathologic conditions. A long list of excellent references is included at the end of the chapters.

The chapter on the spine may not be as detailed as would be found in more dedicated textbooks on this area, but it adequately covers the pathology and diagnostic problems. Chapters on pediatric application, comparative imaging, and radiation oncology amplify the scope of this book. In addition, I found the historical review in the foreword and the discussion of the economic-political aspects of CT interesting and informative.

Aside from the well-written and easy-to-follow text, the illustrations produced from current generation scanners are of high quality. As many are aware, the main shortcoming of some older textbooks is that the illustrations used were those obtained with second generation scanners. I highly recommend this text as a reference book on body CT for both radiology residents and our colleagues in practice.

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QUALITY CONTROL IN DIAGNOSTIC IMAGING. J. E. Gray, N. T. Winkler, J. Stears, E. D. Frank. Baltimore, Maryland, University Park Press, 1983, 249 pp, $34.95

This book is aimed at the very practical questions concerning quality assurance in diagnostic radiology. As such, its utility in nuclear medicine is confined to general advice on quality assurance and quality control (QC), both as to the performance and the attendant paperwork, and to those devices and techniques that nuclear medicine shares with diagnostic radiology, such as film processing, video hard-copy cameras, copy film, and viewboxes. The book combines many different facets of quality assurance, usually very feliticiously.

In particular, the first chapter wades into the questions of who should do quality control testing and how it can be combined with other duties; how many people should be involved (from a part-time QC technologist and a full-time service engineer with a physicist in consultation for a facility of five to 15 rooms to one QC technologist and one full-time engineer for every 3 million dollars worth of equipment, along with a physicist in residence); how frequently the equipment should be checked; what to evaluate; and whether in-house service pays its own way (they feel it does). This chapter could easily be generalized to nuclear medicine practice.

The second chapter combines a list of the equipment needed for a QC program with discussions of specific pieces of equipment (such as phantoms and dosimeters), of some of the paperwork, and of the need to have a QC cart to carry the equipment. The "heel effect" is also discussed in this chapter although it belongs more appropriately in Chapter Six. The general and paperwork parts of this chapter could readily be adapted to any QC program.

Chapter Three discusses the basics of quality control, including charts and room logs. The specifics are put into a "Procedures" section at the end of the chapter—everything is spelled out in this section, which is written in the format of instructions for a scientific experiment and includes a "Problems and Pitfalls" discussion for each procedure. In Appendix A, there are suggested charts and forms specifically designed to allow copying for use. Of course, these forms are specific for radiographic equipment, but a great deal of thought has gone into their design. They could well be studied for hints in design, and the general discussion of this chapter could be very valuable.

The fourth chapter discusses reject-repeat analysis. This issue is more critical in diagnostic radiology where each repeat means more radiation dose to the patient. However, a thorough examination of the reasons for repeated views and repeated examinations might be relevant in nuclear medicine to limit patient (and technologist) radiation dose as well as for economic purposes.

Chapter Five concerns photographic quality control. This chapter could be applicable to any nuclear medicine service that cannot rely on a quality assurance program run by diagnostic radiology to check the processors and darkrooms and to clean and maintain them. The chapter also gives specific procedures for processor replenishment for low-volume processors (less than 25–50 sheets of 14 × 17 inch film per 8 hr), information which could be of interest to those in small, isolated nuclear medicine services.

Chapters Six, Seven, and Eight are very specific to diagnostic radiology equipment. Chapter Nine includes a discussion of TV monitors, video tape, and disk recorders. The tests are qualitative and carry the caveat that since the monitors are such an integral part of the system, the checks may only provide an indication of