

## BOOK REVIEWS

**GAMUTS IN NUCLEAR MEDICINE.** F.L. Datz. Norwalk, CT, Appleton-Century Crofts, 1983, 289 pp, \$22.50

The gamut approach to imaging studies has become increasingly popular over the past decade. In his introduction, the author indicates that this book is patterned after Reeder & Felson's "Gamuts in Radiology." What follows are multiple organ system chapters containing a useful collection of common scintigraphic patterns and their differential diagnosis. Each organ system is divided into the types of nuclear medicine imaging procedures diagnostically useful for that system, and each imaging procedure is then subdivided into scintigraphic patterns. Each scintigraphic pattern is followed by a gamut—a list of its differential diagnostic possibilities divided into common, uncommon, and rare causes, which is, in turn, followed by a series of references.

Although many of the currently useful diagnostic nuclear medicine imaging procedures are included, some, such as gastrointestinal bleeding studies, are not. Nonimaging nuclear medicine procedures are also not described. For those procedures that are included, most of the common scintigraphic patterns are listed, and their gamuts are comprehensive, useful, and interesting. However, some common scintigraphic patterns are not mentioned, such as unilateral decreases in renal function, retained hippurate activity, or functional abnormalities occurring with renal transplantation. Each gamut is divided into common, uncommon, and rare causes, and listings in each of these sections occur in alphabetical order. It would be more useful to list the disorders on the basis of frequency of occurrence. Finally, there are references in alphabetical order at the end of each gamut "to provide documentation and to facilitate further reading." It would have been more helpful if the author had referenced specific entities in the gamut, especially for the more lengthy gamuts, which include up to 98 causes and 122 references.

Despite the above-mentioned shortcomings, Dr. Datz should be commended for undertaking this difficult task. Although gamuts have appeared in *Seminars in Nuclear Medicine* over the past several years, this book represents the first attempt at compiling this information in one volume. It will be most useful for radiology and nuclear medicine residents who are learning to interpret nuclear medicine images. It will also be valuable to practicing radiologists and nuclear medicine physicians as a reference when searching for more unusual causes of common scintigraphic patterns.

LAWRENCE DAVIS  
LEONARD M. FREEMAN  
Montefiore Medical Center  
Bronx, New York

**FUNCTIONAL RADIONUCLIDE IMAGING OF THE BRAIN (Sero-  
no Symposia Publications from Raven Press—Volume 5).** P.L. Magistretti, Ed. New York, Raven Press, 1983, 384 pp, \$59.00

This book should mark a watershed in our perspective of brain disease. Concepts of brain disease as an abnormality of structure or an abnormality of a single pathophysiologic index, disruption

of the blood-brain barrier, useful in their time but obviously surpassed by better anatomic and structural methodologies, are rapidly disappearing, and rightly so. This book is a compilation of brief papers from a symposium by recognized experts in their fields using radionuclides in the investigation of brain abnormalities. It emphasizes that diseases of the brain can best be detected, characterized, and monitored by measuring regional alterations in the blood flow, metabolic rates, and neurotransmitter binding sites. The refined ability to measure pathophysiologic changes in disease states must of necessity precede attempts at therapeutic intervention, for it not only provides a means for early diagnosis but for defining underlying disturbances in normal function and for evaluating therapeutic efficacy.

In order to shift our ways of thinking (and those of our clinical colleagues as well) concerning brain disease, this book stresses, with some redundancies and with emphasis on mathematical derivation of the validity of flow measurements, several areas of current interest including tracer measurements of cerebral blood flow made with inhaled or i.v. injected xenon, N-isopropyl I-123 p-iodoamphetamine, HIPDM positron emitters such as F-18 fluorodeoxyglucose, and  $^{15}\text{O}$  labeled tracers. Sophisticated and often unique instrumentation is described—PET; SPECT; specially constructed, multidetector, tomographic reconstruction devices; and probe systems. A number of the papers deal with the limitations of each method and the errors inherent in attempting to quantify the anatomic distribution of a labeled tracer by each of these means. These should be carefully perused by anyone contemplating purchase of one of the commercially available systems.

The utility of each method in a clinical setting is at least briefly covered. For example, there are discussions of cerebral blood flow measurements made with xenon-133 in cerebrovascular disease, including transient ischemic attacks and stroke, head injury, dementia, and neuropsychiatric disorders. Similarly, the utility of positron-labeled indicators of blood flow, oxygen utilization, glucose and protein metabolism is discussed with regard to ischemic vascular disease, including evolution of infarction, epilepsy, different causes of dementia and neoplasm. New concepts emerge from these discussions concerning function: impairment of neuronal centers at a distance from disease affecting the primary center to which they are related—diaschisis; neurotransmitter receptor depletion; decreased blood flow to highly vascular tumors; monitoring BCNU brain neoplasm distribution; ability to monitor a transient ictal episode by injecting a compound, the distribution of which does not change significantly over a several hour period, allowing study of the acute episode in a more convenient imaging environment.

There are also current summaries of the blood-brain-barrier phenomenon and standard radionuclide brain imaging techniques in the clinical setting. In addition, there is a thoughtful, physiologic explanation of cisternographic findings in communicating hydrocephalus.

I share some of the discouragement of one of the authors with the slowness of progress imposed by governmental bureaucracies

and the difficulty of competing for funds with the more glamorous, newer imaging technologies. Thus, it may be that the majority of us who practice clinical nuclear medicine may not be able to participate in these exciting advances. Yet I firmly believe that new therapeutic solutions for common and devastating problems, such as stroke and dementia, will arise only from carefully accumulated data. These are presented in this monograph, which provides insight into the pathophysiology of brain disorders. That is why this book should be read not only by those practicing clinical nuclear medicine, but also by those who deal with clinical disorders of the brain. There is valuable information for all. I was, for example, pleased to learn that while my aging state is accompanied by a gradual decrease in cerebral blood flow, my oxygen metabolic rate is probably remaining fairly constant, evidence that I choose to interpret as indicating that I am really becoming more efficient. I discovered that in at least two chapters, one concerning Xe-133 clearance and the Headtome and the other describing iodoamphetamine imaging in epilepsy, the figures and legends were transposed—I was not actually all that confused.

FREDERICK MISHKIN  
Martin L. King, Jr., Hospital  
Los Angeles, California

**THE CORONARY CIRCULATION IN HEALTH AND DISEASE.** M.L. Marcus. New York, McGraw-Hill, 1983, 465 pp, \$45.00

This single-authored text follows in the footsteps of the classic treatise on the coronary circulation written in 1950 by Dr. Donald Gregg. The text is informative, concise, and clearly written. The author and publishers were thoughtful in their organization and presentation of material—for example, all illustrations are redrawn from original data and presented in a common format throughout the text. The text is divided into six parts: coronary anatomy; methods of measuring coronary blood flow; basic regulatory mechanisms in the coronary circulation; effects of disease processes on the coronary circulation; differences in the coronary circulation of the right and left ventricles; and medical and surgical interventions that modify the coronary circulation.

Although the book is quite strong in all areas, this reviewer found the sections on basic physiology and pathophysiology the most illuminating. There are 12 chapters spanning 255 pages, covering these topics. These chapters define the influence of metabolic, autoregulatory, neurogenic, myogenic, and humoral factors on the distribution of coronary flow. The influence of these factors on the transmural distribution of myocardial perfusion under circumstances of coronary stenoses, spasm, and total occlusion are also well presented. To complete this section, the natural history of the collateral circulation and factors controlling flow through these channels are discussed.

In addition to his review of the literature, Dr. Marcus gives the reader the benefit of his personal opinions on many of the topics. To make certain that the reader understands these statements as opinions, they are presented in italics. The readable style and clarity of the book make it appealing to practitioners primarily interested in cardiology as well as those interested in cardiac imaging. The book, however, does not emphasize imaging procedures per se, but rather their role in elucidating coronary pathophysiology under specific circumstances.

Dr. Marcus should be commended for his authorship of a textbook on a complex subject, written in prose pleasant to read and readily understood.

H. WILLIAM STRAUSS  
Massachusetts General Hospital  
Boston, Massachusetts

**NONINVASIVE DIAGNOSTIC METHODS IN CARDIOLOGY.** N.O. Fowler, ed. Philadelphia, F.A. Davis Co., 1983, 411 pp, \$50.00

This text was probably written to be a reference book for a specialist in internal medicine. Eight initial chapters are well written, illustrated, and referenced. They cover adult and pediatric echocardiography and probably offer information comparable to that found in other books dealing with the subject. I am not sure, however, that echocardiography plays such a dominant role in noninvasive cardiology. Four chapters discuss nuclear cardiology; however, there was no coverage of: 1) assessment of diastolic events by radionuclide angiography, 2) single photon emission tomography imaging, or 3) positron emission tomography. Comparison of exercise Tl-201 imaging with exercise radionuclide imaging is described only superficially. Imaging of the patient after myocardial infarction is not discussed at all. The remaining seven chapters deal with other areas of cardiovascular diagnosis and may be variably pertinent to practicing internists and cardiologists.

If the aim of the book was to reach a broad audience of practicing internists, the author has succeeded in providing a convenient source of information and reference.

JESUS BIANCO  
University of Massachusetts  
Worcester, Massachusetts

**COMPUTER TOMOGRAPHY OF NECK, CHEST, SPINE, AND LIMBS (ATLAS OF PATHOLOGICAL COMPUTER TOMOGRAPHY VOLUME 3).** L. Jeanmart, A.L. Baert, A. Wackenheim, M. Osteaux. New York, Springer-Verlag, 1983, 194 pp, \$98.50

*Computer Tomography of the Neck, Chest, Spine and Limbs* is the third volume in the *Atlas of Pathological Computer Tomography*, a collaborative effort of numerous European authors. Each chapter is devoted to a specific anatomic region and is organized into an introduction with normal anatomy, technique, and indications, followed by presentation of transmission computerized tomographic (TCT) images of selected disease processes. Extensive references are included. As in any text with multiple contributors, the quality of presentation is variable, and in general, the text is sketchy. Some of the terminology used differs from conventional American usage.

The image quality for the most part is good, particularly in the section on the chest. Normal anatomy is well represented. The notable exceptions are in the sections on the larynx and the muscles, where the TCT images are not of the quality expected with current scanners. Also, TCT of the spine is not as fully represented as this extremely important area should be.

This slim volume is neither an atlas of normal anatomy nor a text of abnormal TCT images, but rather a collection of selected abnormalities. There is no correlation with other imaging modalities, therefore, it is of minimal value to the practicing radiologist or nuclear medicine physician.

MARK J. GOLDMAN  
LEONARD M. FREEMAN  
Montefiore Medical Center  
Bronx, New York

**PREPAREDNESS AND RESPONSE IN RADIATION ACCIDENTS.** B. Shleien, Rockville, MD, NCDRH, 1983, 300 pp, \$6.00

"BE PREPARED!" The Boy Scouts have taken a lot of kidding about their motto over the years, but, as anyone who has experienced an accident involving radiation and radioactive materials will quickly and forcefully tell you, radiation accidents can be traumatic to the unprepared medical facility. (See *Radiology* Volume 135, 1980, for a description of the response of a radiology department to the Three Mile Island accident, and *Health Physics*,