

BOOK REVIEWS

TRACER KINETIC METHODS IN MEDICAL PHYSIOLOGY. N. A. Lassen and W. Perl. New York, Raven Press, 1979, 189 pp, \$22.00.

This is a remarkable book. The authors have effectively taken a complex subject with multiple ramifications in medicine and physiology and incorporated it in an extremely lucid, well-illustrated, stimulating, albeit challenging, text. Dr. Niels Lassen is widely recognized as a major authority on the application of tracer kinetics. His enthusiasm, understanding, and clear thinking can be immediately appreciated in reading the text. Dr. William Perl, before his untimely death, was renowned as a prime contributor to the theories of tracer kinetics. The book is an outgrowth of many years of collaboration by the authors, who worked diligently to develop the teaching methods necessary to share their understanding of an intellectual discipline that has now become a cornerstone of both medical physiology and applied nuclear medicine.

The chapters lead in a systematic and progressive fashion from the application of Stewart's constant infusion method, through a thorough discussion of the distinction between constant infusion and bolus injection with either outlet or inlet mixing, to an approach toward "black box analysis" including capillary permeability studies. The references are extremely well chosen and placed in relation to the text to provide a most useful opportunity for historic reflection. Although the subject matter is complex and requires some mathematical understanding, it is so well presented that even the novice will be able to develop a significant appreciation of the thought that has gone into the use of tracers in the study of physiology and disease. The illustrations are simple, clearly pointing out those elements of understanding that may be difficult to verbalize. The packaging is remarkably appealing—the equations, illustrations, and references are placed in such relation to the text as to provide continued reinforcement and refreshing insight. While there may be some disagreement about the relative merits of alternative approaches to various problems raised, the authors have presented a balanced and readily understandable basis for the formulation of future developments in this field. The problems at the end of each chapter serve as an appropriate stimulus to confirm an understanding of the issues. I hope that the availability of this text will lead to the development of medical school and basic medical physiology courses in this most important area.

This text provides an exciting new dimension in our efforts to teach and understand this discipline, and I would strongly urge that it be read by every specialist in nuclear medicine and by many medical and physiology students. We should become increasingly aware of the importance of tracer kinetics to both physiology and nuclear medicine. This information is particularly relevant when seen in light of recent developments in nuclear medicine that are based on the principles of applied time-dependent studies rather than static imaging. A broader understanding of tracer kinetics may well provide a stimulus toward a wider application and the development of diagnostic tests related to regional physiology. This knowledge is prerequisite to realizing the potential of cyclotrons and emission computed tomography since their application requires a thorough understanding of the tracer method. I hope that this book will receive wide acceptance in the nuclear medicine

community as a fundamental text for the discipline. The authors have dedicated the book to Kenneth Zierler of Johns Hopkins University, who also made significant contributions to the development of this basic field. I compliment Drs. Lassen and Perl and the publisher on a superb job.

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TEXTBOOK OF NUCLEAR MEDICINE: CLINICAL APPLICATIONS. A.F.G. Rocha. Philadelphia, Lea and Febiger, 1979, 495 pp, illustrated \$32.50.

The need to update frequently basic medical texts is apparent to no greater degree than in clinical nuclear medicine. Changes in concepts as well as modifications in techniques and knowledge may have a great impact on effective practice in this field. Although soon dated, a textbook serves as a compendium of knowledge unavailable in individual articles. A distinguished group of authors has provided in this text a relatively complete volume, in a clear and concise manner.

The chapter on the thyroid is a well-balanced review, primarily focused on testing and results, but with a summary discussion of diseases and the approaches to therapy of hyperthyroidism and thyroid cancer. The authors' methods of diagnosis and therapy are often given, but adequate references allow the reader to review in depth other approaches. Although appreciable differences of opinion exist in this area, the authors succeeded in summarizing the most important philosophies and methods. With the introduction of computed tomography (CT), for a time the radionuclide brain scan became a secondary procedure for cerebral disease evaluation in many institutions. As experience accumulated, however, the radionuclide study re-emerged as a valuable diagnostic tool, especially in flow evaluation, the early diagnosis of encephalitis, and for screening purposes. In addition to an excellent review of basic brain imaging, the chapter provides a comprehensive discussion of the more important diseases detected by radionuclides. Radionuclide cisternography and other CSF applications are equally well discussed. The basic mechanisms of skeletal imaging are clearly explained and the clinical discussion is concise. Several problem areas, such as differentiating osteomyelitis from cellulitis and the role of routine bone imaging in tumor patients, are not discussed. The chapter on the gastrointestinal system furnishes an excellent discussion of available techniques; however, the pancreas receives more attention than would seem warranted by current medical practice, particularly with the other available diagnostic modalities. Radiocolloid imaging of the liver is exceptionally well covered, with appropriate discussions of many diseases. Rose bengal studies are explored in depth, but the newer biliary imaging radiopharmaceuticals are slighted. The chapter on the lung is the second longest and one of the best in the book. The physiology, pathology, and diseases are comprehensively covered and well written. In fact, this chapter could stand alone as an excellent monograph. Although radionuclide studies of the heart have become almost a separate nuclear medicine specialty, this chapter, although it covers many of the basics, is somewhat limited to be of more than orientation value.