discussions often does not indicate to whom a question was directed.

I suppose, also, that each reader will have a different sense of what is missing from a symposium such as this, but I was somewhat disappointed to find almost no discussion of the microdosimetric aspects of fast neutron beams having energies of 35–60 MeV, such as those being used in current clinical trials in the USA. If the results of these trials are ever to be related to previously successful work with lower energy beams, the differences in the particle track densities and the spatial distributions of those tracks must be considered, not to mention the difficulties in obtaining microdosimetric data for neutron energies much above 20 MeV using currently available detectors and physical "constants."

Perhaps the most pressing job of microdosimetry, however, is in the unraveling of radiation interactions for an understanding of low dose and low-dose-rate biological effects as seen from the very fundamental viewpoint of the initial lessons. The ultimate focus of this book is in this area, and the papers and discussions dealing with these questions are exciting indeed. *The Seventh Symposium* will be invaluable to those who work in areas of microdosimetry and low-dose effects in particular, and in general for anybody who thinks of radiation dosimetry as something beyond energy divided by mass.

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BASIC IMAGING PROCEDURES IN NUCLEAR MEDICINE. N. A. Clifton, P. J. Simmons. New York, Appleton-Century-Crofts, 1981, 159 pp, $13.95

The initial paragraph of this manual indicates that it is designed as a guide for the performance of nuclear medicine imaging procedures and is oriented chiefly for nuclear medicine technologists and students.

The authors have assembled nine chapters that essentially cover all routinely performed nuclear medicine procedures. Each diagnostic procedure is discussed under 12 pertinent areas, such as nuclide, dose, collimation, etc. The text is well organized, concise, and very easy to comprehend. One important section of the book, and one that is usually omitted from similar texts, deals with "Technologist Tips." This type of information is obtained only through experience and is invaluable for improving performance and avoiding pitfalls and indispensable for the technologist seeking quality in his results. The manual contains a wealth of anatomical illustrations, essential for proper positioning. The section on the cardiovascular system offers useful, immediately current material on the various nuclear cardiology procedures. The illustrations of the heart that demonstrate the cardiac anatomy from various projections are quite helpful to the technologist as a procedural aid and for establishing procedural confidence.

I was somewhat disappointed that no descriptions or illustrations were provided for the normal, abnormal, or variant scan patterns. Aside from this deficiency, the manual is an excellent guide for any nuclear medicine department.

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AUTOMATED INSTRUMENTATION FOR RADIOIMMUNOASSAY. L. J. Bowie, Ed. Boca Raton, Florida, CRC Press, Inc., 1980, 210 pp, illustrated, $59.95 U.S., $79.95 Foreign

Certainly this book will be required reading for anyone considering acquisition of an automated system for radioimmunoassays and will also be useful for those with an interest in the state of the art. The book contains seven chapters—the first six devoted to the individual systems and the seventh comparing the systems. The chapter authors were involved in the development and production of their system; consequently, each chapter is very useful in that it pulls together a great deal of information about the system, its function, and performance. The best example of this attribute is apparent in the chapter describing Union Carbide's Centria® system. It incorporates a clear description of the system's mechanics and operation with an impressive amount of validation data. The validation data has been published elsewhere, but its inclusion here is an important function of this book. The chapter describing Becton Dickinson's ARIA II® system is almost as detailed.

One could actually operate Squibb's Gammaflo® system after reading the chapter on it. The chapter describing Technicon's Star® system gives more emphasis to the computer control and data handling operations. The chapter on Micromedic's Concept-4® is excellent, as detailed as the chapter on Centria® and ARIA II®, and does by far the best job of complete analysis, showing actual times involved for several possible daily workloads.

The last chapter, "The Systems Compared," written by the editor, was disappointing. It is brief, only two pages, and includes a table that does little more than give a comparison of data gleaned from product literature. It does save readers the necessity of preparing their own, but I had hoped for a framework that would enable readers to compare the economic advantages of their methods with those of the automated systems. Reference is made to a paper that was apparently a precursor to this book, but the paper compared only reagent costs, which are easy to compare. I suspect that other costs, such as time and money, are not as easy for the average reader to compare.

The book is a useful compilation, but it will have a limited lifetime because the field of immunoassay is changing rapidly. One system was removed from the market while the book was being written, and it is my understanding that Picker's Pace® system is not currently being marketed. In addition there exist several homogeneous nonradioactive immunoassay systems and more are under development. These will have significant impact soon, particularly on those of us whose laboratories have only the radioassays. We await *Automated Instrumentation for Nonradioimmunoassays.*

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