

reviewed by Dr. Ekins. Although the immediate future of radioimmunoassay appears to be secure, other procedures not dependent upon the radioactive marker will certainly have a place in the assay armamentarium. For the immediate future, however, these procedures appear to lack some degree of sensitivity when the amounts of material to be measured are small. The section on "Data Analysis," while important to those sophisticated in this area, will be difficult for the average worker in the radioimmunoassay field. The preceding headings comprise Volume 1, which includes an appendix that reviews the characteristics of commercially available well scintillation and liquid scintillation counting systems. Although at least 2 yr old at this time, someone anticipating the purchase of such equipment will still find the review most useful.

The section "Standardization and Quality Control" was particularly interesting because it included a round table discussion with such expert participants as Ekins, Rodbard, and Jeffcoate. Discussions, such as this one, are scattered throughout the proceedings, and often the terse critical comments of the experts attending were more valuable in resolving problems that exist in the field than the much more lengthy paper that engendered them. It appears that some countries are considerably more organized, perhaps even regimented, in their national quality control efforts than the U.S.A.

The next section, "Applications of Assay Procedures," will give the clinician little respite from the more technical sections found elsewhere in these proceedings. Here, the invited review papers on recent advances in steroid immunochemistry and aspects of recent advances in current thyroid function testing will be found most useful to the well-trained clinician.

Potential application of the information found in these proceedings can be simply divided between the ordinary assay user (e.g., clinical laboratory) or the assay manufacturer or developer (e.g., commercial kits, research laboratory). Less than half of the pages of this two-volume set were devoted to the former category, whereas it appears that over two-thirds of the pages were aimed toward researchers and commercial firms.

The importance of precision in the course of performing laboratory procedures is stressed. In fact, it is apparent that accuracy may not be achievable unless precision is achieved first. Thus, the importance of routine quality control procedures cannot be over-emphasized. It is interesting that some authors, whose papers appear in these proceedings, say little of their quality control procedures, yet the assays appear to be clinically useful nonetheless. This finding occurs when normal and pathological values are widely separated. Thus, minimal quality control efforts may still yield data that is useful to the clinician. While assays with poor precision are not to be aspired to, such serendipity is at times comforting.

This two-volume set is rather expensive from an individual's point of view, and perhaps a smaller and less expensive volume, which contains only the invited review papers, should be considered by IAEA for sale to a broader audience. (It should be mentioned that a number of the papers are published in the French language.) The IAEA has provided a reference work useful principally to researchers and assay kit manufacturers, and thereby ultimately useful to the clinician and patient dependent upon radioimmunoassay results. The efforts of the IAEA in promoting scientific knowledge relating to radioimmunoassay is evidenced once again in the quality exhibited by these proceedings.

These volumes would make an excellent addition to the reference shelves of most libraries and would be extremely important for directors of radioimmunoassay or clinical laboratories. Medical students and residents would probably be confused by the onslaught of information contained, but most physicians who practice nuclear medicine or radioisotopic pathology would find these proceedings a useful reference from time to time.

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#### **TEXTBOOK OF NUCLEAR MEDICINE: BASIC SCIENCE.**

Antonio Fernando Goncalves Rocha and John Charles Harbert. Philadelphia, Lea and Febiger, 1978, 412 pp, \$27.50.

The understanding of principles underlying any field of endeavor appears basic to adequate work in that area. Without such basic knowledge, improvements and advancements would be extremely difficult. The authors of this volume have produced a comprehensive overview of the basic principles of nuclear medicine, and some allied areas. In addition to the standard subjects, they have included some unique discussions which bring this text into contemporary status. The large number of international contributors lends further diversity to the coverage. As a multi-authored text, the authors have maintained a remarkably uniform style, with minimal repetition between chapters.

The first four chapters on physics, instruments, counting, and counting statistics offer a good review of these subjects, but are somewhat brief for one not already familiar with this information. The chapter on compartmental analysis distills a complex subject, again as an overview, and would require considerable mathematical knowledge for understanding. The radiation biology chapter is organized along classical lines, with a brief section on radionuclide effects. The discussion pertinent to nuclear medicine practice (thyroid effects from radioiodine, cisternography, etc.) is extremely brief. The radiation dosimetry section is exceptionally clear and useful. In the twelve pages devoted to radiation safety, the author is able to develop only general principles, and little of pragmatic value is given. Beginning workers in nuclear medicine would probably require much more complete radiation safety instruction than found in this volume. The radiopharmaceutical section includes production of radionuclides, generator systems, and chemistry of technetium and iodine. This latter topic is quite comprehensive and includes a large number of current references. The quality control of radiopharmaceuticals is developed briefly. Instrumentation, including rectilinear scanners and scintillation cameras, is approached in a mostly descriptive fashion. A short, pertinent discussion of positron cameras and tomographic scanners is included. The computer system chapter is very elementary and only descriptive of what can be done with medical computers.

Of particular current importance are chapters dealing with computed tomography, radiomicrobiology, labeled carbon breath analysis, and neutron activation. In sum, these subjects are all clearly and well developed. The ultrasound chapter is primarily clinically oriented although a more basic science approach would appear better suited to the book's title.

The authors have succeeded in presenting a comprehensive overview of basic science in nuclear medicine, and some allied areas, offering a text that is valuable for reference in the practice of nuclear medicine. Obviously the authors have attempted to concentrate a huge amount of material into a concise volume, with the resulting strength being its comprehensive coverage. The brief development of most subjects, however, detracts from its usefulness.

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#### **DATA SUPPLEMENT/COMPUTERIZED TOMOGRAPHY IN CLINICAL MEDICINE.** Patricia Davison Laffey, Wilbur W.

Oaks, R. Kumar Swami, J. George Teplick, and Marvin E. Haskin. Philadelphia, Medical Directions, Inc., 1978, 57 pp, \$16.00.

The most important part of this book for people outside of the institution from which it comes, Hahnemann Medical College and Hospital, lies in the appendix. It presents the history forms used prospectively in all patients undergoing CT scanning at the institution and a code sheet for correlating symptoms, duration of symptoms, findings and lateralization with CT studies, and ancillary studies for detection and characterization of neurologic disease. If institutions wish to know the efficacy of their diagnostic efforts, they have here a working model for doing so.

The body of the book is made up of a series of tables that correlate abnormality, diagnosis, signs, symptoms, and age. One can extract a number of conclusions from these tables. For example, from Table 7, one can deduce that other than previous surgery, no matter what the symptom, the most common finding was atrophy, and Table 9 shows that whereas abnormalities were found in one-third of patients with seizures, atrophy is found three times as often as tumor in these patients. Table 8 shows that only 25% of all patients with headache had an abnormal scan, but the frequency of abnormalities tripled from 12% with only headache to 36% with headache, plus other symptoms. Table 12 demonstrates that individuals with focal seizures have no more likelihood of

abnormality than those with generalized seizures, and although tumors are found twice as frequently with focal as compared with generalized seizures, they were found in only 8% of those scanned for focal seizures. Incidence of abnormality is correlated with (a) specific symptoms/signs of disturbance of intellectual function, visual disturbance, motor and sensory dysfunction, ataxia, and disturbance of gait, and (b) clinical presentation of trauma, coma, and disturbance of consciousness. Computerized tomography diagnoses are correlated with specific clinical presentation. Age and CT diagnoses are correlated and CT diagnostic results are given for each age group.

When such an exhaustive correlation is finished, one has at hand a series of predictive statistics for the population studied. If such data were available for populations of each institution with a CT scanner, diagnostic probabilities could be given before doing the study so that the value of doing the study or not doing it could be intelligently assessed. This evaluation needs to be done for all expensive or risky tests so that we have a rational basis for cost-risk/benefit projection.

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### BOOKS RECEIVED

*Correlations in Diagnostic Imaging: Nuclear Medicine, Ultrasound, and Computed Tomography in Medical Practice.* D. Bruce Sodee, with the assistance of Thomas A. Verdon, Jr. 165 pp, illustrated. New York, Appleton-Century-Crofts, 1979. \$19.50

*Textbook of Nuclear Medicine Technology.* Paul J. Early, Muhammad Abdel Razzak, D. Bruce Sodee. 691 pp, illustrated. St. Louis/Toronto/London. The C.V. Mosby Company, 1979. \$26.95

*Medical Imaging.* Louis Kreef, ed. 247 pp, illustrated. Chicago. Year Book Medical Publishers, Inc., 1979

*The Toxicity of Plutonium, Americium and Curium.* J.C. Nenot, J.W. Stather, eds. 225 pp, illustrated. Published for the Commission of the European Communities by Pergamon Press, Oxford/New York/Toronto/Sydney/Paris/Frankfurt, 1979. \$27.50