

BOOK REVIEWS

mation on all aspects of radiopharmaceuticals in a relatively inexpensive edition. With publication of this work it is clear that the "art" of designing radiopharmaceuticals is rapidly evolving into a science.

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BIOLOGICAL EFFECTS AND CHARACTERIZATIONS OF ULTRASOUND SOURCES. D. G. Hazard (Bureau of Radiological Health, DHEW), Ed., London, M. L. Litz Castle House Publications, Ltd., 1979, 215 pp, £ 17.

The extensive clinical application of diagnostic ultrasound has stimulated interest both in the accurate measurement of ultrasonic intensity and in the assessment of possible harmful biological effects. As the editor of this volume points out, "present evidence indicates that ultrasound is non-hazardous, but it is essential that a dose-effect relationship be defined to ensure that safe procedures are practiced." This book contains proceedings of a symposium on biological effects and characterizations of ultrasound sources held in 1977, and sponsored by U.S. FDA, Bureau of Radiological Health/Who, Collaborating Center of Standardization Protection Against Nonionizing Radiation. It consists of a collection of 26 papers that represent written versions of the material presented at the symposium. A number of respected authorities are represented.

The major areas covered by the papers are those of instrumentation for the characterization and measurement of ultrasonic energy and the evaluation of possible bioeffects of ultrasound in both clinical and laboratory models. Over half of the papers deal with bioeffects in a variety of experimental settings, both in vivo and in vitro, including some discussion of available data in human clinical settings. Although there is little conclusive data, a variety of information is presented that should be of interest to basic scientists involved in the study of ultrasound bioeffects. The appeal to the clinical ultrasound specialist is somewhat less, since relevance of much of the animal experimentation to diagnostic ultrasound in man is not clearly established. Some of the data reviewed, however, does relate to clinical studies that have been performed involving obstetrical ultrasound.

Most of the remaining papers deal with descriptions of and results obtained with systems for the detection and measurement of ultrasonic radiation. The development of instruments to measure relevant output of ultrasonic medical diagnostic devices is of obvious importance in the specification of the dose aspect of the dose-effect relationship, and several approaches, again of somewhat greater interest to the engineer and basic scientist than to the clinician, are presented in the papers.

Although the material in some areas may already be somewhat dated, the volume is a useful reference and is an appropriate addition to any complete ultrasound library.

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BOOKS RECEIVED

Liquid Scintillation Counting Recent Applications and Development Vol. 1. Physical Aspects. Chin-Tsu Peng, Donald L. Horrocks, Edward L. Alpen, Eds. New York, Academic Press, Inc., 1980, 414 pp, \$27.50

Cardiovascular Nuclear Medicine. Leonard M. Freeman, M. Donald Blaurock, Eds. New York, Grune & Stratton, Inc. 1980, 290 pp, \$37.50

Optimization of Radiotherapy: Report of a WHO Meeting of Investigators. World Health Organization Technical Report Series. No. 644, 1980, 89 pp, Sw. fr. 6.

Liquid Scintillation Counting. Recent Applications and Development. Vol. II. Sample Preparation and Applications. Chin-Tzu Peng, Donald L. Horrocks, Edward L. Alpen. Eds. New York, Academic Press, 1980, 538 pp, \$32.00

Irradiation and Thyroid Disease: Dosimetric, Clinical and Carcinogenic Aspects. J.E. Dumont, J.F. Malone, A.J. van Herle. Commission of the European Communities. 1980, 254 pp, \$27.60.USD

Nuclear Medicine Annual 1980. Leonard Freeman, Heidi S. Weissmann, Eds. New York, Raven Press, 1980, 428 pp, \$39.50

NCRP Report No. 65. Management of Persons Accidentally Contaminated with Radionuclides. National Council on Radiation Protection and Measurements. 1980, 205 pp, \$9.00

Radiologic Science for Technologists. Physics, Biology, and Protection. Stewart C. Bushong, 2nd ed. C.V. Mosby Co., 1980, 503 pp, \$21.95