writers will turn away from such orthodoxy and actually explain how things like population-dependence and experimental design can account for apparent variances between studies. This would provide a true service to the reader.

In summary, the 1994 Annual, despite its faults, provides a sufficient number of well-written and useful articles to warrant its purchase by all nuclear medicine practitioners and most nuclear medicine fellows.

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Internal Radiation Dosimetry. Otto G. Raabe, editor. Medical Physics Publisher, Madison, Wisconsin, 667 pages.

The thirty chapters in this timely book contain interesting and important material presented at the annual HPS summer school by a faculty of distinguished dosimetry experts. The material runs the gamut from basic physics as taught to nuclear medicine and radiology residents, and to first courses for health physicists.

The chapter on the biological basis for radiation dosimetry provides an introduction to biology and nomenclature. The section on physical and chemical interactions of radiation with matter is excellent and well-illustrated. Several chapters present current methods used in dose calculations and their verification starting with a clear discussion of the mapping between micro- and macrodosimetry. Other chapters deal with in vivo and in vitro measurement methods, the MIRD and ICRP methodology including a discussion of Monte Carlo methods and the definition of "standard man". There are many practical examples on how to make measurements and to calculate dose. In depth, well-presented discussions deal with mathematical models and their use in fitting data. Unfortunately, notations vary between different application areas discussed in different chapters. However, problems with model notations and style are not unique to this publication.

There are a number of specific dosimetry problem areas that are covered in depth including four chapters dealing with lung dose which include the new ICRP lung model, radon, thoron and characterization and biokinetics of inhaled particles. Dose estimates from transuranics, including plutonium, and from bioassay measurements are presented along with the influence of chelation therapy. The practical applications of internal dose calculations for assessing accidental exposures and the management of internal contamination accidents are covered. Human cancer risks from radiation are presented extending the discussion in preceding chapters. Detailed consideration is given to the risk from radon, as well as radium, and transuranics.

The book begins with an excellent introduction to the physics necessary to understand dosimetry issues and ends with a chapter by the author and editor, dealing with the complex three-dimensional linear- and non-linear interactions between radiation risk and time, dose and dose rate.

This book brings together a wealth of information that will be of interest to both serious students and teachers of health physics and radiological sciences. The illustrations are excellent and the material is presented in sufficient detail to be an important reference as well as a readable text dealing with dosimetry, and, to a lesser extent, health effects of internal emitters. There were some notable omissions, for example, EGS4, one of the most commonly used Monte Carlo programs for dose calculations, was not mentioned anywhere in the text. The logic underlying the choice of chapter sequence is not clear, but may represent the order of presentations at the school. The references are well chosen and cite the earliest pertinent work, and the most recent important references. There is an index, although somewhat abridged.

This is an excellent book which should be on the shelves of all academic nuclear medicine, radiology and health physics programs. If one were to buy a single book on this topic, I would recommend that it be this volume.

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