In 1948 the International Committee for Weights and Measures was instructed to develop a set of rules for the units of measurement. From this charge came the International System of Units (SI) that was accepted in the 1970s by most countries, including the United States. Some units now used in nuclear medicine, such as the roentgen, rad, and curie, are not coherent with the new SI system and are to be eliminated entirely by 1985. Most scientific journals have taken the initiative to ensure an orderly transition to the new SI units.

This ICRU report, *Radiation Quantities and Units*, is welcomed, for it carefully defines most of the new SI fundamental quantities and units used in nuclear medicine. As one might expect, the report provides carefully worded descriptions of the quantities and defines them with mathematical precision. It also specifies the units to be used for each quantity. Because of the formal format of this report, it will serve more as a reference text than as a learning text. The report also includes the definition of many quantities that are not generally used in nuclear medicine, such as *lineal energy* and *specific energy imparted* as well as defining the distinction between *stochastic* and *nonstochastic quantities*.

As I read this report, I realized that for the next few years I will frequently refer to this document to ensure that I am using the various quantities and units properly. I hope that others will also do so, for in scientific communications it is important that all use the proper quantity and unit.

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RADIOACTIVITY AND ITS MEASUREMENT. W. B. Mann, R. L. Ayers, S. B. Garfinkel. Oxford, U.K. Pergamon Press, 1980, 282 pp. $12.50

This book, consisting of eight chapters, is a revised and expanded edition of a book by the same title published in 1966 by W. B. Mann and S. B. Garfinkel.

The first five chapters deal with the discovery and historical development of radioactivity and early experiments into its nature; radioactive change and the theory of successive radioactive transformations; the interaction of alpha, beta, and gamma rays with matter; a description of the neutrino and the neutron; and the energetics of nuclear change. These chapters cover both the historical and technological development of radioactivity between its discovery in 1896 to the time just prior to World War II. In general, these first five chapters are essentially the same as in the 1966 edition with some corrections and revisions based on new knowledge and the replacement of old units by those of the *Systems International* (SI).

Chapters 6, 7, and 8, which were written by the late S. B. Garfinkel for the 1966 edition, have been extensively revised to include recent advances in radiation detectors and associated electronic instrumentation.

The authors state that their purpose in writing this book is to introduce chronologically and historically the concepts of radioactivity in an elementary way for those who have no extensive education in nuclear physics, but who nevertheless must make radioactive measurements in the practice of nuclear medicine. This book seems to fulfill this purpose. Furthermore, this book would also be useful to those engaged in any radioanalytical experiments in which a basic knowledge of radioactivity and its measurement is necessary.

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ARTHROGRAPHY. Murray K. Dalinka, Ed. New York, Heidelberg, Berlin, Springer-Verlag, 1980, 324 pp, illustrated, $29.50

The reader interested in joint disease and joint injury will profit from this attractive book. The indications, pitfalls, and findings of arthrography throughout the body are included. Dr. Murray K. Dalinka of the University of Pennsylvania has written superb chapters on knee and shoulder arthrography and makes helpful, direct comments stating his opinion in areas of controversy. For example, in discussing osteonecrosis and the consideration of joint injury and meniscal stress as predisposing factors he states, "I believe that the lesion is primarily osseous." In the discussion of the use of arthrography for the study of injury to the cruciate ligaments, he adds that, "I personally feel that arthrography is much more sensitive in the diagnosis of meniscal and articular cartilage abnormalities."

The author has assembled a talented group to cover the issues of arthrography after total joint replacement—arthrography of the hip in children, ankle, elbow, and wrist arthrography, arthrography of the temporomandibular joints, and the evaluation of bursae and miscellaneous para-articular diseases.

The subject matter is complementary to the use of radionuclides in bone and joint scanning. Periodically, there is a direct point regarding the use of radionuclides, e.g., as in the need for isotopic methods in evaluating the femoral component for possible loosening of a painful total knee replacement. Arthrography after total knee replacement has been shown to be useful predominantly in showing loosening of the tibial component of the total knee prosthesis.

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