studies at Case Institute with principal interest in solid-state physics. Subsequently he was director of the Energy Conversion Department at Atomics International, vice president of Thermo Electron Corporation, and a consultant for a number of organizations here and abroad. Dr. Rasor's research interests have been in surface and plasma physics, energy conversion, and cardiovascular engineering, including investigations of artificial hearts and pacemakers.

Measurement of Low-Level Radioactivity, ICRU-22. International Commission on Radiation Units and Measurements, ICRU Publications, Washington, D. C. (1972). $3.50.

The task group which prepared *Measurement of Low-Level Radioactivity* is to be commended, because an introductory monograph on techniques for and problems of measuring concentrations of radioactivity below one nCi/g is needed to accommodate the expanded interest in low-level measurements. Relatively few workers to date have been actively involved in such measurements.

Report 22 is particularly useful, we think, in indicating that low-level measurements require very special care. It presents an important and useful discussion on the statistical treatment of radioactivity counting data, particularly detectable activity and its dependence on detector background and efficiency, and sample size, as well as the comparison of results from different analytical methods. The chapter on sample treatment is also useful since this subject has not been covered adequately in other monographs. The discussion on contamination, particularly as it affects beta-particle measurements, is enlightening and should guard the low-level analyst from falling into the pitfall of sample contamination.

The discussion of gamma- and x-ray measurements, particularly that of Ge(Li) spectrometry, is incomplete, and the reader should direct his attention to the references and to the fairly extensive literature which postdates this report. The statement in Sec. 3.7.1, for example, indicates the problem with the low Ge(Li) efficiency; it would have been helpful to devise a discussion comparing the practical considerations governing the choice for various applications between Ge(Li) with its high energy resolution and low efficiency and NaI(Tl) with its high efficiency and low resolution.

The discussion of shielding offers insight into the reduction of background from naturally occurring gamma radiation and cosmic radiation. Table 3.2 gives thicknesses of water, steel, and lead for the simple exponential attenuation of photons of four energies to specified fractions, which are in agreement with measurements by May and Marinelli (1962) as referenced. The exact relevance of such attenuation data depends strongly on what one wishes to count. To reduce the total counts from gamma rays will almost certainly require some additional consideration of buildup of secondaries which add to the continuum in the pulse height spectrum. It might have been appropriate to present data nearer the prominent energies of natural gamma rays from the thorium and uranium series and from ^{40}K.

The chapter on alpha- and beta-particle measurements is complete enough, although the subsection containing radiochemical procedures for specific beta emitters might have been omitted since various texts which are more comprehensive and complete have been referenced.

The negative aspects of the present review should not detract from the monograph, because it does provide a good introduction for individuals now becoming involved in low-level radiation measurements. Although the various sections could have been more thorough, they are supported by a good bibliography.

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