Keyed to the needs of researchers in such diversified studies as Agricultural Chemistry, Biology, Geochemistry, Metallurgical and Historical Research, Organic Chemistry and Process Controls, the all-new TMC Activation Analysis Package offers the first integrated system for gamma radiation analysis.

Detection and measurement of trace amounts in samples is not only economical (a complete Ellison-TMC System for activation analysis costs less than most neutron guns alone), it is also time saving, and accurate to definitions as fine as one part in 1,000,000.

The Ellison Activatron-110 is available immediately from TMC, and priced as stated above. Depending on your application, TMC instrumentation for analysis can be tailored to your needs at equally modest cost. A TMC REPRESENTATIVE IS AS AVAILABLE AS YOUR PHONE. Call, wire or write for further information.

Due to export and shipping, prices slightly higher overseas.

TMC is the original designer/producer of transistorized multi-channel analyzers. Today, TMC instrumentation is delivered to every nation in the free world for use in the most advanced laboratories known to man. For full specifications, information, consultation, please write or phone your nearest Sales Office or factory direct... North Haven CE 9-2501.
This is TOBOR...an improved way to count gammas
How to hold counting efficiency constant for gamma emitting samples of different volumes

Tobor's counting chamber eliminates the need to bring samples to a standard volume in order to maintain constant counting efficiency.

Tobor features a detection system with two vertically opposed, large-crystal scintillation detectors that compensate for a wide range of volume variation in samples of similar diameter. Because the pulses from each detector are summed, the count rate remains constant when a source is positioned at different points on the vertical axis between the two detectors. As a result, the total count rate of each sample can be directly compared to the count rate of a standard, measured in the same size beaker, permitting fast determination of uptake percentage.

This chart illustrates Tobor's ability to maintain uniform counting efficiency over a wide range of sample volumes. The volume increase was accomplished by successive addition of water, in small increments, to original 200 ml sample. The counting errors associated with even the smallest variations in sample size and geometry are minimized.

How to perform gamma measurements in animals as large as monkeys or rabbits

Tobor's large capacity counting chamber will handle any animal, large or small, that can be placed in a cage or container seven inches in diameter and five inches high.

Minor variations in geometry caused by movement of the animal within the chamber have little or no effect on count rate reproducibility because Tobor can be fitted with scintillation crystals up to seven inches in diameter. Tobor normally uses three-inch by three-inch sodium iodide crystals. These crystals deliver maximum resolution and $E^2/B$ (22% efficiency in a 10% Cs-137 window with 9% resolution and a background of less than 60 cpm).

Where good geometry for large area samples is desired at minimum cost, plastic scintillators up to seven inches in diameter can be specified. Maximum integral efficiency (50 kev to $\infty$) for two plastic crystals is 26%, with a background of only 1200 cpm. Resolution for 1/2 width of the Cs-137 Compton edge peak is 20% to 24%.

Tobor minimizes the need for precise positioning of the sample as shown in the chart above. Note the small change in count rate as the sample is shifted horizontally in the detecting chamber (three-inch by three-inch sodium iodide crystals).

How to assay gamma radioactivity circulating in the blood stream of the human arm

The patient's arm is positioned through the two horizontally opposed access ports in Tobor's detecting chamber. Continuous or repeated measurements are made without venapuncture. Tobor's large diameter crystals and optimum counting geometry assure reproducible results with minimum counting time.

Tobor's detecting chamber allows any part of the forearm, from wrist to elbow, to be counted with equal efficiency. Patients will experience no discomfort in placing an arm or leg in Tobor because of the convenient access ports in the chamber and the remote location of the electronics.

If you have a gamma counting problem that Tobor may be able to solve, please write or phone for more details.

Tobor is a totally new detector system capable of handling many of your gamma counting requirements conveniently and with accurate results. Tobor accepts samples ranging in volume from point sources to 10-liter bottles or large laboratory animals. It offers superior efficiency, resolution, and background radiation shielding.

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achievements, the concern for and understanding of mankind, and the subtle sense of humor, all of which characterized Kaj Linderström-Lang, are aptly demonstrated in this collection. It is truly a fitting tribute and memorial.

JAMES F. RIORDAN
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Statistics


If the title of a book is Elements of Mathematical Statistics, and if it is published by Oxford University Press in 1962, then one expects to find in it a reasonable mathematical development of a certain amount of statistical inference. However, this book does not contain a mathematical development of the subject. It is true that a few theorems are stated. Some of them concern notions that the author has not previously defined or discussed; this is particularly true with respect to theorems II, III, and IV on page 21; theorem I on page 22, and theorem IV on page 78. Theorem II on page 23 is true, but it says absolutely nothing. Three theorems are not quite true as stated: II on page 72, III on page 74, and the theorem on page 157. The author seems to be oblivious to the fact that one should define a symbol or a technical term before using it; yet, without giving any previous definitions, he uses the following symbols and terms: skew, "P", "Cr", independence, expectation, standard deviation, best (with respect to estimates), and $\bar{X}$. He does state some definitions, but several of them might be called incorrect. For example, on page 79, an unbiased estimate of a parameter is essentially defined as a statistic for which the parameter is a median.

In my opinion this book is not suitable for use as a textbook, either for classroom courses or for individual study. Even some of the applications are doubtful. In addition, the quality of the expository writing exhibited in this book is very poor.

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