PERSONNEL PLACEMENT

POSITIONS WANTED

Astronomer, Ph.D., 29, observational and theoretical experience, seeks teaching-research position. Box 632, SCIENCE. X

Biology Instructor M.A. with training in microbiology and botany. $6550 minimum rank, salary, depending on qualifications. Write P. C. Brase, Jr., Dean of Fulton-Montgomery Community College, Johnstown, New York 12095. 12/29

Biophysicist. Ph.D. physical chemistry, 1956. University faculty member with current grants. Many publications in visual sodium transport, photochemistry, and electroretinography. Box 633, SCIENCE. 1/5

Crystallographer, Ph.D., industrial and research experience in most research applications of x-ray diffraction and fluorescence analysis, seeks responsible position. Box 634, SCIENCE. X

Electron Microscopist-Anatomist. Ph.D. seeks senior academic teaching-research position. Experienced histologist and embryologist. Numerous publications. Active research program in cell biology and electron microscopy. Box 635, SCIENCE. X

Immunologist, M.D., 45. Associate professor, head of medical school immunology research unit; industrial consultant. Seeks senior research position in pharmaceutical industry. United States or Europe. Box 622, SCIENCE. X

M.D., M.S., Microbiologist, E.C.F.M.G. approved. Teaching research and diagnostic microbiology experience. Seeks teaching-research, or hospital position. Fluent in English, French, and Spanish. Box 636, SCIENCE. X

Microbiologist-Biochemist. Ph.D. Postdoctoral research experience. Publications. Grants. Presently faculty member state university. Seeks relocation, academic-research position. Box 637, SCIENCE. X

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Medical Translator. German/English invites freelance assignments from companies and scientists. (NO agents.) Write 68-43 Groton, Flushing, N.Y. 11375. 12/22; 1/5, 19; 2/2

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M.D. Seeks Research Position. Experience in pathology, exfoliative cytology. Radioisotopes, autoradiography. Physiology of reproduction, animal surgery. Box 617, SCIENCE. 12/22, 29; 1/5, 12, 19, 26

Physical Biochemist. Associate professor, with active research group, substantial research support, numerous publication. Desires position at university with vigorous graduate program and research. Box 627, SCIENCE. X

Ph.D. Reproductive Physiology/Endocrinology; veterinarian; research experience. Desires research/teaching position in university/institute or industry. Box 631, SCIENCE. X

Science Editor with writing and editorial experience wanted by Chicago publisher of prestigious reference materials. Position requires imagination and creative ability, plus a desire to work closely with some of the world's foremost scientists. Excellent starting salary and many fringe benefits. Box 639, SCIENCE. X

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GRADUATE STUDY

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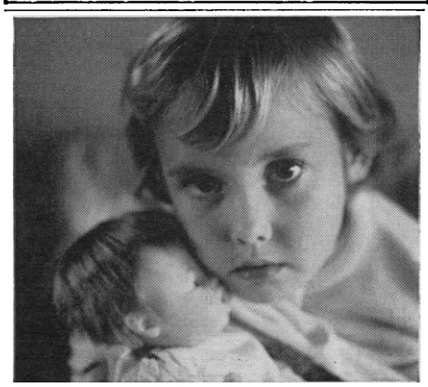

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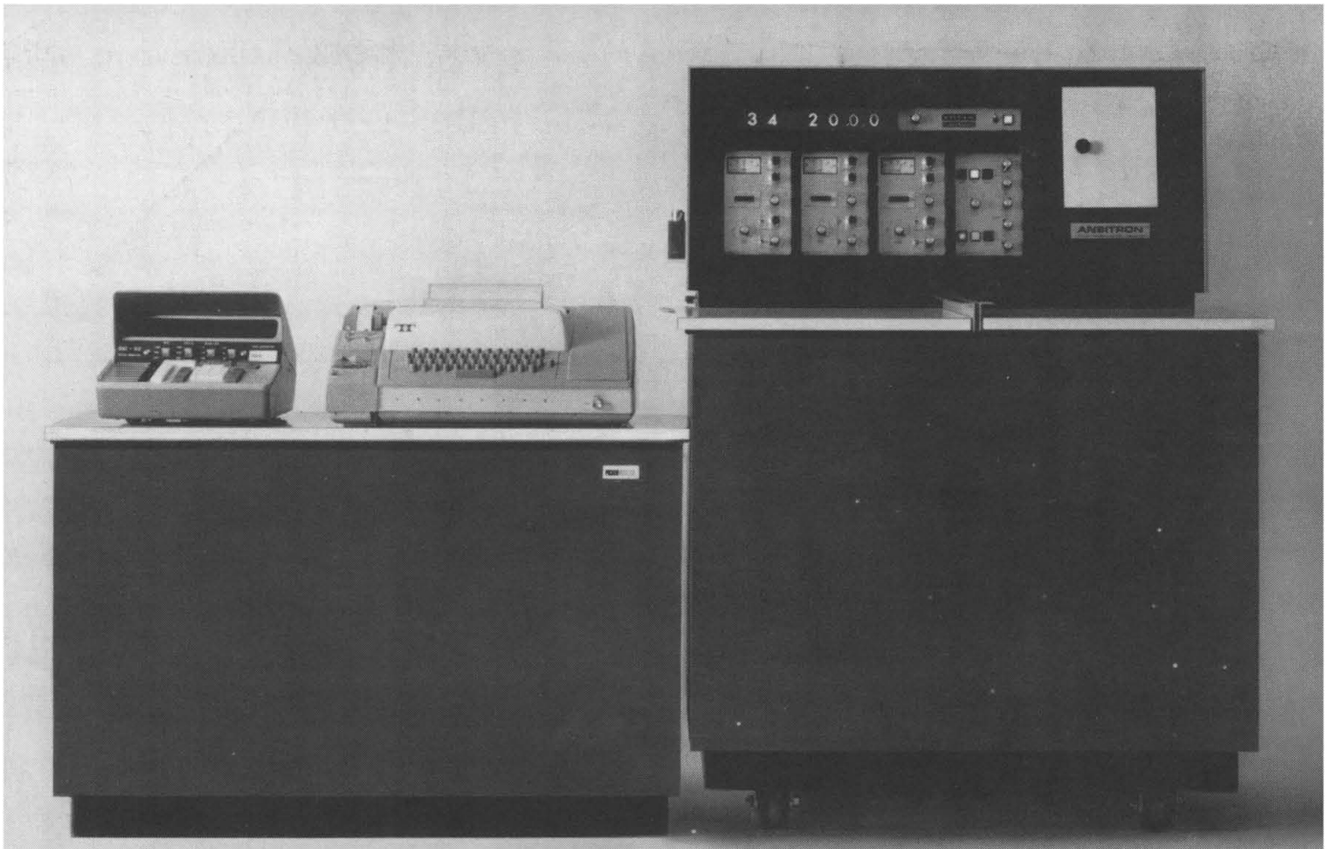

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PL 67-128

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THE Ba133 SPECTRUM ITSELF

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Let's look at two multichannel analyzer plots obtained from one channel of one of our liquid scintillation systems. Plot A shows the Ba133 spectrum and an unquenched C14 sample spectrum (system is calibrated for C14 counting). Plot B shows the Ba133 spectrum and the spectrum for a highly quenched C14 sample (system is calibrated for H3 counting). Note that, in *both* plots, the Ba133 spectrum closely follows the sample beta spectrum.

THE BENEFITS OF Ba133

As the multichannel analyzer plots show, the spectral shifts of Ba133 and the sample isotope are similar from unquenched to highly quenched samples. This means that a given set of channels ratio quench correction curves derived from the Ba133 standard will cover a much *wider* range of sample quenching than curves derived from a higher energy standard.

Further, the close similarity of the Ba133 spectrum to that of the sample beta permits using the sample-counting channels to count the external standard. Any system variables (small gain drifts, etc.) affect the external standard and sample equally. The external standard channels ratio, therefore, will more closely approximate the sample channels ratio than if a higher energy external standard had been used. This also allows *all* system channels to be available for sample counting.

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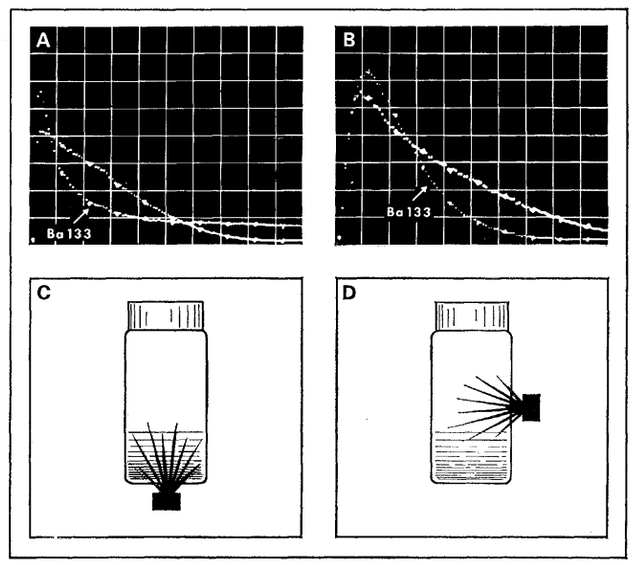
Ba133 sounds good so far. But, like any external standard, it has to be placed exactly where it belongs—centered *directly* and *precisely* beneath the sample. That's what our exclusive Geometry-Optimized (G-O) external standard system is designed to do. G-O positioning is shown in Diagram C. When the Ba133 external standard is so placed, the external standard ratio is significantly less affected by sample-volume variations than if the standard were placed at the side of the sample vial or elsewhere.



And note in Diagram D, how side-positioning of the external standard would be more volume-dependent. Not so with G-O positioning. And the G-O system "sees" the same spot —no matter *how* the vial is rotated. Result: inaccuracies caused by variations in vial-wall thickness are minimized.

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