seems logical for it to be present as a cation to form a chelate, as is the case with other transition metals. This is also in agreement with recent carrier $^{99m}Tc$ electrophoresis data.

WILLIAM C. ECKELMAN
GEORGE MEINKEN
POWELL RICHARDS
Brookhaven National Laboratory
Upton, New York

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## A SIMPLER METHOD FOR OPTIMIZING THE WINDOW OF THE ANGER CAMERA FOR $^{99m}Tc$

The procedure for optimizing the window of an Anger camera for $^{99m}Tc$ proposed by Sanders et al (*J Nucl Med* 12: 703–706, 1971) does indeed provide a significant improvement in scan quality, as shown in their paper, but the method has two disadvantages. First, the use of a small $^{99m}Tc$ source to determine the counting rate response over the range of "isotope peak" settings in effect produces a response curve for only a few of the 19 photomultiplier tubes in the array. Second, obtaining the counting rate over the full range of the "isotope peak" potentiometer may take several minutes.

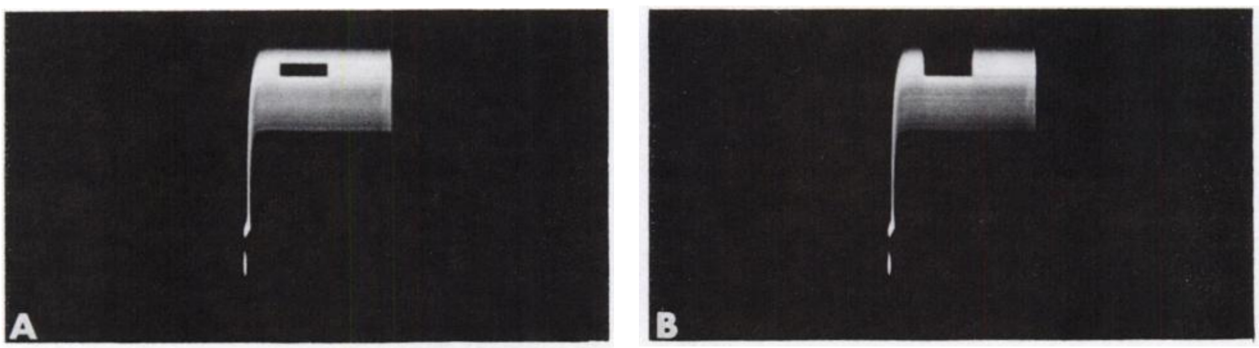


**FIG. 1.** In A 10% window is centered on photopeak of 140-keV gamma ray of $^{99m}Tc$. In B, without any other adjustments, window width is increased to 25%. Window now covers energy range of 133–167 keV.

I have modified the technique of optimizing the window to overcome both of these problems. First, the method is used only with an extended source of $^{99m}Tc$ which may be a flood source or a patient who has received millicurie amounts of $^{99m}Tc$ for diagnostic examination. Second, by setting the window at 10%, the isotope peak dial is turned until the $^{99m}Tc$ photopeak is centered in the window as shown in Fig. 1A. Then without further adjustment the window width is increased to 25%. The effect on the photopeak window is shown in Fig. 1B.

The method is simple and while not exactly as accurate as the technique described by Sanders et al, we have observed the same marked improvement in scintiphotos obtained by using this optimized window.

ROBERT C. LANGE
Yale University School of Medicine
New Haven, Conn.

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## FEASIBILITY OF $^{133m}Ba$ AS A BONE SCANNING AGENT

Parenterally administered barium salts are largely bone seekers, and $^{131}Ba$ and $^{135m}Ba$ have been used as bone scanning agents (*1,2*). Both $^{131}Ba$ and $^{135m}Ba$ suffer from being produced from expensive, isotopically enriched stable targets. Another barium radionuclide, $^{133m}Ba$, also has desirable properties as a scanning agent. In addition to reactor production from $^{132}Ba$ by the n,$\gamma$ reaction, it can also be made by the $^{133}Cs$(p,n) reaction in a cyclotron (*3*).

Barium-133m decays ($T_{1/2}$ = 38.9 hr) by emission of a 276-keV gamma ray to $^{133}Ba$ which is itself radioactive ($T_{1/2}$ = 7.2 years). Although associated with all of the disintegrations of $^{133}Ba$, the 276-keV gamma ray is highly internally converted so that a