TABLE II. $L(A)$ gives the coincidences from specimen A between counters L, and $R(B)$ gives the coincidences from B between counters R. Holder 0° and 180° are the two holder positions. Positions 1 and 2 are positions for the specimens in the holder.

Pos. 1	Holder 0° Coin. counts/hr.	$L(A)$ 16.4±0.3	$R(B)$ 14.3±0.3
	Holder 180° Coin. counts/hr.	$L(B)$ 14.4±0.3	$R(A)$ 15.9±0.3
Pos. 2	Holder 0° Coin. counts/hr.	$L(B)$ 14.6±0.3	$R(A)$ 16.4±0.3
	Holder 180° Coin. counts/hr.	$L(A)$ 16.4±0.3	$R(B)$ 13.9±0.3

A detailed report of this work is being prepared for publication in the Physical Review.

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** These isotopes were obtained from Oak Ridge.
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Internal Conversion Electrons from Metastable Te^{125}

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RECENTLY, it has been found[1] that an isomer of the stable isotope Te^{125} with a half-life of two months

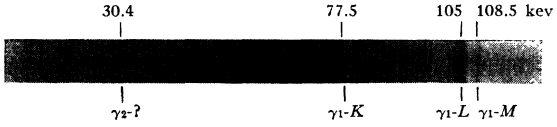

FIG. 1. Internal conversion spectrum of Te^{125}*, $\gamma_1 = 109.3$ kev.

grows out of Sb^{125} (2.7 yr.). Absorption measurements of its radiations showed that it decays through a highly converted isomeric transition of approximately 120-kev energy.

TABLE I. Average relative intensities in lines.

$B\rho$ gauss-cm	Line energy kev	Assignment	Gamma-ray energy kev	Relative intensity
975.2	77.5	$\gamma_1 - K$	77.5 + 31.8 = 109.3	100
1147	105.1	$\gamma_1 - L$	105.1 + 4.35 = 109.45	67
1169	108.6	$\gamma_1 - M$	108.6 + 0.58 = 109.18	19
598.6	30.4	$\gamma_2 - ?$		6

The decay of Te^{125} has now been followed for a longer period and the half-life was found to be 58±4 days. For a more accurate measurement of the energy of the isomeric transition, a source of a few microcuries of Te^{125} was separated from Sn irradiated with slow neutrons at Oak Ridge. It was subjected to an analysis in a 180° magnetic beta-ray spectrograph previously described.[2] Three lines corresponding to the K, L, and M conversion electrons of a 109.3-kev gamma-ray were obtained after a 36-hr. exposure. A longer exposure of about one week yielded, in addition, a weak line produced by conversion electrons of 30.4 kev, for which we cannot state the gamma-ray energy since we do not know in which shell the conversion took place. Figure 1 shows the spectrum of the conversion lines. A part of a microphotometer trace of the film is reproduced in Fig. 2. Using the density-intensity calibration recently described,[3] we obtained the relative intensities of the lines from a number of microphotometer traces. The average relative intensities are given in Table I. It follows that the K/L intensity ratio is ~1.5, the L/M ratio ~3.5. From the half-life and energy, and from the lower limit of 0.99 for the total internal conversion coefficient, it was previously concluded[1] that the effective $\Delta l = 5$ for this transition. According to Drell's[4] recent calculations, the K/L ratio obtained by us is compatible with an effective $\Delta l = 5$, if one assumes that this transition is "parity forbidden," and that 95 percent is 2^4-pole magnetic while the rest is 2^5-pole electric. The spin change between the metastable state and ground state would then be 4. The role of the very weak transition is at present in doubt. Further experiments are needed to decide whether it has to be ascribed to Te^{125}*.

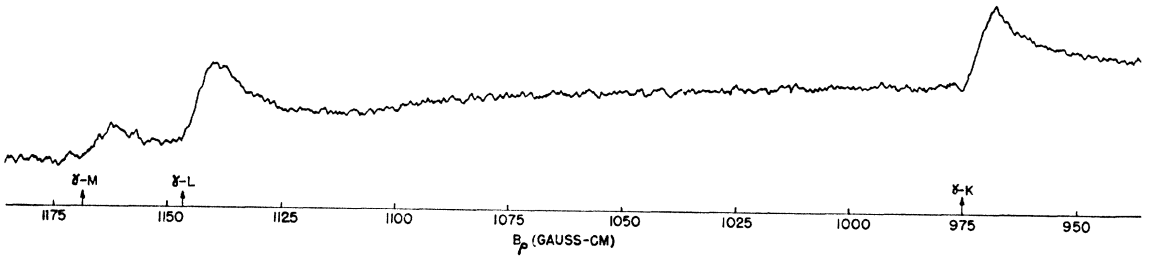

FIG. 2. Microphotometer trace of the internal conversion electron lines from the 109.3-kev gamma-ray of Te^{125}*.

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FIG. 1. Internal conversion spectrum of Te^{125*}, $\gamma_1 = 109.3$ kev.