seen from Fig. 1 that the constant in Eq. 3 is no longer valid. Figure 2, a plot of β vs $\alpha t/L^2$, shows that the dimensionless time to reach the half temperature moves to lower values as β, the heat loss parameter increases. Use of Fig. 2 allows correction for heat loss and thereby extends the range of temperatures over which the flash method may accurately be used.

[1] W. J. Parker, R. J. Jenkins, C. P. Butler, and G. L. Abbott, *J. App. Phys.* **32**, 1679 (1961).

METASTABLE AMORPHOUS PHASES IN TELLURIUM-BASE ALLOYS[1]

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An amorphous structure has been reported in a gold-silicon alloy[2] obtained by rapid cooling through the solidification range.[3] This amorphous alloy, however, was not stable at room temperature. Crystallization into one or several metastable phases took place within twenty-four hours, and a detailed study of the structure could not easily be carried out. The same technique of rapid cooling has led to the synthesis of amorphous tellurium-base alloys stable at room temperature. Amorphous structures were obtained in binary alloys of tellurium containing 10–30 at. % gallium, 10–30 at. % indium, and 10–25 at. % germanium. The structure of these alloys was studied by x-ray diffraction (Debye-Sherrer camera) using Mo K_α radiation monochromatized by the (200) plane of a lithium fluoride crystal. A typical microphotometer trace for a Te–10 at. % Ge alloy is shown in Fig. 1. Analysis of the radial distribution function of these amorphous structures is underway and will be reported later.

[1] This work was jointly sponsored by the Atomic Energy Commission and the Office of Naval Research.

[2] W. Klement, Jr., R. H. Willens, and Pol Duwez, *Nature* **187**, 869 (1960).

[3] Pol Duwez, R. H. Willens, and W. Klement, Jr., *J. Appl. Phys.* **31**, 1136 (1960).

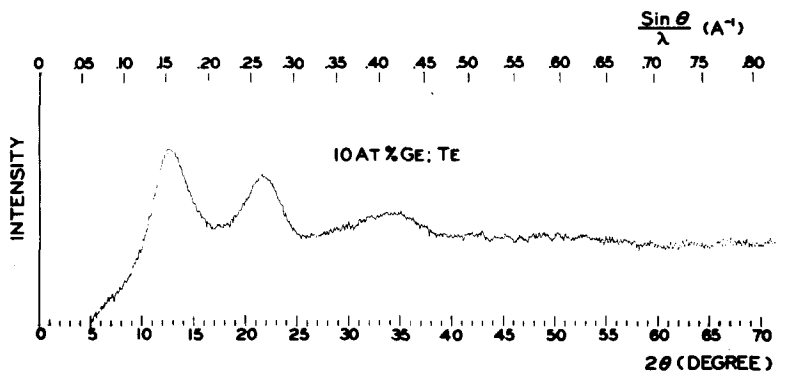

Fig. 1. Microphotometer trace of x-ray diffraction pattern of a Te–10 at. % Ge alloy.