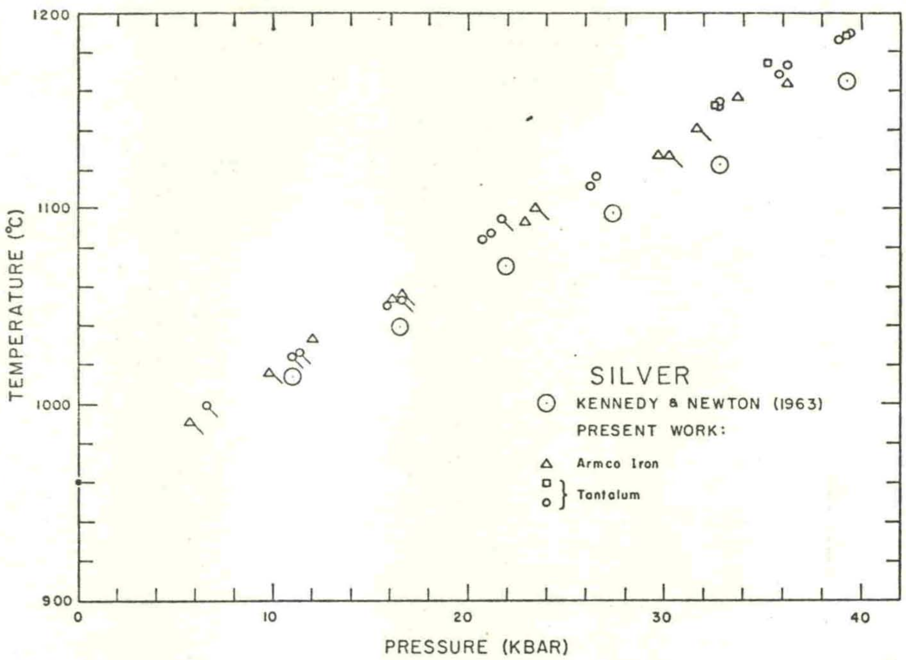

FIG. 2. Data for the melting of silver, together with the results of Kennedy and Newton. The various symbols correspond to different runs and container materials; the symbols with tails denote data obtained upon decompression cycles, those without tails refer to compression. The accepted zero-pressure melting point is indicated.

Armco iron and tantalum with Pyrex stoppers; there was no evidence for reaction between samples and containers, in accord with the more careful reports in the literature.[7] Data in the range of 5 to 40 kbar were obtained and are shown in Fig. 2. Precise determinations of friction were made in each run and were less than 3 kbar, double-value. The data, uncorrected for any effects of pressure on thermocouple emf, are believed precise to ±4° and accurate to ±1.0 kbar (Fig. 2).

The present data for silver, uncorrected for the effect of pressure on thermocouple emf, can be fitted with straight lines of slope 5.87±0.27°/kbar passing through the zero-pressure melting point of 960.8°C (Fig. 2).

If the thermocouple corrections according to the data of Hanneman and Strong[8] are made, the slope is increased to $\sim 6._9$°/kbar; according to Getting and Kennedy,[9] the slope is altered to $\sim 6._0$/kbar. Kennedy and Newton[3] reported data for the melting of silver in iron[10] capsules up to 40 kbar; the melting temperatures, determined with chromel-alumel thermocouples, increased linearly with pressure at the rate of 5.0°/kbar (Fig. 2). There are at least several possible reasons why

TABLE I. Pertinent thermodynamic data near the zero-pressure melting points.

		Copper	Silver	Gold
Entropy of fusion (cal/g atom°)[a]		2.3±0.1	$\sim 2.3_1$	$\sim 2.2_1$
Volume (cm³/g atom)	liquid	7.951±11[b]	11.543±13[c]	11.4_0[d]
	solid	7.601[e]	10.969[f]	10.789[g]
Volume change of fusion (cm³/g atom)		0.350±11	0.574±13	$\sim 0.6_1$; $\gtrsim 0.56_0$[h]
$(\partial V/\partial T)_p$ (10^{-4} cm³/g atom°)	liquid	$\sim 7.9_7$[b]	11.20±2[c]	$\sim 7._9$[d]
	solid[i]	6.02[e]	9.69[f]	7.31[g]
$(\partial \Delta V/\partial T)_p$ (10^{-4} cm³/g atom°)		$\sim 1.9_5$	1.51±2	$\sim 0._6$
Cp (cal/g atom°)[a]	liquid	~7.5	~7.3	~7.0
	solid	7.4_7	7.7_0	7.3_1
ΔCp (cal/g atom°)		0.0_3(±0.1?)	−0.4(±0.2?)	−0.3(±0.1?)
(dT/dp) (°/kbar) calculated		3.65±0.27	$\sim 5.9_4$(±0.3?)	~6.0−6.6

[a] R. Hultgren, R. L. Orr, P. D. Anderson, and K. K. Kelley, *Selected Values for the Thermodynamic Properties of Metals and Alloys* (John Wiley & Sons, Inc., New York, 1963).
[b] J. A. Cahill and A. D. Kirshenbaum, J. Phys. Chem. 66, 1080 (1962).
[c] A. D. Kirshenbaum, J. A. Cahill, and A. V. Grosse, J. Inorg. Nucl. Chem. 24, 333 (1962).
[d] R. O. Simmons and R. W. Balluffi, Phys. Rev. 129, 1533 (1963).
[e] R. O. Simmons and R. W. Balluffi, Phys. Rev. 119, 600 (1960).
[f] R. O. Simmons and R. W. Balluffi, Phys. Rev. 125, 862 (1962).
[g] See Ref. 16.
[h] See Ref. 13.
[i] Values deduced from measurements of macroscopic volume, not from lattice-parameter measurements.

[10] R. C. Newton (private communication).