different value for $\Delta P/\Delta T$ between room temperature and the Bi IV–V phase line than between room temperature and the Bi V–L melting point. At these pressures our pressure cell should be essentially a constant volume system and we could expect $(\partial P/\partial T)_V$ to be nearly constant, independent of pressure or temperature. Thus we assumed $\Delta P/\Delta T = 0{\cdot}016$ kbar K^{-1} over the entire temperature and pressure range of our measurements. This makes the data consistent but gives triple points at lower pressures than those reported by workers who used piston-cylinder devices with a solid pressure-transmitting medium. The triple points of bismuth are shown in table 1 and the phase diagram of bismuth is shown in figure 6. The slanted

Table 1. Triple points in the phase diagram of bismuth (°C/kbar).

Investigator	I-II′-L	I-II-II′	II-II′-L	II-IV-L	II-III-IV	IV-V-L	III-IV-V
Bridgman (1935)	183/17·0			185/22·0			
Butuzov and Ponyatovskii[a] (1956)	184/17·0			184/22·0			
Ponyatovskii[a] (1960)					174/22·2		
Klement *et al.*[b] (1963b)	191/16·7			191/23·6	180/24·0	296/38·0	174/52·6
Tikhomirova *et al.*[b] (1966)	192/16·9	182/17·6	191/19·9	191/21·4	182/21·9		
Haygarth *et al.*[b] (1969)							175/54·3
This work[c]	192/17·1	183/17·8	191/19·7	190/21·8	184/22·2	294/37·0	186/51·8

[a] Average of transitions upon increasing and decreasing the temperature.
[b] The values upon increasing temperature only.
[c] Equilibrium values.

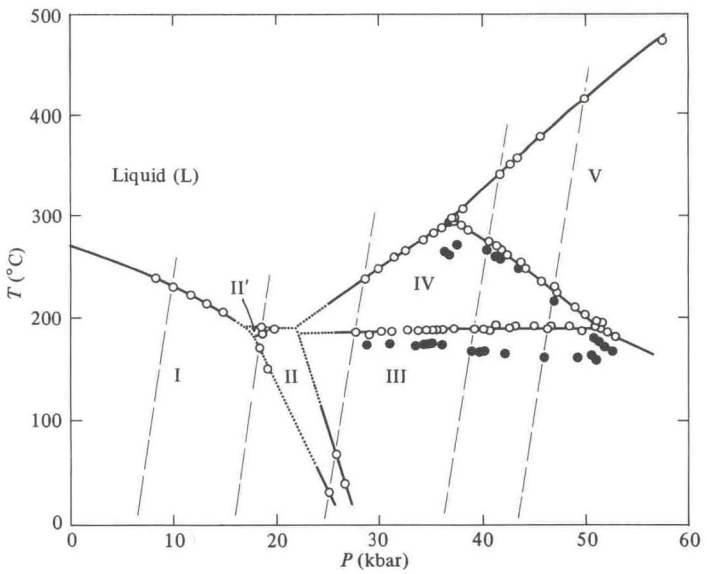

Figure 6. The phase diagram of bismuth. Each small dot and each open circle represent a separate measurement of the phase transitions upon increasing temperature. The solid circles are phase transitions on decreasing temperature. The lines represent equilibrium values for the transitions estimated by considering the shapes of the DTA signals at the transitions. The dashed lines indicate the pressure-temperature path at constant press load.

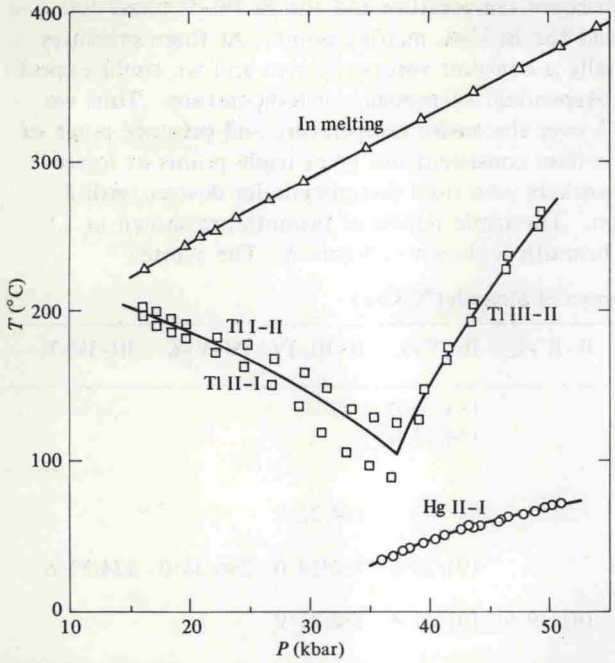

Figure 7. Equilibrium phase lines for indium, thallium, and mercury. The transitions at both increasing and decreasing temperatures are shown for thallium. The mercury points are taken from six separate measurements. This shows the repeatability of the measurements.

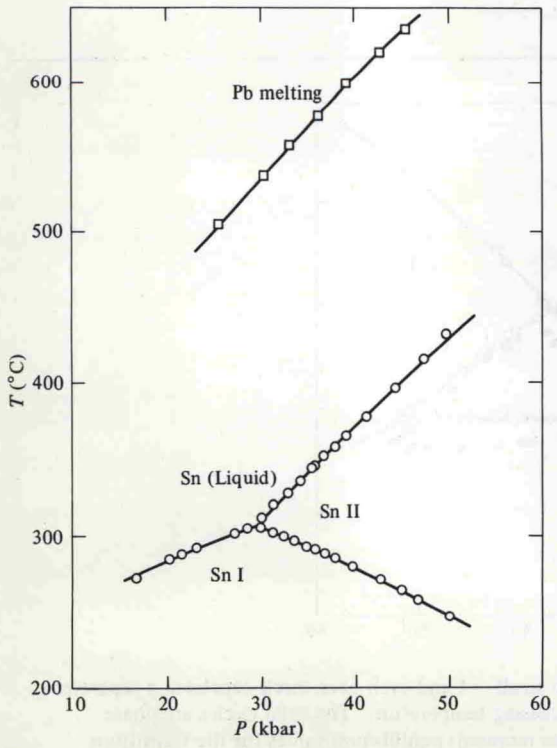

Figure 8. Equilibrium phase diagrams for lead and tin.