FIG. 1. Inductance of a coil wound on a threaded Bi core as a function of ram pressure at room temperature. Lead inductance was $0.5800\ \mu H$.
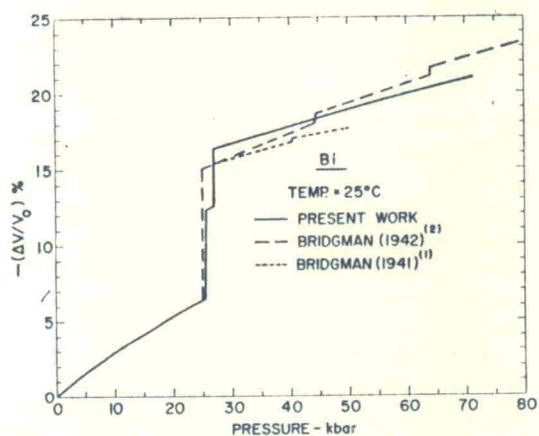

FIG. 2. Compression curve of Bi at 25°C.

Table 1. *Compression of Bismuth at 25°C.* The listed values are the means and standard deviations for eight experiments

P (kbars)	$-(\Delta V/V_0)$ %	P (kbars)	$-(\Delta V/V_0)$ %
0	0	35	17.2 ± 0.8
5	1.5	40	17.8 ± 0.9
10	2.8	45	18.3 ± 0.9
15	4.1	50	18.9 ± 0.9
20	5.3	55	19.4 ± 1.0
25	6.3	60	19.9 ± 1.0
30	† 16.7 ± 0.8		

* Matched with BRIDGMAN's[2] data up to 20 kbar.
† (i) Transition at 25.4 kbar; compressions -6.4% to $-(12.2 \pm 0.4)\%$; (ii) Transition at 26.8 kbar; compressions $-(12.4 \pm 0.5)\%$ to $-(16.0 \pm 0.8)\%$.

The compression curve of Bi to 60 kbar at 25°C is shown in Fig. 2 which also shows Bridgman's results for comparison. The data is tabulated at 5 kbar increments in Table 1. These results are based on eight runs for which the experimental set-ups differed among each other in some respect, such as sample size, pressed powder vs. cast samples, thickness of silver chloride jacket (when used), and whether or not a thin pyrophyllite sleeve was placed on the coil before enclosing it in silver chloride. On completely identical set-ups the reproducibility was better than $\pm 2\%$ of the vol. changes themselves.

The over-all results are in fairly good agreement with Bridgman's data. The most significant differences occur in the region of the transitions. The Bi_{I-II} and Bi_{II-III} transitions occur so close together in pressure that it was beyond the resolving powers of Bridgman's 50 kbar[1] and 100 kbar[2] apparatus to separate them. In earlier lower pressure work, however, he reported the vol. changes at the two transitions separately.[9] Table 2 compares the results and also includes LaMori's[10] data obtained by the piston displacement technique.

The ratios of the sudden vol. changes I–II: II–III varied between $1.41:1.0$ and $1.60:1.0$ for the various runs. By way of comparison BRIDGMAN's data[9] yielded a ratio of $1.53:1.0$ and that of LaMori $1.33:1.0$. It is not clear why there should be such a large scatter in this ratio. In his resistance work, BRIDGMAN[3] also observed a wide variation in the ratio of the resistance changes