3·2·1. *The temperature dependence of* ρ_i

Specimens Na (3) to Na (7) were studied in the low-pressure apparatus. The results for the bare wire specimens were in excellent agreement with one another, whereas those for Na (4), which was a specimen enclosed in a glass capillary tube, were systematically different. We were able to obtain resistance–temperature curves of the pure body-centred cubic phase down to about 40 °K and the only uncertainty

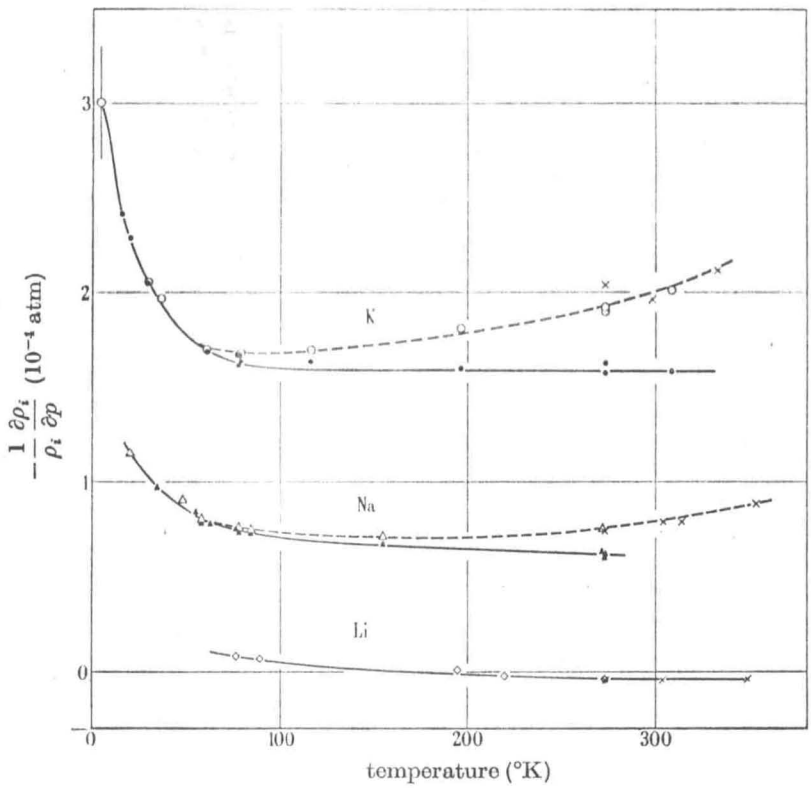

FIGURE 2. The pressure coefficient of the ideal resistivity of lithium (b.c.c. phase), sodium (b.c.c. phase) and potassium as a function of temperature: – – –, at zero pressure, ——, at a constant density equal to that at 0 °K under zero pressure. × Values from Bridgman (1921, 1925, 1938) for zero pressure.

in converting these to $\rho_i - T$ curves was that we had to measure the residual resistivity on a two-phase mixture. Our earlier work has shown that the residual resistivity is not much affected by the transformation (Dugdale & Gugan 1960) so we have used in our calculations the directly measured residual resistivity. These results are given in table 6.

Previous work on the resistivity of sodium as a function of temperature has been extensive. The most comprehensive work at low temperatures is that of MacDonald, White & Woods (1956), but as the effect of the phase transformation on the resistivity of sodium was not realized at that time, their results in general refer to two-phase mixtures of unknown proportions.