3·3·3. *The correction of ρ_i to constant density conditions*

The value of $\partial \ln \rho_i / \partial \ln V$ is not very dependent on volume so that in view of the experimental uncertainties it has not seemed worth while making the correction to constant density for this quantity. On the other hand, we have corrected the values of the ideal resistivity of b.c.c. lithium to constant density and the results are given in table 10.

TABLE 11. THE EFFECT OF PRESSURE ON THE IDEAL RESISTIVITY OF B.C.C. LITHIUM

T (°K)	$\partial \ln \rho_i / \partial p$ (10^{-5} atm^{-1})	$\partial \ln \rho_i / \partial \ln V$*
273·15	$0{\cdot}43 \pm 0{\cdot}01$	$-0{\cdot}49$
220	$0{\cdot}25 \pm 0{\cdot}1$	$-0{\cdot}30$
195	$-0{\cdot}09 \pm 0{\cdot}1$	$+0{\cdot}11$
90	$-0{\cdot}66 \pm 0{\cdot}1$	$+0{\cdot}85$
78	$-0{\cdot}73 \pm 0{\cdot}1$	$+0{\cdot}94$
273·2†	$0{\cdot}41_5$	—
303†	0·42	—
348†	0·39	—

* Evaluated at zero pressure.
† Values from Bridgman (1921, 1938).

4. DISCUSSION

Before discussing the pressure coefficient of electrical resistivity we first consider briefly the temperature dependence of the resistivity (an introductory discussion of these topics has already been given by Dugdale (1961)). In the discussion which follows we shall generally be considering the conditions of constant density (i.e. constant volume) so that unless there is a statement to the contrary this may be assumed.

4·1. *The temperature dependence of ideal electrical resistivity*

In order to compare the resistivity–temperature curves of different metals it is often convenient to use the intermediary of some definite theoretical model, as one does when comparing experimental specific heat curves by means of the Debye model. For electrical resistivity the Bloch–Grüneisen model is a convenient one. According to this model the temperature dependence of the ideal resistivity is of the form of equation (1) and if we compare the logarithmic temperature coefficients of resistivity of our specimens with that predicted by the model we can specify our results by giving the variation with temperature of the Bloch–Grüneisen parameter θ_G† (cf. Kelly & MacDonald 1953).

We have done this for the metals we have studied and the results are shown in figure 3. The values of θ'_G have been calculated from the resistivity at constant density; it is notable that when the correction to constant density is made to the results for lithium the temperature dependence of θ'_G becomes stronger than before.

† We call this parameter θ_G to distinguish it from the more general θ_R of equation (1).