

fact a comparison between Figs 24 and 27 shows that the theory reproduces qualitatively all the features found experimentally (see also Table IV).

The *absolute* magnitudes of the resistivities are *not* given accurately by the theory, presumably because of the crude approximations in the treatment of the phonons. The fact that the *relative* changes with volume are well reproduced shows that these diverse effects of pressure arise from the *details of the scattering potential* rather than from details of the phonon spectrum or of the Fermi surface. These are conclusions that we saw were suggested by other experimental features of the transport properties of the alkali metals and are fully confirmed by the calculations of Dickey *et al.*

From the model itself it is possible also to calculate the thermoelectric power and its variations with pressure. The thermoelectric power is rather a subtle property, since its calculation requires a knowledge of the energy dependence of the electron scattering. Nevertheless, the theory is reasonably successful in accounting for the magnitudes of the thermoelectric power (at high temperatures, where phonon scattering is dominant) and also for some important features of their pressure dependence (see Table V). In a subsequent article in this series Professor N. H. March discusses pressure effects in metals from a theoretical point of view (Vol. 3).

TABLE V. ξ and its volume derivative, derived from the thermoelectric power of the solid alkali metals at 0° C

Metal	ξ		$\partial \ln \xi / \partial \ln V$	
	experiment	theory	experiment	theory
Li	-6.7	-0.7	-0.24	-0.5
Na	2.7	2.4	1.4	0.61
K	3.8	3.2	-1.0	0.35
Rb	2.3	3.3	-0.3	0.27
Cs	0.2	0.6	~50	19

F. IMPURITY SCATTERING

The effect of pressure on the resistivity due to impurities, ρ_0 , has been studied quite extensively in the noble metals by Linde (for a summary, see Gerritsen, 1956). Further work has been reported since then (Dugdale, 1965b). The important feature of the measurements by Dugdale and Phillips (reported in Dugdale, 1965b)