7 shows that the theory re-
nd experimentally (see also

ies are *not* given accurately
rude approximations in the
the *relative* changes with
se diverse effects of pressure
ial rather than from details
rface. These are conclusions
perimental features of the
d are fully confirmed by the

to calculate the thermoelec-
. The thermoelectric power
lation requires a knowledge
cattering. Nevertheless, the
unting for the magnitudes
mperatures, where phonon
me important features of
In a subsequent article in
es pressure effects in metals

ative, derived from
l alkali metals at 0° C

$\partial \ln \xi/\partial \ln V$	
periment	theory
−0·24	−0·5
1·4	0·61
−1·0	0·35
−0·3	0·27
50	19

RING

due to impurities, ϱ_0, has
ble metals by Linde (for a
ork has been reported since
feature of the measure-
rted in Dugdale, 1965b)

is that they were made at 4·2° K (by the helium gas technique). This meant that it was possible to measure the effect of pressure on the residual resistivity of the noble metals containing *other noble metals* as impurity. Since these impurities cause relatively little scattering, this can hardly be done at room temperature when the phonon scattering would dominate (at least in dilute alloys).

What all these results emphasize is the variety of values (of both signs) that are found for $\partial \ln \varrho_0/\partial \ln V$. This presumably again arises from the details of the potentials of the scatterers; here we are concerned with the difference in potential between the impurity and the host lattice. To make realistic comparison between theory and experiment demands careful calculations similar to (but perhaps more difficult than) those of Dickey *et al.* (1967) on the alkali metals already referred to. These authors have in fact made calculations of the resistivities due to noble metal impurities in the noble metals themselves, but they conclude that their model is not very satisfactory for these systems. This is presumably partly because of the distorted Fermi surfaces in the noble metals but mainly because of the low lying *d* levels which overlap to form a band and so alter substantially the electronic structure of these metals.

G. PHONON AND IMPURITY SCATTERING BOTH PRESENT

The effect of pressure on electrical resistivity due to phonons at low temperatures is almost invariably deduced from measurements on specimens whose resistivity is dominated by impurity scattering (cf. Fig. 28). This can give rise to error in the following way.

Recent work (Dugdale and Basinski, 1967) has focused attention on departures from Matthiessen's rule when two (or more) scattering mechanisms are present in the same metal with different anisotropies of relaxation times $\tau(k)$. The departure from Matthiessen's rule is measured by a quantity Δ defined as follows:

$$\Delta = \varrho_{\text{meas}} - \varrho_{\text{ph}} - \varrho_0 \tag{49}$$

ϱ_{meas} is the measured resistivity of the specimen at some temperature T, ϱ_{ph} is the resistivity of an ideally pure sample at the same temperature and ϱ_0 the resistivity measured at very low temperatures where ϱ has ceased to depend on temperature.