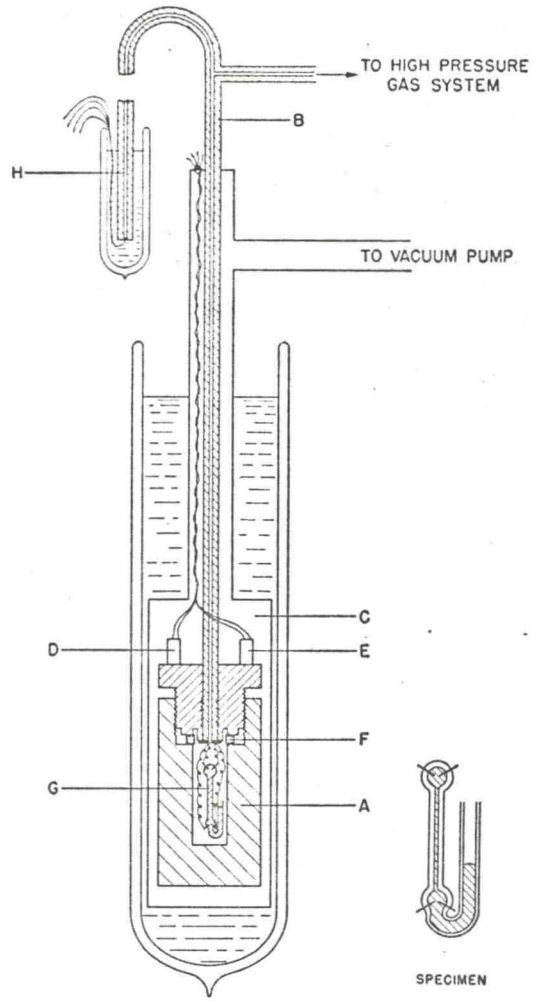

FIG. 1. Diagram of the apparatus for studying resistance under pressure over a wide temperature range (see text). Inset: rubidium specimen holder in soft glass with platinum electrodes.

The all-copper current and potential leads to the specimen, *G*, are introduced down the high pressure tube, entering through a frozen silicone oil seal contained in a side arm, *H*. Such a seal of oil kept frozen in liquid nitrogen has proved very satisfactory.

The high pressures are generated by an oil press and the pressure is transmitted to the helium gas through what is in effect a mercury-filled U-tube. The mercury separates the oil from the gas and thus prevents contamination of the helium. The dead volume in the high pressure part of the apparatus is kept to a minimum (about 4 cc.) in order to reduce the time required to reach the highest pressure and to minimize explosion dangers from the compressed gas.

The pressures were measured with a conventional Bourdon gauge to an accuracy of about 1%.

The rubidium specime
Fig. 1). The container wa
with rubidium under high
inner diameter of 1 mm.
electrodes; for one samp
used. The use of glass
satisfactory even with ma
rubidium is such a highly
successful way of mounti

We assume that, since
acts both internally and
are measuring resistivity
we assume that the dime
by the glass container, d

EL

The resistance of the p
potentiometer and the
(MacDonald 1947).

TH

Measurements were ma
helium temperatures to
pressures (approximately
effects are considered, the
as a function of temper
examples of this behavio

Sample 1 is a rubidium
The residual resistivity r
perature measurements t

Sample 2 was from th
capillary of 1 mm. bore;

Sample 3 was prepared
in fact it was heavily ox
measurements down to nit
(We use R_{260} for reasons
tube.

Sample 4 was a further
resistance ratio of just le

(The material for all t
from Messrs. A. D. Mac

It is at once evident th
200° K., varies from spe

*These measurements were
100 atm.). This pressure chang