



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 specimen (Fig. 1). The container was with rubidium under high inner diameter of 1 mm. electrodes; for one sample used. The use of glass satisfactory even with mercury rubidium is such a highly successful way of mounting.

We assume that, since it acts both internally and externally, are measuring resistivity we assume that the dimensions by the glass container, do

EL

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

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Measurements were made at helium temperatures to pressures (approximately 100 atm.) effects are considered, the resistance as a function of temperature. examples of this behavior:

Sample 1 is a rubidium specimen. The residual resistivity ratio temperature measurements to

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

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

Sample 4 was a further resistance ratio of just less

(The material for all the tubes from Messrs. A. D. Mac

It is at once evident that the resistance at 200° K., varies from spec

*These measurements were made at 100 atm.). This pressure change