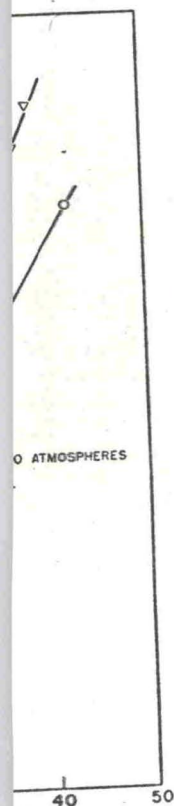


ple 2) at two pressures the anomaly, illustrating because of temperature defined temperature it perature of the anomaly on sample 1, for which there is a change it is sured. It showed a con-

Fig. 4, one sees that the ut 6° K. This is because mponent of resistance is is raised by pressure. solidifies. Here we have he pressure-filling tube is



ple at low temperatures.

arranged to be slightly colder than the bomb and so freezes first. Thus at 25° K. solidification of the helium begins and it is complete when the temperature has fallen to 22° K. The pressure is now very nearly 2000 atm. (see Dugdale and Simon 1953) and it falls slowly from this value to about 1900 atm. at the lowest temperatures.

Because of the marked pressure changes between 25° and 22° K. the resistance-temperature curve will be correspondingly modified in this temperature region. This is shown in Fig. 4.

After the measurements from nitrogen temperatures down to helium temperatures at three different pressures, the system was returned to its starting conditions at the nitrogen boiling point. The resistance was found to return to its initial value. The results of the low pressure measurements have been compared with values of the resistivity of rubidium obtained by White and Woods (private communication) and were found to agree satisfactorily.

(3) The effect of pressure on the residual resistivity was measured by applying the highest pressure (2500 atm.) at such a temperature (greater than 25° K.) that the helium is fluid and then cooling the system to 2° K. and measuring the resistance. The temperature was next returned to just above 25° K. and the pressure was lowered to 2000 atm. After this the system was again cooled to 2° K. and then the process repeated, the temperature being raised each time to a value sufficient to melt the solid helium before the pressure was lowered. The experimental points are shown in Fig. 5.

From these measurements we deduce a pressure coefficient of residual resistivity of about +4% per thousand atmospheres for sample 2.

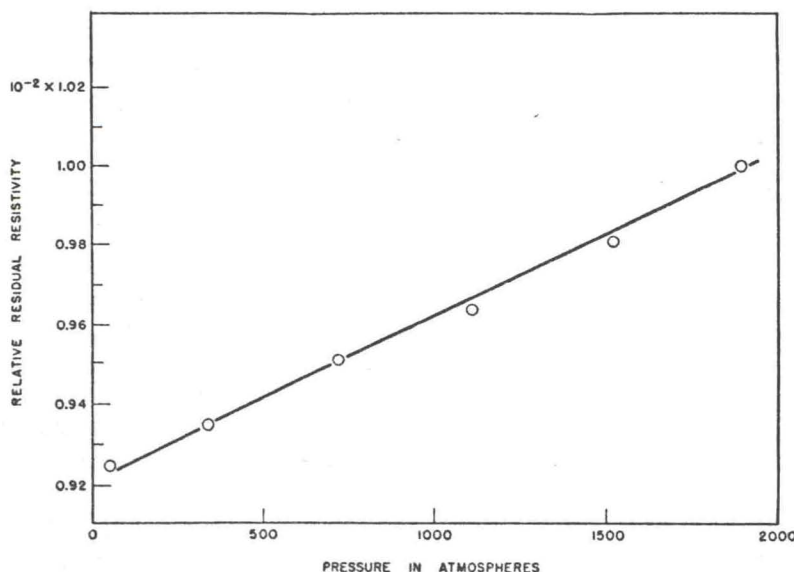


FIG. 5. The residual resistivity of a rubidium sample as a function of pressure.