extrapolating to the value of the lattice parameter characteristic of the fully ordered material to find R_o at 25°C and 1 atmosphere. The temperature and pressure coefficient of resistance of a highly ordered sample are then measured and used to find R_o (T, P).

The procedure for measurement of the ordering rate is to first set up a quenched sample in the anvils and measure its resistance at room temperature and pressure. Then a pressure of a few hundred bars is applied and T raised to 100°C. At this temperature the sample is brought to the pressure to be used in the experiment; it is then rapidly heated and, when the temperature is stabilized, the resistance is measured as a function of time until the equilibrium resistance is attained. At the temperatures and pressures used, this may require a time between a few hours and a few days. During this anneal T is held to ±0.5°C and P to within ±40 bars.

The resistance changes during a typical ordering experiment are shown in Fig. 6. To the data points shown, Eq. 1 must be fitted. In making this fit allowance must be made for possible errors in the determination of R_o and R_e. This was done by means of a computer program which compares Eq. 1 with the data for the following range of the variables R_o, R_e, and α:

$$\Delta R_o = 1.1\, R_o \text{ to } 0.7\, R_o$$

$$\Delta R_e = 1.0\, R_e \text{ to } 0.9\, R_e$$

$$\Delta \alpha = 3.0\, \alpha \text{ to } 0.3\, \alpha$$