especially useful for the investigation of the melting curves, but it is difficult to use over 1300 °C as there is no suitable sample container. In this respect this method wants more development.

3. Experimental Results

(a) Monoclinic-Tetragonal transition of $ZrO_2$: As Fig. 2 shows, transition was detected from the abrupt change point of the curve plotted log R(resistance ohm) vs. 1000/T(°K). In this experiment a volume change $\Delta V = 0.52 \pm 0.07$ cc/mole using by a high temperature x-ray diffraction at the atmospheric pressure, $\Delta H = 1420 \pm 3$ cal/mole (by Coughlin-King) and a transition temperature $T_c = 1383 \pm 10$ °K at the atmospheric pressure. So $dT_c/dP = -1.20 \pm (0.16) \times 10^{-2}$ deg/bar was decided by the Clapeyron equation. This value was reasonable. The pressure dependence of the monoclinic-tetragonal transition of $ZrO_2$ is shown in Fig. 3.

(b) $\alpha - \beta$ transition of Quartz: This transition has been investigated up to 10 kb. by Yoder. We investigated up to 30 kb. by the DTA method and decided the triple point of $\alpha SiO_2 - \beta SiO_2$ - Coesite. $dT_c/dP = 2.87 \times 10^2$ deg/bar was consisted with the Yoder's value. But this curve was not linear, but it was concave toward the pressure axis. This result is shown in Fig. 4.

(c) Melting curves of AgCl: Melting curves of AgCl, AgBr, $AgNO_3$, NaCl, KCl, etc. were determined up to 40 kb. using the DTA method. These results were summarized by the Simon's equation. For example the Simon's equation of AgCl is shown in $P(kb) = 13.5 [(T/728)^{4.3} - 1]$, Fig. 5 shows the melting curve of AgCl and DTA signals. Data of other materials are to be shown in another paper.