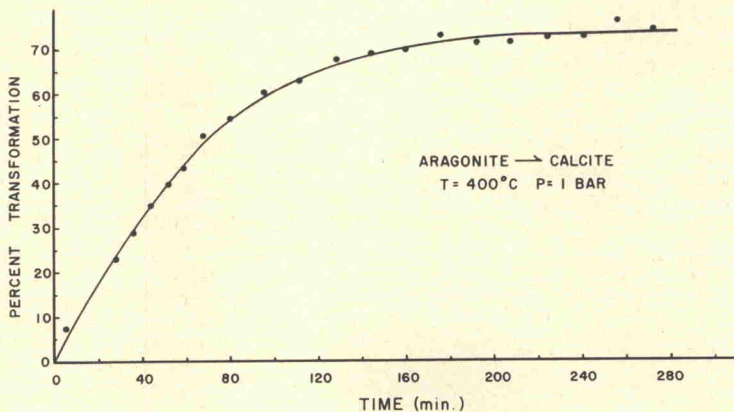
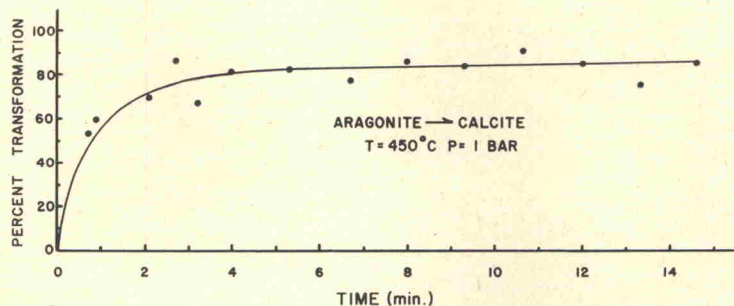


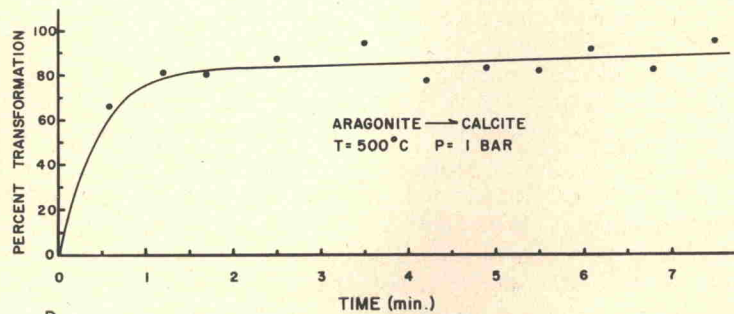
A



B



C



D

Fig. 2. Observed rates of transformation for Kamsdorf aragonite  $\rightarrow$  calcite at 1 bar in the beryllium pressure vessel: A, at 380°C; B, 400°C; C, at 450°C; and D, at 500°C.

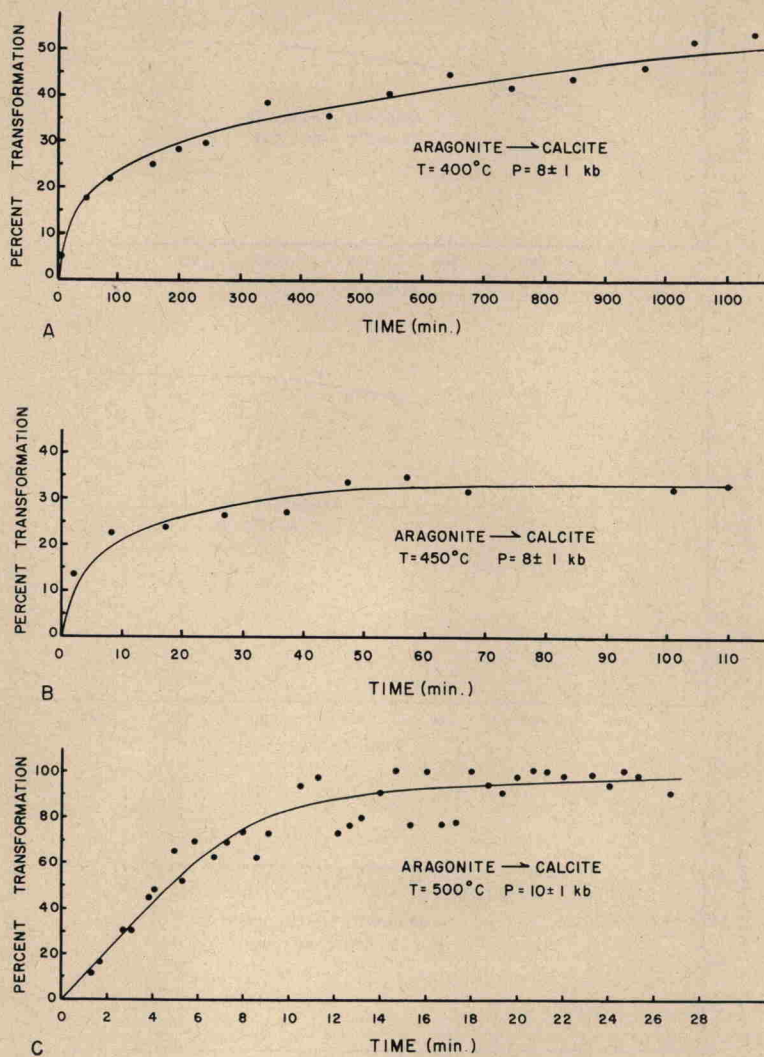


Fig. 3. Observed rates of transformation for Kamsdorf aragonite → calcite: A, at 400°C and 8 ± 1 kb; B, at 450°C and 8 ± 1 kb; and C at 500°C and 10 ± 1 kb. Beryllium pressure vessel.

tity and the quantity at time  $t$  of reactant phase,  $K$  is a rate constant, and  $p$  is a number (positive, but not necessarily integral) analogous to the 'order' of chemical reactions. The units of  $K$  are (per cent) $^{1-p}$ /min when  $x$  is given as per cent of the initial quantity of reactant phase  $x_0$ . The rate curve of Figure 4D was fitted approximately to equation 1 by using the dashed line.

The method for finding the values of  $p$  and  $K$  for each rate curve, where  $p$  is thought *not* to be integral, involves finding the slopes  $dx/dt$  at various values of  $x$  along the rate curve and then adjusting the value of  $p$  in  $(x_0 - x)^p$  so that

$$\begin{aligned} \frac{m_1}{(x_0 - x)_1^p} &= -\frac{m_2}{(x_0 - x)_2^p} = \frac{m_3}{(x_0 - x)_3^p} = \dots \\ &= \frac{m_i}{(x_0 - x)_i^p} = K \end{aligned} \quad (2)$$

where  $m = dx/dt$ . The rate curve itself was fitted by eye to the experimental points.

The rate data of this study are summarized in Table 1. The closeness of fit of this data to (1) is indicated by the standard deviation divided by the mean value (fract. dev.) for the determination of  $K$  for five such terms as given in (2).