

in an early experimental study of the olivine-spinel transition (Dachille and Roy, 1960), and in a paper concerning calibration in opposed anvils systems (Myers, Dachille and Roy, 1963).

## RESULTS

*Opposed-anvil high-pressure experiments.* In Figures 1 and 2 are summarized representative runs (plotted as circles) indicating quench

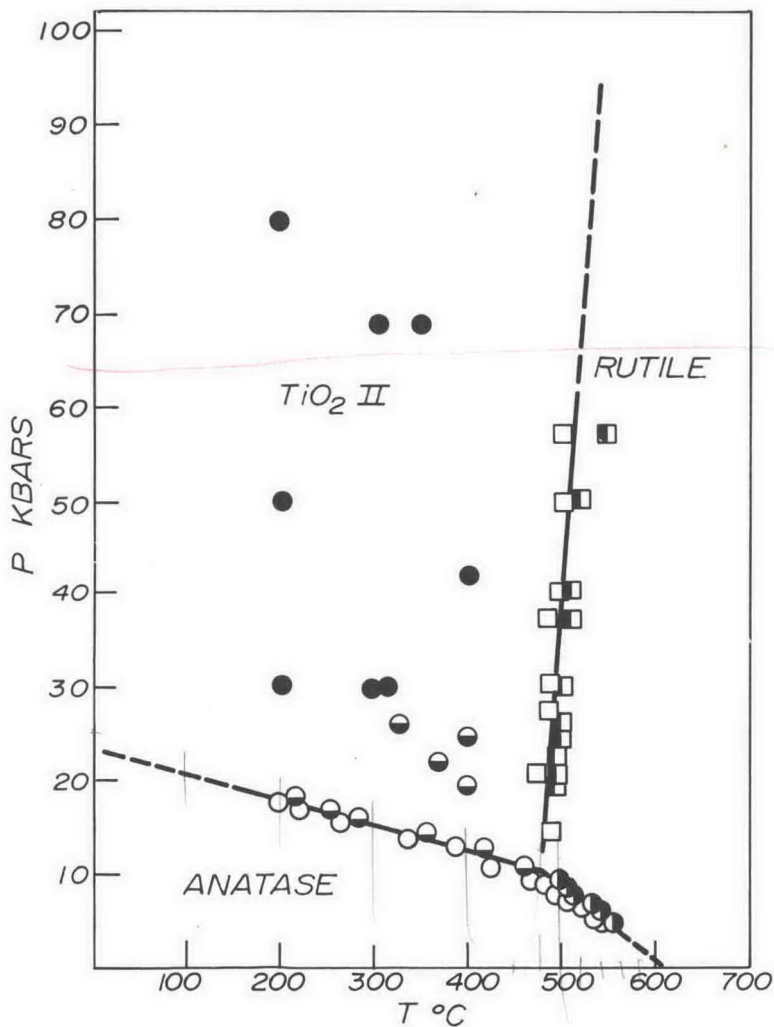


FIG. 1. The  $p$ - $T$  reaction boundaries along which anatase was converted to II or rutile are marked by open or filled circles. The third boundary, marked by open or filled squares is for the II to rutile conversion.

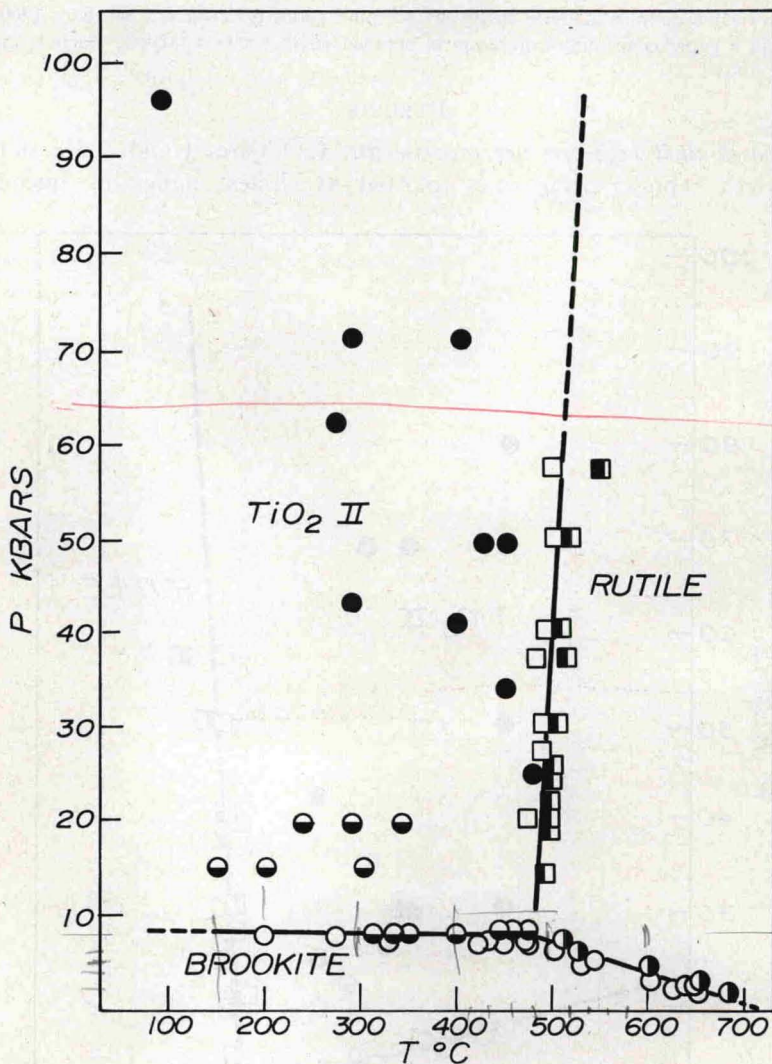


FIG. 2. The  $p$ - $T$  reaction boundaries along which brookite was converted to II or rutile are marked by open or filled circles. The II to rutile boundary is the same as in Fig. 1.

products obtained using anatase and brookite, respectively, as starting materials. Most of the runs were for three days at pressure and temperature but several were much longer. In general, the runs were temperature-quenched while pressure was maintained.

Runs also were made using rutile as the starting material. However, despite the use of mineralizers, oscillating shearing stresses, and very