This is essentially the same as the change in melting point of diopside itself. The composition of the eutectic is not measurably affected by pressure. In this system, as in all the work at 20 kb, quartz is the silica phase stable on the liquidus. The effect of pressure on the two-liquid region in this system has not been investigated.

The system anorthite-silica is not binary at 20 kb because of the incongruent melting of anorthite, probably to corundum + liquid (Boyd and England, *Year Book 60*, p. 119). Between the fields of corundum and quartz on the liquidus there is a field of sillimanite. The temperature of lowest point on the liquidus, between the quartz and sillimanite fields, is 1540°C, and the composition is 48 weight per cent SiO_2. At atmospheric pressure the binary eutectic lies at 1368°C and 59 weight per cent SiO_2. (Both silica contents are determined relative to lime Tschermak's molecule.)

Changes produced by pressure in the system diopside-anorthite are greater than in the other limiting systems. Not only does anorthite melt incongruently at high pressures but also the amount of alumina in the pyroxene increases dramatically. At compositions near anorthite, corundum and "β alumina" both appear at high temperatures, with and without other crystalline phases. One of these alumina phases must be metastable on the liquidus, but it is not clear which. There is some evidence that, although corundum is stable at the anorthite composition, "β alumina" is the stable liquidus phase at neighboring magnesian compositions. It will be difficult to work out the correct relationship between these phases because of the stubbornness with which they both persist metastably.

The nature of the minimum on the liquidus in this system has not yet been determined. It may be a cusp, resembling a eutectic, or it may be a smooth trough, depending on whether the minimum lies within the pyroxene field or at its boundary. Figure 7 is drawn as if this

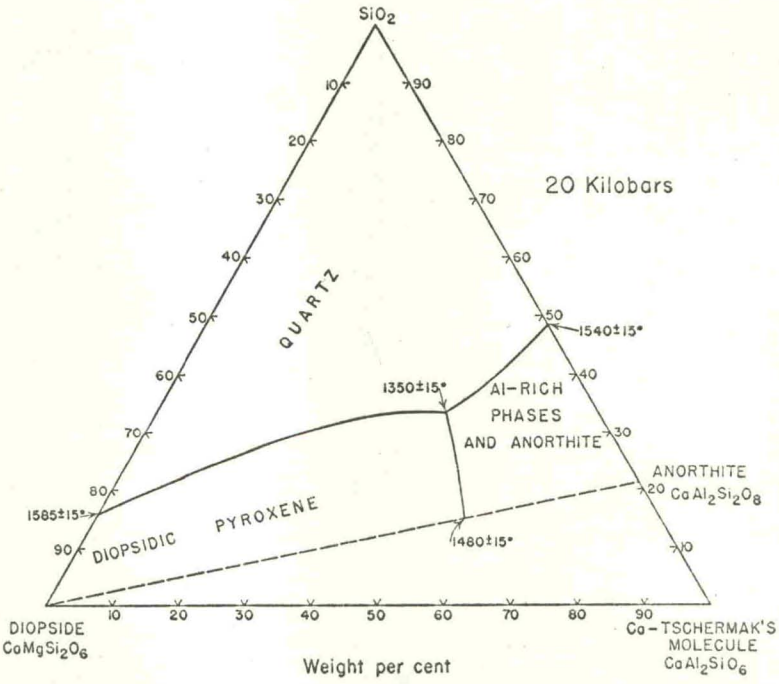

Fig. 7. Equilibrium diagram for the system diopside-lime Tschermak's molecule-silica at 20 kb.