sion a Mg-poor calcite I could be exsolved. In either case, there would be a resulting confusion as to the original composition of the primary phase. The present data indicate that such an effect is not of real concern, because the differential solubility is so slight that the geologic thermometry would not be affected. It is a consequence of the small solubility differential that the field of calcite II remains at high temperatures and pressures and that calcite II as a primary phase is probably not often encountered in ordinary metamorphic conditions. For example, if the temperature of the Crestmore, California, carbonates as interpreted by Carpenter (1967) is correct, calcite II would have been the primary phase if the pressure exceeded approximately 5 kb. This represents a depth of burial in excess of 15 km, which, although perhaps not impossible, is unlikely.

The presence of $MgCO_3$ increases the field of stability of calcite with respect to aragonite. The effect is rather small at temperatures up to approximately 450°C, but at higher temperatures the difference between the transition curves for pure $CaCO_3$ and for the $MgCO_3$–saturated system becomes large. It is unlikely, however, that aragonite is produced in nature in the higher grades of metamorphism, as the necessary pressures are unrealistically high. The presence of $MgCO_3$ in the system makes it all the more unlikely that aragonite would be formed under equilibrium conditions. Metamorphic aragonite is known from several low-grade metamorphic terranes (Coleman and Lee, 1962). These rocks probably never reached temperatures higher than about 250°C, at which point the pure calcite-aragonite and $MgCO_3$–saturated calcite-aragonite curves are separated by but a few hundred bars. Therefore, the presence of $MgCO_3$ in rocks probably has little effect on a geobarometer based on the equilibrium calcite-aragonite transition.

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