oxene + clinopyroxene + spinel assemblage in ultramafic rocks overlaps the stability field of the intermediate pressure granulites (opx + cpx + plag ± ga, opx + cpx + plag + qz) and high pressure granulites (cpx + ga + plag ± qz), and in some compositions such as the pyrolite (Green & Ringwood 1967c), overlaps into the eclogite field at high temperatures. (Facies terms are used in the sense of Green & Ringwood 1967a).

The reliable extrapolation of the boundary between plagioclase-bearing and plagioclase-free peridotite to lower temperatures is not possible from the data presented. Assuming a moderate to large slope (dT/dP) for the boundary in pyrolite composition, the intersection of estimated geothermal gradients with this boundary would allow some estimation of the potential role of plagioclase peridotite ('plagioclase pyrolite') in the upper mantle (Ringwood 1966b, Green & Ringwood 1967c). It is clear from the present data and these earlier papers that plagioclase pyrolite could only occur beneath a normal continental crust (25-40 km) under conditions of extremely high geothermal gradient, and even then would be limited to a zone of <10 km thickness. In oceanic regions, plagioclase pyrolite is potentially more important at depths from 10–40 km, but uncertainty of the extrapolation to low pressure prevents firm conclusions. In regions of very high heat flow, such as mid-oceanic ridges, plagioclase pyrolite is probably present but restricted to levels above 40 km.

The data also permit some further deductions on the conditions of crystallization of the uncommon high temperature peridotite intrusions, such as Lizard (Green 1964a, 1967), Tinaquillo (MacKenzie 1960) and Serrania de la Ronda (Dickey 1969). In the Lizard peridotite, accepting a temperature of 1000°C–1200°C for the body during diapiric emplacement, the movement of the body from the field of stability of the olivine + aluminous pyroxenes + aluminous spinel to stability of olivine-pyroxenes + plagioclase (labradorite) implies movements from depths of at least 35 km to depths of 25-30 km or less. In the Tinaquillo example, accepting a similar temperature of crystallization, the absence of plagioclase and presence of spinel porphyroblasts and zoned pyroxenes (Green 1963) implies final equilibration of the peridotite mineralogy at depths of at least 35 km. Final crystallization at lower temperatures (800–900°C) would allow crystallization at somewhat shallower depths (≈ 30 km). The nature of the basic granulites of the aureoles of the two peridotites provides interesting comparisons in that the Lizard aureole does not contain almandine-pyrope garnet, but the granulites are characteristically opx + cpx + plag, locally with olivine (Green 1964b). The Lizard metamorphics are thus 'low-pressure granulites'. On the other hand, the Tinaquillo peridotite has granulites with cpx + ga + plag ± hornblende at the outer margin and cpx + opx + ga (minor) ± hornblende in included blocks. The Tinaquillo metamorphics are thus intermediate pressure granulites. The experimental data on basic and ultramafic rocks at high pressures provides confirmation of the compatibility of the recrystallized assemblages in the ultramafic bodies