resulting metastable textures probably owe their preservation to the relatively rapid transport of nodules to the surface in kimberlite magma. Garnet exsolution from pyroxene could have been facilitated by decreased temperatures accompanying kimberlite cooling. Formation of peridotite suite garnet by the above pyroxene-spinel reaction also may have been induced by decreasing temperatures; however, locally higher pressures possibly associated with tectonic adjustments related to intrusion of kimberlite may have perturbed the garnet-spinel phase boundary triggering crystallization of garnet at shallower mantle depths. (Study supported by Earth Sciences Section of NSF, Contract EAR-7810775)

D7

GARNET-PYROXENITES ASSOCIATED WITH THE ULTRAMAFIC ROCKS: ECLOGITES, ARIEGITES, GRIQUAITES OR GROSPYDITES?

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Garnet(py-al) + clinopyroxene associations related to metamorphic rocks were termed "eclogites" by Hauy (1822). this appellation designs also various gt-cpx assemblages related to ultramafic bodies or xenoliths. So the same appellation classify different types of gt-cpx bearing rocks whereas different names are still used to qualify the same class of rocks. It is suggested :

1- To keep "eclogite" for rocks associated with high-pressure/low-temperature metamorphic units. Most of them are saturated in silica and the clinopyroxene is Jd.rich and Ca.Ts-poor. Silica undersaturated compositions may involve corundum in their parageneses.

2- To consider the high pressure/ high temperature gt-cpx rocks :

a) As "ariegites" when orthopyroxene and spinel are also abundant phases. The ariegites, characterizing the high pressure subfacies of spinel-lherzolite facies (O'Hara, 1967), would breakdown at higher pressure to give gt-harzburgites or -wehrlites.

b) As "griquaites" when clinopyroxene and garnet are the main phases (plus or minus spinel). The griquaites equilibrated in the ariegite subfacies as well as in the garnet-lherzolite facies.

c) As "grospydites" when garnet and clinopyroxene are associated with kyanite and/or corundum. Such rocks are characterized by Ca-rich garnet with Ca.Ts and Jd.rich clinopyroxene ; giving a larger acceptation to this word than previously defined by Bobriyevich et al. (1960), the grospydites would involve most of corundum and kyanite eclogites associated with kimberlites. They cristallized at very high pressure in the ariegite subfacies or in the garnet-lherzolite facies.

D8

PETROLOGY OF A SUITE OF ECLOGITE INCLUSIONS FROM THE BOBBEJAAN MINE, SOUTH AFRICA: I. MAJOR PHASE CHEMISTRY

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A suite of more than forty eclogite samples from the Bobbejaan kimberlite, near Bellsbank, South Africa, has been examined in thin section and major phases have been analysed by electron microprobe. Most samples are bimineralllic eclogites, although a few contain up to 20% apparently primary phlogopite. Primary accessory phases include sulfides (pyrrhotite, pentlandite, chalcopyrite), kyanite, rutile, and graphite. Also, two corundum grospydites are described in a companion paper.

Some systematic trends are observed in the major-element chemistry of the principal phases.
1) The more calcic garnets occur with the more aluminous clinopyroxenes, and conversely, the more Fe- and Mg-rich garnets occur with the more aluminum-poor clinopyroxenes.
2) When temperatures are estimated from the Fe-Mg distribution between garnet and clinopyroxene, the highest apparent temperatures correlate with the highest Fe contents of both clinopyroxene and garnet, and the lowest temperatures correlate with the most calcic garnets and aluminous clinopyroxenes.

It is postulated that these inclusions are a suite (or suites) of igneous eclogites derived by magmatic differentiation at pressures between 25 and 40 Kbar. If this is true, the generalized chemical trends observed may be representative of high pressure differentiation within the alkali basalt system.

D9

PETROLOGY OF A SUITE OF ECLOGITE INCLUSIONS FROM THE BOBBEJAAN MINE, SOUTH AFRICA: II. TWO UNIQUE CORUNDUM GROSPYDITES

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Two small corundum grospydite inclusions from the Bobbejaan kimberlite, near Bellsbank South Africa, have been observed in thin section and analyzed by electron microprobe. One sample (SBB-2H) contains approximately 60% garnet ($Gr_{48}Py_{37}Alm_{15}$), 35% clinopyroxene ($Jd_{52}Di_{38}CaTs_{7}$), 5% kyanite, and less than one percent corundum. The second (SBB-3P) contains 58% garnet ($Gr_{48}Py_{37}Alm_{16}$), 25% clinopyroxene ($Jd_{55}Di_{36}CaTs_{9}$), 14% kyanite, and 3% corundum. In both samples most corundum is observed as inclusions in kyanite, but in the second sample it is also observed as inclusions in garnet. In neither sample is corundum observed in contact with pyroxene.

In this second sample clinopyroxenes are observed to include lamellae of both kyanite and garnet in an apparent exsolution texture. If the kyanite and garnet lamellae in this clinopyroxene were once a single pyroxene, it would have a composition of approximately 30% $CaAl_2Si_4O_{12}$, 40% jadeite, and 20% diopside. Such pyroxene compositions have not been reported in kimberlite eclogites but may be stable at pressures in excess of 40 Kbar.

It is postulated that these two grospydites formed by magmatic differentiation within the eclogite system at pressures between 40 and 60 Kbar and subsequently re-equilibrated at pressures between 25 and 35 Kbar. The initial phases were garnet, clinopyroxene, and corundum, plus possible kyanite. Breakdown of the $CaAl_2Si_4O_{12}$-rich pyroxene to form clino-