

It has long been known that there are at least two phases of mafic-ultramafic magmatism in NE Scotland (Read 1919), the well known Younger Gabbro suite and a lesser known 'Older suite'. A regional study of the ultramafic rocks (Styles 1994, 1999) showed that they comprised three groups, the Lower Zone of the Newer Gabbros and two closely related ones; a harzburgite group and a group of clinopyroxene-rich rocks referred to as the Succoth-Brown hill type (SBH) that were broadly the same as Reeds' Older suite. The latter two groups are found along major regional scale shear zones, particularly the Portsoy Lineament. It was suggested that SBH type was the root complex of a volcanic arc (Gunn et al 1996) and that the harzburgite type were fragments of upper mantle (Styles 1999). Mapping of the UAE-Oman ophiolite by BGS (Styles 2006) showed that it consisted of an early mid ocean ridge phase followed by an extensive second phase of hydrous magmatism formed in a supra subduction zone (SSZ) setting that probably formed a proto volcanic arc prior to obduction. It will be shown that the ultramafic rocks of the mantle transition zone formed in this SSZ phase, dunites, olivine-clinopyroxenites, wehrlites and clinopyroxenites are essentially the same as those in the SBH type in terms of both rock type and mineral composition. This provides strong supporting evidence that the older suite of ultramafic rocks are remnants of upper mantle and mantle transition zone of SSZ ophiolites and the shear zones where they are found delineate 'sutures' within the Dalradian basin. The 'Newer gabbro' intrusions are also closely associated with these regional shear zones, which suggests that these zones formed conduits for the extensive later magmatism.