

**SAMPLE:** 562666 (in Que Rv Shale at 3830E 9710N)

**SUMMARY:** This sample was a microvesicular clinopyroxene+ plagioclase+sparsely olivine-phyric basaltic lava. It is not a typical Hellyer basalt.

**HAND SPECIMEN:**

This is a grey-green well-preserved finely porphyritic (plagioclase+cpx) metabasalt.

**THIN SECTION DESCRIPTION:**

In thin section, this sample is seen to be a microvesicular basalt with common phenocrysts of augite, less abundant albitized plagioclase phenocrysts, and possible former olivine phenocrysts now altered to quartz and chlorite. Augite phenocrysts make up around 10 modal% of this sample, and are mainly stumpy, clear and fractured prisms that often occur in multi-crystal clots; they are fresh, and mainly less than 0.5mm long, although some reach almost 1mm long. Plagioclase phenocrysts constitute about 5 modal% of this basalt and are clear to pale brown dusty albite crystals, also less than 1mm long. Many of the plagioclase phenocrysts appear rather rounded and reacted, suggesting that they may be derived from another batch of more felsic magma that mixed with the mafic crystal-rich basalt before eruption. Two or three crystal sites around 1-1.2mm long, with typical olivine crystal shapes, are now composed of intergrown secondary quartz and pale green chlorite. Quite abundant (10-15 modal%) subrounded cavities, mainly less than 0.5mm across, but sometimes up to several mm diameter, are filled by green chlorite and may represent small gas bubbles (vesicles).

The groundmass of this sample was vitrophyric, with abundant and randomly-orientated tiny acicular and feathery albite microlites set in chloritized glass, together with abundant tiny subspherical blebs of sphene probably after groundmass FeTi oxides, and dirty brownish epidote granules. The texture of this sample is in my opinion, typical of an extrusive basaltic lava, rather than a dolerite (although vesicular shallow dolerites are not rare, so I didn't laugh!). The sample strikes me as slightly different from typical Hellyer cpx-phyric basalts, mainly in that the cpx phenocrysts are small and fractured; also the abundant tiny sphene granules in the groundmass (assuming that they are sphene and not all epidote) imply a relatively high-Ti (ie. > typically in Hellyer basalts, perhaps >0.8% TiO<sub>2</sub>) content.