

In the zone of calcite masses and veins with xenoliths near the centre of the sill, large tabular crystals of plagioclase occur (3–4mm in diameter) and often poikilitically enclose small euhedral crystals of augite and, to a lesser extent, olivine. The plagioclase is twinned on the albite, carlsbad, and pericline laws and has been identified as labradorite (An_{53-62}). More tabular crystals show normal progressive zoning from a labradorite core to an andesine periphery (Table IV).

Clinopyroxene occurs as small equidimensional crystals ranging from 0.2 to 0.5mm in diameter. It was identified as pleochroic pale-lilac titanaugite (Table III) with $\alpha=\beta$, pale lilac-brown, and γ , light violet. The pyroxene has a poikilitic-subophitic relation with plagioclase and also commonly occurs as glomeroporphyritic clusters.

Olivine has been altered to bowlingite, but whether all the bowlingite present is formed by the alteration of olivine could not be determined. The bowlingite pseudomorphs after olivine are commonly euhedral. Near the centre of the sill olivine is altered to carbonates associated with masses of bowlingite and iddingsite (possibly partial pseudomorphs after olivine). In some cases bowlingite is rimmed with limonite associated with green chlorite and grains of powdery magnetite which may indicate the decomposition of the mineral itself.

Ilmenite is generally accessory and occurs as ragged rods, although rare granular and dendritic grains are present. The rods range up to 2.0mm in length, but most of them are commonly less than 1.0mm. Partial alteration to leucoxene has been noted. The bars of ilmenite are aligned in two directions across the slide intersecting at oblique angles—a fabric similar to that described by Dana (1890) in the olivine basalts of Hawaii, and by Campbell, Day, and Stenhouse (1932: 353) in some teschenites of the Braefoot Outer Sill, Fife.

Calcite is only a minor constituent except near the centre of the sill, where it occurs as veins and large masses up to 5in. in diameter. Its origin is probably due to xenolith assimilation. In thin section calcite occurs as small crystals interstitial to plagioclase, pyroxene, and olivine, but occasionally fills small vesicles about 0.5mm in diameter. These calcite vesicles are usually surrounded and partly invaded by a rim of fine crystalline material, similar to that figured by Baily, Clough, *et al.* (1924: 151) for a pillow lava at Ben Fhada, Mull. This rim consists of minute crystals of plagioclase, limonite, ilmenite, and bowlingite, often associated with small crystals of quartz. The adjacent feldspars, as they enter the rim, subdivide into radiating smaller prisms, while the large rods of ilmenite disappear and smaller ones take their place. This change does not always occur, but when larger feldspar prisms reach the boundary of a vesicle they are commonly tangential to the wall, possibly an effect of surface tension.

Mesostasis is always a constant accessory and is composed of a finely crystalline mass of bowlingite and ilmenite associated with microlitic plagioclase, giving a pseudo-variolitic texture. The mesostasis commonly penetrates plagioclase twin planes, especially those twinned on the carlsbad law.

Augite Dolerite (Fig. 4D): The augite dolerite which overlies the olivine dolerite in the sill is distinguished by its finer grain size, by a subvariolitic growth pattern of the plagioclase, and by a greater percentage of augite.

Plagioclase (An_{38-44}) occurs as thin ragged prisms about 0.5–0.75mm in length arranged in a subvariolitic growth pattern and showing a marked dendritic-cervicorn habit. Such a fabric has caused bending and the plagioclase is commonly broken where bending is extreme. The individual crystals typically branch out from several centres throughout the slide. Plagioclase is unaltered, although uncommon tabular crystals typically have an unaltered periphery surrounding an altered centre.

Augite occurs as small equidimensional granules about 0.1–0.2mm in diameter which are typically idiomorphic in habit. It has a pale-purple colour and is very