TRS-209-210

AN OCCURRENCE OF HORNBLENDE PICRITE IN NORTH-EASTERN TASMANIA

by M. J. Longman.

LOCALITY

North of the Scamander River. Grid reference N90200 E58600.

HAND SPECIMEN

The rock is greenish black in colour and is composed of large hornblende crystals up to 5.0 cms. in length. Poikilitic inclusions of olivine break up the reflections of the hornblende clearage surfaces giving the characteristic "lustre mottling" of this rock. Other inclusions in the hornblende are magnetite, which forms irregular patches or octahedral crystals, and biotite, forming the typical brownish platy crystals.

THIN SECTION: MINERAL COMPOSITION: (APPROX.)

Hornblende	65%
Olivine	10%
Pyroxene-Hypersthene Malacolite	15%
Magnetite	5%
Labradorite	2%
Biotite	3%
Pyrite	tr.
Specific Gravity	2.8-3.0

Hornblende is the dominant constituent, occurring as subhedral crystals up to 2.0 cms. in length. The mineral is pleochroic with X = pale blue green, Y = pale green, Z = pale brown green and the extinction angle Z ∧ C = 27°. Most crystals are untwinned but a few smaller crystals show multiple twinning. Hornblende contains numerous poikilitic inclusions of olivine and pyroxene.

Olivine (chrysolite) forms anhedral crystals, 0.5 mm. in size, occurring as poikilitic inclusions in hornblende, sometimes surrounded by mantles of pyroxene, usually malacolite. The olivine is always fresh and shows no sign of alteration, although it is extensively fractured.

Hypersthene forms anhedral crystals up to 0.5 mm. in length which show the characteristic pleochroism in shades of pink and green. It is recognised by the straight extinction and the low interference colours (1st order orange).

Malacolite is a colourless augite which occurs as rims about olivine and as fibrous crystals interstitial to hornblende. It has an extinction angle Z ∧ C = 40° (approx.) and can be easily distinguished from hypersthene.

Labradorite occurs as anhedral crystals about 0.5 mm. in length interstitial to hornblende. The crystals are extensively altered to kaolin and sericite, but the albite twinning can still be distinguished. The presence of a small proportion of plagioclase is a typical feature of the picrites.

Biotite forms interstitial ragged crystals up to 2.0 mm. in length, between the larger hornblende crystals. It is pleochroic with X = colourless—very pale brown, Y = pale brown, and Z = brown, indicating a magnesian biotite approaching phlogopite in composition.

Magnetite occupies about 10% of the rock and occurs as subhedral to euhedral crystals up to 0.5 mm. in size. Magnetite tends to concentrate in olivine and hypersthene indicating it was one of the first minerals to crystallise. It is distributed generally throughout all the components of the rock.

Pyrite occurs as occasional subhedral crystals in hornblende indicating a primary origin for this mineral. It probably formed at the same time as magnetite.

Origin. The hornblende picrite represents one of the earliest differentiates of the granite magma. It is formed by the accumulation of the early formed crystals and the settling of these crystals in the magma.