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MEMORANDUM

PETROGRAPHY

The following petrographic descriptions apply to specimens collected by Senior Geologist Hughes at Rio Tinto.

The examination has revealed that these rocks have had a complicated history. Carbonate rocks have been replaced by quartz. Amphibolites have been altered to carbonate rocks by replacement, and also to quartzites by direct replacement with silica. The amphibolites show structures that suggest a still earlier phase; but the petrographic evidence is not sufficient to establish this earlier rock type.

1. D 150' W

Fine grained dark green rock.

In thin section the rock is a structureless aggregate of ragged plates and acicular crystals of green hornblende with very fine grained interstitial quartzo-felspathic material. Euhedral crystals of ilmenite are disseminated through the section, and there is much sphene in granular aggregates, often associated with the ilmenite.

The rock is an amphibolite.

2. Halls Creek 150' S of D Traverse

Greenish massive looking rock but some specimens are strongly sheared.

In thin section the rock is a mass of roughly aligned needles of green pleochroic hornblende. A minor amount of twinned plagioclase appears interstitially, together with some material that may be quartz, but does not give a defined interference figure for identification.

The rock is an amphibolite.

3. D 16 50' E

Fine green sheared and banded rock. The specimen is somewhat weathered and contains clay material.

In thin section the rock is a confused aggregate of acicular hornblende in a quartzo felspathic matrix. Traces of former structure remain in whirlpool-like masses of acicular amphibole, and shattered crystals and mosaics of quartz and plagioclase. There are masses and veinlets of quartzo felspathic material and opaque white masses of kaolinised felspar.

The rock is a fine grained amphibolite.

The Director of Mines, Hobart.

4. 97 - 98

Grey and white mottled rock. Shearing is prominent and quartz the principal mineral, with white mica appearing in the shears.

In thin section the rock appears as a fine mosaic of quartz grains in a network of white mica.

The rock is a schistose quartzite.

5. D 14

Light greenish banded rock. Irregular layers of quartz occur interbanded with greenish layers, which also contain quartz.

In thin section the rock consists essentially of a fine mosaic of equi-dimensional quartz grains. There are also patches and veins of similar but finer mosaic, sharply marked off from the rest. Superimposed on this structure are vague bands and cloudy masses of opaque white material, sometimes stained brown with iron oxide. In these cloudy bands are ragged plates and masses of green fibrous hornblende, and aggregates of fine granular yellow epidote.

6. D 620 E in River

Pale pink sheared rock, showing carbonate crystal faces up to 3 mm. across.

In thin section the rock is seen to be composed completely of carbonate. The larger crystals are set in a matrix of smaller crystals, all showing typical rhombohedral cleavage. However, in the matrix and as discrete fragments is carbonate in acicular crystals, closely resembling the fine grained amphibolite texture.

7. B 500

This is a fine grained brown quartzite. The colour is due to opaque argillaceous and limonitic material, occurring as cloud-like colorations and as interstitial material between quartz grains. Clear patches of quartz with rhombohedral cleavage show, that silica has replaced carbonate and that the rock was originally a limestone or dolomite.



(G. Everard)

MINERALOGIST AND PETROLOGIST

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