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Description of core from DDH1, Rocky River

by G. B. Everard

The following is a description of core collected by T. D. Hughes from hole DDH 1 Rocky River.

The core consists of a dark green, medium to fine-grained rock with a schistose to granular structure. Chlorite is prominent on sheared surfaces, and alternate layers of chlorite and feldspar make up the finely banded structure of the rock. Magnetite is present in sufficient quantity for pieces of core up to three-quarters of an inch long to be picked up with a hand magnet. Pyrite is common in disseminated small crystals.

Core from 230' is typical of the more schistose rock. In thin section the specimen consists of orientated lenticles of recrystallised feldspar averaging about 0.2 mm long separated by wisps and bands of chlorite with included octahedra of magnetite averaging about 0.025 mm across. There are occasional lenticular knots of recrystallised feldspar about 1 mm long and lenticular aggregates of pyrite of similar size. The feldspars contain inclusions of magnetite and, to a lesser extent, of chlorite, and in the knots these tend to have a swirl pattern.

The feldspars are in the labradorite-andesine range. Some simple twinning is shown, but the knots, lenticles and irregular grains usually show undulose extinction and re-crystallisation.

Chlorite is strongly pleochroic from green to almost colourless. Anomalous pale olive green or violet polarisation colours are shown. The interference figure is biaxial with a very small axial angle and extinction is parallel. The mineral is therefore pennine.

At 324' the rock has a more granular texture. Feldspar is in anhedral to subhedral single crystals and aggregates. Cleavage is often prominent and sometimes simple twinning. Where chlorite is plentiful it forms a matrix for the feldspar, but where it is less plentiful it occurs as interstitial patches in a mosaic of feldspar crystals together with irregular masses of carbonate.

The feldspar crystals contain numerous inclusions of magnetite and chlorite. Frequently these inclusions are orientated for any single crystal or aggregate but the orientation changes from crystal to crystal, showing rotation.

Magnetite and pyrite occur together as disseminated crystals and small aggregates with magnetite greatly preponderant.

The rock is a chloritised amphibolite and was probably derived from a basic igneous rock.

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