Section 4—Petrographical Notes

TR5-204-208

NOTES ON SPECIMENS COLLECTED IN VARIOUS LOCALITIES

by G. Everard.

(a) **Zeehan District.**
(b) **North Heemskirk Area.**
(c) **Savage River Iron Ore Deposits.**
(d) **Port Davey District—North Bond Bay and Ironbound Range.**
(e) **Smithton District—Black River.**

ZEEHAN DISTRICT

The following descriptions apply to rock specimens received from Regional Geologist A. H. Blissett:—

Z8/616/18

Fine grained dark grey rock, with a fine banding, emphasised by differential weathering.

In thin section the texture is granular, consisting of rounded crystals of felspar and pyroxene, together with fairly plentiful magnetite, both as individual grains and as inclusions in the pyroxene.

The average grain size is about 0.2 mm. across, with occasional grains of both felspar and pyroxene up to 1 mm. across.

Extinction angles of felspar measured on albite twins average about 30° and the felspar is therefore labradorite.

The pyroxene is colourless and has rounded and embayed and corroded outlines. Both clino- and orthopyroxene is present.

The rock is a granulite.

Z8/618/28

Medium grained, grey rock mottled with dark crystals of pyroxene and light crystals of felspar.

In thin section the rock has a hypidiomorphic granular texture, and consists of crystals of felspar showing lamellar twinning and clinopyroxene. The pyroxene is a little serpentinised and the felspar contains inclusions of carbonate. By the large extinction angles and high refractive index the felspar is identified with bytownite.

The rock is a gabbro.

Z7/540/loc. 37

Fine grained greenish rock with a subconchoidal fracture.

In thin section the rock has a hypidiomorphic granular texture, fringent crystals of pyroxene in a greenish glass.

The rock is probably a chilled margin of an ultra-basic rock.

Z7/540/loc. 45

Fine grained, banded, dark grey rock. A white and a black mineral are present together with an occasional patch of yellow-green epidote.

In thin section the specimen is a mass of rather ragged crystals of hornblende, epidote and clinozoisite. There is a little black magnetite in scattered minute grains.

The rock is an epidotised amphibolite.

Z7/542/loc. 58

Fine grained plum coloured rock, pink on weathered surfaces, impregnated with veins and bunches of quartz.

In thin section the rock is a fine mosaic of quartz, flecked with opaque red limonite centred on bright metallic haematite, most of the quartz being coloured. The uncoloured quartz veins have sharp contacts with the pink coloured quartz, but the difference is simply one of colour. However towards the centre of the veins a coarser mosaic appears.

The existing rock consists entirely of silica mottled with iron ore minerals, but the texture suggests that original structures have been retained in a rock completely replaced.

Z6/512/68 Dundas

Medium grained pale greenish rock, made up of angular rock and mineral fragments averaging about 2 mm. across.

In thin section various angular fragments of quartz, felspar, quartzite, fine grained amphibolite and chlorite may be seen in a very fine grained siliceous and chloritic matrix.

The rock is a greywacke.

Z1/421/loc. 3—Henty Straight

Fine grained greenish rock with felspar phenocrysts about 2 mm. across.

In thin section the matrix of the rock is composed of interlacing needles of felspar, the interstices being filled with granules of olivine and green chloritic material; small crystalls of magnetite are plentiful.

The felspar of both the ground mass and the phenocrysts is albite.

The rock is a spilite.

NORTH HEEMSKIRK AREA

The following is a description of a specimen collection by Regional Geologist H. Blissett in the North Heemskirk area.

Locality—Six miles east of Granville Harbour, 1¼ miles north of Donelly's Lookout.

Coarse to medium grained dark greenish rock with conspicuous prismatic crystals of felspar and pyroxene.

In thin section the rock shows a hypidiomorphic structure composed of augite and labradorite of contemporaneous crystallisation.

A little ilmenite partly altered to leucoxene is present and also some similar opaque crystals without alteration.

The labradorite is largely altered to kaolin in small white semi-opaque aggregates and to sericite in transparent highly birefringent scales. Augite has been altered to felted needles of actinolite and further to chlorite.

The rock is a gabbro, partly uralitised.

SAVAGE RIVER IRON ORE DEPOSITS

The pieces of iron ore examined from the above locality were found to consist of masses of octahedra of magnetite between 0.1 mm. and 0.05 mm. across. Silicate minerals occur in the interstices between the octahedra and sometimes as larger irregular masses. The silicate portion includes apatite as acicular crystals up to 0.1 mm. long and 0.01 mm. cross section.

PORT DAVEY DISTRICT

A sample of black sands collected at North Bond Bay, and received from Regional Geologist M. Stefanski has been examined under the microscope. The grains are of uniform size averaging about 0.2 mm. across, but are sharp and angular except for occasional completely rounded grains of zircon. The approximate composition of the sand is as as follows—garnet 60%, ilmenite 20%, quartz 15%, zircon 3%, with traces of micas and tourmaline.

PORT DAVEY DISTRICT

The following are descriptions of rocks collected by Geologist M. Stefanski on the Ironbound Range.

5. *Quarter mile from N.W. end of Ironbound Range on the track to Top Camp*

Grayish-green fine grained laminated rock with a secondary cleavage partly developed, at an angle to the laminations.

In thin section the rock is a fine mosaic of interlocking angular grains of quartz and minute books of white mica. Small crystals of tourmaline are present and there is much opaque white material. Tourmaline is present in small scattered euhedral crystals.

The rock is a phyllite.

6. *Creek close to Top Camp, Ironbound Range*

Fine grained, grey, sheared rock.

In thin section the rock is a felted mass of sericite and chlorite, with angular grains of quartz up to 0.05 mm. across.

The rock is a massive phyllite.

7. *Western side of Ironbound Range*

Fine grained greenish grey granular rock.

In thin section the specimen consists of subangular to sub-rounded grains of quartz, quartzite, schist and felspar largely altered to calcite. There is also a little sericite and chlorite. The matrix consists of opaque argillaceous material and calcite.

The rock is a sub-greywacke.

8. *Western side of Ironbound Range*

Conglomerate with rounded and subrounded pebbles, some of which have been washed out on the surface of the specimen, giving it a honeycombed appearance.

In thin section the pebbles consist of quartzite, tuffaceous and basic volcanic material in a matrix of fine quartz grains, sericite and carbonate.

10. *Two miles upstream Bobs Fall Creek*

Very fine grained grey rock with contorted bedding shown by thin lighter coloured bands. Cleavages are both parallel to and across the bedding.

In thin section the rock consists of fine sericite, stained by iron oxides, interleaving fine granular quartz and felspar. Two cleavage directions are well shown, and there are fine granular, thin quartzoze bands.

The rock is a phyllite.

11. *One and a half miles upstream, Bobs Fall Creek*

Fine grained grey, lustrous, finely banded rock.

In thin section the specimen consists of fine grained quartz and sericite with white opaque argillaceous material.

The rock is a phyllite.

13. *Camp Creek opposite Sandstone Hill*

Greyish or brownish fine grained, quartz rock with sericite along the bedding planes.

In thin section the rock consists of angular interlocking grains of quartz with sericite, opaque argillaceous material faintly stained by iron oxides, and occasional crystals of pyrite.

The rock is a fine grained quartz schist.

14. *North-East of the Camp*

Fine grained, pale coloured rock with contorted bedding.

In thin section the rock is a mass of angular and sub-rounded interlocking quartz grains with a little sericite as matrix. Haematite, partly altered to limonite is thickly disseminated.

The rock is a sandstone or siltstone.

15. *Dead Man's Bay, East*

Fine to medium grained pale greenish rock with white and clear glassy grains of quartz and white grains of felspar in a fine greenish matrix.

In thin section the rock consists of angular and sub-angular pieces of quartzite up to 1 mm. across, angular quartz, felspar sometimes altered to carbonate, and occasional fragments of a basic volcanic rock, in a chloritic matrix with subordinate sericite.

A second specimen is a finer grained variant of the same rock, containing rather less quartz and felspar of a grain size less than 0.1 mm.

The rock is a greywacke.

16. *East Dead Man's Bay*

Medium to fine grained greenish-grey rock. The clastic nature of the rock is apparent on fracture surfaces, where small grains, about 1 mm. across, of quartz and other minerals can be seen.

In thin section angular fragments of quartz, quartzite, albite, serpentine and carbonates compose the rock, with a little matrix of varying composition.

The rock is a greywacke.

17. *South-East Dead Man's Bay*

Green grey clastic rock, consisting of a variety of angular fragments up to 3 or 4 mm. across in a finer greenish matrix.

In thin section the angular fragments are seen to consist of various rock types including quartzite, sandstone, shale, schist, basic igneous and acid volcanic. Quartz is the commonest mineral in angular grains, but there is an appreciable amount of felspar and occasional fragments of serpentine. The matrix is chloritic.

The rock is a greywacke breccia.

19. *Prion Beach*

Fine grained dark grey strongly sheared rock, with innumerable small spots less than 1 mm. in diameter.

In thin section the rock consists of thin laminae of sericite and graphite enclosing porphyroblasts and incipient porphyroblasts of albite. These show rotation, by lines of dark inclusions oblique to the schistosity.

The rock is an albite sericite graphite schist.

SMITHTON DISTRICT

The following is a description of a specimen collected by Regional Geologist I. Jennings near the eastern side of the bridge across Black River.

Aphanitic, greenish grey, easily scratched, and with limonitic patches.

In thin section the specimen shows a non-uniform texture, composed mainly of quartz grains, some about 0.25 mm. across, often in groups of three or four grains in a much finer matrix. Uralitic hornblende, in part altered to chlorite, is present in large amounts as minute anhedral crystals and aggregates disseminated through the rock. Tight micro-folding is revealed by the distribution of the hornblende. Limonite pseudomorphs after pyrite are numerous and there are also larger patches of limonite.

Occasional fine veinlets of quartz cross the section and where quartz grains are intersected, the vein becomes an anastomosing line of bubbles. The larger quartz grains contain innumerable minute basic inclusions.

The rock seems to have been originally a basic sediment, possibly a tuff, which has undergone crenulation and silicification.