

Petrographic descriptions of specimens from the Noland Bay area

by G. B. Everard

The following descriptions are of specimens collected in the Noland Bay area by geologist D. J. Jennings.

65-324: Wave cut platform, West Sandy Point

The hand specimen is a fine grained, greenish-grey, finely banded sheared rock with minute sparse red grains. The shearing is at a high angle to and steeper than the bedding, showing that the beds are not overturned. This is confirmed by a thicker bed showing internal current bedding with the current laminae concave upwards, open at the top and crowded together at the bottom.

In thin section the rock consists of minute books of mica and grains of quartz ranging up to about 10 μm across. Shearing is shown by closely spaced sub-parallel dark lines about 100 μm long consisting of crumpled aggregates of micaceous plates. The rest of the mica does not show orientation, but recrystallisation is indicated by books of mica including chlorite transecting the lineation of the crumpled plates.

The red grains seen in hand specimen are subhedral and euhedral crystals of magnetite altered to limonite.

The rock is a slaty mudstone.

65-221: Wave cut platform, Ninth Island

The hand specimen is a medium to fine grained greyish-green, somewhat mottled rock with crystals up to 2 mm long showing bright cleavage faces in a finer matrix.

A thin section shows clusters of phenocrysts of pale brown augite in a near orthopyric matrix of labradorite laths and mesostasis. Minute grains of magnetite and larger irregular aggregates are common. The irregular margins of the augite crystals partly enclose much smaller laths of labradorite to give a sub-ophitic texture.

The rock is a dolerite.

68-2: Shore platform ribs, West Sandy Cape

In hand specimen the rock is greenish grey, very fine grained, finely bedded and shows current bedding.

In thin section the rock consists mainly of quartz grains with undulose extinction averaging about 0.01 mm across, with greenish-brown to colourless micas in ragged books, colourless muscovite in recrystallised forms, and scattered opaque black and red carbonaceous and hematitic particles.

Incipient slaty cleavage is strongly shown cutting across the bedding at 30–40°.

The rock is a siltstone.

68-3: East Sandy Cape

The hand specimen is a fine grained dark grey sheared rock.

In thin section the rock consists of quartz grains, mostly recrystallised, about 0.01 mm across together with some granular feldspar showing lamellar and simple twinning, reddish brown pleochroic biotite and colourless strongly birefringent muscovite. Scattered, fine grained, opaque iron ores and opaque white hydromicas and graphite are also plentiful. Shearing is very prominent.

The rock is an altered carbonaceous siltstone or *semischist*.

68-4: Tenth Island

The hand specimen is a finely banded, pale greyish yellow, medium grained rock with visible grains of quartz and feldspar and platelets of white mica up to 0.7 mm across.

In thin section the rock consists of grains of quartz and minor feldspar showing peripheral granulation and sometimes partial recrystallisation, some grains being rounded and others angular or elongated, and all seamed by intersecting cracks. These larger grains are embedded in a copious matrix of compacted and partially recrystallised quartz and possibly a little feldspar. Yellowish muscovite is drawn out into crinkled platy masses which give the rock its schistose texture. A little magnetite partly oxidised to brown limonite and possibly some graphite occurs with the mica.

The rock is a sheared arkosic sediment.

68-5: Foreshore, Stony Head

The hand specimen is an extremely fine grained, dark silver-grey rock with a silky lustre. The rock is very finely laminated and the laminations are minutely folded and crenulated. Relatively impersistent joints normal to the laminations are filled with opaline silica.

In thin sections the laminations of about 0.02 mm thickness are well shown, marked by black graphitic material. The most abundant mineral is sericite in minute flakes about 0.004 mm long and very strongly orientated so as to give the rock an aggregate polarisation effect. A little quartz is also present in equant grains, and sparsely disseminated zircon.

The rock is a phyllite.

68-6: Granite Point

The hand specimen is a medium grained, leucocratic, holocrystalline rock with feldspar, quartz and biotite showing prominently.

In thin section typical hypidiomorphic texture is shown. The minerals present are zoned plagioclase in euhedral crystals, short prismatic crystals of oligoclase showing lamellar and simple twinning, anhedral quartz with undulose extinction and largely sericitised orthoclase, irregular plates and prisms and ragged aggregates of biotite and green hornblende.

Minor constituents include traces of pyrite and minute crystals of magnetite, zircon and topaz.

Secondary minerals include sericite and epidote.

Approximate proportions are plagioclase (mainly oligoclase) 50%, quartz 15%, orthoclase 5%, hornblende 15% and biotite 15%.

The rock is a granodiorite.

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