

## Petrographic descriptions of specimens from the Noland Bay area

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

### 65-220A — wave cut platform of bedded sediments, East Double Sandy Point

The hand specimen is a pale grey, fine grained schistose rock with innumerable disseminated dark spots about 0.5 mm across. Cleavage planes parallel to the schistosity are stained brown with iron oxide and show laminae of very fine grained micaceous material.

In thin section the rock consists of a mass of minute, orientated flakes of mica, pleochroic from colourless to reddish-brown, and angular grains of recrystallised quartz about 0.015 mm long. There are also disseminated dark opaque grains of similar size, probably of magnetite.

The dark spots seen in hand specimen appear as irregularly rounded or lenticular masses of apparently similar material, but finer grained and without orientation. Lines of schistosity curve around them, and these knotty patches appear to be subject to some rotation.

The rock is a phyllitic schist.

### 65-220B — East Double Sandy Point

The hand specimen is a fine grained sheared, silver grey mottled rock.

In thin section the knots seen in the foregoing section are much more numerous.

The minerals present are muscovite, biotite and recrystallised quartz, but the knots contain small granules of isotropic colourless garnet.

The rock is a phyllitic schist.

### 66-233A, B & C — Stony Head, Noland Bay

In hand specimen these three rocks are very similar. They are fine grained, black and contain numerous pale coloured and sparse black phenocrysts about 1 mm long.

In thin section they are also very much the same. 233B contained patches of green serpentinous material with cores of carbonate. Green serpentinous material was also present in A and C but in less amount and without carbonate. The texture is intersertal and intergranular with granules of pale brownish hornblende and a little opaque black magnetite and brownish glass in the interstices of laths of labradorite about 0.25 mm long. Olivine is common in phenocrysts up to 1 mm long.

The rock is an olivine basalt.

### 66-234A & B — Sea cliffs, Stony Head, Noland Bay

The hand specimens are black crystalline rocks with many small irregular phenocrysts, averaging about 1 mm long, of serpentinised olivine.

In thin section the texture is intersertal and intergranular, consisting of granules of very pale coloured augite and black glass filling the interstices of a network of lamellar twinned labradorite laths about 0.2 mm long. The black glass, which partly encloses some feldspar crystals, is seen under high magnification to contain innumerable minute, rounded granules of silicate minerals as well as magnetite.

The phenocrysts of olivine are largely altered to green serpentinous material, but when fresh are seen to be corroded and with infillings of the general rock material.

The rock is an olivine basalt.

#### **66-235A — Sea cave, Stony Head, Noland Bay**

The hand specimen is a brownish black, fine grained rock with a specific gravity of 1.35. It has a smooth flat fracture and is very finely bedded. On heating it burns to a pale brownish yellow colour.

In thin section the rock is a porous fine grained laminated opaque mass containing angular fragments of quartz (some of it recrystallised) and feldspar and minute plates of mica averaging about 0.03 mm across. Much very fine grained clay material is hidden in the black matrix.

The rock is a carbonaceous mudstone.

#### **66-235C — Beach boulders, Stony Head, Noland Bay**

The hand specimen consists of rounded to sub-angular, slightly vesicular black masses with minute white phenocrysts, in a matrix of soft yellow granular material.

In thin section the rock consists of yellow-brown glass containing cracked and sub-rounded phenocrysts of olivine about 0.2 mm long, twinned laths of labradorite, and granules of augite. Vesicles are common and most of them are filled with radiating yellowish green nontronite and opaline silica.

The soft yellow material seen in thin section consists of the same rock with the glass devitrified with the production of opaline silica and nontronite.

The rock is a glassy olivine basalt.

#### **66-236 — Sea cliff, Stony Head, Noland Bay**

The hand specimen is a dark grey, fine grained crystalline rock.

In thin section the texture is intergranular, consisting of a network of laths of labradorite about 0.1 mm long with pale granular augite filling the interstices. Magnetite occurs in black rods and masses similar in size to the laths of feldspar around the ends of which it tends to be moulded. Phenocrysts of olivine up to 1 mm in length are common. They tend to be euhedral but may be cracked and broken and the cracks filled by olive-green alteration products.

Samples 236B, C and D are all very similar to each other and to 236A from which they differ only in containing more magnetite, which has crystallised last with very fine granular silicate material. Some carbonate is present.

The rock is an olivine basalt.

#### **66-253A — Wave cut platform, west Stony Head, Noland Bay**

The hand specimen is a fine grained, crystalline, medium grey rock, crowded with brown phenocrysts up to 1 mm long.

In thin section the texture is intergranular and intersertal. The rock is composed of a network of lamellar-twinning laths of labradorite averaging about 0.2 mm long, the interstices being filled by pale granular augite and a little glass darkened by clouds of microlites. Rods and small irregular masses of magnetite are common. Some alteration of the rock, probably by weathering, is indicated by patches of cloudiness due to opaque white material. A brown carbonate, probably siderite, is very common in irregular patches of up to 0.5 mm long showing curved cleavage, and partly enclosing feldspar crystals.

The rock is a tholeiitic basalt.

#### **253 — Lower cliffs, west Stony Head**

In hand specimen this rock is a paler grey than 253A but the phenocrysts are darker and it is somewhat vesicular.

In thin section the texture is intergranular, with granular augite filling the interstices between laths of labradorite, but magnetite is less common and siderite has been replaced by semi-opaque dark reddish brown birefringent patches.

The rock is a tholeiitic basalt.

*[25 January 1968]*