UNPUBLISHED REPORT 1965/14

Petrographic descriptions of rocks collected from the Pencil Pine Creek and Boco Siding areas

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The following petrographic descriptions are of specimens collected by geologist W. L. Matthews. Samples 112–115 were from the Pencil Pine Creek area and 116–124 were from the Boco Siding area.

Sample 65-111 — Pencil Pine Creek

The hand specimen is a pale brown to grey coloured fine-grained rock. A few quartz grains and flakes of mica are just visible. Darker sub-spherical segregations about a centimetre in diameter are very common and appear on a weathered surface as knobs. There are also smaller, irregular white segregations with dark borders which are so distributed that they appear both inside and outside the larger sub-spherical masses.

In thin section the rock consists of angular grains of quartz and a little fresh feldspar set in a matrix of fine-grained muscovite, biotite, quartz, feldspar and opaque clay minerals and oxides of iron. The segregations are only just visible in thin sections as areas containing less opaque clay minerals and more muscovite and biotite. The smaller white segregations consist largely of very finely crystalline, pale pink pleochroic, masses of andalusite, together with quartz and a little biotite and muscovite.

The rock is an incompletely metamorphosed greywacke.

Sample 65-112 — Pencil Pine Creek

The hand specimen is a fine-grained greenish rock containing phenocrysts (or porphyroblasts) of quartz and feldspar and irregular rock fragments.

In thin section the quartz crystals show embayment and corrosion, the feldspar crystals are completely sericitised but show indications of zoning and contain inclusions of quartz and a greenish brown biotite. Other fragments consist of a bright green chlorite associated with masses of sericite, the boundaries between the two often being sharp and straight and suggestive of crystal forms.

The groundmass is a fine-grained mass of sericite chlorite and quartz and is by no means uniform.

Sample 65-113 — Pencil Pine Creek

The hand specimen is a somewhat pale coloured medium grained rock showing irregular grains of quartz and feldspar up to 2 or 3 mm long and a few dark irregular patches of opaque iron oxides up to 4 or 5 mm long.

In thin section the rock consists of anhedral to subhedral quartz and subhedral feldspar in a fine grained matrix, containing quartz, feldspar, pale brownish green sericite, and opaque white clay minerals sometimes stained by iron oxides.

The feldspar shows simple or no twinning, but is probably albite. It is somewhat altered and crystals may be difficult to distinguish from the matrix in unpolarised light.

The quartz is fractural and shows corrosion and embayment but some grains show peripheral granulation.

Sample 65-114 — Pencil Pine Creek

The hand specimen is a fine-grained rock stained brown by iron oxides. One part of the specimen is of a darker brown material and there is a sharp boundary between the two colours. There are also inclusions of the dark brown rock in the light brown rook.

In thin section the rock consists of sharp angular quartz grains, and opaque angular masses of kaolin derived from feldspar and stained with iron oxides, in a very fine grained matrix of quartz, sericite and kaolin. There are a few scattered crystals of magnetite.

The dark brown rock exhibits a deeper staining with iron oxides than the light brown rock, and possibly the junction of the two represents a minor break in deposition.

The rock is an indurated mudstone.

Sample 65-115 — Pencil Pine Creek

The hand specimen is a pale coloured very fine grained rock with some irregular banding. There are also a few granular aggregates 0.5–2 mm across.

In thin section the rock is a mass of fine grained quartz and sericite with much opaque white and some opaque black material. Patches of fine grained sericite up to 2 mm across occur sparingly and may represent original crystals of feldspar. Quartz grains up to 0.5 mm also occur. Quartz also occurs in small curved fragments and shard-like shapes, several crystals going to make up one fragment.

The rock is a devitrified acid tuff.

Sample 65-116 — Boco Siding

The hand specimen is a fine-grained greenish-grey rock with minute crystals of feldspar and ferromagnesium mineral. The weathered surface is greenish white and extends about 1/8” into the rock. There are also one or two vesicles filled with carbonate.

In thin section the rock is a dense mass of lamellar twinned feldspar laths about 0.1 mm long and sub-equant crystals of colourless augite up to 0.2 mm long. Magnetite occurs as minute single crystals and irregular aggregates, and there is a little dark-coloured interstitial glass. Carbonate occurs in small irregular patches and as the filling in vehicles.

The rock is a basalt.

Sample 65-117 — Boco Siding

The rock in hand specimen is fine grained, greenish grey in colour and somewhat sheared. Several minute cleavage flakes of mica about 0.2 mm across are just visible.

In thin section the rock consists of sub-angular to sub-rounded fragments of quartz, quartzite, white mica, chlorite, mica and quartz mica schist, and carbonaceous schist in a sericitic matrix. Shearing is distinctly shown but the rock fragments have no relation to the shearing.

The rock is a sheared sub-greywacke.

Sample 65-118 — Boco Siding

The hand specimen is a fine to medium-grained greyish rock (brown on weathered areas). It is somewhat sheared and sericite in flakes about 1 mm across is common on sheared faces.

In thin section the rock consists of angular quartz grains, quartzite, quartz schist, sericite schist and carbonaceous sericite schist. The texture is directional to give a rough platy arrangement. There is also a little very fine grained interstitial material, mainly sericitic.

The rock is a sheared sandstone.

Sample 65-119 — Boco Siding

The hand specimen is a fine grained greyish rock (white on weathered surfaces) with scattered sparkling cleavage faces of white mica about 0.5mm across.

In thin section the rock consists of angular quartz grains, fragments of quartzite, flakes of muscovite and chlorite, fresh feldspar and ilmenite largely altered to leucoxene in a very fine grained, sericitic groundmass. Some feldspar may have been completely sericitised and disappeared into the groundmass.

The rock is a greywacke.

Sample 65-120A — Boco Siding

The hand specimen is a medium grained weathered rock with plentiful grains of quartz.

In thin section the rock consists of angular to subrounded grains of quartz, quartzite and quartz schist, about 1 mm across, in a yellow matrix of clay minerals.

The rock is a grit.

Sample 65-120B — Boco Siding

The hand specimen is a fine-grained brownish grey rock containing grains of quartz, flakes of white mica and dark carbonaceous fragments.

In thin section the rock consists of angular fragments of quartz averaging about 0.2 mm across, fragments of quartzite and schist, and irregular patches of chlorite and muscovite with occasional grains of magnetite.

The rock is a fine grained sandstone.

Sample 65-121 — Boco Siding

The hand specimen is a grey, medium grained, well consolidated rock, with sub-angular to rounded black, white and grey grains, thickly distributed in a very fine grained matrix.

In thin section the rock is a mass of tightly packed grains of feldspar, quartz, quartzite and schist, and basic volcanic fragments. Various degrees of alteration are shown. The feldspars are sometimes completely altered and carbonate of chlorite is common. Some zeolite is also present.

The rock is an indurated greywacke.

Sample 65-122 — Boco Siding

The hand specimen is a pale grey, fragmental, fine-grained rock, although occasional fragments are present up to about a millimetre in length.

In thin section the rock is a mass of angular grains, averaging 0.1 mm across, in a plentiful very fine grained sericitic groundmass. The grains consist of quartz, quartzite, feldspar, books of white mica and other rock fragments of an indefinite nature which may be altered basic volcanic rocks. Yellowish brown grains of siderite occur in scattered aggregates.

The rock is a greywacke.

Sample 65-123 — Boco Siding

The hand specimen is a fine grained pale grey banded rock. It consists of black, white and greyish angular fragments, some of which attain a length of 1 mm.

In thin section the rock consists of fragments of quartz, quartzite, altered feldspar and basic igneous rocks, in a very fine-grained pale brownish matrix. Some chlorite is also present but the principal constituent is opaque white grains of clay minerals derived from the original feldspar.

The rock is a greywacke.

Sample 65-124 — Boco Siding

The hand specimen is a brownish yellow fine-grained rock with visible grains of quartz.

In thin section the rock consists of angular grains of quartz, quartzite and quartz schist. There are also fairly common partly altered crystals and fragments of feldspar, and a little white mica and incipient biotite in a thin brownish matrix.

The rock is a sub-greywacke.

[2 July 1965]