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Descriptions of porphyroid and other rocks collected in the Mackintosh quadrangle

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The following are descriptions of porphyroid and other rocks collected by geologist B. Marshall in the Mackintosh quadrangle.

63-53 — Small bluff SSE of Back Peak

The specimen is a pale coloured, highly siliceous rock containing fine banding which is minutely folded and faulted.

In thin section the rock consists of a mass of angular interlocking quartz grains averaging about 0.05 mm across. Fine grained sericite is common as bands and patches and fills the minute interstices between the tightly packed quartz grains. Hematite, largely altered to limonite, occurs as disseminated minute euhedral crystals. The sericite is stained a yellowish brown, possibly by limonite, and is concentrated in bands, which are the fine bands seen in hand specimen. They represent pelitic bands in the original sediment.

63-54 — about 500 yards south of Back Peak

The specimen is a pale coloured aphanitic siliceous rock.

In thin section the rock consists of irregular shard-like shapes, with somewhat blurred or rounded outlines in a groundmass of much finer material. There are occasional larger fragments of quartz, about 0.1 mm across, and rarer fragments of twinned and altered feldspar, together with irregular wisps of dark semi-opaque material, possibly limonitic.

With crossed nicols a felsitic texture appears, due to devitrification, and the presence of very fine grained clay minerals is indicated by vague lines and patches of material of higher birefringence than microcrystalline quartz.

The rock is a devitrified welded acid tuff or ignimbrite.

63-55 — top of Devils Ravine 800 yards SW of Back Peak

The hand specimen is a siliceous, fine grained grey rock with phenocrysts of glassy quartz averaging 2–3 mm and dark, less regular inclusions of about the same size.

In thin section the rock consists of phenocrysts of quartz and saussuritised feldspar in a very fine grained quartzo-feldspathic matrix. Ragged crystals and remnants of chlorite and epidote are common. There are also reddish-brown, pleochroic broken crystals of sphene.

The quartz phenocrysts are deeply embayed and some show reaction rims.

The rock is a porphyry.

63-56 — top of ravine 500 yards SW of Back Peak

In hand specimen the rock is a porphyry with glassy phenocrysts of quartz and phenocrysts of altered feldspar.

In thin section the groundmass consists of very fine grained quartz and sericite. The quartz phenocrysts are somewhat rounded and embayed, the feldspar is partly altered to sericite but what remains is in the albite-oligoclase range.

63-57 — locality as above

In hand specimen the rock consists of glassy grains of quartz in a fine grained pale coloured matrix slightly stained by iron oxides.

In thin section the rock consists of euhedral quartz and feldspar in crystals up to 2–3 mm across in a recrystallised matrix of radiating intergrown quartz and feldspar. Sericite is plentiful in the matrix and there is a little chlorite in ill-defined patches. The feldspar phenocrysts are partly sericitised and in the albite-oligoclase range. There are also a few disseminated crystals of the iron ore minerals.

63-58 — southern side of creek 500 yards north of Mt Sumer

The specimen is a pale grey medium grained rock with abundant fragments of quartz and feldspar.

In thin section the rock consists of irregularly- shaped fragments of quartz and feldspar in a microcrystalline matrix. The quartz is rounded and sometimes embayed and seems to have been resorbed into the matrix. The feldspars are in addition somewhat sericitised. A little greenish isotropic material is present and scattered grains of iron ore minerals.

63-59 — side of creek about 600 yards north of Mt Sumer

In hand specimen the rock is greyish and fine grained and shows many minute glassy fracture faces of quartz grains.

In thin section the rock is very similar to No. 58, except that in this instance the feldspars are completely sericitised and difficult to detect in the matrix and the quartz grains rarer and smaller.

63–60 — east side of creek running south from Mt Sumer

The hand specimen is a medium grained, greenish grey, granular rock, with grains of quartz and greenish irregular patches in a fine grained matrix.

In thin section the rock consists of irregular grains of quartz and fragments of euhedral crystals, together with irregular masses of sub-radiating chlorite flakes in a fine grained matrix of sericite and quartz-feldspathic material. The sericite of the matrix may occur in dense patches having some shape, and these may represent former crystals of feldspar. The chlorite also, although usually in very irregular masses, may sometimes form rectilineal shapes reminiscent of hornblende or pyroxene.

63-61 — small waterfall north of Mt Sumer

In hand specimen the rock is a dark and light banded shale. Very fine veinlets of quartz penetrate the rock in various directions. Quartz grains appear as dark spots in the paler coloured layers.

In thin section the rock is a typical shale, consisting of very fine grained quartz and sericite. The darker bands owe their colour to very fine included carbonaceous material. The paler bands are either predominantly sericite or minute ships and angular grains of quartz in a matrix of sericite. Some of the fine bands have a wavy form and this is reflected in the disturbed orientation of the constituents. The beds do not appear to be graded.

63-62 — top of ravine ½ mile ENE of Mt Sumer

The rock is a fine grained grey carbonaceous shale.

In thin section it consists of minute angular quartz grains in a matrix of sericite and dark carbonaceous material, with scattered opaque irregular grains of limonite.

63-63 — west side of Mt Sumer

The hand specimen is a medium to fine grained quartzose rock, with limonitic staining along cracks and in crevices.

In thin section the rock is seen to consist very largely of recrystallised quartz. Some large grains of quartz (up to 1 mm) remain, but the bulk of the rock has been recrystallised. Sericite is plentiful and occurs interstitial to the original grains and in small masses about 1 mm across which may represent original feldspar. In places there are indications of solid flow but without any particular orientation for the specimen as a whole.

The rock is a quartzite.

63-64 — 300 yards along Crisis Creek from where it enters the Devils Ravine

In hand specimen the rock is greenish and porphyritic in texture with phenocrysts of quartz and irregular masses of chlorite in an aphanitic matrix.

In thin section phenocrysts of feldspar, completely sericitised, are common. Quartz appears as euhedral crystals, embayed and peripherally corroded. They are surrounded by rims of chlorite, and chlorite is closely associated with the feldspars, filling cleavage cracks. Smaller masses of chlorite are scattered throughout the quartzo-feldspathic matrix, and crystals of pyrite are associated with it.

The rock is a quartz-feldspar porphyry.

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