

1984 Open File: BEDROCK GEOLOGY AND MINERALIZATION OF THE KLONDIKE AREA (WEST), 115 O/14, 15 AND 116 B/2,3

Exploration and Geological Services Division
 Whitehorse, Yukon



LEGEND

LATE CRETACEOUS TO EARLY TERTIARY INTERMEDIATE INTRUSIVE AND VOLCANIC ROCKS, AND ASSOCIATED SEDIMENTARY ROCKS:

- II** IIa massive dark grey weathering intrusive andesite; IIb massive chocolate brown weathering extrusive andesite; IIc andesitic lapilli tuff; IId siltsstone, greywacke, and conglomerate.
- FI** FELSIC INTRUSIVE AND VOLCANIC ROCKS: FIa light-colored quartz-feldspar rhyolite porphyry; FIb tan-colored latite and biotite-quartz latite porphyry; FIc latitic lapilli tuff.

EARLY CRETACEOUS AND/OR OLDER:

- DD** DIABASE DIKES: DD dark brown diabase.

TRIASSIC OR OLDER ROCKS OF VARYING METAMORPHIC GRADE AND DEGREE OF DEFORMATION:

- FP** FELSIC PLUTONIC ROCKS: FP foliated equigranular biotite granodiorite.
- IP** INTERMEDIATE PLUTONIC ROCKS: IP strongly foliated chlorite metadiorite.
- MP** MAFIC PLUTONIC ROCKS: MP weakly to strongly foliated amphibolite.

QUARTZOFELDSPATHIC SCHISTOSE ROCKS:

- QSa** blocky weathering light grey to pinkish grey feldspar-quartz schist; QSb buff to pale green weathering well foliated muscovite-feldspar-quartz schist with quartz and feldspar porphyroclasts, and ilitic fragments; QSc buff weathering well foliated muscovite-feldspar-quartz schist with quartz porphyroclasts; QSd buff weathering well foliated muscovite-feldspar-quartz schist; QSe light green weathering hornblende-muscovite-feldspar-quartz schist; QSf silvery-grey weathering sericite-quartz schist; QSg buff to black weathering massive muscovite-feldspar-quartz calc-schist; QSh pink and green banded muscovite-feldspar-quartz gneiss; QSi white to dark grey weathering well foliated feldspar-quartz mylonite with quartz porphyroclasts.

CARBONACEOUS ROCKS:

- CSa** massive to foliated dark grey to black carbonaceous quartzite and muscovite-quartz schist; CSb black carbonaceous marble.

MAFIC METAVOLCANIC ROCKS:

- MV** Unit mv may in part be correlative with Unit MS: MVa andesitic tuff; MVb massive andesitic greenstone; MVc foliated andesitic greenstone.

MAFIC SCHISTOSE ROCKS:

- MS** MSa light to medium green and buff weathering quartz-chlorite schist to gneiss; MSb dark green weathering chlorite schist; MSc silvery green weathering actinolite-chlorite schist; MSd grey-brown weathering quartz-amphibole schist.

ULTRAMAFIC ROCKS:

- UM** UMa massive dark green serpentine; UMb foliated serpentinite; UMc foliated weakly altered serpentinite, with or without chrysotile veinlets; UMd strongly altered serpentinite, including talc schist and listwaite; UMe coarsely crystalline white marble.

Geology by R.L. Debicki, K.J. Grapes and L. Walton, 1983.

It is recommended that reference to this report be made in the following form:
 Debicki, R.L., 1984. Bedrock geology and mineralization of the Klondike Area (west), 115 O/14, 15 and 116 B/2,3. Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File, 1:50,000 scale map with marginal notes.

SYMBOLS

- Rock in rubble slopes, felsenmeer and soil; small outcrops; area of outcrop.
- Geological boundary, location known, approximate and estimated.
- Fault or lineament, location known and approximate.
- Thrust fault, location known and approximate.
- Dike, location known and approximate.
- Tectonic melange.
- Schistosity and gneissosity: (horizontal, inclined and vertical).
- Small scale folds, with dip of axial plane, and plunge of fold axis shown.
- Axial plane of minor fold (inclined, vertical, dip unknown).
- Bedding, top unknown; (horizontal, inclined and vertical).
- Mineral occurrence with commodity indicated: Au-gold, Zn-zinc, Ag-silver, Pb-lead, Co-copper, U-uranium, Sn-tin, As-arsenic, Bi-bismuth, Ba-barite. See list of occurrences.

- 115 O/14
- MINERAL OCCURRENCES
- Thirty three previously described showings and two new showings identified during 1983 mapping are included. Some previously described occurrences are insignificant, and some claim groups were staked on speculation—these are not included. Descriptions were compiled from reports by T.A. Maclean (Lake Mining in Yukon, Dept. of Mines, Mines Branch, Pub. No. 22, 205 p., 1914), H.H. Rowat (The Yukon Territory: Its History and Resources, Dept. of the Interior, p. 135-143, 1916), and C.F. Gleason (Geo. Surv. Can. Bull. 173, 63 p., 1970), and Annual and Summary Reports of the Geological Survey of Canada, annual Mineral Industry Reports and Exploration and Geology Reports of Geology Division, DIAND, and the Northern Cordillera Mineral Inventory (Archer, Catree and Associates Ltd., 1972 with annual updates), and from field observations made during 1983.
- MINORIT DOME** Chrysotile fibres up to 6 mm long occur in widely spaced, erratic cross fibre and slip fibre veins in a serpentine body.
 - MIST DAWSON** Chalcopyrite, galena and pyrite occur in an epitch-calcite skarn horizon 12.5 cm thick, and in a steeply dipping shear zone up to 0.6 metres wide. A sample from an adit dump contains 0.6% Cu, 0.9% Pb and 6.9 g/t Ag.
 - FIBRE** Veinlets of chrysotile slip fibre up to 30 mm long occur in a poorly exposed serpentine body.
 - SHAROL** Several zones contain approximately 1% chrysotile in serpentine. The fibres are generally less than 3 mm long.
 - GOLDEN AGE** (Maclean) Rusty weathering quartz veins with minor dolomite occur in a fault zone in contact with schist. Narrow quartz veins also cut across the foliation of rocks both above and below a thrust fault.
 - VERNON JEAN** Fractured, rusty weathering milky white quartz occurs as small discontinuous and anastomosing, veinlets and narrow massive to vuggy veins, which in places comprise up to 25% of the chlorite muscovite-feldspar-quartz schist. Pyrite, and minor amounts of galena and chalcocite are present in the quartz. Maclean reported one sample of quartz vein material to assay 25.5 g/t Au and 10.0 g/t Ag.
 - GORDON** Reddish feldspar-quartz schist contains discontinuous thin stringers of quartz up to 7 cm thick. Maclean noted the presence of malachite, azurite, iron oxides, pyrite, chalcocite, and galena in both the quartz and schist.
 - BRENNER** Andesite lava flows and andesitic tuff with moderate to intense argillic alteration host veinlets of bluish chalcocite, banded fluorite and pods of breccia with crustiform fluorite surrounding altered andesite fragments. Moderately anomalous amounts of mercury and barium are present.
 - UNEXPECTED** Quartz-feldspar porphyry contains traces of purple fluorite, microclitic zeolites, and topaz. Uranium anomalies occur within, and near the contact of the porphyry up to 50 ppm U in rock. Cassiterite occurs in nearby placer.
 - HEERMAN** Carbonaceous and quartz-chlorite schists are intruded by quartz-feldspar porphyry dikes.
 - TIBBET** Fractured carbonaceous schist and quartzite with quartz, carbonate and pyrite veinlets, pyrite grains up to 15 mm across and trace amounts of gold and silver.
 - GERMAINE** Highly argillized quartz porphyry contains up to 100 ppm Sn, compared with only 7 ppm Sn in unaltered porphyry. Considerable colloform cassiterite found in the placer gravels of Germaine Creek.
 - ASBESTOS BLUFF** Chrysotile fibres up to 9 mm long occur with amphibole fibres up to 50 mm long in a 10 metre zone of brecciated serpentinite.
 - FRASER** Feldspar-quartz schist with lenses and stringers of quartz from 1 cm or less to 0.8 metres wide.
 - BERNARD-MILLER-SPURRIER** Fractured, rusty weathering quartz ranges from massive to banded to vuggy and crystalline. Massive quartz with minor pyrite and galena collected in 1983 contained 4 g/t Ag, 0.5% Pb, and 12 ppm Bi.
 - ALPHONSE** A massive quartz vein up to 1.3 m wide, trending at 140° was exposed in 3 trenches along 514 metres of strike length. Maclean report -ed up to 4.1 g/t Au across 13 metres.
 - BUM** Chalcopyrite, pyrite and barite in brecciated quartz-chlorite schist up to 18% Cu and 618 g/t Ag.
 - KEYNOTE** Massive white vein quartz with galena, no reported gold or silver.
 - BOX CAR** A quartz vein 0.6 metres wide occupies a shear zone which strikes 160°, and dips 80° southwest. The quartz is milky white, vuggy and crystalline, and hosts chalcocite, galena and pyrite. A sample of galena-bearing schist collected in 1983 contained more than 0.4% Cu, 8.77 % Pb, 202 g/t Ag, and anomalous amounts of zinc, barium, antimony, and bismuth.
 - MICHELL** Vein quartz in two vein systems which trend between 350° and 050° have been traced along strike for 95 metres. The quartz is fractured, milky white, rusty weathering, and in places, crystalline. The width of the veins is variable, but ranges up to 18 metres. The quartz is barren in places, contains minor pyrite and galena in others, and in yet others contains rich pockets of gold-bearing sulphides including pyrite, galena, sphalerite, chalcocite, tetrahedrite, and arsenopyrite. Carbonate and pyrite alteration haloes extend for several metres away from the veins. In 1969, 37 tonnes was mined grading 14 g/t Au, 4,680 g/t Ag, 26.3% Pb, 0.7% Zn, and 0.4% Cu.
 - GLASS** A galena-bearing quartz-pyrite vein 3 cm wide found in rubble in one trench contained 4.9 g/t Ag, and 3.6% Pb.
 - MACLAY** Massive, milky white quartz occurs in float and outcrop at several places on the property. A 125 cm thick vein of quartz with minor pyrite is exposed in a ledge which trends 195° and dips 65° NE. Minor fine-grained euhedral pyrite is present in the schist adjacent to the quartz at the old workings. Samples collected in 1983 had no anomalous metal contents.
 - SUMMIT** Stringers and lenses of quartz with galena and pyrite.
 - THURBER** A rusty weathering 45 cm wide vein, is made up of quartz that is fractured, white to grey and opaque, and varies from massive to banded and crystalline. Parts of the vein include fragments of pyrite-rich country rock. A pyritic alteration zone in the country rock surrounds the vein. One sample collected in 1983 contained 97 ppm W (probably wolframite).
 - HAMMER DOME** Vein quartz is milky white, fractured, and occurs as veinlets and veins up to 1.2 metres wide. Some of the quartz is crystalline, and some includes angular fragments of silicified country rock in a quartz matrix. Fine-grained pyrite is common in the quartz, while galena is present in places. Alteration of the host rock adjacent to the vein occurs in places, resulting in carbonate spots and veinlets, fine grained pyrite cubes, and pyrite pyrohedra up to 1 cm across. A sample collected in 1983 of galena-bearing quartz contained 150 g/t Au, 223 g/t Ag and 14.5% Pb with anomalous amounts of arsenic, bismuth, and mercury.
 - RASMUSSEN** Quartz-chlorite schist is bleached, has argillic alteration, and contains abundant fine-grained euhedral pyrite. Weak to strong, silicification is present. Quartz veinlets obtained red crosscut brecciated country rock. The red quartz has subsequently been crosscut by white quartz veinlets. Pyrite is present in both the red and white quartz. Barite and calcite are also present. Samples of the red quartz collected in 1983 contained up to 450 ppm Hg.
 - JEK** Attention was directed to this area by the isolated 500 gauss aeromagnetic anomaly present. Andesite with abundant fine-grained magnetite is probably responsible for the aeromagnetic anomaly.
 - BLUCKLAND DOME** Muscovite-feldspar-quartz schist and minor quartz-chlorite schist contain abundant fine-grained pyrite in places. Weakly argillized rusty pink weathering quartz porphyry, strongly argillized yellow weathering quartz porphyry with abundant very fine-grained pyrite, and dark grey andesite with fine-grained pyrite disseminated throughout the rock and concentrated along fractures were found along with schist and quartz in dumps at the workings. The quartz is massive to crystalline, fractured with fine quartz dross along some fracture surfaces and contains pyrite. Quartz collected in 1983 contained 1.4 g/t Au and 2.0 g/t Ag. The andesite contained 5.5 g/t Ag, and along with the strongly argillized porphyry, anomalous amounts of arsenic, antimony, bismuth and tin.
 - VIDEJ** Several massive white quartz-barite veins including one vein 1.2 to 18 metres wide which can be traced for over 100 metres into a lineament that extends more than 500 metres further. The veins are rusty weathering and consist of fractured milky white crystalline quartz and white barite with minor pyrite and galena. Breccia, with angular fragments of silicified schist in a quartz matrix is also present. The country rock adjacent to the veins is silicified in places and fine-grained veinlets cut both the country rock and the veins. Pyrite and minor galena are in the veins. A sample of quartz-barite vein collected in 1983 contained 2.5 g/t Au and 3.0 g/t Ag.
 - CULLEN** Lenses and veinlets of vuggy, rusty quartz with some quartz crystals, pyrite, minor chalcocite and barite, and breccia with schist fragments in a quartz matrix are present. Pyrite is also in schist surrounding the quartz. Maclean reported a sample of quartz with 0.7 g/t Au and 0.9 g/t Ag, and schist with 1.4 g/t Au and 21.6 g/t Ag.
 - BUCKLAND** Veinlets of fractured milky white quartz up to 5 mm across crosscut the foliation, as do rusty weathering veins of massive to crystalline, fractured milky white quartz with minor pyrite and carbonate up to 10 or more cm across. A breccia with schist fragments in a massive to crystalline milky quartz matrix is also present along with a less common breccia of quartz and schist fragments in a calcareous matrix. The schist adjacent to crosscutting quartz veinlets and veins is pyritic and calcareous. Gleason reported quartz with 63 g/t Au, and 54.1 g/t Ag.
 - BLUCKLAND DOME** Muscovite-feldspar-quartz schist and minor quartz-chlorite schist contain abundant fine-grained pyrite in places. Weakly argillized rusty pink weathering quartz porphyry, strongly argillized yellow weathering quartz porphyry with abundant very fine-grained pyrite, and dark grey andesite with fine-grained pyrite disseminated throughout the rock and concentrated along fractures were found along with schist and quartz in dumps at the workings. The quartz is massive to crystalline, fractured with fine quartz dross along some fracture surfaces and contains pyrite. Quartz collected in 1983 contained 1.4 g/t Au and 2.0 g/t Ag. The andesite contained 5.5 g/t Ag, and along with the strongly argillized porphyry, anomalous amounts of arsenic, antimony, bismuth and tin.
 - LONG STAR** The area is underlain by muscovite-quartz-feldspar schist. The muscovite is very coarse-grained in places, and elsewhere, crystallization cleavage is well developed. Lenses and stringers of grey, translucent quartz are parallel to the foliation. Some of the stringers have been incidentally folded to form lenses. Massive milky white quartz is also present; it occurs as discordant rusty weathering veins up to 50 cm thick, which have been warped into low-amplitude open folds. The quartz is fractured, and in places is crystalline. Pyrite is disseminated through it, and one large pocket of high-grade sulphide ore was encountered during early mining operations. The country rock bears fine quartz veinlets and abundant fine-grained pyrite. Assay values from the occurrence have returned erratic results. Between 1912 and 1914, 7,647 tonnes of ore were treated. All but 845 kg were treated at the mill, and approximately 35,200 grams of gold were reported recovered, for an average grade of 4.7 g/t Au. Hand-picked sulphide-rich rock weighing 845 kg was sent to a smelter in San Francisco in 1913 and reported to have yielded 3,125 g of gold. A sample collected across 21 metres from the 1935 trench contained 1.6 g/t Au (Dawson Eldorado Gold Explorations Ltd. prospectus, 1980).
 - HILCHEY** Vein quartz, pyrite, and traces of galena were encountered during a 1961 drilling program.
 - BALD EAGLE** Gleason identified cerussite in the gravel of Adams Creek, and reported that barite veins were found by placer miners in cuts along the creek.
 - BRONSON** Galena-bearing quartz-carbonate vein float was reported from the north end of the claims. Vein quartz float found in the same area is massive to crystalline, milky white, fractured, and is rusty. The vein from which the float was derived must be at least 50 cm wide. Abundant fine-grained pyrite is locally disseminated in schist and one sample collected in 1983 contained 0.6 g/t Au and 2.0 g/t Ag.
- 115 O/15