REPORT ON SHELDON REGION

1966

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SHELDON REGION

GEOLOGICAL SETTING

The Sheldon region is a northwesterly-trending geological province of about 60 miles in length and 25 miles in width located 75 miles east of Ross River and 190 miles northeast of Whitehorse.

The dominant geological feature is the Traffic Mtn. fault which trends northwesterly through the entire region and across which displacement in the order of thousands of feet has occurred. This fault lies 50 miles northeast of and parallel to the well known Tintina Trench and appears to be one of a set of major wrench faults in the Yukon. Northeast of the Traffic Mtn. fault the terrain is rugged and mountainous and underlain by tightly-folded Precambrian metasediments intruded by granitic rocks of the Logan batholith. The Logan batholith extends into the Sheldon region from as far south as Watson Lake and appears to reach its terminus at the northwest end of the region where it is expressed as a series of small aligned granitic stocks. Southwest of the Traffic Mtn. fault the terrain is mostly gently rolling with scattered mountainous areas, and underlain by moderately-folded Paleozoic metasediments and volcanics locally intruded by granitic rocks.

Base metal indications have been found in many parts of the Sheldon region so far investigated and consist of the following three major types: (1) skarn or bedded replacement zinc-copper-lead-silver with arsenopyrite and pyrrhotite in calcareous host rocks near granitic contacts; (2) porphyry-copper types containing copper-silver or lead-zinc-silver with arsenopyrite and pyrrhotite in hydrothermally altered granitic rocks; and (3) vein and shear-zone replacement copper-lead-zinc-silver with arsenopyrite occurring near granitic contacts.

Similarities between the Sheldon region and the Dynasty-Vangorda district are striking. In both cases mineralization occurs in folded Paleozoic metasediments near granitic intrusive rocks and within a short distance of major northwesterly-trending wrench faults. It is notable that although lead-zinc replacements occur in both districts, important copper-silver bodies have been located in the Sheldon region.

PIKE LAKE PROPERTIES

These properties consist of three claim groups with a total of 794 claims located west and northwest of Traffic Mtn. and about 55 miles northeast of Ross River. Most of the area consists of moderate slopes covered with thin soil.

Geology:

The Pike Lake properties lie immediately north of the Traffic Mtn. fault and cover a successsion of tightly-folded Precambrian and early Paleozoic quartzites, cherts, and slates which have been intruded by a granite porphyry stock of probable Cretaceous age. The stock appears to be the westernmost exposure of the Logan batholith and it is represented by an area of relatively high aeromagnetics. The area of the properties appears to be intensely faulted, particularly in an east-west direction near the Traffic Mtn. fault. It is notable that one of these faults coincides with an intense 8-mile long aeromagnetic anomaly, portions of which are in turn anomalous in airborne electromagnetics, in an area of copper-silver showings; the anomaly may represent an important mineralized zone and will be investigated early this coming season.

Copper-silver, and minor lead-zinc mineralization, occurs disseminated in a hydrothermally altered granite porphyry dyke of over two miles in length. The mineralized zone is indicated by an intense geochemical soil anomaly within which the following peak values occur: copper, 2000 ppm; lead, 1200 ppm; zinc, 6200 ppm. The western end of the zone lies on higher ground and has been exposed by a series of closely-spaced bulldozer trenches for a length of 615 feet and width of 46 feet. Average grade over this area is 0.61% copper and 2.44 oz/ton silver with minor lead and zinc sections. At current metal prices this would give the ore a value of about $9.00/ton. Depth of mineralization is not known but the zone will be drilled early this coming season. Trenching and drilling will also be done in the central and eastern portions of the two-mile long mineralized zone.

Several other geochemical highs and aeromagnetic anomalies were located on the Pike group late in 1966 and will receive detailed follow-up this season.

Work Done:

Following initial prospecting and hand trenching of reported float north of Pike Lake, an intensive program of geophysical, geochemical, and geological surveys, as well as bulldozer trenching was instigated in the area. Aeromagnetic surveys, under contract to Lockwood Surveys Corp., were done over an area of 380 square miles; 35 square miles of which was also flown with electromagnetics. Ground magnetic and electromagnetic follow-up was done over two grids totalling about 3 square miles and soil geochemical surveys on both detailed and reconnaissance scales were conducted over much of the Pike group and adjoining areas. Grid areas were geologically mapped. Eleven bulldozer trenches across high geochemical zones exposed mineralized bedrock and trenches were geologically mapped in detail and sampled by the continuous chip method in five foot sections. An attempt was made late in October to diamond drill with a Winkie drill but work was halted due to freeze-up.

Economic Potential:

Copper-silver mineralization of potential economic grade has been exposed at the western end of a geochemical anomaly of over two miles in length.

Although the potential tonnage so far revealed is small, it is apparent that possibilities for developing larger tonnages are good. It is notable that several geochemical anomalies apparently similar to the one trenched occur in the Pike group. The fact that potential economic grade was uncovered on the only geochemical anomaly trenched suggests that other anomalies may also overlie high grade mineralization.

An eight-mile long intense aeromagnetic anomaly occurs about 1/4 mile south of the copper-silver zone. Because the anomaly coincides with a known fault zone and because four separate air electromagnetic anomalies of high ratio are superimposed on the aeromagnetic high, the possibilities for massive sulfide bodies of large tonnage are good.

PAY PROPERTY

The Pay property consists of a 166 claim group located east of Fortin Lake and about 60 miles east of Ross River. The claims lie in an area of moderate topography and thin soil cover with about 20 percent rock outcrop.

Geology:

The Pay property is underlain by a steeply-dipping, northwest-southeast striking succession of Precambrian-Cambrian quartzites, cherts, and argillites locally metamorphosed to hornfels. An elongate, 10 mile long granitic body occurs at the eastern end of the properties and appears to plunge beneath the area of the claims. The northwesterly-striking Traffic Mtn. fault lies about 4 miles to the northeast and major parallel as well as cross-cutting faults cut the Pay group area. Several showings of lead-zinc-copper-silver bedded replacements and arsenopyrite veins carrying gold and silver values occur just north of the nose of the granite body. The base metals occur in thin lenses as replacements of calcareous units in argillite; few assays were taken but one ran 0.16 oz/ton gold, and silver values ranged from 0.14-3.88 oz/ton. Two assays from separate arsenopyrite veins ran 0.76 oz/ton gold and 20 oz/ton silver.

A geochemical soil survey conducted in the area during September 1966 resulted in the location of a large zinc geochemical anomaly about two miles west of the known showings. Subsequent detailed work revealed an area 3 miles long by 1½ miles wide within which all values are greater than 500 ppm; background ranges from 0 - 250 ppm. Seven peaks of over 1000 ppm occur, two of which are each about one mile long, and maximum values are over 4000 ppm. An elongate northwesterly-striking aeromagnetic anomaly lies along the up-slope side of the geochemical anomaly and appears to reflect the mineralized source. A dolomite bed crops out south of the properties and strikes toward the anomalous zones; it is notable that dolomite is a common host rock for base metal replacement deposits.

Work Done:

The only work done to date on the claims has been showings examinations and soil geochemistry. Work will begin early in 1967 and will consist of line cutting, ground geophysics, detailed geochemistry, geologic

mapping, and diamond drilling.

Economic Potential:

The coincident intense zinc geochemical and aeromagnetic anomalies in an area of known showings and favorable geology cause the potential of the Pay properties to be rated very high.

NAR PROPERTY

This property consists of 72 claims located near the top of a prominent mountain about 9 miles southeast of Pelly Lakes and 85 miles east of Ross River.

Geology:

The area is underlain by a steeply-dipping east-west striking succession of metasediments and metavolcanics intruded and locally contact metamorphosed to skarn and hornfels by a granite porphyry stock which crops out near the peak of the mountain. The area appears to have been domed up by the forcefully intruded granite stock. Four categories of mineralization have been recognized in outcrop:
(1) pyrrhotite skarn with disseminated copper and arsenopyrite; (2) pyrrhotite skarn with disseminated lead-zinc-copper; (3) lead-zinc-copper disseminated or as massive replacements in hydrothermally altered granite porphyry; (4) lead-zinc-silver shear zone replacements. Three assays of pyrrhotite skarn ran 1.9, 2.0, and 2.5% copper. Samples assayed for lead-zinc-silver ranged from 6.6 to 38.9% combined lead-zinc and from 0.91 to 118.9 oz/ton silver.

Work Done:

Because showings were discovered late in the 1966 season only prospecting and reconnaissance geochemical sampling have been done. Work this season will consist of line cutting, ground geophysics, geochemical surveys, geologic mapping, and possible trenching or diamond drilling.

Economic Potential:

The presence of numerous base metal showings with high assay results, particularly in copper and silver, in an area of favorable geology makes the NAR property a very impressive prospect. Unfortunately, little can be said regarding the size of located mineralized zones because rugged terrain and lack of time in the 1966 season prevented geological examinations.

BILL PROPERTY

This property consists of 94 claims located about one mile south of Pelly Lakes and 75 miles east of Ross River. The claims cover the northern end of a prominent mountain ridge of granite.

Geology:

The Traffic Mtn. fault strikes northwesterly through the north half

of the Bill property. Northeast of the fault bedrock consists of tightly-folded Precambrian metasediments intruded by a granitic stock which plunges northerly beneath Pelly Lakes. Southwest of the fault is a moderately-folded succession of Paleozoic metasediments.

Geochemical surveys late in the 1966 season located an extensive geochemical anomaly with the following peak values: 560 ppm copper, 350 ppm lead, and 7600 ppm zinc. The anomaly lies between the Traffic Mtn. fault and the granitic stock to the east. High values occur immediately downslope from the trace of the fault and it appears that the geochemistry is reflecting mineralization within the fault zone.

Work Done:

Only reconnaissance geochemical surveys were conducted in the Bill area during the 1966 season. Attempts to locate mineralization reflected by geochemical anomalies were frustrated by the presence of overburden cover. Line-cutting, geophysical, and geochemical surveys, and possible diamond drilling, will be conducted this coming season.

Economic Potential:

The presence of intense geochemical results associated with the major wrench fault in the district and occuring near the nose of a granitic rock make the possibilities for important mineralization on the Bill property appear good.

JAKE PROPERTY

The Jake property consists of 80 claims lying in rugged mountainous country about 3 miles southeast of the east end of McEvoy Lake, 80 miles south-east of Ross River.

Geology:

Bedrock in the Jake group area consists of massively-bedded quartzites, chert, limestone, and hornfels striking northerly and dipping moderately eastward. Small outcrops of granitic rock have been noted and it appears that a stock underlies the area. Over 20 showings of base metal mineralization occur within the property; most consist of disseminated copper, lead, and zinc in altered granitic rocks or in quartzite and chert. Talus cover is thick in the area and few showings could be traced for any distance. Selected assays gave following range of values: 2.4 - 14.3 oz/ton silver, 0.18 - 16.2% copper; 0.2 - 9.2% lead, Tr - 3.6% zinc. All geochemical silt samples taken were highly anomalous, peak values being 3,000 ppm for copper, 10,000 ppm for lead, 7,000 ppm for zinc. A prominent one-mile long aeromagnetic anomaly occurs in the area of the showings and may reflect a buried mineralized zone of which showings are only a surface expression.

Work Done:

Only preliminary prospecting and geochemical silt sampling were done prior to staking of the Jake group in September 1966. Work this season will

consist of detailed geologic mapping, geochemical soil and geophysical surveys of important targets, and possibly diamond drilling.

Economic Potential:

The presence of numerous base metal showings and high geochemical results associated with a magnetic anomaly indicate favorable possibilities for important sulfide bodies.

SPUD PROPERTY

This property is a 32 claim group located on the east slope of a prominent mountain ridge of granite about 9 miles south of Pelly Lakes and 75 miles east of Ross River.

Geology:

No outcrop is known to occur within the claims but immediately to the west of the group is a steeply-dipping northwesterly striking succession of Lower Paleozoic hornfelsic phyllites intruded by a major northwesterly-trending granitic stock. A dolomite unit makes up part of the stratigraphic sequence and crops out south of the group; it is notable that the strike of the dolomite would appear to carry the unit beneath the SPUD claims. The group lies over a peak on the crest of an extensive linear aeromagnetic anomaly.

A geochemical soil survey in October of 1966 located an anomalous zone over the aeromagnetic peak. Values were high mainly in zinc and copper with peak values of 11,800 ppm for zinc and 1,560 ppm for copper.

Work Done:

Apart from preliminary geochemical surveying, no work has been done on the SPUD group. Work this season will consist of line cutting, geochemical soil and geophysical surveys, as well as geologic mapping of any outcrop found; diamond drilling will be considered contingent on results.

Economic Potential:

Too little is known about the SPUD property to assess potential but the coincidence of a geochemical anomaly with an aeromagnetic peak, as is the case in several other properties in the Sheldon region, suggests good potential.

RIS PROPERTY

The RIS group consists of 24 claims located 10 miles southeast of Fortin Lake and 70 miles east of Ross River.

Geology:

The claims were staked to cover several northwesterly-striking copper-bearing quartz veins, which range from 5 - 15 feet in width and may be traced for about 200 feet along strike, within a moderately-dipping hornfelsic phyllite

sequence on the west side of a major linear granite stock. An assay of the vein material ran .005 oz/ton gold; .72 oz/ton silver; and 2.6% copper. Geochemical soil surveys in the area revealed an extensive anomalous copper zone in which values reach 2200 ppm.

Work Done:

Only preliminary prospecting and geochemical soil sampling have been done on the property. Work this season will consist of line cutting, geochemical soil, geophysical surveys, and geological mapping. Trenching or diamond drilling will be considered depending on results of preliminary results.

Economic Potential:

Insufficient work has been done on the RIS property to assess potential. However, the presence of several large copper veins with a high assay result suggest good potential.

TOY PROPERTY

The TOY property consists of 88 claims located 4 miles southeast of the east end of Anderson Lake, 120 miles east of Ross River. Six claims were optioned in October 1966 and 82 claims were staked to cover related known showings.

Geology:

The TOY group covers tightly-folded, northwesterly-striking granitic gneisses and marbles lying along the south contact of a large granitic mass. A major east-west striking fault cuts through the center of the property. The main showings on the property consists of an eight-foot wide, steeply-dipping zone of massive sulfides across which the following ranges in assays were obtained: Tr. - 0.3 oz/ton gold; 1.00 - 44.5 oz/ton silver; .2 - 78.0% lead; 9.5 - 10.9% zinc; .37 - .73% copper. Several other showings of massive sulfides have been reported on the claims.

Work Done:

Other than an examination of the main showing and option of the ground no work has been done on the property.