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ROBERT STEINER, B.A. PROFESSIONAL GEOLOGIST

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SUB-RECORDER RECEIVED	Diamond Drilling Report
OGT 5 1989	<u>Morgan Claim</u>
M.R. # \$	<u>Kamloops Mining Division</u>
VANCOUVER, B.C.	22 September 1989

- Location: The claim is located about 32 kilometres northeasterly of Kamloops, B.C. It is about half-way between Hefley and Louis Creeks, along the road between these two villages, and can be accessed via a logging road about ten kilometres north of Hefley Creek. Latitude 50°54'North; longitude 120°01'West.
- Assays By: Rossbacher Laboratory Ltd. 2225 S. Springer Ave. Burnaby B.C. V5B 3N1
- Report By: Robert Steiner, P. Geol.
- Claim Owner: Shephard Insurance Group Ltd.

Date of Work: August 2, 1989 to September 22, 1989 GEOLOGICAL BRANCH ASSESSMENT REPORT



MAPPING

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Preliminary Report

<u>on the</u>

Morgan Claim

Kamloops Mining Division

22 September 1989

<u>Abstract</u>

Gold has become a very important element of industry. It has always been associated with wealth and financial security. However, due to its unique characteristics gold now is important to electronics, medicine and space. This virtually indestructible and, unless its characteristics are modified by man, always stands alone. it forms associations with other elements, and these elements allow man to easily find it. It is, however, not as plentiful as iron, and extremely useful element. Therefore it is relatively rare, compared to other elements of industry and commerce. The presence of gold is usually indicated by certain elements, such as copper and silver, or associations of elements, known as minerals, such as chalcopyrite, (copper and iron), or arsenopyrite, (arsenic and iron).

In searching for sources of gold, emphasis is placed on chalcopyrite or arsenopyrite, silver minerals, or rare earths. Arsenical minerals are particularly favourable gold indicators. The various minerals, such as arsenopyrite, will tend to prefer a certain type of host rock. Therefore, if a certain rock type is absent, then arsenpyrite may be absent. And, consequently, gold may also be scarce or absent. The above is a rather simplistic view of where gold might be found. There are numerous other factors that influence the presence or absence of gold.

The area in the North Thompson River region where the Morgan Claims are situated hosts both the favourable rock types and arsenopyrite and chalcopyrite. Therefore this area presents a better target for locating gold than an area where arsenic and copper minerals are absent. J. Poloni's geochemical surveys indicated the Morgan claims might host economically profitable gold deposits. Further work is warranted.

Introduction

The writer examined the proposed drill sites on June 29, 1989. It was reported that some trenching of quartz zones in a greenstone rock had been done in 1981. Further, J. R. Poloni, P. Eng., had carried out a geological and geochemical survey on the property in November, 1987. Since this report is on record, the writer will confine his remarks to the result of the four-whole diamond drilling program.

<u>Geology</u>

The area investigated is underlain by greenstones of the Cache Creek series. At the drill sites a quartz vein zone about 41 metres wide intruded the greenstone. The zone trends N30 W, and dips about 45 to the southwest.

Some of the quartz zone had been trenched by previous investigators. The trenching exposed intense arsenopyrite mineralization, confined mainly to narrow quartz veins intruding the host rock of greenstone. The excellent condition, regarding weathering, of the arsenopyrite prompted the writer to cut a grab sample for assay. It is common for gold, platinum and paladium to be associated with arsenic. Hence the first assay was for gold, silver and copper, with the platinum group and paladium assays to follow.

An EM-15 was used to delineate the mineralized zone. The greatest electromagnetic readings were near the intersection of the main quarts vein zones and veins cutting it at right angles A diamond drill hole was spudded in near one of these junctions, but the ground was too broken to permit drilling beyond two metres. Four holes were then set up in more competent rock, along a potential mineral zone as indicated by the EM-15 magnetometer.

DDH#4 was drilled to 59.73 metres. The hole was vertical, and entirely in greenstone. In the appended assays, the samples are noted by the <u>footages</u> at which they were taken. They are <u>not</u> converted to metric measure.

Discussion

The Morgan Claim of twelve units lies just south of the area reported as: "Geology of the Adams Plateau - Clearwater - Vavenby Area; by P. Schiarizza, Ph.D., and V.A., Preto, Ph. D. However, the rock types found in the Claim area belong the the same series. Therefore, the only noteworthy feature is the presence of a large quartz vein zone. A helicopter fly-by some two kilometres southerly encountered a very large quartz zone. This zone is off the Morgan claim and would have to be staked if that ground was required

Very little work has been done regarding the importance of arsenic in relation to gold, the platinum group, paladium, silver and the rare earths. Certain elements nearly always form associations with other elements or groups of elements. In many cases an element will be dominant throughout a specific rock type or assembledges of rocks, as for instance, certain volcanics, granitoids, or sedimentries. Thus, is a particular area lead may indicate zinc and silver; phosphorus, the rare earths; and arsenic nearly always gold, the platinum group, cobalt and/or silver Often, when arsenic is associated with cobalt the presence of gold is certain, and the lanthanum group almost certainly to be an associate mineral group.

The North Thompson Valley has more of the above noted mineral associations accompanying arsenical minerals than any other area that the writer has investigated. Arsenates of lead, silver, copper, uranium and the rare earths are all present in the Valley, along with gold occurrences to the northwest of the Morgan claim. Boss Mountain host copper and molybdenum, while the Afton area caries native copper and mercury; gold is present throughout

Arsenopyrite coated up to 80% of the black plagioclas in the rock drilled. At some points, as in the core at 37.18 to 39.62 metres in DDH#4 visible gold was present. This sample is noted as DDH#4 (vial), weight of gold 0.2425 mg.

The first surface sample, in a quartz vein near DDH#1, did not report much gold, although abundant arsenopyrite was present. The area was resampled for the sole purpose of determining whether or not the arsenopyrite was the local gold carrier. A large sample was collected milled to 0.635 cm. and split into fractions. One fraction was assayed as is and the other was further comminuted to 100 Tyler These are samples #30903, course; and 60904 fine mesh, (0.331mm). Milling of the coarse fraction to 100 Tyler mesh would probably have resulted in a similar weight as in the 100Tyler mesh fraction. The purpose of this work was to show where the gold actually was. It is therefore probable that good gold values would be present in quartz veins carrying abundant arsenopyrite and the copper mineral, chalcopyrite.

Further <u>physical</u> exploration, either by stripping and trenching the quarts zones, or diamond drilling, or both, seem warranted. The Morgan is in a comparatively unexplored area. It could become a mine, because most of the necessary elements required to turn a mineral into ore are present.

DDH#1, was drilled at 70 . for 61.9 metres, positioned due east, thus intersecting the quarts at right angles. The cored rock consisted mainly of greenstone with very large crystals of black plagioclase. Occasional fine quartz stringers, with arsenopyrite were present between 27.4 and 32.00 metres. Gold was visible in some of the quartz-greenstone. Some of this material was assayed for gold, as a special sample.

This sample was ground in the writer's laboratory mill and the gold fused. The assay for this is noted as DDH#4 (vial), metallics Gold Assay, VAR89291: wt. of sample used: 3.191 gm.; wt. of gold recovered: 0.2425mg.

DDH#2 was at S. 60, for 16.76 metres (55'). The ground was extremely blocky. Numerous quartz veins, with very fine seems of arsenopyrite in them, were samples (split) from 5.16 to 12.6 metres. The result is #30901 in the appended assay report.

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DDH#3 was vertical, for 41/5 metres (136'). It was entirely in greenstone It was not sampled. When samples containing gold, or any other native (elemental) metal is submitted for assay the assay may be done in two ways. The sampling and assaying methods vary as the typed of ore, mineral or metal. This discussion will pertain only to gold.

An assay ton is 29.16 grams, and each milligram of gold in an assay ton is the equivalent of one source of gold per ton of 2,000 pounds of ore. The gold may be locked up in the crystals of copper, lead silver or zinc ores. The ore must be ground (milled) fine enough to release the gold grains. The gold is recovered by fire assay, where lead is used to win the gold from the molten mass of ore.

Sometimes the gold particles are large enough to be visible. Then all the the <u>visible</u> gold is screened out of the sample, and weighed as a fused bead. The rest of the sample is then fire assayed, and the resulting two weights are combined to give a <u>total</u> gold assay. If properly done the assay will report the total gold content of the sample.

However, there's many a slip twixed the cup and the lip. If you don't tell the assayer there may be free gold in the sample, the sample will be crushed, ground and fired as an ordinary sample. Particles of gold can get smeared on to the crusher and/or grinder jaws. The gold may be melting lead in the assay furnace. The true value of the gold content is therefore lost. The only other way for complete gold recovery would be to melt everything own.

Another method just as precise as the one just described is to mill everything to a optimum size, usually 80 to 100 Tyler mesh, and amalgamate the gold with mercury. The amalgam is dissolved in nitric acid and the gold is then weighed. The rejects from this procedure may then be fire assayed.

Gold is virtually indestructible but being soft, it can be left behind on crusher and grinder jaws. Careless or sloppy work could therefore lose up to one-half of the gold values present. No assayer likes total metal assays because they are time-consuming and use up numerous crucibles. So you don't present them with even 500 grams for total gold assay, unless you own shares in the Bank of Canada.

However, I can generally come up with total values because I have the equipment. The actual assay of my rejects is still done by a registered assayer. He would weigh out my amalgram buttons, and with out the gold from his fire assays. The work I do is for the extractions, which are also used by Bondar Clegg in Colorado, the U.S. Bureau of Mines, Quanta Trace and Rossbacher in Vancouver, and others, are quite valid when done as a an adjunct to fire assays. No topographic survey was carried out. Hence the hole locations are only sketched in.

The logging road used to position the drill holes was left in good condition.

Diamond Drilling Log:

DDH#1: -70 degrees E, 61.8714M (203 feet).

0-61.8714 Greenstone, with large phenocrysts of black plagioclase. Crystals commonly coated with arsenopyrite. Occasional fine quartz stringers containing arsenopyrite and chalcopyrite.

> Sampled 5.1813 - 12.8010 metres. Assay #30901

DDH#2: -60 degrees S, 15.8488 metres

0-15.848 Greenstone. Large, arsenopyrite coated phenocrysts of black plagioclase. Crystals bedded at 30 degrees to core.

> Core too broken to sample. Is duplicate of DDH#1.

DDH#3: 90 degrees, 41.4508 metres.

0-41.4508 Greenstone, with abundant and large phenocrysts of black plagioclase. Crystals coated by arsenopyrite.

No samples taken.

DDH#4: 90 degrees, 59.7379 metres.

Greenstone, with large bedded phenocrysts of black plagioclase feldspar. Feldspar coated with arsenopyrite.

Samples: 8.2292 - 11.2770 -greenstone, sample record #30902 16.1536 - 19.2015 -greenstone, sample record Morgan 4-53-63 37.1838 - 39.6221 -greenstone, sample record Morgan 4-122-130



I solemnly declare that the diamond drilling report, including the core log, and costs to be true; and knowing that it is of the same force and effect as if made under oath; and by virtue of the Canada Evidence Act; and that I am the geologist, core logger and advisor to the property owners.

Declared before me at the City of Vancouver, in the Province of British Columbia, this 5 day of Ocorrectored (1989, A.D.)

Koberh Steiner, P. Deol.

ROBERT STEINER, B.A., PROFESSIONAL GEOLOGIST

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HEAD OFFICE: 371 - 56TH STREET DELTA, B.C. V4L 124 943-3987

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FIELD ÒFFICE: BOX 553 BLAIRMORE, ALBERTA TOK 0E0

CERTIFICATE

1, Robert Steiner, residing at 371 - 56th Street, Delta, B.C. V4L 1Z4, certify that:

I am a 1950 graduate of the University of British Columbia, graduated with a B.A. Degree in Geology.

I was awarded on February 10, 1983, Life Membership in the Association of Professional Engineers, Geologists and Geophysicists of Alberta, after twenty-eight years of service as a Professional Geologist.

1 am registered as a Professional Geologist, State of Idaho, U.S.A.

I have practiced as a Consulting Geologist since 1957, specializing in placer geology.

I have no financial interest, nor do I expect to receive any, in the property herein reported,

I do not express any guarantee or warranty. The report is based on facts resulting from personal investigations, and that opinions expressed are my own, unless otherwise noted.

DATED at the City of Vancouver, in the Province of British Columbia this 25 day of Appender, 1989.



Kober A Steiner, P. Heal.







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