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TITAN PROJECT

Report on Progress of Exploration No. 2

by A.E. Aho

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Gentlemen:

I visited the Titan Project on July 8, 9, and 10, and on July 23, 24, and 25, during which time I discussed and went over the programme with David Seymour and examined the Shanghai trenching project. Work had been progressing favourably but a fire on July 15 destroyed the geochemical laboratory tent including 500 samples and equipment, thereby retarding the geochemical work by at least two weeks. Resampling has now been completed and, except for testing which is awaiting equipment, work is again progressing.

GALENA HILL PROPERTY

Resistivity surveys were completed over two select areas in June, a Jalander magnetometer survey was done over these areas in July, and geochemical sampling has been completed but the samples have not yet been tested. Results to date are as follows:

Area "A" (Leo No. 1 Claim)

On Leo No. 1 claim a strong zone of resistivity highs about 1800 feet long strikes N50°E across all bedding plane trends, and other weaker NE trends suggest other possible NE zones, all within the main massive Hector-Calumet type quartzite section. Magnetometer work showed variations only up to 200 gammas, but with an interesting NE-trending anomaly of about 100 gammas with a dip to the southeast, occurring in a lower resistivity "saddle" between two main high resistivity "eyes" along the main high resistivity anomaly.

Previous exploration has shown (a) traces of mineralization and a strong shear zone in diamond drill holes T-1 and T-2 across electromagnetic anomalies which extend for about 1500 feet to the northeast, (b) an assay of 15 oz/ton silver from rusty fractures in quartzite outcrops about three hundred feet to the southeast, (c) stringers of pyrite and minor sphalerite, and float of pyrite and sphalerite in the bottom of a 30-foot prospect pit sunk a couple of hundred feet northwest of the SW end of the resistivity

high, and (d) a continuous zone of generally low resistivity extending for several thousand feet to the southwest along strike.

Whether the zone of strong resistivity highs is caused by a heavily silicified vein zone, by some unusual reverse polarity effect from sulfides in permafrost, or by other unknown factors, the uniqueness of this anomaly in all of the six miles of Silver Titan's ground may be favourable, especially since the above previous work suggests a strong, mineralized vein fault zone. The slight, but well-defined magnetic anomaly in the resistivity "saddle" might result from iron minerals, or slight amounts of magnetite formed by oxidation of a mineralized vein zone. It is hoped that geochemical results will clarify the position of mineralisation in this locality.

Some of the overburden may be shallow enough to allow sinking of prospect pits to bedrock under present conditions. Lines 8, 12, and 14, and perhaps some of the others may be on shallow overburden.

Area "B" (Leo No.'s 6, 16, and 17 Claims)

This area appears to be less interesting than area "A", but contains two areas of interest: (1) a possible NE zone on Leo No. 6 claim along the NE projection of the Gerlitzki vein and (2) the NE zone on Leo No. 16 claim. Further work on these two localities should clarify exploration possibilities.

NORTH LIMB PROPERTIES

Geochemistry

Geochemical grid sampling and mercury testing has been completed on the main Shanghai vein area and sampling has been completed on the Lundquist area to the west, and on the UR property.

Mercury detector results on the main Shanghai vein area showed no significant results whatever, except for a single strong anomaly from a mineralized dump. The main reason for this is that the main vein-fault zones themselves could not be sampled because they are topographic depressions filled with wall-rock rubble and frozen organic muck and, apparently due to glacial scouring, no float spills on to the intervening hillside, and the wall rocks are unmineralized, thus giving only slight background variations. In spite of these negative geochemical results, high grade mineralisation exists in more than one locality and mineralized float is being found in trenches on the vein zones. It can only be concluded that, due to topographic and overburden conditions and permafrost, that the main Shanghai vein area is not suitable for detection by geochemistry.

On the Lundquist area, however, mercury detector results showed a definite anomalous zone corresponding to a suspected longitudinal vein fault zone on the base line. Results were destroyed in the fire, however, and are being re-run. Conditions here are different in that instead of being in

topographic breaks with permafrost, the suspected vein zones lie on a dry south-facing slope ideal for geochemistry. These results support the use of the mercury detector for detailed soil sampling grids. Geochemical anomalies here could be trenched with a bulldozer in connection with further trenching on the main Shanghai zones.

On the UR property a geochemical sample grid has been completed over the northeast vein-fault zone on UR 1-8 claims, a line of samples has been taken across the eastern part of the property, and the main creek (Poli Creek) has been silt-sampled.

Silt samples are also being collected to the east and west of the Shanghai and UR groups in the North Limb area, and on creeks down McQuesten valley, as the main work in a more widespread geochemical reconnaissance. In view of the insignificant mercury detector indications next to the main Shanghai vein zones which contain known mineralization, and of the limited areas of anomalies on the Lundquist area, it is felt that the mercury method is not suited to reconnaissance geochemistry in this district. The reconnaissance work is therefore aimed at heavy metals detection in stream silts which would lead to anomalous areas that could be explored by mercury detector work on a detailed soil sampling grid.

In a letter dated July 17, 1963, D.R. Clews reported that orientation samples over mineralization in trenches No.'s 2 and 6 on the Shanghai property showed the following results:

1. Mercury background ranged from 40 to 180 ppb and both small mineralized zones showed at least one value over 200 ppb so this method was usable.

2. Copper background was 12 to 28 ppm with anomalous values of 40 ppm over both mineralized zones, therefore usable.

3. Zinc background was 60 to 150 ppm, with anomalous values over 150 ppm, therefore usable.

4. Lead not present in all samples and no strong values, therefore not usable.

He recommended use of (a) the mercury detector and (b) total copper and zinc by the fusion method or cold extractable copper and zinc. The mercury detection and cold extractable copper and zinc will be used.

Bulldozer Trenching (See plans and sections of Trenches ~~1 and 2~~ by M.O. Hampton)

Trenching on the Shanghai property was halted for about 10 days while geochemical work was caught up. A limited amount of trenching was done since at two widely separated times, and the D-8 bulldozer has now been removed from the area. The last trenching was done chiefly on Trenches No.'s 1 and 2.

In Trench No. 1 pieces of angular, rusty mineralized quartzite

breccia up to 18 inches long began showing up in the bottom of the trench. Mineralisation consists of pyrite, siderite, galena, and sphalerite through the quartzite breccia. Different pieces of the float assayed as follows:

Description	Oz/Ton Gold	Oz/Ton Silver	% Lead	Ag/Pb
Small piece pyrite & galena	.01	28.7	-	.
Galena from breccia	.03	34.4	43.8	.79
Spots of galena in breccia	.02	5.26	6.9	.76
Spots of galena in breccia	.02	6.64	9.4	.71
Galena with pyrite	.02	15.5	22.0	.71
			Ave.	.74

Trench #1

Although the above assays of float of varied nature indicate a low silver-lead ratio in the brecciated wall rocks, the presence of other higher grade mineralisation in the vicinity, and of higher grade float reported near this trench suggest the possibility of better grade later stage mineralisation in the actual vein-fault zone. Such conditions of associated low grade mineralisation also occur on Keno and Galena Hills, and should not discourage more conclusive exploration.

Depth to bedrock may still be in the order of 10 to 15 feet in Trench No. 1, and due to permafrost, boulders, and the length of back slope necessary to deepen the trench, further bulldozer work is impractical. Because of the encouraging results of float indications, it is proposed that an open cut and short prospect adit be driven to explore the zone.

Trench No. 2 still shows frozen black muck in its center, but on the north side the last trenching was beginning to show continuation of the brecciated quartzite and siderite vein zone, several feet wide, with siderite and traces of galena. This trench should be completed to bedrock with a D-6 bulldozer.

Trench No. 4 has exposed a brecciated quartzite zone with considerable limonite staining, the width from side to side being about 10 feet. The zone strikes 30°E and dips vertically. Chip samples assayed as follows:

	oz/ton Au	oz/ton Ag
6' Chip, SE side	trace	.88
5' Chip, NW side	trace	.36
Grab of 3" limonitic breccia in center of zone	.01	6.32

This zone lies about 50 feet southwest along strike from the exceptionally high grade stringer in Trench No. 2, and would represent the junction of this stringer zone with the main N60°E longitudinal vein zone. No further work is warranted on this zone.

Trench No. 7, on a zone similar to No. 4, shows a 1- to 2-foot wide quartz siderite vein with minor mineralization from which a select grab sample had assayed 6.3 oz/ton silver. Shearing and alteration also extends across a width of about 10 feet in this zone, striking N30°E and dipping vertically. No further work is warranted on this trench.

Trenches No.'s 4 and 7 are across what appear to be "feather" veins branching from the main longitudinal N60°E vein zone.

Other trenches on other NE-striking zones to the east have not been investigated further, aside from initial stripping of permafrost.

It is recommended that as soon as results from the Lundquist area define suitable targets for trenching, that a D-6 or D-7 bulldozer be taken over to complete the trenching to a satisfactory conclusion. The main Shanghai property contains all the strength of structures, favourable host rocks, and high grade type of mineralization to warrant such direct physical work, which is the only means by which it can now be explored.

Trenching on the UR property on trenches No.'s 1 and 2 has exposed a 6 to 8-foot wide zone of barren quartz-siderite breccia or vein material and gouge. Several other prospect trenches had been stripped to the NE and should now be thawed enough for further prospect trenching if geochemical results indicate mineralized sections.

The geochemical grid, although subject to some of the same physical conditions as the Shanghai, may give some guide to this further trenching on the UR claims.

On the northeast projection of the UR structure deeper organic and permafrost cover makes the ground difficult to explore. Further toward the creek, however, the slope steepens and some quartzite talus suggests possibilities of easier exploration except that the slope is too steep to work on with a bulldozer. It is in this locality that the strong vein-fault system would pass entirely into the main quartzite section, moreover, a rust-producing spring was found in the creek bed along strike during silt-sampling. Since a lamprophyric dike also strikes eastward toward this area, a brief magnetometer traverse of the dike and the critical area was done in order to determine if a more careful magnetic survey could localize the vein-fault structure in this locality. However, magnetic variations were so slight that this approach is not applicable.

Prospecting

John French has prospected north of the Shanghai property and on air photo lineare and reported mineralization east of the UR property toward

McQuesten Lake, and has collected stream silts in this area. His prospecting and silt sampling will now be done in conjunction with work west of Mt. Haldane and west of the Shanghai property by Dirk Tempelman-Kluit.

Near McQuesten Lake he has discovered a sphalerite and galena vein zone reported to be traceable for 500 feet in schist. Assay results are not yet available but the zone is being mapped by Tempelman-Kluit.

Dirk Tempelman-Kluit has spent three weeks down McQuesten River in the vicinity of May Creek doing prospecting and geologic mapping in an area that was being prospected and bulldozer-trenched by Al Triggs and associates. Several promising looking vein discoveries have been reported but no details are yet available. Two grab samples sent out assayed as follows:

	Oz/Ton Gold	Oz/Ton Silver	% Lead	% Zinc
No. 1	trace	22.0	79.6	1.3
No. 2	.02	2.56	2.6	16.2

Most of the mineralisation in this area is low in silver but high assays have also been reported so it will be interesting to see if any of the rest of the samples taken give better assays.

Tempelman-Kluit's work at May Creek and French's work at McQuesten Lake will have covered the two extremities of this season's Titan project area and the bulk of the work will now be concentrated on finishing reconnaissance coverage of the intervening areas. Aho has completed an air photo interpretation of this area, which is serving as a guide in prospecting northeast lineaments. The air photo interpretation shows five areas of interest, on the basis of presence of northeast lineaments which may be related to vein-fault zones:

1. Rodin Creek (N. Limb)
2. Between Rose Creek and Seattle Creek (S.Limb)
3. Between Shanghai and Haggart Creeks (N. Limb)
4. May Creek (N. side of McQuesten River)
5. Head of Lynx Creek to McQuesten Lake (N. Limb)

The present work schedule should result in completion of reconnaissance geochemistry by the end of August, leaving the month of September for follow-up of interesting sections.

Once air photo interpretation, reconnaissance geology, and reconnaissance geochemistry has been completed, it will be possible to trace the most favourable localities down and to complete detailed soil sampling grids over these localities. The detailed grids and Clews' work have shown how applicable the methods are; for example the mercury detector appears to have very limited value as a reconnaissance tool but appears to be useful for detail, while silt testing for copper and zinc (fusion or cold extractable methods) would appear to be best for reconnaissance. Although the reconnaissance work this season may not result in direct discovery, depending

on whether anomalies can be localized sufficiently to trench before freeze-up, it will give an entire season's head start on any possible competitors and should give enough data to enable staking of any favourable ground.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

A. An open cut and short prospect adit should be driven in Shanghai Trench No. 1 to test the main NE vein-fault zone since encouraging mineralization is being found in brecciated wall rock in the trench.

B. By early September geochemical work should be complete enough to enable D-6 bulldozer trenching to be done on the Lundquist, Shanghai, and possibly other areas of interest. Trenching or test pit sinking is the only direct way to explore the Shanghai vein systems which show strength of structure, favourable wall rocks and high grade mineralization regardless of geochemical results.

C. Work on the Galena Hill property has indicated one promising locality of geophysical anomalies and by early September geochemical results should be complete enough to possibly indicate the more promising area of mineralization. However, regardless of whether the geochemical method works through the 10 to 30 feet of overburden or not, prospect pits should be sunk to test this locality for vein zones, mineralization, and float.

D. Any possible vein zones defined by geochemical reconnaissance, mapping, prospecting, and air photo interpretation should be soil sampled in detail and trenched where warranted.

Respectfully submitted,

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