June Monthly Report ---- Arrow Project

At the end of May, the field camp was established at Sugar Lake, 35 miles east of Vernon, to explore the region of Shuswap terrain near the south end of the Monashee Mountains. This region along the southwest and southern flanks of the Monashee Mountains has relatively subdued topography with widespread overburden and thick forests. Logging operations have provided access to many parts of this forest area.

The snow conditions in British Columbia are exceptionally bad this year and the season is estimated to be at least two weeks behind normal. The peak of the run-off in the mountains in 1975 was July 1st; for 1976, mid-July is estimated. Because of the heavy forests in the region under exploration, in most places it is only possible to land a helicopter above the timber line and make pick-ups at the heads of the logging roads in the bottoms of the valleys. Even at the end of June in 1976 this would have necessitated the samplers starting their traverses in several feet of snow. We were fortunately able to postpone commencement of our helicopter contract to the end of June and to work from logging roads in June.

We spent one half day in making a helicopter reconnaissance trip throughout the southern and southwestern flanks of the Monashee Mountains to check snow conditions, landing sites and appearance of the rock outcrops. This enabled us to revise our proposed area of coverage. The road work has enabled us to complete much of the sampling excepting for about one week of helicoptersupported work.

At the end of June, the field camp will move to a site twenty miles southeast of Revelstoke. We plan to return to the Sugar Lake area in the late August to complete the sampling and do any necessary follow-up work.

It is apparent from ribbons at creeks, that creeks along the major logging roads have been sampled previously. However, the present program emphasizes traverses along both sides of valleys above the valley bottoms and above any benches of outwash or lake deposits. In addition to collecting samples from all small streams, the samplers collect a soil sample at 1000-foot intervals where streams are absent.

The results of the sampling in the Sugar Lake area show that threshold values are much higher than those obtained in the northern Monashee Mountains in 1975 and much higher than those obtained by another company in the northern Selkirk Mountains. This may be partly due to the widespread clay-rich till which coats the region and provides absorptive material for the silt samples.

Several areas which are copper-anomalous have been found on map 82K-8W. Along Outlet Creek, erratic anomalous copper values have been investigated by prospecting and some soil sampling. Nick Wychopen discovered abundant sulfides, both disseminated and along fractures, consisting mainly of pyrrhotite and pyrite with minor small specks of calcopyrite. Further follow-up work may be done in this creek, however these anomalies are not considered worth staking at present.

KIOW

Along Cherry Creek, two adjacent small streams (about 1000 feet apart) have anomalous copper values of 150 and 240 ppm and another stream in this same region has an anomalous zinc value of 710 ppm with threshold copper value of 96 ppm. A soil sample 1000 feet away also had similar zinc-copper values. Three claims (Cherry 1-3) including 52 units have been staked to cover this anomalous area. A few additional soil samples have been collected. however further follow-up work will probably be postponed until the end of the summer. These values, when compared with the highest value obtained in only one stream below the drilling on the Goldstream River property (168 ppm copper and 220 ppm zinc), are quite good. However, in view of the higher background values in the Sugar Lake area and the lack of good coincidence of copper and zinc values on the Cherry Creek property, we are cautiously considering the results thus far as "encouraging".

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ARROW PROJECT - JULY PROGRESS REPORT

At the end of June, the base camp was moved from Sugar Lake to the junction of the Akokolex River and Holyk Creek, about 20 miles southeast of Revelstoke. The helicopter commenced operations on July 2, 1976. This is a region of rough topography and extreme relief and so helicopter support is needed for all work. Although outcrops are abundant over much of the rugged mountain region, and wast areas, especially along the lower valleys such as the Akokolex, have good timber interspersed with large slide alder areas. The geochemical sampling was done in detail in these covered areas.

Sampling was done in three places including an area between Revelstoke and Glacier National Park, a region at the upper part of Akokolex River, and a region along Incomappleux River and Boyd Creek.

Numerous anomalies have resulted; some of these have been investigated; however further work is needed.

- 1. A large piece of mineralized float found at the head of Boyd Creek consisted of quartzite breccia with galena. This was checked when Hugh Tylor of Union Oil Made a visit to our camp; however no other mineralized outcrop or float could be found. Across the valley on the east side of Boyd Creek, lead anomalies have been found in silt and soil samples for a length of over one mile. Some preliminary soil sampling has been done in this area; however further work will be needed and claims will probably be staked.
- 2. Very high lead anomalies on the north side of Pulley Creek, both in silts and soils, lead to the discovery of a comb quartz with abundant galena and pockets of plumbojarosite. A small amount of trenching indicates that this is probably a discontinuous quartz lens up to 30 inches thick and only about 30 feet long. There is no indication of previous investigation. Assays showed no silver values and no further work is planned.
- 3. Anomalous copper values in two small streams on the north side of the Akokolex River were briefly investigated. Resampling in detail indicated additional copper values in soils and silts and abundant black slatey rock. No copper mineralization was found.
- 4. Several lead, zinc, and some copper anomalies have been found in the area between Mount Revelstoke and Glacier National Park in the vicinity of known old deposits. Some follow-up work has been done, however additional investigation is needed.

At the end of July, the base camp was moved to a site near Downie Creek, about 50 miles north of Revelstoke. Areas selected for the detailed soil and silt sampling included some of the region along the west side of the Columbia River, some of the vegetated areas along Seymour River further to the west, and areas in the vicinity of the Cottonbelt property. Sampling has been hampered by very poor weather which apparently is commonplace in this particular region.

Sampling is progressing along the Seymour River and on the west side of the Columbia River. Some interesting mineralized float was found by one of the samplers along a new logging road west of the Columbia River, directly opposite the mouth of Goldstream River. This float, occurring for a length of 200 feet along the logging road, appears to be quartzite with some banded sulfide mineralization including galena, pyrite and probably sphalerite. Grab samples have been submitted for assay and claim staking is in progress.

Two quick visits were made to the Cottonbelt property and these were terminated abruptly by poor weather. An attempt to move a two-man camp to the property was also thwarted by cloudy and foggy conditions. A traverse across the Cottonbelt zone with Crone EM gear yielded a very low anomaly which would not be conspicuous in most places. In addition to the Cottonbelt zone, the Copper King and the McLeod zones were examined. The Copper King and the McLeod zones contain considerable chalcopyrite which is absent from the main Cottonbelt zone.

J. R. Woodcock J. R. Woodcock Recepcent 9, 1976

ARROW PROJECT

Monthly Report for August, 1976

Early in August a base camp was established by the road, about five miles north of Downie Creek to work on the east and west flanks of the Monashee Mountains and to investigate the Cottonbelt zone and the Ratch claims.

This work especially on the westflank of the mountain, was inhibited by excessive rainfall. However, the samples covered a long stretch of the low forested east flank of the mountain and picked up mineralized float. Float was generally of three types:

(a) Bands of pyrite and galena in silicate rock.

(b) Bands of pyrite, sphalerite and galena in silicate rock,

(c) Galena-rich bands associated with boulders of pyrrhotite.

As the float is scattered in the thick glacial till for about 150 meters along the road, systematic sampling would be meaningless. However, a sample of type (a) assayed 6.0% Pb, 1.6% Zn, 23 ppm Ag and a specimen of type (b) assayed 3.4% Pb, 2.5% Zn, 7 ppm Ag. Soil sampling results in the area were disappointing, probably because of the deep glacial till. However, traverses with a Crone EM Shootback across three lines 150 meters apart yielded good anomalies.

In view of the continuity of lead-zinc zones in the Monashee Mountains, claims, named the Slide claims, were staked for six miles along the west side of the Columbia River.

Two claims, named Seymour were staked along Blais Creek on the northward extension of the Cottonbelt zone. These cover some lead-zinc anomalies. No follow-up work was done.

By the end of August most of the assistants had left and the camp closed on September 3rd. A four man crew is now returning to work on the Boyd Creek anomaly and to do additional EM work on the Slide claims.

1 loodcock

Woodcock

September 13, 1976

ARROW PROJECT - MONTHLY REPORT FOR SEPTEMBER

The reconnaissance field sampling program along with the helicopter contract terminated on September 2, 1976 and any remaining members of the crew returned to Vancouver for a week. The field program was then renewed with a four man crew, starting at Boyd Creek where claims were <u>staked</u>, <u>soil</u> <u>samples</u> taken, <u>EM</u> shootback tried, and some <u>geology</u> mapped. Subsequently the crew moved to the Slide property to continue the work with the Crone EM shootback. The field season ended with a short program of soil sampling and EM work on the Cherry claim group.

At Boyd Creek two claims (30 units) were staked, a soil sampling grid with baseline trending northwest was flagged, soil samples were taken along this grid and the EM gear was tested. Baseline for the grid was established at the upper cutoff of the cold extractable THM anomalies in soil. Soil samples were analyzed for total copper, lead and zinc at Vangeochem Lab Ltd. The results show an anomaly approximately 5000 feet long with the higher main portion of the anomaly about 3000 feet long. This anomaly is at the extreme southwest or lower end of the grid and so has not been delimited down hill to the southwest. EM work did not show any encouraging results and we made arrangements to have IP gear and an operator go to the property with the crew when they completed the EM work on the Slide claims. However in the meantime, the snow came down to elevations of 4000 feet in the Revelstoke area. Therefore the IP work was postponed until 1977.

The Slide property is along the west shore of Columbia River opposite the mouth of Downie Creek. Eight claims (133 units) have been staked and recorded. The float found in the till along about 150 meters of new road has been mentioned previously and also the EM anomaly presumed to be related to this float. The additional EM work has established that this anomaly extends about 450 meters (line 1050 S to line 1500 S) in a northwesterly direction approximately parallel to the Columbia River valley. A second EM anomaly starts to appear on line 1125 S, about 450 meters east of the No. 1 anomaly. This second anomaly can be traced from line 1125 S to line 300 N, a distance of 1425 meters. A few reconnaissance lines to the north have established that it extends at least another 600 meters northwest of the grid. However, an exposure in a creek cutting across this anomaly indicates that, at this point, it is caused by graphite with minor pyrrhotite.

At the Cherry creek property four claims (64 units) have been staked and some soil sampling and EM work completed and some preliminary geological mapping done. Anomalous values of copper and zinc in soil were established on the preliminary grid in June. The new work has indicated widespread anomalous EM values. Rock types include greenstone, some limestone, and graphitic schistose or slaty rocks. The results will be plotted and reviewed before any conclusions are stated.

In addition to the above three claim groups, two claims, Seymour 1 and 2 (32 units) were staked to cover lead and zinc anomalies north of the Cottonbelt property. Some follow-up work and geological mapping are planned for the 1977 season.

Compilation of data into maps and reports for the Slide, Boyd, and Cherry properties are in progress with the hope of having a meeting in November to discuss these three projects and any further work on them. The reconnaissance geochemical maps will be compiled subsequently and a report submitted at a later date.

JA: aloodeach Detaber 21/96

ARROW PROJECT - MONTHLY REPORT, MAY, 1977

Slide Project

Part of the field crew was mobilized on May 17 and a field camp established on the east side of Columbia River, across from the Downie Slide. This camp will serve the work on the Slide group of claims and will act as a base camp for some of the recommaissance work and for some of the follow up work. The ferry service across the Columbia River is operating 12 hours a day and provides access to the logging roads that cross the Slide claims.

Selected areas of limited soil sampling and EM work have been completed and the magnetometer surveys have been done across any EM anomalies. Additional EM anomalies have been detected; however geochemical analyses have not been completed across these anomalies. There is no magnetic variation across the main anomalous target (EM, geochemical, and sulphide float).

The line of high Pb-Zn values south of the main target has been briefly investigated. These values occur within the highly broken part of the Downie Slide. Minor sulphide float was found and some of this contained sparse galena. Prospecting of the available outcrops and some soil sampling south of the Downie Slide is in progress.

Available outcrops have been mapped and the attitudes of the strata established. However, it is impossible to establish a reliable stratigraphic section because of the sparsity of outcrops. B. C. Hydro is presently investigating the Downie Slide with diamond drill holes and with adits. Apparently one hole has passed through the slide and cut about 400 feet of the underlying strata and one hole has been drilled north of the slide. In an attempt to sort out the stratigraphic section, a request has been made to B. C. Hydro to examine the core from these holes and to discuss the general stratigraphic sections with the on-site geologist.

H. Allen Diamond Drilling of Merritt has been contacted to do a limited amount of drilling commencing at the end of June. It is hoped that the drillers will use their drilling camp at the Goldstream and commute via the ferry to the drill sites. The first two drill sites will be along the existing logging access roads. Two tentative sites have been selected with holes inclined 60° west. The approximate locations are 13+50 S, 3+20 E and 11+75 S, 5+30 E. Reference for these sites is the EM survey (Figure 4) submitted with the November, 1976 report.

Seymour Property

Two additional claims (Seymour 3 and 4) totalling 32 units were staked west of our initial Seymour claims. These cover ground which, until May 1977, was held by United Mineral Services Ltd.

Cherry Group

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The writer spent several days accompanied by two prospectors checking the anomalous targets on the Cherry property.

The Cu and Zn anomalies on the main south grid are coming from areas of extensive black slates, some of which contain abundant graphite. Several of the anomalous sample sites were visited and chip samples of the slate talus or outcrops were taken. The results of the rock and soil samples are shown in Table I. Soil sample numbers are provided on Figure 27 of the November, 1976 report.

The analyses do not confirm that the metal values are coming from the black slates. However, the topography dictates that these have to be the source. Probably the mechanical concentration during sifting of the samples has enhanced the metal values more than normal. The south part of the anomalous some definitely reflects topography and overburden conditions. It is in an area of cliffs and talus slopes; metal values decrease sharply above this "talus basin" in the treed areas where the soil contains a larger portion of till.

The extensive negative anomalous EM responses are in the areas of black slates and interbedded black slates and greenstones. Some of this black slate has abundant graphite along fractures and undoubtedly this is the cause of the negative anomaly. The large area of negative EM anomaly also contains a sharp positive peak which was crossed on three lines in the 1976 surveys. The two south lines (13+50 S and 15+00 S) were re-checked with both Crone shootback EM and magnetometer. On the line 15+00 S, EM readings with 50-meter coil separation pinpointed the anomalous peak between 4+25 E and 4+50 E. This same peak was confirmed with 100-meter spacing on line 13+50 S. However, on this line, the positive anomaly could not be detected with 50meter spacing, possibly because of depth of overburden.

Immediately to the southwest of the positive EM anomaly (line 15+00 S) is a large outcrop of greenstone containing some intercalations of black slate. This black slate does not contain abundant graphite; however over short distances some of the fracture surfaces are conductive. The strata dip steeply to the southwest.

The magnetometer profile shows a high immediately to the southwest of the outcrop and presumably this is caused by the greenstone formation. Magnetic readings increase sharply when the magnetometer is placed on the ground, indicating a surface source for the magnetic response.

Soil samples were taken in the gulley downhill from the positive EM response and yielded Cu values 21 to 77 ppm, Pb values 20 to 27 ppm and Zn values 272 to 455 ppm. Thus, only the zinc is anomalous. The gulley is covered with till containing fragments of black slate and greenstone. Near the greenstone outcrop the soil contains and is covered with abundant greenstone talus. One grab sample of the black slate near two of the soil sample sites returned 12 ppm Cu, 22 ppm Pb, 65 ppm Zn. I suggest that this EM anomaly and the anomalous zinc values are contributed by a zone of graphitic slate underlying the gulley; however this cannot be proven.

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The other significant target on the Cherry property is the unexplained high Cu anomaly in the creek of the north grid. Before describing the results of the present investigation, some characteristics of gleyed soils will be mentioned. In many parts of British Columbia, where the water intermittently rests in small depressions or seeps down gulleys a greyish to buff soil develops in the till. This contrasts with the usual zoned podsol in that it lacks the rusty B-horizon. Instead, the greyish soil formed at the surface along with some dark organic material appears to migrate downward into the clay-rich till. This changes the till to a very sticky clay which has a great capacity to absorb Cu ions. The clay is characterized by its extreme sticky nature. It is so sticky that it must be rubbed off the sampling trowel. The other characteristic is that this clay concentrates Cu. forming high anomalies; however it does not appear to concentrate Zn. Thus a drainage basin with very low sulphide copper content can yield an extremely high anomaly. The writer has obtained anomalies in various parts of central British Columbia up to 1500 ppm. In places the small gulleys have sufficient rock outcrop to prove that no significant sulphide concentration is present.

The writer visited the upper parts of the anomalous drainage of the north Cherry grid and followed it up to its head. Only one outcrop of greenstone could be found within the area; overburden consists of till, probably several tens of feet deep. The writer re-sampled two of last year's anomalous sample sites and also a dry area of the gulley between the two stream sites. The results of this sampling are shown in Table II. The bed of the creek at the two sample sites is characterized by fine silt struck to and embedded in the clay of the creek bed. Thus it is very easy to obtain a large portion of the extremely sticky clay in a silt sample. At both sites the writer took a sample with a high proportion of silt and a second sample which was mainly clay from the bed of the creek. All samples are highly anomalous in Cu. However, in both cases the clay from the bed of the creek contained higher Cu content than the silt-rich sample. Zn and Pb are not anomalous and do not show such a large contrast between the silt-rich and the clay-rich samples.

In addition to the checking of the creek, another line (15+00 S) was blazed and sampled. The soil samples of this line had Cu values from 6 to 58 ppm. In addition, some magnetometer and EM work were done on lines 13+50 S and 15+00 S and on the southern part of the base line. Very little of significance has been interpreted from these results.

In conclusion, the writer suggests that the high <u>Cu</u> anomalies are due to the clay-rich condition of the samples and that the source is likely the greenstone with sparse chalcopyrite mineralization as is quite common in the Triassic volcanics of British Columbia. The widespread overburden and vegetation preclude any simple way of doing physical work and therefore further work is not recommended.

In overall conclusion of the Cherry property, the rock types are probably Triassic volcanics and black slates. The Zn anomalies and the EM anomalies can be attributed to the graphitic zones within the black slate sequence and the copper-in-stream anomaly can be explained by an exaggerated concentration due to the clay-rich nature of the gleyed soil in the bed of

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the creek. The writer recommends that no further work be done and that these claims be allowed to lapse on their assessment dates (June 23 and June 28, 1977). The anomalous areas and the grid systems are situated with respect to the claims such that the Cherry 1 to 3 claims (52 units) would have to be kept by assessment work. The cost of recording this assessment work would be \$520.00. Unless there is a consensus of opinion of the Developers opposed to this recommendation, the claims will be allowed to lapse. OK by me.

Par

J. R. Woodcock

June 10, 1977

	Table I						
Rock	Pb	Zn	Ca	Soil	Po	Zn	Cu
W 101 (outcrop up slope)	12	90	30	S 235		330	36
W 102	22	35	140	J202		1170	185
W 103 (outcrop up slope)	24	93	43	J23 3		610	116
W 104	17	80	18	J234		1410	350
W 105	27	76	31	J235		1050	375

Table II

Sample No.		Cu	Zn	Pb
Line 9+00 S				
V 76 - 246 L		650	75	
W 77 - 108 L	clay from bed	860	84	27
W 77 - 109 L	silt & clay	670	94	25
Line 10+50 S				
W 77 - 111 G	clay rich soil from dry gulley	160	77	18
Line 12+00 S				
S 76 - 275 L		275	68	
W 77 - 106 L	silt & sand coated with clay	97	54	16
W 77 - 107 L	clay from creek bed some silt	173	57	19

ARROW PROJECT - MONTHLY REPORT, JUNE, 1977

Reconnaissance

Reconnaissance geochemical work is underway north of the Slide camp in both the Monashee and Selkirk Mountains. It is restricted to forested areas where outcrops are sparse and it is guided by the proximity to carbonate terrain of the Hamill-Badshot age or of the possible equivalent age within the Shuswap Metamorphic Complex. Thus far only one anomaly has been found that warrants investigation; however the work is in preliminary stages.

Boyd Property

Several articles in the Minister of Mines Reports (1898 to 1902) briefly mention silver-lead mineralization on the crown granted claims which adjoin our property to the southeast. These reports also mention the Anaconda property which consists of a showing of copper-bearing pyrrhotite. It is described as being at northeast of and on the same ledge as the crown granted silver-lead prospects. These descriptive notes plus the fact that one of the creeks lying along the north boundary of our claim group is called "Copper Creek" induced us to stake another claim adjoining our property on the northwest.

At the time of the staking I mapped some geology and looked for old adits. The Anaconda claim is supposed to have a ninety foot adit; however, I could not see it from the air.

I plan to return to the Boyd property in late July to investigate the target.

Slide Property

I was able to get a driller to come to the Slide property for a minimum footage of 700 feet. The two holes mentioned in my May monthly report have been drilled for a total footage of 460 feet. The first hole intersected about ten centimeters of relatively massive pyrrhotite carrying minor galena and sphalerite. The adjoining 3-meter interval has dark grey bands of rock containing disseminated sulphides (galena, pyrrhotite, pyrite, possibly sphalerite, and a few specks of chalcopyrite). The intersection is not of economic size or grade. The second hole apparently did not intersect any base metals but it did cut a graphite zone. Thus the drilling on the two holes drilled through the main anomaly failed to intersect sulphides as good as those found in the float.

The strong northern EM anomaly appears to be caused by a graphitic fault zone which can be readily traced northwesterly beyond the 1976 results. Additional small EM zones have been found with our limited EM work and one

of these lies in Fissure Creek. Its exact stratigraphic relationship to the main drilled anomaly is uncertain. However, it is not possible to determine its source and so the final 240 feet of drilling will be placed into this anomaly.

I quickly logged the core from four holes drilled by B. C. Hydro into the Downie Slide to try and arrive at some stratigraphic column. I also discussed the stratigraphy with the geologists who are somewhat confused as they have not worked away from the Slide itself. Two of the Hydro holes have small intersections of pyrrhotite. One of these intersections contains traces of galena.

R. Woodcock

July 11, 1977

JULY REPORT - ARROW PROJECT

Slide Drilling

Three short drill holes totalling 700 feet investigated the EM anomalies and the area of sulphide float on the Slide claims. The first two holes, drilled into the main anomaly, each encountered minor sulphides (less than five inches total width) carrying traces of galena in the interval between 80 and 100 feet.

The third hole was drilled beside Fissure Creek approximately 100 meters west of the access road (see Figure 5, October, 1976 report). Hole #3 tested another EM anomaly. Near the bottom, the hole encountered some argillaceous rock which is graphitic and contains thin scattered layers of pyrite.

The sulphide intersections obtained in the main anomaly have been correlated with two similar intersections obtained by B. C. Hydro geologists in their drilling work on the Downie Slide. The greatest thickness (about six inches across the banding) occurs in our sulphide float. Nothing of economic grade or width has been encountered in the drilling. The zone has been tested over a fairly long length with no indication of thickening in any direction. I therefore recommend that no further work be done, that no assessment work be applied, and that the claims be allowed to lapse.

Seymour Property

Prospecting on the Seymour property has disclosed a carbonate horizon which contains two marble beds. These would probably correlate with the McLeod zone on the Cottonbelt property of Mt. Grace. Prospecting along the marble zone has revealed small lenses of galena, of chalcopyrite, and of magnetite, generally within the centre of the marble layer. None of these mineralized zones exceeds six inches in width or thirty feet in length. Most of the discoveries have been made on the upland area where the formation is well exposed; however some prospecting has disclosed similar mineralization adjacent to Blais Creek in the vicinity of the 1976 geochemical anomalies.

I recommend that no further work be done on this property, that no assessment work be applied, and that the claims be allowed to lapse.

Boyd Property

I spent one week on this property. I examined mineralization on the adjacent crown granted claims, mapped and prospected in the vicinity of the geochemical anomalies, etc. I was accompanied by two men who did additional soil sampling to fully outline the anomalous zones and slashing work to allow further geophysical work if some should be advisable.

The results of the additional geochemical sampling are not ready; a separate report will be submitted,

Reconnaissance Work

Several small anomalies have been investigated. A claim was staked on Hoskins Creek to cover some anomalous lead-zinc values. The claim was not recorded as additional soil sampling, prospecting and mapping were discouraging.

The reconnaissance sampling program will be terminated at the end of the helicopter contract (August 15). Anomalies are being investigated as they are found, any anomalies reported before August 15 will receive some investigation before the helicopter is relinquished.

J. R. Woodcock

August 8, 1977