DESCRIPTION OF MINERAL OCCURRENCES

1969 - 1970 - 1971

WINDERMERE EXPLORATION LTD. (N.P.L.)

CHURCHILL - RACING RIVER PROJECT

Prepared by

L. P. Duquette

March, 1971

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WINDERMERE EXPLORATION LTD. (M.P.L.)

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- # 1 Two vertical quartz carbonate veins less than 3 feet wide can be seen on the face of a steep bluff at 6500 foot elevation. Float examined at the sample location contains malachite stain which gave no geochemical response.
- # 2 Three closely spaced vertical veins striking northeasterly are exposed at the head of a cirque at 7000 foot elevation.

The area is characterized by a bright gossan and numerous north and northwesterly trending dikes.

Float mineralized with chalcopyrite estimated to carry
.5 to 2% copper was found at the sample location but gave
no geochemical response.

Follow-up prospecting is recommended.

- # 3 A 500 ppm (hot extractable) copper anomaly was obtained at the head of 151 Creek, and remains unexplained.
 - A barren glassy quartz vein can be seen outcropping on the east side and parallel to the creek at 5500 foot elevation. Future prospecting should be directed to the

the east to investigate a possible western extension of occurrence #2.

Follow-up prospecting is recommended.

4 Xmas Group (20 claims) located by S. Bara, December 25, 1968.

Traces of chalcopyrite in limestone and quartz-carbonate vein material was found at the head of a tributary on the eastern extremity of the claim group.

- # 5,6, Toad Group (60 claims) Windermere Exploration Ltd.
 - 7,8
 A number of narrow discontinuous quartz- carbonate veins weakly mineralized with chalcopyrite, malachite and minor galena have been found at 7 locations, in addition to 3 occurrences with traces of chalcopyrite in thin bedded limestone and quartzite.

Although mineralization is widespread none appears to be of economic interest.

- # 9 At 5400 foot elevation on the west side of the creek, two northerly trending quartz-carbonate veins not exceeding 12 inches wide, can be traced for a strike distance of about 200 feet. Mineralization consists of pockets of chalcopyrite and malachite.
- #10 A 12" wide quartz-carbonate vein mineralized with coarse chalcopyrite, is exposed intermittently for 300 feet on the east wall of a gorge at 4900 foot elevation. The best sections are estimated to carry at least 5% copper.

- #11 Near the head of the southwest fork of Yash Creek two barren quartz-carbonate veins outcrop on the west side of the creek. Reddish brown discoloration is extensive and north to northeasterly dikes are numerous.
- #12 At the head of a northeasterly flowing tributary, a barren quartz-carbonate vein 1 to 6 feet wide is exposed for a distance of 100 feet. However, weakly mineralized float was found in talus rubble along its projected strike.
- #13 Minor malachite stain can be seen in a highly sheared contact zone between a black shale unit and Tuchodi Formation.
- #14 Tentsi Group (60 claims) Windermere Exploration Ltd. (1969)

 Scattered traces of chalcopyrite and malachite occur at several locations in narrow discontinuous quartz-carbonate veins.

 None appear to be of economic interest.
- #15,16 Near the head of Yash Creek on the west side of the valley, three narrow parallel quartz-carbonate veins can be traced intermittently for a strike length of 1000 feet.

The veins strike N 10° W and dip 70° west. Weak copper mineralization consists of chalcopyrite and malachite.

#17 A swarm of at least 3 inaccessible parallel quartz-carbonate veins can be seen outcropping on the west side of the creek at 6800 foot elevation.

Numerous boulders, some 3 feet in diameter, below the veins are mineralized with chalcopyrite and malachite carrying .5 to 1% copper.

- #18 Traces of chalcopyrite in a narrow quartz-carbonate vein adjacent to a northerly trending basic dike, occur near the summit at 7000 foot elevation.
- #19, 20, 21, 22, 23 and 24.

Ram Group (70 claims) located by Rene D. Hanson, Aug. 25, 1968. The area is immediately north and adjacent to Davis-Keays and is characterized by prominent north to northwesterly trending dikes and extensive gossan.

At least 10 copper occurrences were found, all appearing to be on the Ram claim group. Five of the best showings consist of swarms of 3 to 5 parallel quartz-carbonate veins varying from 1 to 5 feet wide. Five other individual veins range from 1 to 3 feet wide.

Mineralization consists of disseminated and blebs of chalcopyrite with secondary malachite carrying .5 to 3% copper. Geochemical response was only weak to moderate.

The area has excellent prospecting potential.

#25 Three widely spaced, inclined northerly trending quartzcarbonate veins are exposed on the face of a steep bluff.

Float found in the talus indicate that the veins are erratically mineralized with chalcopyrite and malachite not exceeding 1% copper. Good geochemical reponse.

#26 The area is marked by a prominent orange gossan and numerous intersecting northwest to northeasterly trending dikes. Two quartz-carbonate veins, 4 and 6 feet wide respectively, are exposed for a distance of about 200 feet.

Although mineralization does not exceed 2% copper, the veins

demonstrate persistent width along exposed strike length.

#27 Mineralized float was traced to its origin where a narrow quartz-carbonate vein is mineralized with specs of chalcopyrite and malachite.

Yed Group (40 claims) Windermere Exploration Ltd.

Follow-up prospecting of several moderate to high geochemical anomalies, revealed only scattered traces of chalcopyrite and malachite in narrow discontinuous quartz-carbonate veins.

- #28 <u>Toad, Toad River</u> <u>Fort Reliance Minerals Ltd.</u>

 Reference:Lode Metals, page 19, 1959. The property was not visited.
- #29 Anne Group located by Bob Keays, June 8, 1969.

A white vein with erratic splashes of green stain can be seen from the air outcropping on the summit on the north side of the creek.

Float found at the sample location contained glassy quartz and carbonate mineralized with blebs of chalcopyrite not exceeding 2% copper. Very weak geochemical response.

#30 Mad Group located by L. B. Halferdahl, July 7, 1969.

A vein at least 6 feet wide is exposed by rock trenching on the south side of the creek at 6000 foot elevation.

Mineralization consists of abundant malachite, azurite and minor chalcopyrite.

#31, 32 and 33

Eagle, Harris, Keays Davis-Keays Mining Co. Ltd.

14 vein systems are reported (see Windermere Research 1969).

#34 Thor Claim Group

A recent discovery made in late 1969 by Mr. Thorsen, 1410 Clark Drive, Vancouver, B. C.

A chip sample taken across 4 feet by Mr. Thorsen was examined. It contained quartz-carbonate vein material with blebs of chalcopyrite and malachite estimated to carry 2% to 4% copper.

#35 Meindl Prospect Windermere Exploration Ltd.
Ref: Windermere Report, 1970.

Mineralization:

The main zone of copper mineralization is localized along the faulted north margin of a dike that trends east-north-easterly. This zone is faulted off at its eastern end towards another set of veins that follows a north-trending dike and associated marginal fault. The main zone is exposed for 1200 feet, but overall the mineralized structures measure 2000 feet. The average width of 20 chip samples is 3.8 ft. with an average grade of 6.5% copper.

Chalcopyrite and bornite are the main copper minerals, and these occur as vein fillings together with quartz and carbonate. The main mineralized structure consists of discontinuous lenses or shoots that pinch and swell over strike distances of 50 to 100 feet. It is estimated that only one third to one half of the structure is mineralized

#36 Cannex Veins

Churchill Copper Corp. Ltd.

The showing is accessible via a 4-wheel drive road 2.5 miles west from the Churchill mine.

In the vicinity of the mineralized showing the rocks consist of grey shale and limey argillite that strikes northwest and dips 30 to 45 degrees to the southwest.

Three quartz-carbonate veins that have a total mineralized width of 21 feet within a zone of about 40 feet, follow 3 diabase dikes that strike N 40° E and dip steeply to the northwest.

Copper mineralization consists essentially of disseminated and blebs (?) of chalcopyrite, estimated to carry 2 to 3% copper. No geochemical response.

Remarks: A legal survey was done in August, 1969.

#37 Lady Group

Largo Mines Ltd.

Progress Report, August 23, 1968:

Largo Mines Ltd. report: "The main zone presently can be traced for a length of about 1000 feet on Largo's claims. A rock-cut across it exposed a width of 10 feet that contains 7% to 8% copper".

Progress Report, September, 18, 1968:

Mr. Mel Maki, P.Eng., reports the main Lady Vein to be up to 35 feet wide, with a weighted average across 31 feet true width with 6.73% copper.

Remarks: The property was not examined directly but helicopter reconnaissance of the bluff at varying elevations revealed a vein as indicated by a rusty outcrop and erratic malachite stain. There is strong evidence of faulting and the vein appears to be lenticular and discontinuous.

- #38, 39 Magnum Deposit Churchill Copper Corp. Ltd. (See Windermere Research 1969).
- #40 <u>D. Group</u> (10 claims) located by Z. Piaskowski, Aug.15, 1968.

 A quartz-carbonate vein not exceeding 5 feet wide carrying erratic and low grade copper values, is exposed for 25 feet on the southwest end of South Yedhe Lake.
- #41 All Group located by Abe Wall, March 12, 1969.

 The showing is located at the NW end of South Yedhe Lake at 5950 foot elevation.

A quartz-carbonate vein at least 8 feet wide is exposed intermittently for a distance of about 100 feet along strike.

Mineralization consists of disseminated and blebs of chalcopyrite estimated to carry 2% to 3% copper.

Remarks: The claims are improperly staked.

- #42 A narrow quartz-carbonate vein contining specs of chalcopyrite outcrops on the south side of the creek.
- #43 Three steeply inclined quartz-carbonate veins striking N 20° E have a total mineralization width of 9 feet, within a zone of about 22 feet.

The area is characterized by a bright orange gossan where thin bedded platey shale and argillite are intruded by northwesterly trending dikes.

Chalcopyrite mineralization is erratic and low grade, however some coarse chalcopyrite-bearing float, similar in character, was found in talus rubble.

Follow-up prospecting is recommended.

- #33 Red Group (4 claims) Copperline Mines Ltd., July 15, 1969.

 A northwesterly trending shear zone in graphitic argillite contains malachite, azurite and some quartz-carbonate material.
- #45 A vein up to 7 feet wide and exposed intermittently for about 700 feet, outcrops near the summit of a northwest oriented ridge.

 The vein is steeply inclined and strikes N 30° W. It is abundantly mineralized with pyrite and barite.
- #46,47 LMS Group Windermere Exploration Ltd.

 Float mineralized with chalcopyrite as disseminations and

fracture fillings in quartzite, was found at three locations.

The best mineralized samples are estimated to carry up to 1% Cu.

- #48 Kid Group Racing River Mines Ltd.

 Extensive rock trenches in massive quartzite were examined, no mineralization was noted.
- #49 A northerly trending steeply inclined quartz-carbonate vein less than 4 feet wide can be traced intermittently for about 700 feet at 4600 foot elevation. The vein is weakly mineralized with chalcopyrite and malachite.
- #50 Three widely spaced NNE trending quartz-carbonate veins outcrop on a precipitous ridge at 7600 foot elevation. The color of the outcrop as observed from the air suggests that mineralization is erratic and low grade.

#51 Lemjay Property Churchill Copper Corp. Ltd.

As reported by the company, there has been no exploration work done on the property, however, surface showings indicate high grade bornite and chalcocite mineralization.

#52,53 Two anomalous samples #376 and #379 that returned respectively 236 and 260 ppm copper (hot extractable) were prospected.

At each location a narrow barren quartz-carbonate vein and scattered float weakly mineralized with chalcopyrite was found.

- #54 A white vein with erratic splashes of green stain, can be viewed from the air on the west side of the creek at 5500 foot elevation. No geochemical response.
- #55 An interesting prospect that consists of steeply inclined NNE trending quartz-carbonate vein systems. At least three parallel veins, varying in width from 1 to 8 feet, can be traced for a strike length of about 1000 feet.

Copper mineralization consists of disseminated and pockety chalcopyrite.

Although the mineralization is low grade, the veins demonstrate persistent continuity and probability of discovering high grade sections is possible.

The area may have been staked by witnessing from some obscure location. Reconnaissance prospecting did not reveal any evidence of new staking.

- #56,57 Several widely spaced veins can be seen from the air.

 They are believed to be on claims held by Copperline Mines

 Ltd.
- #58 John and Pine Claims Copperline Mines Ltd.

 Ref: Company prospectus; March, 1970, page 45.

Ore occurrences on the property consist of chalcopyrite in quartz-carbonate vein system and massive chalcopyrite float; the latter being the occurrence of most economic interest.

The structure, which trends N 45° W and dips vertically, was traced by the writer for approximately 150 feet along strike over a vertical interval of 75 feet.

The main vein within the system averages 3 to 12 feet in width and is visually estimated to grade from 1 to 2% copper. The parallel northeast vein averages 3 to 5 feet in width and is estimated to grade 1/2 to 1% copper. Insufficient copper occurs within the vein system to be of economic interest for this location.

#59 Churchill Creek Property Churchill Copper Corp. Ltd.
Ref: Min. of Mines, page 18, 1966.

In 1966 2 men worked four months under the direction of R. McKamey. A detailed geological survey of the showings was made by R.W.Cannon and 2100 feet of trenching was done in rock. Because of the steep terrain, two short adits (total length 80 feet), were driven to provide diamond-drill stations. There was 692 feet of diamond drilling done in five holes.

#60 Toro Group Largo Mines Ltd.

, t.,

The company reports a quartz-carbonate vein 5 feet wide

#60 (cont'd)

containing 9.50% copper.

#61, 62, 63

Several narrow northerly trending veins at varying elevations from 4500 to 6000 feet can be seen outcropping intermittently for a distance of over 1 mile on the west side of Churchill Creek. Conceivably they lie within the same structure controlling the Churchill Creek and Largo properties. However, the color of the outcrops as observed from the air suggests mineralization is erratic and low grade.

#64, 65, 66, 67, 68

A northwesterly trending belt at least 15 miles long and up to 4 miles wide, gave persistently anomalous low to medium copper values in stream sediments throughout its length. Although no occurrences of economic importance were found, widely scattered copper mineralization occurs in narrow discontinuous quartz-carbonate veins at several locations.

- #69 A vein can be seen from the air following a northeasterly trending intersecting dike. The area was not prospected.
- #70,71 Gataga Prospect Windermere Exploration Ltd.
 Ref: Windermere Report, 1970.

Mineralization:

Three small zones of copper mineralization were mapped and sampled. The two northern zones on claims #9 and #11 consist of a series of chalcopyrite-bearing veins over a strike length of approximately 250 feet. These veins range from one to ten feet wide and dip moderately to steeply to the east. All occur in association with faulted dike margins. Quartz, calcite

#70,71 (cont'd)

and dolomite constitute the gangue minerals. The copper sulphides are in places weathered and the veins are impregnated with malachite and azurite.

At the southern end of the Gataga Group on claim #19, other quartz-carbonate veins are exposed over a strike distance of 200 feet. Vein widths here range from 6 inches to 2 feet. The attitudes follow the fault zone which dips at 60° to 70° to the southwest. These veins terminate in both directions either within dike rock or argillite. This mineralization consists of chalcopyrite in quartz-carbonate veins, localized in the northwest trending fault zone that cuts diagonally across a diabase dyke. Chalcopyrite occupies central portions of the veins, occurring both as disconnected blebs and as massive lenses up to 12 inches wide. Subsidiary peripheral fractures and shears contain calcite and pyrite veinlets.

#72 <u>428 Prospect</u> <u>Windermere Exploration Ltd.</u>

Ref: Windermere Report, 1970.

Mineralization:

Chalcopyrite is the most abundant sulphide mineral present, and it occurs as vein material together with quartz and carbonate. Secondary malachite and azurite are associated with the copper-bearing quartz carbonate veins, and occur as a staining on the adjacent country rocks. Minor amounts of galena also occur sporadically within some of these veins.

Sampling was confined to the better mineralized veins and swarms of veins. The sample locations, widths sampled, and assay results for copper are indicated in Figure 12 (Appendix G). A swarm of mineralized veins are exposed for approximately 500 feet, on claim #5, and along strike for about the same distance between claims #3 and #4. The intervening area is partially obscurred by talus material.

#72 (cont'd)

Numerous veins occur over a large area on claims #9, #11 and #24. Several of these veins are poorly mineralized or barren. The total strike distance over which these veins outcrop is in excess of 1000 feet. Other narrow veins are also exposed to the south along strike, but they are generally less than two feet wide and are only sporadically mineralized. These veins occur along the edges of a diabase dike where evidence of post-mineralization shearing appears in the development of serpentine and slickenside markings.

#73 Bronson Prospect Windermere Exploration Ltd.
Ref: Windermere Report, 1970.

Mineralization:

Chalcopyrite occurs as vein fillings together with quartz and minor amounts of carbonate in all of the five zones of mineralization. Bornite occurs in appreciable amounts in the central, southern and western zones. Minor quantities of galena are associated with the bornite mineralization. Low but erratic values in gold and silver have been noted with this mineral assemblage. Assay results and locations of the sampled sections are indicated in Figures 6 and 7 (Appendix G).

All vein structures excepting those in the central zone are related to faults and shears associated with diabase dikes. The strikes and dips of the veins are usually parallel to the dike margins. Minor amounts of pyrite and specular hematite occur along the borders of some of these veins.

The central zone occurs on a steep north face which is partially obscured by permanent snow. It is characterized by conspicuous bleached and intensely fractured shales and argillites, and contains numerous veins that strike to the east, northeast and northwest. A myriad of tiny discontinuous quartz and carbonate stringers, with or without copper

#73 (cont'd)

mineralization, occur in an area of approximately 300 feet x 150 feet along the western termination of the central zone. The most continuous veins within the zone dip to the south, suggesting that the zone may also dip in a general southerly direction. Figure 8 (Appendix G), shows the down-dip projection of this central zone.

The surface dimensions of each mineralized zone are as follows:

	Length	Average Width	No.of Samples	Average % Cu
North Zone (adit)	600'	1.6'	7	6.6
East Zone	1,000'	5.9'	4	1.2
Central Zone	900'	5.1'	19	6.6
West Zone	300'	7.0'	4	7.3
South Zone	700'	2.2'	6	14.2

Mapping of the mineralized float train in the valley to the north of the veins has indicated three associations that are directly related to the mineralization on the north face of the ridge (Figure 5, Appendix G). Movement of the float train in the valley is from east to west, hence the eastern limit of surface mineralization is approximately defined.

The most eastern cluster in the float train consists essentially of barren and weakly mineralized quartz-carbonate vein material derived from the East Zone. A small south central cluster consists of a mixture of vein quartz with chalcopyrite as well as bornite from the Central Zone.

Material from the Central Zone is also characterized by intensely fractured and bleached argillites containing tiny mineralized fractures. A third cluster of float material extends to the northwest and consists mainly of boulders of massive to submassive chalcopyrite, together with normal and ribbon-like quartz-carbonate gangue. This material was derived from the Central and North Zones.

- #74 A white northwesterly trending vein with occasional splashes of malachite stain can be seen outcropping on the face of a steep bluff. It could conceivably be a southern extension of the 428 vein system.
- #75 Book Prospect Windermere Exploration Ltd.

 Ref: Windermere Report, 1970.

Mineralization:

Quartz-carbonate veins, varying in thickness from 1 1/2 feet to 12 feet, occur mainly along the trace of the northsouth thrust fault. Discontinuous veins also occur along the margins of dikes, and within fractures at acute angles to the major fault.

Three prominent zones of copper mineralization were mapped and sampled. The northern zone consists of quartz-carbonate veins with chalcopyrite over a strike length of approximately 1600 feet. The main vein is about four feet wide and dips steeply to the west. It is dislocated in places by north-westerly trending dikes. The southern part of this zone contains blebs of galena as well as submassive chalcopyrite. Quartz, calcite and dolomite constitute the gangue minerals. The copper sulphides are in places weathered to a red-brown limonitic gossan, together with minor amounts of malachite and azurite.

At the southern end of the Book #7 and #8, another quartz-carbonate vein is exposed over a strike distance of 500 feet. This vein averages about 8 feet in width and it dips from 55° to 70° to the west. Its northern section is covered by talus material. Another zone, 5 feet wide, runs for 400 feet, on the claims and south beyond the southern boundary. Mineralization within the southern zones consist essentially of chalcopyrite in a quartz-carbonate gangue.

#75 (cont'd)

The mineralized zones trend in a general north-south direction either along the same trace or slightly en echelon. The veins occur along a strike distance of some 6000 feet, in places pinching out and in others disappearing under talus. With a total exposed length of approximately 3000 feet and an approximate average width of 5 feet, this prospect has the potential of developing into an economic deposit with grade in the order of 3% copper. The vein structure could have a much larger potential because it is reported to continue another 4000 feet to the south on the PJ claims which are owned by Bralorne CanFer Resources.

#76 Chopper Prospect Windermere Exploration Ltd.
Ref: Windermere Report, 1970.

Mineralization:

Copper mineralization occurs as chalcopyrite associated with quartz-carbonate veins. Minor amounts of galena and pyrite are also present. Secondary malachite staining is characteristic feature of these veins. The most prominent mineralized zone is located in the northern section of the claim group. Two veins, ranging from 2 feet to 9 feet wide, occur over a strike distance of 900 feet. They dip steeply to the west or vertically. The veins are discontinuous in nature, and so is the copper mineralization, which pinches and swells in lens-like streaks from a fraction of an inch to 10 inches wide.

A single vein on the Chopper #7, is exposed for approximately 700 feet. Its width varies from 1 foot to 3 feet, and it dips at 40° to the west. Copper mineralization within this vein is spotty and discontinuous, and many sections of the vein are barren. Two other showings occur to the south, but the veins are exposed for shorter distances. Mineralization in all of the southern veins is erratic and discontinuous in nature. Throughout the mineralized areas, chip samples were taken only across the richer sections of the veins.

#77 Three closely spaced northwesterly trending discontinuous quartz-carbonate veins not exceeding 3 feet wide, mineralized with erratic chalcopyrite and malachite.

#78 Bear Cat Claim Group

White looking veins associated with a NE trending basic dike. Trenching was done August, 1970. The property was not visited.

#79 Davis Claim Group

The property was not visited.

#80 734 Prospect Windermere Exploration Ltd.

Chalcopyrite occurs in association with quartz and carbonate vein material. The veins are characterized by abundant malachite staining. Two chip samples taken across the vein near the southern glacier averaged 2.2% copper over an average width of 5 feet.

#81 Anne Group Churchill Copper Corp. Ltd.

Rock trenching concentrated over a strike length of about 200 feet, has exposed a quartz-carbonate vein up to 12 feet wide mineralized with 2% to 4% copper. However, the color of the outcrop as observed from the air along strike up a steep hillside strongly suggests that mineralization is erratic and low grade.

#82 Three closely spaced quartz-carbonate veins ranging in width from 1 to 6 feet striking N 20° E and dipping 60° west, are exposed intermittently for about 750 feet. They are sparcely

#82 (cont'd)

mineralized with malachite and chalcopyrite.

#83, 84, 85, 86

White barren looking veins that gave no geochemical response can be seen from the air at all of the following locations. No follow-up prospecting was done.

- #87 A northerly trending reddish quartz-carbonate vein about 3 feet wide contains much siderite and traces of chalcopyrite outcrops in a gorge about 1500 feet east of a small pond.
- #88 A bright patch of green stain can be seen on the west side of the creek at 6500 foot elevation. Float below the outcrop was examined and contained malachite, azurite and specs of chalcopyrite. The mineralization lies within a regional strike fault where folding is extensive.

#89 <u>Stalin Prospect</u> <u>Windermere Exploration Ltd.</u>

Consists of a vertical northeasterly striking quartz-carbonate vein up to 4 feet wide, outcropping on the west side of the creek about 1.5 miles south of the Stalin Pass. The vein can be traced intermittently for a distance of 700 feet, mineralization consists of scattered traces of malachite and chalcopyrite.

#90 Lubicon Mines Ltd.

The showing was not examined directly, but helicopter reconnaissance revealed several intersecting veins as indicated by rusty outcrops and erratic malachite stain. Diamond drilling was in progress.

#91 Jim Group

A persistent northeasterly trending vein believed to be an extension of the Lubicon vein system, extends up a steep hillside on the east side of the creek. However the color of the vein suggests low grade mineralization.

#92 An inaccessible narrow reddish quartz-carbonate vein adjacent to a northerly trending dike, can be seen from the air for a strike distance of about 700 feet.

Float below the outcrop was examined and contained abundant siderite, some malachite and traces of chalcopyrite.

In the vicinity of the showing the area is characterized by red discoloration, a strong northwesterly fault and a prominent topographic lineament. Good geochemical response.

- #93 Malachite stain was observed in quartzite at the stream sediment location.
- #94 Copperstone #1, Kenco #1-3 and Meeres #1-3 Mineral Claims

Ref: D. L. Cooke

GEOLOGY:

The area in which the claims lie is underlain by relatively flat-lying interbedded shales, argillites, quartzites and limestones of Proterozoic age. These units belong to the lowermost formation in the Proterozoic stratigraphic section.

Diabase dikes are commonly found intruded into the Proterozoic sedimentary rocks, but none of these dikes are reported on the claims.

#94 (cont'd)

MINERALIZATION:

Copper mineralization in this area occurs mainly as vein fillings together with quartz and/or carbonate gangue. Chalcopyrite and ohalcocite are the chief minerals of economic interest. From the attached sketch it is evident that numerous narrow, discontinuous, mineralized quartz-carbonate stringers occur on the property. The mineralized hand specimens which the writer examined consist of irregular stringers and blebs of chalcocite and minor amounts of chalcopyrite in a fractured quartzite host. Secondary copper minerals such as malachite and chrysocolla occur in the form of smears along numerous tiny fractures within the quartzite.

CONCLUSION:

The Coppertone, Kenco and Meeres claims lie in an area with a high density of copper occurrences. It is felt that these claims warrant closer examination, and further prospecting for high-grade vein-type copper mineralization which is known to occur in this environment.

#95 Toad group

Dennis Callison

Ref: Vale's Thesis.

Patchy chalcopyrite and malachite occurs within quartz-calciteankerite veins that occupy fault planes cutting through older shaly limestones, calcareous shales and argillites.

The fault strikes approximately N 40° W and occupies a vertical zone about 150 feet wide in which intense shearing has taken place.

About 3000 feet south of the original outcrop in the creek canyon, the zone is again exposed about 500 feet above the valley floor at the first outcrop above the talus slope. Here the shear zone is about 50 to 100 feet in width and carries at least two mineralized zones, each a few feet wide containing

#95 (cont'd)

some chalcopyrite and much quartz-carbonate.

#96 1970 follow-up prospecting of mineralized float at the stream sediment sample location found in 1969, resulted in locating 2 narrow inaccessible northwesterly trending quartz-carbonate veins, at 7500 feet on the west side of the cirque walls.

Hand-picked samples of float found on the edge of the glacier contained blebs of submassive chalcocite and chalcopyrite estimated to carry 10 to 30% copper.

#97 Marvin Prospect Windermere Exploration Ltd.

Ref: Windermere Report, 1970.

Mineralization:

Two parallel quartz-carbonate veins located on claims 24 and 26 were traced intermittently along strike for 1500 feet. They are nearly vertical and strike E-W. The veins are weakly mineralized with chalcopyrite and chalcocite. Menzies (1951) mentions chalcopyrite and chalcocite mineralization along a northwest trending dike in this area.

No new mineralized zones were discovered in 1970, and trenching (Figure 18) on the east-west vein system confirmed the subeconomic nature of the mineralization.

#98 Mar Prospect Windermere Exploration Ltd.

Ref: Windermere Report, 1970.

Geology and Geochemistry:

Stream sediment sampling in 1969 showed moderately strong copper response in a creek which drains the claims (more than 60 ppm). The regional background is less than 23 parts per

#98 (cont'd)

million copper.

Work in 1970 indicated the presence of abundant pyrite within a black shale unit, which underlies the claims. Trenching down to fresh bedrock did not uncover any copper mineralization (Figure 20). It is concluded that only trace amounts of copper are present. In association with abundant pyrite, copper is very mobile and this accounts for the anomalous amounts of copper found in the stream sediments.

- #99 Minor chalcopyrite can be found in a narrow northeasterly trending shear zone in the creek bed approximately 2 miles downstream from occurrence #96.
- #100 Traces of chalcopyrite in quartzite and malachite stains in vein material was found in a N-W flowing tributary of Chischa Creek.
- #101 Minor chalcopyrite in vein material and fault breccia, adjacent to a N-W trending basic dike.
- #102 Quartz-carbonate float mineralized with chalcopyrite and chalcocite was found in the talus slope on the south side of the divide and roughly on strike with the Sheep claim group.

#103, 104

Traces of chalcopyrite and chalcocite in gently westerly dipping quartzite.

#105 A narrow steeply inclined northerly trending quartz-carbonate vein mineralized with erratic pockets of chalcopyrite.

#106,107

Abundant pyrite in gently dipping quartzite (sampled for Au with negative results). Assay No's 22826, 22827.

- #108 A steeply inclined northwesterly trending quartz-carbonate vein 1 to 3 feet wide, and exposed intermittently along strike for about 300 feet is weakly mineralized with chalcopyrite.
- #109 Float containing blebs of submassive chalcopyrite in dolomite sandstone was found in an extensive talus slope at approximately 6500' elevation, with moderate to high geochemical response.

Follow-up prospecting is recommended.

- #110 A steeply inclined northerly trending barren quartz-carbonatesiderite vein, from 4 to 10 feet wide is exposed intermittently for about 400' on the west side of the creek at 6200' elevation.
- #111 A narrow vertical quartz-carbonate vein is exposed on the face of a steep bluff at 6100' elevation. Float examined in the talus below contains specs of chalcopyrite and malachite stain.
- #112 Minor chalcopyrite and bornite in a 2' wide quartz-carbonate vein adjacent to a northwesterly trending basic dike at 6900' elevation.

- #113 Several narrow barren looking quartz-carbonate veins are exposed on both sides of the creek at approximately 5500' elevation.
- #114 A narrow barren looking vein is exposed above timberline; no geochemical response.
- #115 Two narrow barren looking veins are exposed on the cirque walls at the head of the creek.
- #116 A narrow quartz-carbonate vein with traces of chalcopyrite and malachite stain.

#117, 118, 119, 120

Steeply inclined barren looking quartz-carbonate veins can be seen from the air. Stream sediment sample results in the area were negative. No follow-up prospecting was done.

#121, 122, 123, 124, 125, 126

Steeply inclined north to northwesterly trending quartzcarbonate veins ranging from 1 to 6 feet wide, with negative geochemical response were prospected. Chalcopyrite and malachite mineralization is erratic and low grade, none appear to be of economic interest.

- #127 Bralorne CanFer Mines Ltd.

 The southern extension of the Book vein system.
- #128 Fortune Channel Mines Ltd.
 Diamond drilling in 1970.

- #129 Two subparallel northerly trending quartz-carbonate veins not exceeding 4 feet wide are exposed for about 300 feet along strike on the west side of the creek. Weak chalcopyrite and malachite was noted.
- #130 A swarm of at least 3 widely spaced inaccessible quartz-carbonate veins outcrop at approximately 7000' elevation on the south side of the creek. Float examined below the veins is weakly mineralized with chalcopyrite and malachite.
- #131 Lynda Prospect Windermere Exploration Ltd.

 Ref: Windermere Report, 1970.

Mineralization:

Submassive chalcopyrite occurs in association with quartz-carbonate veins in several areas on the Lynda claims. The best mineralized structure occurs along both sides of a branching dike which extends 2000 feet through claims #15,17 and 18. The vein on the western margin pinches and swells from one to five feet, and has been traced for 1500 feet. Six samples across this vein averaged 3.0% copper over an average width of 3 feet. The vein on the eastern side of the dike carries less copper and is discontinuous along strike.

#132, 133, 134, 135

At the following locations barren looking veins can be seen from the air which gave no geochemical response. No followup prospecting was done.

#136 Ice Prospect

Windermere Exploration Ltd.

Ref: Windermere Report, 1970.

Geology and Mineralization:

No geological work has been done on the Ice Prospect.

The claims were staked to cover an area underlain by Proterozoic rocks in which numerous quartz-carbonate veins occur. Several streams draining the area carry anomalous amounts of copper.

Chalcopyrite-bearing float and green stains on some vein walls confirm the presence of copper mineralization.

#137, 138, 139, 140, 141

Narrow steeply inclined quartz-carbonate veins weakly mineralized with chalcopyrite and malachite. Low to medium geochemical response.

#142, 143, 144, 145, 146, 147

Narrow steeply inclined northerly to northwesterly trending veins with traces of chalcopyrite and malachite. Low geochemical response.

#148, 149, 150

Steeply inclined northerly trending quartz-carbonate veins not exceeding 4 feet wide mineralized with erratic chalcopyrite and malachite. The area is characterized by a prominent northeasterly trending basic dyke. Low geochemical response.

#151, 152, 153, 154, 155

Swarms of narrow northwesterly trending barren looking veins, with low geochemical response. No follow-up prospecting done.

#156 Fram Prospect Windermere Exploration Ltd.

Ref: Windermere Report, 1970.

Mineralization:

The main zone of copper mineralization occupies a subsidiary north-south fault structure which is terminated at its northern end by the major northeast fault and its associated dike mass. Bornite and chalcopyrite occur together with quartz and minor carbonate as vein material. The vein dips variably from vertical to moderately east and west. It has been traced for 3000 feet along strike, but only the northern 1000 feet is well mineralized. This zone averages 7% copper across an average width of 6 feet through a vertical distance of 500 feet. Values in silver range from 0.1 to 1.9 ounces.

Other zones with minor galena and/or chalcopyrite occur along dike margins or in veins and fractures trending to the northeast. These others appear to have little economic potential.

- #157 A white looking vein can be seen from the air at the stream sediment sample location; much barren quartz-carbonate vein material was observed. No geochemical response.
- #158 At least 3 closely spaced steeply inclined northwesterly trending quartz-carbonate veins mineralized with specs of chalcopyrite and malachite stain. No goechemical response.

#159, 160

Swarms of narrow steeply inclined northerly trending veins outcrop on steep bluff on both sides of the Muskwa River. Float was examined in the creek bed below the outcrop and contained only traces of green stain. None appeared to be of economic interest.

- #161 An inaccessible vein can be seen from the stream sediment sample location. Much barren quartz-carbonate float is present in the creek bed which gave no geochemical response. The area was not prospected.
- #162 Two closely spaced veins can be seen from the air at approximately 7000 foot elevation.
- #163 Mary Prospect Windermere Exploration Ltd.

 Ref: Windermere Report, 1970.

Geology and Mineralization:

The claims are situated over the favorable Proterozoic rocks within a copper positive area outlined by stream sediment sampling in 1969.

Menzies (1951) reports 4 copper showings ('Strangward B') at this location. He describes 7 quartz-calcite veins and fault zones mineralized with chalcopyrite, bornite and chalcocite. A 2 foot channel sample taken by Menzies assayed 4.35% copper.

Trenching in 1970 failed to uncover any significant copper mineralization.



