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MEMORANDUM

020316

TO Dr. J.T. Fyles,

Associate Deputy Minister.

FROM THE

DEPARTMENT OF MINES AND PETROLEUM RESOURCES

VICTORIA, B.C., March 27th, 1974.

WHEN REPLYING PLEASE REFER TO FILE No. 104P/3E (PF)

Re: Atan Barite

Report. No 94

I am returning to you the reports from Tournigan Mining Explorations Ltd. together with McCammon's comments on Quin's compilation of earlier reports.

It would appear that the barite potential is extremely problematical and that no specific data regarding the zinc content is provided.

Stuart S. Holland

STUART S. HOLLAND,
Chief Geologist, Geological Div.,
Mineral Resources Branch.

SSH/jr

3862

Encls.

MAR 28 '74 AM

DEPT. OF MINES AND PETROLEUM RESOURCES

REFERRED TO	DATE	INITIAL
D. M.		
C.G.C.		
C.C.		
D.C.G.C.		
D.C.C.		
ACCTS.		
C.M.B.		
C.I.		
C.A.		
R. T.		
C.P.E.		
ADM	2/4	JTF

DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Date: 2/4

From: JTF

To: J E McMynn

INSTRUCTIONS

- [ ] For your approval.
- [x] For your information.
- [ ] For necessary action.
- [ ] Send me copy of reply.
- [ ] For your comments.
- [ ] Prepare reply for my signature.
- [ ] Prepare draft of reply.
- [ ] Return to me.
- [ ] Return to file.
- [ ] For signature.
- [ ] Wish to discuss.

REMARKS:

Note comments by SSH + W. McC. What action is required? Note that the same pitch came to Hempsall a year ago

10M (100)-872-6447 (4)

DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Date: 22/3/74

From: J. E. M.

To: J. T. F.

INSTRUCTIONS

- ☐ For your approval.
- ☐ For your information.
- ☐ For necessary action.
- ☐ Send me copy of reply.
- ☑ For your comments.
- ☐ Prepare reply for my signature.
- ☐ Prepare draft of reply.
- ☐ Return to me.
- ☐ Return to file.
- ☐ For signature.
- ☐ Wish to discuss.

REMARKS: I see nothing here I can get hold of. Assays of Zinc of "up to" 17% are meaningless. Perhaps you or Stan might talk to Bill Smitheringale?

J.

10M (100)-271-1209 (4)

DEPT. OF MINES
AND PETROLEUM RESOURCES
Rec'd MAR 26 1974

MEMORANDUM

TO Dr. Stuart S. Holland,

Chief, Geological Division,

FROM THE

DEPARTMENT OF MINES
AND PETROLEUM RESOURCES

VICTORIA, B.C., March 27, 1974

WHEN REPLYING PLEASE REFER
TO FILE No.

RE: Tournigan Report

I am not prepared to comment on the potential of the sulphide mineralization since I am not up on deposits of this type.

With respect to the barite possibilities I feel the same now as I did when I wrote a memo to you on the same topic on March 28, 1973. As far as I can see nothing more has been proved. There is no record of logs for the drilling by Brinex but apparently no significant barite was found. I quote my memorandum of last year:

"In brief, it seems to me that great speculations have been made on few facts.

First, with respect to the amount of barite available, there is nothing concrete to useto make any sort of valid quantity estimate. The reports and map indicate scattered small pods and lenses of barite in two areas, one 1000 feet by 500 feet, and the other 400 feet in diameter. These are 3,500 feet apart. The largest exposed mass is 25 feet cut in a trench. There has been no drilling on barite to indicate depth. Since barite is typically lensy in carbonate rocks, much more work is necessary to prove up sizeable masses here. Gravity surveys have been done and have indicated 4 anomalies which have been interpreted to represent sub-surface masses equivalent to about 10 million tons. There is nothing to show what these are due to and so far no anomaly has been properly drilled. Hembling's letter intimates it is all barite. While gravity surveys are often used to search for barite, they are not infallible, particularly if galena is associated. Mountain Minerals Company tried a gravity survey on their Brisco barite property. They got highs over barren dolomite and lows over known ore bodies.

As to quality - Hembling talks about "high quality" but provides no information. The only analyses available are 7 shown by Misty. These show barium sulphate content ranging from 1.9 to 99.67 per cent with a numerical average of 42 per cent, which could certainly not be considered high quality."

Information on file Re: Atan Property:

1. Assessment Report 1813
2. Assessment Report 4581
3. In my files on barite: (a) Geophysical report on Gravity Survey (b) Report by D.R. Cochrane (general) (c) Comprehensive Geology Report by N. Misty. (d) Capital Cost Estimate of Barite Production by Wright Engineers.

J.W. McCammon

J.W. McCammon,
Geologist, Geological Division
Mineral Resources Branch

JWMcC/ds

J. N. HEMBLING
EXPLORATION MANAGER

TEL XXXXXXXXX
Tel:681-7281

TOURNIGAN MINING
EXPLORATIONS LTD.

704
XXX - 535 THURLOW STREET, VANCOUVER 5, BRITISH COLUMBIA, CANADA

March 20, 1974.

Mr. John McMynn,
Deputy Minister of Mines,
Parliament Buildings,
VICTORIA, B.C.

Re: Atan Lake Zinc - Barite
McDame, B.C.

Dear Mr. McMynn:

I am enclosing a compilation report on the above property for your examination and invite further questions at the above telephone number.

In the event that you wish to discuss this property with our senior consultant Dr. Wm. Smitheringale, his number at Comox is 339-3552.

Yours most respectfully,

TOURNIGAN MINING EXPLORATIONS LTD.,

J.N. Hembling

J.N. Hembling,
Expl. Mgr. & President.

File

JNH:lt.

Copy: Honourable Leo Nimsick.

phoned Mr Hembling
4/3

LOWER CAMBRIAN STRATA AND BASE METALS

Important :- re: ATAN LAKE

by H. GABRIELSE
Geological Survey of Canada

Dr. H. Gabrielse

The author was born in Golden, British Columbia, and received his public and high school education in Surrey, B.C. He graduated from the University of British Columbia in 1948 with a B.A.Sc. in geological engineering and received his M.A.Sc. from the same institution in 1950. Studies of ultramafic rocks, including those of the Cassiar asbestos in northern British Columbia provided thesis material for a Ph.D. from Columbia University in 1955. Since 1950, he has been engaged in regional geological investigations in northern British Columbia, Yukon Territory, and District of Mackenzie for the Geological Survey of Canada.

Introduction

The Western Cordillera of Canada presents the exploration geologist with a great diversity of rock types and structures. The selection of exploration targets within this heterogeneous terrain has been difficult, in part, because insufficient geological information has been available for large regions and, in part, because of the limited appreciation of the relationship between stratigraphy and mineral deposits.

It is now apparent that exploration programs must take cognizance not only of intrusive rocks but also of the age, lithology, and distribution of the stratified rocks. The importance of stratigraphy to mineral exploration is demonstrated by the numerous occurrences of copper minerals in volcanic rocks of Upper Triassic age (Souther, 1965; McKechnie, 1966; Ney, 1966; Souther and Armstrong, 1966) in contrast to the few occurrences known in volcanic-bearing Carboniferous and Permian strata. As another example, it has been evident for some time that Lower Cambrian (possibly including Eocambrian) strata are important host rocks for base-metal concentrations in the eastern part of the Western Cordilleran region. The purpose of this paper is to emphasize this aspect of metallogeny in part of the northern Cordillera.

Acknowledgements

The writer is grateful for comments by A. M. Goodwin and G. B. Leech who kindly reviewed the manuscript. He is also indebted to S. L. Blusson, J. J. McDougall, W. N. Plumb, D. F. Sangster, and D. J. Tempelman-Kluit for stimulating discussions.

Distribution of Base-Metal Deposits

The accompanying generalized map (Fig. 1) shows the distribution of significant lead-zinc occurrences in southeastern Yukon Territory, southwestern District of Mackenzie, and adjacent British Columbia. All but one or possibly two deposits are in strata older than Mississippian. One base-metal deposit near the Yukon Territory-British Columbia boundary and about 30 miles east of Teslin Lake consists of veins in Mesozoic granitic rocks. The age of metamorphic host rocks at the silver-lead-zinc showings just north-east of Teslin River is unknown. The remaining prospects in strata other than Lower Cambrian or Eocambrian appear to occur in rocks that are stratigraphically near the boundary between the Middle and Upper Devonian. The great majority of significant deposits, however, has been found in strata of Lower Cambrian and (?) Eocambrian age.

Character of Mineral Deposits

Base-metal deposits in Lower Cambrian or Eocambrian rocks include the well known, large, massive sulphide bodies at Faro, Vangorda, and Swim Lakes in the Vangorda area and several other smaller but similar deposits east of Frances River and at Quartz Lake. These bodies are broadly concordant with enclosing strata and banding of sulphide minerals commonly reflects structures and bedding of the host rocks. All deposits appear to have been metamorphosed to some degree along with enclosing strata. Tempelman-Kluit (1968) noted that the average grain size of sulphide minerals in the Faro, Vangorda, and Swim Lakes deposits bears a direct relationship to the grade of regional metamorphism. The Swim Lakes and Quartz Lake areas are characterized by low grade regional metamorphism whereas the Norquest area displays moderate regional metamorphism with widespread development of schist and gneiss (Green, 1966; Blusson, 1966). As a general rule, in the areas of highest grade regional metamorphism pyrrhotite content is relatively high.

According to Roots (1954), base-metal deposits of the Ferguson Group just south of Ingenika River in the Aiken Lake area occur in Lower Cambrian limestones. The mineralized zones are concordant with bedding and occupy the same stratigraphic intervals throughout. Original bedding structures of the limestone have been retained in the sulphides. This occurrence and those noted above may be referred to as strata-bound.

Many other lead-zinc occurrences are typical vein deposits in which galena and sphalerite are found with gangue minerals such as cal-silicates, dolomite, ankerite, barite, quartz, and siderite. Magnetite and manganese minerals are common in the McDame area in veins within the contact metamorphic aureole of the Cassair Batholith. In most cases these deposits are characterized by well defined, local structural controls including faults, fault zones, and contacts between rocks of contrasting lithologies.

A third type of deposit includes small bodies within contact metamorphic aureoles of large granitic plutons. They are commonly discontinuous and rarely exhibit any clear structural or stratigraphic control of mineral deposition.

Local Controls for Mineralization

Local controls for the emplacement of sulphides in the Faro, Vangorda, and Swim Lakes deposits are not apparent (Tempelman-Kluit, 1968). The mineralized strata are fine-grained, in part possibly tuffaceous sediments which are relatively rich in quartz. In somewhat similar massive sulphide deposits at Norquest and Quartz Lake the sulphides are in limestones or dominantly calcareous strata within sequences of non-calcareous clastic rocks.

At the Tom Lake prospect about 30 miles north-northwest of Watson Lake galena and sphalerite occur in a coarse, calc-silicate skarn developed locally in lower Cambrian limestone (Gabrielse, 1966). The presence of the skarn is anomalous in this region of negligible regional metamorphism and suggests the possibility of nearby, underlying intrusive rock. Mineralization seems to be entirely confined to the thin, discontinuous Lower Cambrian limestone.

Near Coal River, galena and sphalerite occur with abundant barite in a major or fault zone cutting Lower Cambrian strata.

In Cassair Mountains the base-metal deposits are most commonly related to faults in carbonate strata of the Lower Cambrian Atan Group. Locally, on and near Mount Haskin in the McDame area, mineralized skarns containing abundant pyrrhotite and sphalerite occur along a major northwest-trending fault zone cutting Lower Cambrian strata.

In Cassiar Mountains the base-metal deposits are most commonly related to faults in carbonate strata of the Lower Cambrian Atan Group. Locally, on and near Mount Haskin in the McDame area, mineralized skarns containing abundant pyrrhotite and sphalerite occur along a major northwest-trending fault as well as along or near the contact between clastic and carbonate rocks (Gabrielse, 1963). To the southeast, in the canyon of McDame Creek, galena and sphalerite with pyrite, pyrrhotite, chalcoyprite, and minor hematite and scheelite occur in a skarn of grossularite, diopside, and tremolite. Holland (1966) notes that the mineralization forms massive lenticular replacements parallel with bedding, fills fractures that cross the bedding, and forms disseminations in the skarn zones. Another mineralized zone on the same property is localized by a strong fault that transects bedding in the host limestone.

Green (1968) describes the silver-lead showings in the Ketza River area as lacking a consistent pattern. They include veins, concordant lenses, and irregular bodies in several rock-units. Between Ketza River and Rancheria at least four base-metal prospects have been found in Lower Cambrian Limestone (Green, 1968). Green notes that "Generally, deposits of this type are in the form of galena- and sphalerite-bearing lenses that lie beneath thin layers of schist within the limestone. Some cross-cutting veins are also present."

Discontinuous, pod- or lens-shaped bodies of sulphide minerals locally occur within the contact metamorphic aureole of granitic plutons. Examples of this type are the base-metal prospects in limestone in the McDame area and the showings in limestone and calcareous argillite near Lucky Lake southwest of Flat River. These occurrences have many features typical of contact metamorphic mineral deposits.

The examples cited above illustrate the main characteristics of base-metal deposits that are in the Lower Cambrian and (?) Eocambrian rocks in the region under consideration. They occur in a wide variety of regional and local structural settings and, although all are within or near regions of granitic intrusions or regional metamorphism, they show no consistent spatial relationship to granitic or metamorphic rocks.

Relationship Between Base-Metal Occurrences and Sedimentary Facies

Figure 2 shows the distribution of facies in Lower Cambrian strata. Northeast of Tintina and Rocky Mountain Trenches the easternmost belt comprises thick sequences of sandstone, siltstone, and shale. Thick sequences of coarse polymictic conglomerate are present in the southeastern part of the region.

East of Coal River the clastic rocks are underlain by basic volcanic flows of either Early Cambrian or Late Proterozoic age. No base-metal occurrences have been reported from this belt.

In northern Rocky Mountains the conglomeratic clastic rocks grade westerly into fine-grained sandstones, siltstones, and shales. This facies includes discontinuous lenses of archeo-[illegible]t[illegible] bearing limestone. In the Coal [illegible]ve[illegible]rea and to the north, the coarse clastic facies grades westerly into a sandy, buff-orange weathering dolomite succession that locally contains thin basic volcanic flows. Limestones and calcareous argillites are prominent near the western margin. The pyrrhotite rich deposit at the Canada Tungsten Mine is in the western part of this belt but no significant base-metal occurrences are known.

Still farther west the Lower Cambrian succession consists of a lower, dominantly siltstone formation and an upper, dominantly limestone formation. These rocks include the base metal deposits in barite gangue near Coal River and the Lucky Lake prospect southwest of Flat River.

Finally, the westernmost and most widespread facies of lower cambrian rocks east of Tintina and Rocky Mountain Trenches comprises fine-grained clastic rocks, mainly siltstones and shales, variably calcareous and, in places possibly tuffaceous. Discontinuous limestone bodies are present locally. These rocks underlie much of Selwyn Basin (Gabrielse, 1967). In many places it is difficult or impossible to separate the fine-grained, clastic Cambrian rocks from similar lithologies of late Proterozoic age. The strata are therefore referred to as Eocambrian. The Lower Cambrian and (?) Eocambrian strata of Selwyn Basin contain the large massive lead-zinc bodies at Faro, Vangorda, Swim Lakes, Norquest, and Quartz Lake. So far no important base-metal discoveries have been made in the older clastic strata of Hadrynian (Late Proterozoic) age.

In most of the region southwest of Tintina and Rocky Mountain Trenches Lower Cambrian rocks comprise a lower sandstone formation, a relatively thin middle shale formation and an upper limestone formation. Almost all the base-metal occurrences in Cassiar Mountains are in or along the contact of the upper limestone. The limestone is also an important host rock in Pelly Mountains (Green, 1968).

In summary, no significant base-metal deposits have been found to date in the eastern clastic and sandy dolomite facies belts of Lower Cambrian rocks. On the other hand, strata of the more westerly fine-grained clastic and limestone facies are host to numerous base-metal concentrations. Thus exploration work carried out so far suggests that relatively large, strata-bound massive sulphide deposits may be confined largely to the fine-grained, variably calcareous facies.

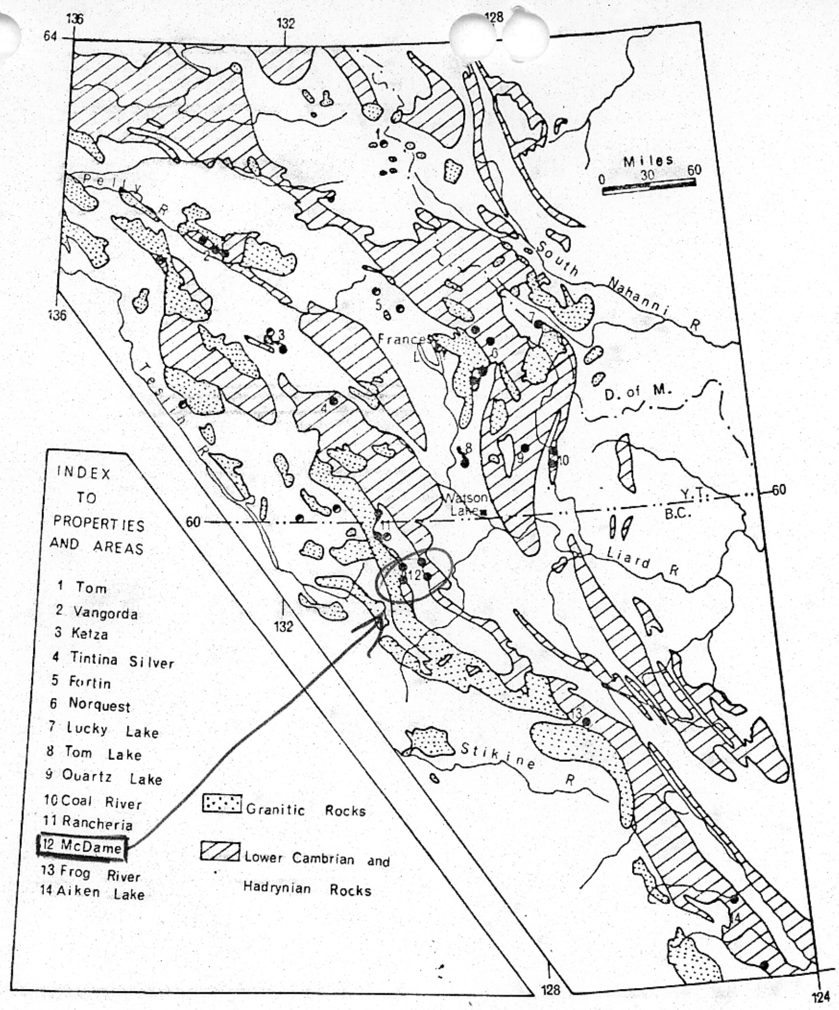

Figure 1
Distribution of Lower Cambrian and Hadrynian strata and Mesozoic granitic rocks. Base-metal deposits in Lower Cambrian and (?) Eocambrian rocks shown as solid circles; those in younger strata shown as half solid circles.

Comments

The empirical relationship between base-metal deposits and Lower Cambrian strata in the region discussed must be considered in any concept concerning ore genesis. Also, concepts of ore genesis should take into account the apparent lack of significant base-metal deposits in such widespread and lithologically varied sequences as the older Hadryian strata; the Upper Cambrian - Lower Ordovician limestones, silty and argillaceous limestones, and calcareous argillites; the Siluro-Devonian carbonates; and the Upper Paleozoic rocks such as the Cache Creek Group, and much of the Sylvester Group. To the writer's knowledge the only relatively large base-metal deposit in the region that may be in strata younger than Cambrian is that on the Tom property near Canol Road (Green, 1965). The age of the host rocks there, however, is in doubt. Green considers them to be Ordovician or Silurian whereas Tempelman-Kluit (personal communication, 1968) believes they may be of Late Devonian-Early Mississippian age. As noted above a number of small showings are in strata stratigraphically near the Middle Devonian-Late Devonian boundary.

The widespread distribution of base-metal deposits in varied lithologies of Lower Cambrian and (?) Eocambrian age and the lack of significant concentrations of these metals in most other stratigraphic assemblages are difficult to reconcile with concepts of epigenesis that require Mesozoic and Tertiary granitic plutons as source rocks. A more probable role of plutonic activity may well be that of concentrating metals previously dispersed in the host rock.

The McDame area provides a most interesting study in this regard. There the Lower Cambrian strata are underlain by several thousand feet of well-bedded limestones, argillites, siltstones, and slates of Hadrynian age. Overlying the Lower Cambrian rocks are strata ranging in age from Late Cambrian to Late Paleozoic and including a wide variety of lithologies with several important limestone units. Nevertheless, it appears as only the Lower Cambrian limestone contains significant concentrations of lead and zinc. For the region as a whole the base-metal-Lower Cambrian relationship is even more remarkable in view of the wide variations in facies of the mineralized strata.

If the Lower Cambrian rocks are the source of the metals one must look for unique aspects of Early Cambrian tectonics and sedimentation that resulted in their unusually high base-metal content. Two contrasting possibilities are the following:

1. During the Early Cambrian and Late Proterozoic large volumes of cratonal Precambrian crystalline rocks were eroded. This resulted in the last great contribution of clastic sedimentary rocks to the Cordilleran geosyncline from the craton. Perhaps these sediments contained the metals that were later remobilized and concentrated to produce the base-metal deposits mainly in Lower Cambrian rocks.

2. In this region important movements took place during Early Cambrian time along faults near the eastern margin of Lower Cambrian deposition (G. C. Taylor, personal communication). That deep seated fractures occurred in this region is attested to by the local extrusion of basic lavas. Possibly, thermal springs related to such deep seated fractures were important in ore genesis.

Future work should contribute to an understanding of the relationship between Lower Cambrian and (?) Eocambrian strata and base-metal occurrences. In any event, the empirical relationship points to a number of exploration targets. For example, the belt of Lower Cambrian and associated strata that extends southeasterly from the McDame area to the Aiken Lake area would seem to merit careful prospecting. The northwesterly extension of this belt into the Ketza area has already yielded a number of showings. Those areas in Selwyn Basin that include Lower Cambrian and (?) Eocambrian strata appear most promising for strata-bound massive sulphide deposits.

On a regional scale there is an impressive concentration of base-metal deposits in areas that include both Lower Cambrian and (?) Eocambrian strata and large granitic plutons. This applies to the Vangorda area and to a northeasterly trending belt extending from Rancheria and McDame to Lucky Lake. The northeasterly trending belt may be of major tectonic significance. Deep-seated structures with this trend are important in the eastern part of the northern Cordillera and in the crystalline basement of the adjacent Canadian Shield. In this regard it is interesting to note the apparent concentration of mineral deposits elsewhere in the Canadian Cordillera along or near northeasterly trending belts of plutonic rocks. Such belts are as follows: Stikine Arch (Souther and Armstrong, 1966); Skeena Arch (Souther and Armstrong, 1966); and the belt across southernmost British Columbia.

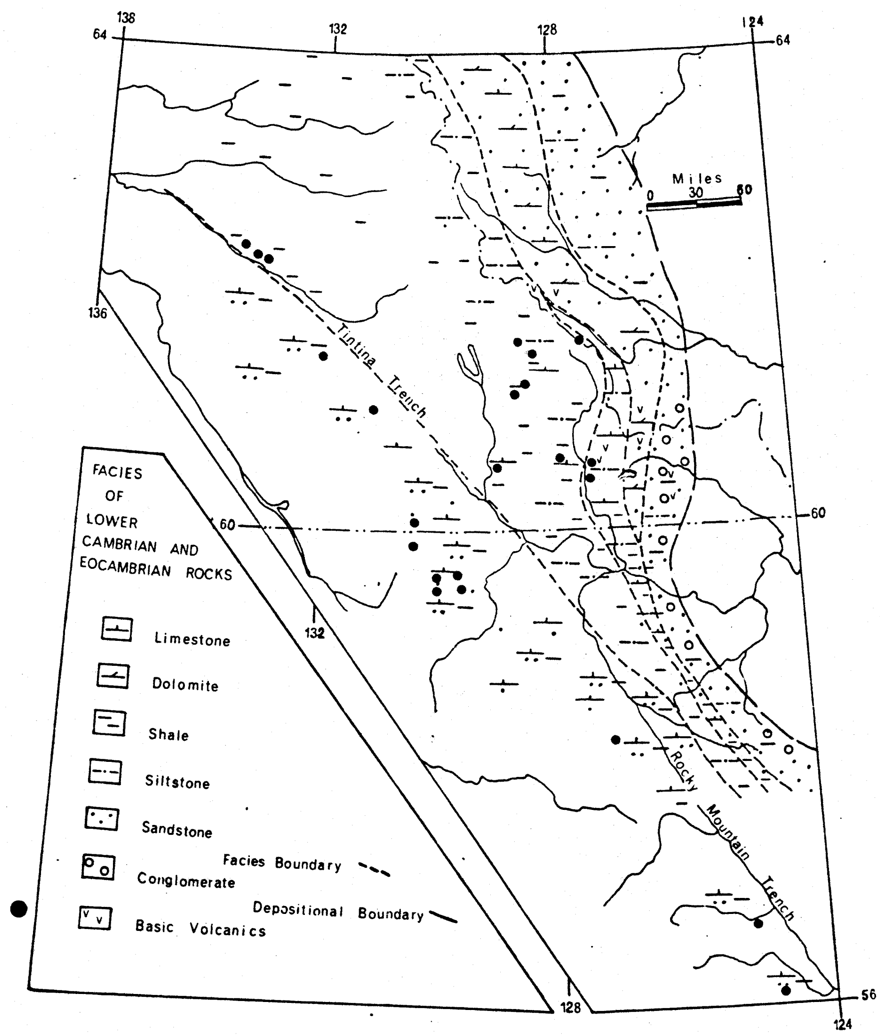

Figure 2
Distribution of base-metal deposits (solid circles) and facies of Lower Cambrian and Eocambrian rocks.

Conclusion

Lower Cambrian and (?) Eocambrian strata appear to be the most important host rocks for base-metal deposits in the region herein considered. This relationship is important for future exploration and for consideration in concepts of ore genesis.

References

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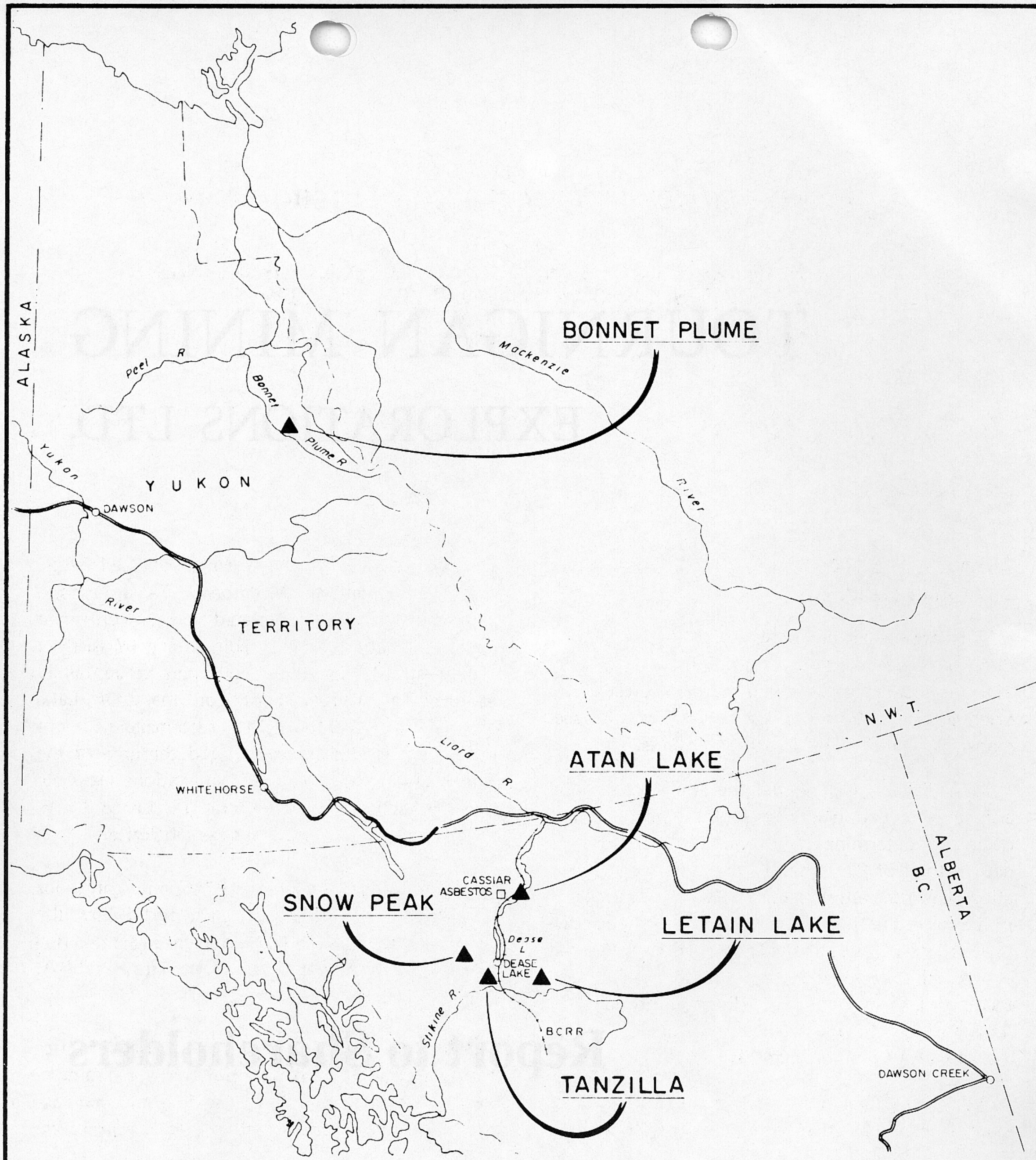
TOURNIGAN MINING
EXPLORATIONS LTD.

Report to Shareholders

SPRING-SUMMER 1974



TOURNIGAN MINING EXPLORATIONS LTD.

PROPERTY LOCATIONS

0 110 220

SCALE IN MILES

SPRING-SUMMER 1974 REPORT TO SHAREHOLDERS

1974 FIELD SEASON PROGRAMS, MINERAL PROPERTY HOLDINGS, NEW ACQUISITIONS AND CORPORATE OBJECTIVES

ATAN LAKE PROPERTY –

Zinc – Barite (Stratiform)

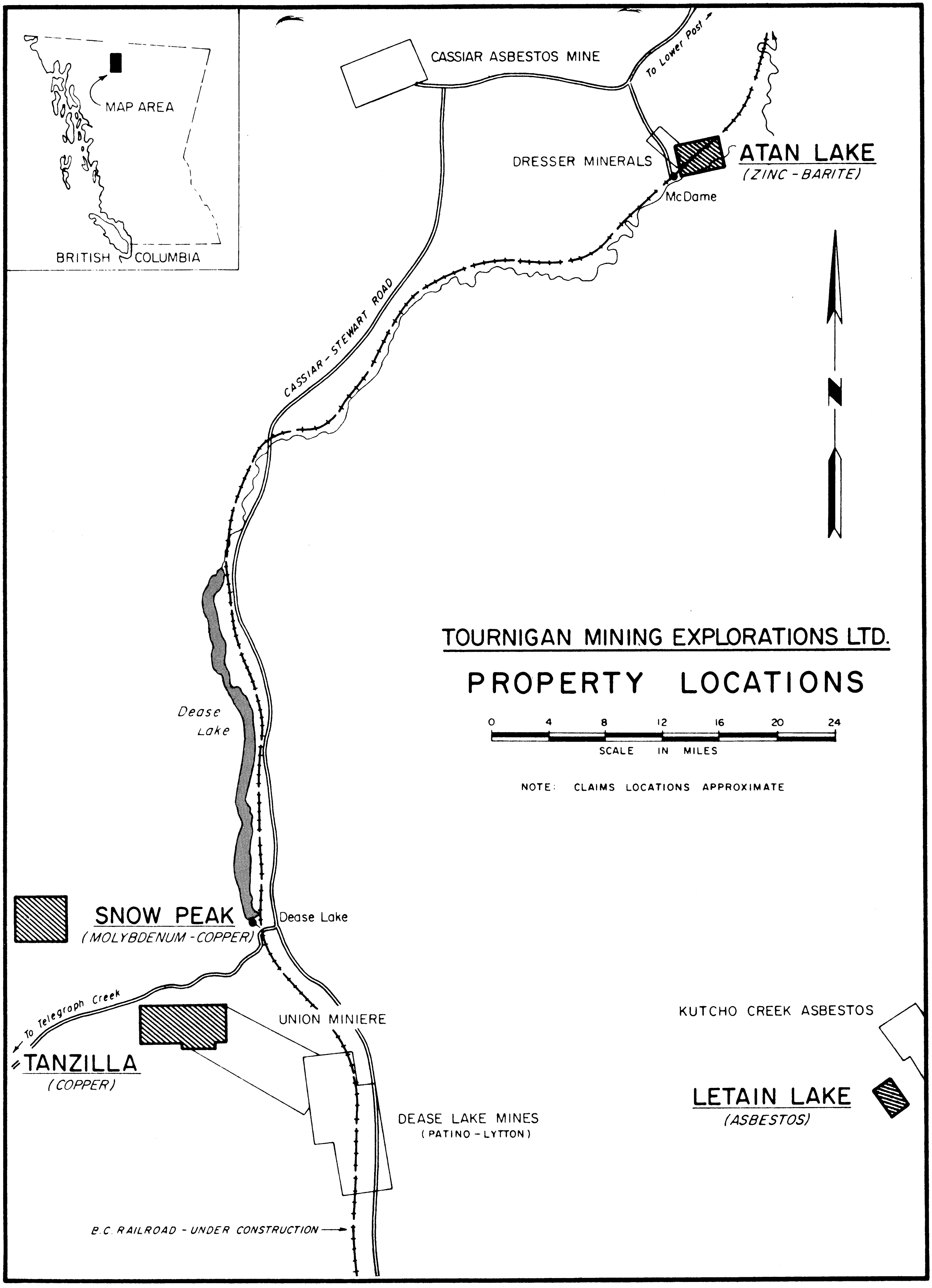
The Atan Lake property, which was originally discovered and staked by Tournigan personnel in 1967, is located in an area of bedded lower Cambrian sediments 23 miles east of Cassiar, B.C. (see maps), and consists of 46 mineral claims.

After Tournigan acquired the Atan Lake property, an exploration and development program was begun to determine its economic potential. To date, a total of $240,000 has been spent in exploration, and the results have been very encouraging. In addition, the B.C. Railroad (formerly the Pacific Great Eastern Railroad) has begun construction on a planned extension of the railroad from Dease Lake to Lower Post, B.C., directly through the property, which will provide an essential link to markets by the mid-to late 1970's.

Preliminary exploration and trenching exposed extensive surface barite mineralization with accompanying sulphides in the form of lead, zinc, silver and copper. In December 1973, a diamond drill program was completed which confirmed earlier indications that a sedimentary (Mississippi Valley—stratiform) zinc deposit may be contained at relatively shallow depths on the Atan Lake claims. Eight 200-foot (NQ) reconnaissance core holes were drilled in and around the area of the claims, and several excellent indications were derived by some intersections ranging up to 17.0% zinc in the form of sedimentary sphalerite.

In the early summer of 1974 Tournigan plans to escalate the drilling program and follow the recommended $120,000 development program compiled by our consulting geologist, Dr. Harold A. Quin, P.Eng.

In view of recent substantial metal price increases and world zinc and barite shortages, we are optimistic that the 1974 drilling will further increase the economic potential of this excellent prospect.



MAP AREA
BRITISH COLUMBIA
CASSIAR ASBESTOS MINE
To Lower Post
DRESSER MINERALS
ATAN LAKE
(ZINC - BARITE)
McDame
CASSIAR - STEWART ROAD
TOURNIGAN MINING EXPLORATIONS LTD.
PROPERTY LOCATIONS
0 4 8 12 16 20 24
SCALE IN MILES
NOTE: CLAIMS LOCATIONS APPROXIMATE
Dease Lake
SNOW PEAK
(MOLYBDENUM - COPPER)
Dease Lake
To Telegraph Creek
UNION MINIERE
TANZILLA
(COPPER)
KUTCHO CREEK ASBESTOS
LETAIN LAKE
(ASBESTOS)
DEASE LAKE MINES
(PATINO - LYTTON)
B.C. RAILROAD - UNDER CONSTRUCTION

SNOW PEAK PROPERTY — Molybdenum — Copper

Tournigan Mining Explorations Ltd. presently holds a 90% interest in a subsidiary company called Tormex Resources Ltd. (N.P.L.) Tormex owns 87 mineral claims on Snow Peak Mountain, which is situated 16 miles west of the south end of Dease Lake in northern B.C.

Although this prospect was discovered a year earlier by a local Indian living at Dease Lake, no work was done on the claims until we staked the ground in the summer of 1969. To date a total of $50,000 has been spent on mapping, geochemistry, geophysics and sampling.

The geochemical results show widespread areas of high copper and extremely high molybdenum in upper "B" horizon soil samples. Peak values in molybdenum reach 4000 ppm in an area where peak copper values run up to 2000 ppm. While the coincident Mo-Cu anomaly occurs in an area entirely overlain with alpine vegetation and overburden, a cirque rim a thousand feet to the north-east exposes a partially altered quartz-monzonite stock approximately 3200 feet wide and carrying visible molybdenite and minor chalcopyrite in hair-line fractures and quartz veins. Several smaller sections of the exposed stock grade up to protore and it is geologically reasonable to expect that the 2000′ x 1200′ geochemical anomaly reflects a basement structure with real grade potential.

The subsidiary company Tormex Resources will be carrying out a $70,000 drilling program this season to further test this impressive prospect.

TANZILLA COPPER PROPERTY — Copper

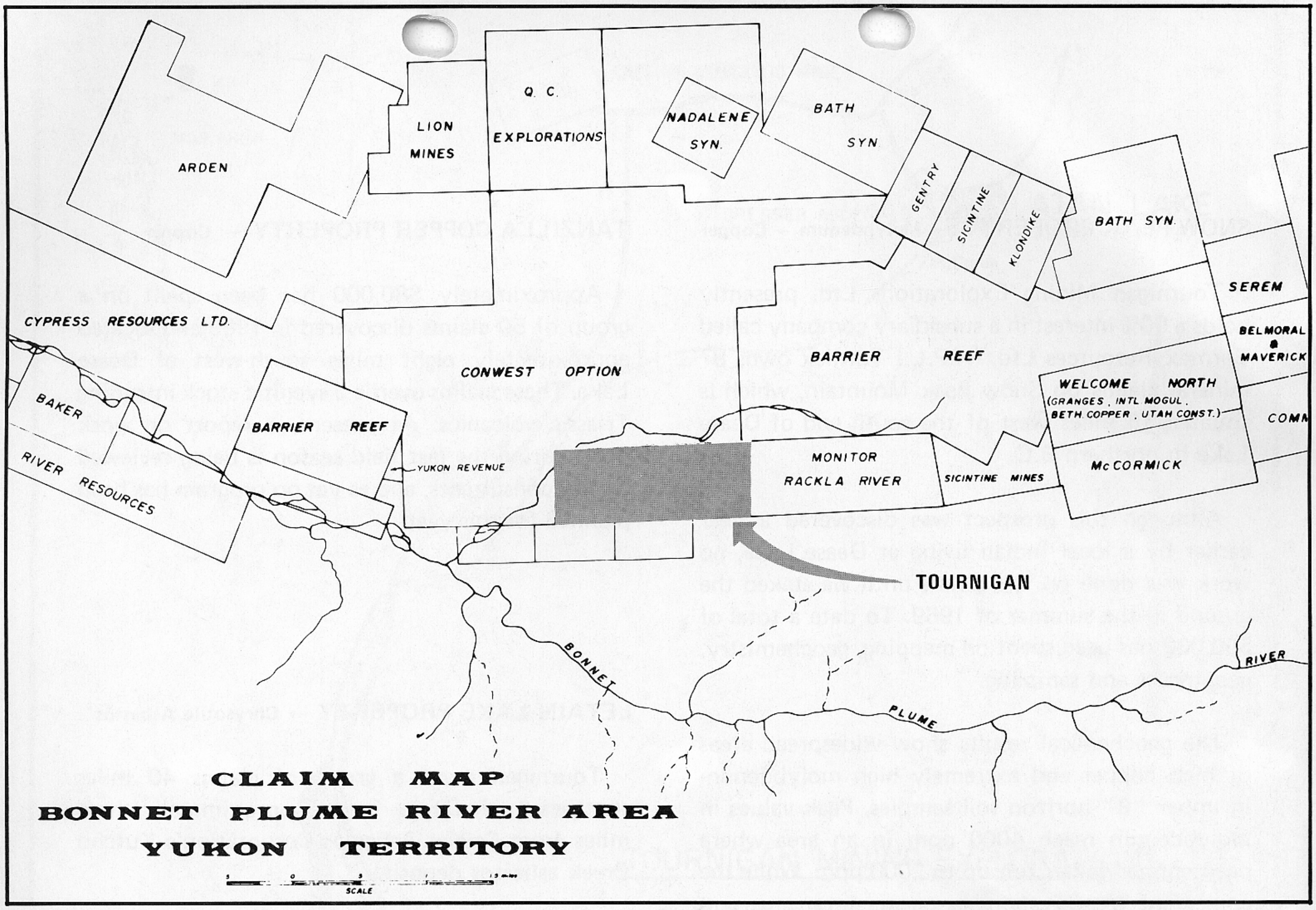
Approximately $80,000 has been spent on a group of 50 claims discovered in 1969 and located approximately eight miles south-west of Dease Lake. These claims overlie a syenitic stock intruding Triassic volcanics. At present, a report on work done during the last field season is being reviewed by our consultants, and as yet no program has been planned for this year.

LETAIN LAKE PROPERTY — Chrysotile Asbestos

Tournigan owns a group of claims 40 miles south-east of Dease Lake, approximately three miles from Cassiar Asbestos Corporation's Kutcho Creek asbestos deposit.

Tournigan has conducted geological and geophysical tests on this property, and has outlined an outcropping chrysostile fibre zone over a strike length of more than 800 feet. The geophysical indications are that the fibre zone may extend 3200 feet or more beneath the overburden.

A sample of the exposed fibre was analysed in an eastern asbestos laboratory with such high quality results that Tournigan will continue exploration of the claims this season. Two major companies are presently negotiating with Tournigan to participate in this year's program, and shareholders will be advised when an agreement is consummated.



CLAIM MAP
BONNET PLUME RIVER AREA
YUKON TERRITORY

BONNET PLUME RIVER AREA – Zinc

In August 1973 a major new zinc discovery was made in the east-central Yukon by Barrier Reef Resources Ltd. of Vancouver, an extremely capable and industrious young company managed by professional engineers. The prime discovery zone extends for 5½ miles and more in the Bonnet Plume River area, which lies approximately 125 miles north-east of Mayo, Yukon.

Tournigan has acquired 40 claims adjacent to and on strike with the prime discovery zone, and overlying geologically compatible ground.

Our consulting engineer, E.O. Chisholm, P.Eng. of Vancouver, has prepared a recommendation for the first stage of a two-phase program, to commence as weather conditions permit, to determine the economic potential of the Tournigan claims. An expenditure of $72,000 has been outlined in his report.

In the opinion of several experienced consulting engineers and technically competent visitors to the area, a major new zinc discovery of this magnitude has not occurred in Canada since the Pine Point find of the early 1960's and the mining fraternity is generally optimistic regarding the results of work there in the 1974 field season.

FINANCIAL – CORPORATE

The Company is in a good financial position at the present time and audited financial statements are available upon request at the exploration office in Vancouver.

Tournigan has an authorized capital of 5,000,000 shares (with no par value) and at the present time there are 1,723,844 shares issued of which 637,500 are escrowed.

The Company was incorporated in 1966 in the Province of British Columbia, Canada and was financed privately for several years before converting to a public company.

On August 14, 1972 an interim listing was granted on the Vancouver Stock Exchange and at the present time our company's shares are fully listed in the mines section of the Vancouver Stock Exchange.

REGISTERED OFFICE

1601 - 1177 West Hastings Street
Vancouver, B.C.
Canada V6E 2K3

EXPLORATION OFFICE

704 - 535 Thurlow Street
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Tel. 681-7281

DIRECTORS

N.S. Adair
D.E. Constable
J.N. Hembling
A.G. Smith

OFFICERS

J.N. Hembling — President
A.G. Smith — Vice-President
A.G. Smith — Secretary-Treasurer

REGISTRAR AND TRANSFER AGENT

Canada Permanent Trust Co.
Vancouver, B.C.
Canada

AUDITORS

Coopers & Lybrand
Chartered Accountants
Vancouver, B.C.
Canada

SOLICITORS

Barbeau, McKercher, Collingwood & Hanna
Vancouver, B.C.
Canada

SHARES LISTED

Vancouver Stock Exchange
Symbol "TGN"

TECHNICAL CONSULTANTS

D.R. Cochrane, M.Sc., P.Eng.
W.V. Smitheringale, Ph.D., P.Eng.
E.O. Chisholm, P.Eng.
H.A. Quin, Ph.D., P.Eng.

"TAKE A PROSPECTOR TO LUNCH — CANADA DEPENDS ON HIM"

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April 3, 1973

Mr. Leslie Hempsall,
Deputy Minister of Industrial Development,
Trade and Commerce,
Buildings.

Dear Mr. Hempsall:

Re: Tournigan Mining Report on Barite

Enclosed is a copy of a report by J. W. McCammon of the Mineralogical Branch, who is an authority on industrial minerals in British Columbia. This is an expert opinion and it is self-explanatory. Your data and correspondence are returned herewith.

Yours very truly,

James T. Fyles,
Deputy Minister.

JTF:DB
Enc.