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Windy Craggy  
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**TATSHENSHINI RIVER MAP AREA**  
**BRITISH COLUMBIA**

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## TATSHENSHINI RIVER AREA

The Tatshenshini area (NTS 114P mapsheet) still remains unmapped by any systematic government geological survey. The Geological Survey of Canada commenced '4 mile' regional mapping of the Tatshenshini map sheet in the late 1970's conducted by R. Campbell and Chris Dodds. Their preliminary maps have been published as open file reports. The B.C. Geological Survey has published several accounts of the local Windy Craggy area since 1981 (MacIntyre), but have not conducted any systematic mapping surveys in the area. Mapping has been carried out by Falconbridge and Geddes geologists on a local basis.

General and published references to the Tatshenshini River include the mineral inventory map 114P, mineral deposit land use map, assessment report index, publications index of the BCGS, and GSC memoir 268. Other publications include a PhD and BSc thesis and various GRL reports.

The mineral potential of the Tatshenshini area is largely unknown due to remoteness and rugged topography, limited access and high cost of doing exploration which all have an impact upon the costs of mining if something of significance is discovered. A mineral deposit land use map was compiled in 1973, <sup>by the Provincial Department of Mines</sup> and <sup>unfortunately it has</sup> which has not been updated. The mineral inventory map shows scattered mineral localities and at present contains 84 recorded mineral occurrences. <sup>Recent</sup> Compilation of data and maps on the Tatshenshini area is sparse as there is very little government data to compile. Data available in the government files consist predominantly of various company's exploration and prospecting surveys and assessment work as required by government regulations to maintain mineral tenure on claims.

## POTENTIAL

"The map area has good potential for exploration targets as many new occurrences have been recorded in previously unexplored areas" (Minfile Report).

Potential deposits of economic importance where reserve estimates have been calculated include the Windy Craggy massive Cu-Co-Au-Ag-Zn sulphide (Geddes Resources Limited), O'Connor gypsum (Queenstake Resources) and the Maid of Erin Cu-Ag<sup>skarn</sup> (Falconbridge Ltd.). Other significant deposits include the East Arm massive Cu-Au-Ag sulphide deposit (Lac Minerals) which may contain up to several hundred million tons, Tats massive Cu-Au-Ag sulphide (Geddes Resources Limited), ....????????? Limited placer mining is conducted during the summer months at Squaw Creek.

The mineral potential for Cu, Au, Ag, Pb, Zn, Mo and gypsum is acknowledged by the various individual and company prospectors and geologists who have worked in the area over the past several years.

## Exploration History

Between 1957 and 1965, exploration by the Ventures-Falconbridge group discovered at least 100 in-place and float occurrences of significant mineralization in addition to Windy Craggy. Unfortunately, the more interesting of these consist largely of scattered float whose source has yet to be located. Several coal and high-grade gypsum deposits were also discovered, one of the latter of which may be close to development. Regional exploration was activated again by Geddes Resources Limited in 1989 and 1990 under the direction of J.McDougall with several new occurrences located.

The Tatshenshini area was initially prospected for placer gold near the turn of the century when a little was found along the Tatshenshini River itself by miners heading for, or leaving, the Klondike. The most active area was the Squaw Creek tributary in the north where operations have persisted to the present. Small amounts were reported found near the headwaters of the Tatshenshini and in some of the creeks along the course of the highway which now runs to Haines, Alaska. Placer operations still persist in the once important "Porcupine" field near the highway immediately south of the border in Alaska. In the southern Dezadeash area immediately north of the B.C.-Yukon border, interesting placer gold occurrences were worked in the Onion Creek and Mush Lake sections now included in Kluane National Park.

Lode properties discovered around 1900 in the 'Rainy Hollow' area of the southern Tatshenshini map sheet included the high grade silver-copper bearing 'Maid of Erin' mine which shipped ore to Haines via a wagon road constructed for this purpose. Additional ore was shipped by St. Eugene Mining Corp. in 1954. Other prospects included the 'Three Guardsmen' copper-iron showing, a porphyry copper property test- drilled by Canex Placer in 1972, and several other showings along the Haines Road.

In the Parton River area, a few silver-lead-zinc properties are known, one of which, the 'Humbird' located approximately 5 miles east of the Tatshenshini, was test drilled in the late 1960's by Ronex Explorations. These properties occur along the first half of the proposed road route to Windy Craggy. In 1977, Yukanda Mines Ltd. built 32 km of access road southwest from the Haines road, and an airstrip (now called the Carmine strip) was constructed at the end of the road on Shini Creek (approximately 38 km east of Windy Craggy). Noranda test drilled an interesting gold prospect about 14 miles northeast of the airstrip (the Bar) which is presently under active exploration by Goldbank Ventures. A cat road was constructed along Jarvis Glacier in Alaska to allow testing of a gold vein on Mt. McDonell. A high grade gypsum deposit (O'Connor

Gypsum) now owned by Felix Reyes was initially discovered by Stan Bridcut and McDougall in 1957 on the O'Connor River. From 1981 to 1983, Falconbridge explored and drill tested the Maid of Erin property.

Active exploration along the Tatshenshini River valley area in the mid 1970's included that by a department of Swiss Aluminium which concentrated its search for the source of the numerous mineralized boulders occurring along the upper drainage of Henshi Creek below the East Arm of Frobisher Glacier. This work indicated a large magnetic anomaly under the glacier. The area was restaked by St. Joe Minerals in early 1982 under the direction of Dave Kennedy. Later work on their claims in 1986 by St. Joe and Newmont Exploration of Canada confirmed the presence, under nearly 1200 feet of ice, of Windy Craggy type mineralization. However, difficult drilling conditions have prevented definition of the deposit to this date. Some high grade gold values (up to 2 oz/ton) were obtained on the mountain above the anomaly but attempts by Bond Gold (successor to St. Joe and acquirer of Newmont's joint venture interest) to test-drill the zone in 1989 were generally unsuccessful, also due largely to drilling conditions. Swiss Aluminium also discovered a molybdenite occurrence near Tarr Inlet which was later test drilled by Noranda. United Keno Hill explored part of the central Tatshenshini area in the late 1980's. Stryker Resources spent considerable effort on claims southwest of the Maid of Erin optioned from John Ball; mostly in an unsuccessful attempt to locate the main source of numerous zinc-rich boulders which is probably under a thin but much crevassed ice cap. The zinc zone, believed to occur also on the Alaskan side of the nearby border, was test-drilled unsuccessfully by Kennecott Copper. A large barite deposit occurs south of the latter. Stryker also test drilled two copper-silver-zinc prospects.

There has been virtually no exploration in this area for the past four years except for Geddes Resources at their Windy Craggy project.

## RECOMMENDATIONS

To assess the mineral potential and hence economic potential of the Tatshenshini River map area, several government oriented surveys should be initiated. The data can then be compiled from which interpretations are made.

- 1) Conduct a regional stream sediment and waters survey for map sheet 114P, 1:250,000 scale. This survey would be similar those conducted at present by the BC Geological Survey.
- 2) Map the Tatshenshini River area at 1:50,000 scale. The initial focus should be in the areas of known potential economic deposits.
- 3) Conduct a regional airborne electromagnetic survey.
- 4) Conduct an airphoto and landsat study. This is essentially an office bound study which can be conducted during the winter months.

## **TATSHENSHINI VALLEY**

### **Early History**

The name Tatshenshini is a Tlingit native word meaning "place where the salmon run".

What little early information about the Tatshenshini Valley area has come from Mr. J. McDougall who had known some of the old timers (mostly now deceased) and prospectors who placer mined near the Tatshenshini River in the mid to late 1930's. People who are still alive and have worked in the Tatshenshini area include Jim McDougall (Richmond), Josephine Jurgeleit (Haines, Alaska), Jim Robertson (White Rock) and Dr. Ed Kindle, a federal government Geologist (now retired in Ottawa) who explored part of the area in the late 1940's (Dezadeash Memoir).

#### **Jim Robertson's Recollections**

Jim Robertson, later a Falconbridge employee for about 40 years, has perhaps the only remaining authentic non-native recollection of the Tatshenshini area. Jim, with a sleigh and 600 pounds of provisions, went into Dalton Post and Squaw Creek in 1935 after three weeks of travel from the end of the road at "42 mile" in Alaska. He spent the winters of 1935 through 1938 trapping and the summers placer mining at Squaw Creek across the Tatshenshini a few miles south of Dalton Post. Gold had been discovered at Squaw Creek by the four Kane brothers (including Jimmy and Johnny) and other Indians Jim Fred and Paddy Duncan (who later shot one of the brothers in a quarrel). About 20 Indians who owned and sold many horses and 36 white men were camped at Squaw Creek -- the Indians working the "Discovery Claims". One of the Indians, Johnny Fraser, shot moose along the Tatshenshini for the white men under special license. Scotty John was another Indian Robertson was

acquainted with.

Dalton Post was named after Jack Dalton, a "dollar scheming" trader and packer working between Haines, Alaska and the Yukon. Some of his history is posted in Haines at the museum and in the Ferry Terminal. The Post, at the Junction of Klukshu Creek with the Tatshenshini, had been used by the Indians, who lived on a more permanent basis at Champagne or at Klukshu Village up the creek flowing from the north and nearer Dezadeash, where fresher, less battered, sockeye salmon were present when water conditions allowed fish migration. The fresher fish were dried for human food and the rest for dog food. When Dalton arrived, he "sold" most of the Indians their names, thus many "family trees" involved are very limited in time.

The Klukwan Indians (the Chilkat) from Alaska invaded the Tatshenshini Valley, probably via the very difficult Q'Connor route or the easier but longer Parton route, for bear grease (fat) when oolican runs (a source of oil) in their own area temporarily dried up. Encampments would be so minor as to leave very little present day evidence but, if any, would be expected in the O'Connor - Tatshenshini junction area -- probably on the east bank where bear would gather to catch the odd salmon. It has been noted that migrating fish prefer rare stretches of clear water entering the river from short, non-glacial streams and there are a few such in this area. One or two may be used for spawning.

Neither the semi-permanently silty or muddy, glacial and "braided" Tatshenshini nor most of its tributaries offer little suitable spawning ground.



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*Mineral Occurrences in the Mount Henry Clay Area*

## WINDY CRAGGY AREA

The Windy Craggy copper-gold-silver-cobalt volcanogenic massive sulphide deposit is located in northwestern British Columbia in the Tatshenshini map area (NTS 114P/12) where British Columbia joins Alaska and the Yukon. Access is by aircraft from Whitehorse, Yukon, which is approximately 200 kilometres to the northeast. The area is covered with numerous glaciers that mask geologic detail and hamper ground access.

The history and predevelopment of Windy Craggy has occurred over a period of some 33 years and remarkably the original geologist and discoverer (Jim McDougall) is still involved to some degree with the project. This deposit has a history of field geologists willing to take exploration and drilling risks that has resulted in additional mineralization discovered. It also has had personnel willing to take large financial risks in order to bring it to the predevelopment stage at present.

The history of Windy Craggy essentially starts in 1957 when Jim McDougall, a geologist with Ventures Limited and subsidiary companies Falconbridge, St. Eugene and Frobisher was involved with aerial prospecting and reconnaissance geological surveying of the rugged St. Elias mountain range between the Kennecott copper-rich deposits to the northwest and St. Eugene's Maid of Erin silver-copper mine near the Haines highway. The exploration targets were Triassic massive sulphide deposits within volcanic-sedimentary environments similar to that of Kennecott. The area was designated as "unmapped" at the time and the existing charts were essentially blank (see accompanying maps). In 1957, McDougall found evidence of such rocks by aerial and ground observation along the projected trend and drew up plans to investigate those sites accessible to float aircraft during the following season. At that time, most of the smaller lakes and glaciers were unnamed and little was known

of the geology. High level photography taken in the late 1940's was available but the resultant Interim Forest Survey maps were not released until 1959. Unfortunately, the flight line covering the Windy Craggy property was considerably offset and of little value until an eventual fill-in photographic survey many years later. Valuable information on the Tatshenshini area was supplied by Jim Robertson who placer mined and trapped along the river for four years during the 1930's. Robertson was later hired and spent 40 years working for the Falconbridge group of companies.

In July, 1958, Jim McDougall and pilot-pro prospector Stan Bridcut landed a Piper Supercub and camped on an unnamed lake near the terminal moraine of an unnamed 12.9 km (8 mile) long glacier whose tributaries appeared to contain rock types related to the geological environment of interest. The lake was referred to as Tats Lake and the glacier as Tats Glacier (short for Tatshenshini). The moraines were prospected and mineralized boulders of volcanic and sedimentary origin were found both above and below the glacier. Initial follow-up work led to the "Tats showing" two miles to the north of Tats Lake, which was then staked. Further aerial reconnaissance along Tats Glacier led them to Windy Craggy mountain where a red gossanous creek had just broken through the winter snow cover. Prospectors were sent out to investigate this area. A small fly camp was set up near Red Creek and as the snow melted, the prospectors discovered patches of copper-bearing sulphides immediately above the creek.

Fourteen two-post claims named the 'Windy' and 'Craggy' groups were staked that summer. Limited by ice cover, surface sampling was undertaken followed by 12 short packsack diamond drilling holes including several through the ice in an effort to establish continuity along the partially exposed western margin of the main sulphide mass on the Windy claims. Assessment work was continuously applied to the main property but several Craggy claims were dropped (ie. East Arm Glacier extension) due to lack of funds.

The remote property was not considered economically viable by the Ventures - Falconbridge group and the possibility of a large volcanogenic massive sulphide was not realized, nor was the possibility of a large degree of open pit mining with its reduced costs. Few people could conceive of a massive sulphide deposit in the mountains of British Columbia and the location was so remote that development would not occur for many years, if at all.

In early 1980, Mr. Geddes Webster, an engineer who had been involved with the Falconbridge group earlier, contacted Falconbridge as to the possibility of obtaining a property which would qualify under the stiff requirements of 'flow-through' share tax treatment then being considered more liberally for mining companies. Petroleum exploration companies were receiving such aid but only a few mineral exploration companies had been successful in obtaining the very limited funding through this program. The Windy Craggy property was suggested which Mr. Webster followed through on, receiving approval for upgraded 'flow through funding' via his new company 'Geddes Resources Limited' (GRL).

The first joint-venture work using this funding included drilling and airborne surveying and was directed by McDougall in 1981, and subsequently followed in 1982 and 1983 with major joint venture exploration drill programs supervised by Falconbridge.

During 1984 and 1985, very little work was done, except for construction of an airstrip in 1985 by contract arrangement with the Northair Mines group. This no doubt reflected the difficulty in raising financing during this period.

The 1987 program, which commenced in April after selection of a mining contractor, included, in sequence, reactivation of the original camp at Tats Lake (under eight feet of winter snow), clearing of the airstrip with the two bulldozers remaining from airstrip construction in 1985, construction of a road from the airstrip over Tats Glacier to a potential portal site on Windy

Craggy Mountain, construction of a 40-man camp near the airstrip and mobilization of many tonnes of mining equipment and supplies by air to the airstrip and then up the glacier road to the portal. Tunnel work commenced in June 1987 and totalled 2634 feet by October 22 and 5300 feet by early February 1988. Coincident with the underground exploration, a surface exploration program was organized to evaluate, by drilling, sampling and mapping, the original Tats showing as well as an adjacent property under option. In addition, a program of regional and detailed geological mapping of the Windy Craggy Mountain and adjacent area was conducted.

The work program was scheduled on a year-round basis and no real difficulty was encountered except for transportation problems to and from the portal, 13 km from camp and airstrip, when blizzard conditions occurred once during the winter and once during spring break-up in June.

In 1984, Jim McDougall, a Vancouver based geological consultant, received the Prospector of the Year award from the Prospectors and Developers Association in Toronto for his involvement in discovering or exploring various properties and particularly for keeping alive the importance of the concept of this large copper-rich massive sulphide deposit. This was followed by the Spud Huestis award by the B.C.Yukon Chamber of Mines for similar achievements as was a similar award to Alex Smith, who was Western Exploration manager for Falconbridge from 1945 to 1965.

## TOPOGRAPHIC LANDMARKS

Many of the local topographical landmarks in the Windy Craggy area used in current reports have been named by the workers involved with the project but have not been officially registered. Several topographic names in the immediate and local area have been registered as a result of earlier exploration by McDougall whose overall base map included some 80 'in-house' names for unmapped topographic features encountered during exploration in the St. Elias area. Fossil localities plotted on this base map and forwarded to the Geological Survey of Canada had aroused some interest in this little known area and the Geographic Names Board suggested and authorized adoption of up to 60 of the more suitable names. Those given to some topographic features in the Tats area include:

Windy -	windy when staked
Craggy -	very rugged topography
Tats Lake -	shortened form of Tatshenshini River
Tats Glacier -	"
Tats Creek -	"
Noisy Valley -	wind coming down the valley and glacial fed water falls sounded like jet engines
Noisy Range -	" "
Supercub Lake -	landed the first Supercub there in 1958
Frobisher Glacier -	Frobisher Limited was a wartime subsidiary of Ventures Ltd. responsible for funding a portion of the early exploration costs
East Arm Glacier -	related to Frobisher Glacier

Turnback Canyon - original attempts to reach the Klondike via boat in 1897-98 were thwarted by swift water encountered on the Alsek River and caused by advance of a large glacier referred to as 'ZigZag' Glacier and later named 'Tweedsmuir'.

One of the more interesting names was 'Icehole Lake' which later (by mistake) turned out to be in Alaska and is now permanent on the US air navigation charts.