

**AIR PHOTO AND SATELLITE IMAGE INTERPRETATION  
OF THE MERRY PROPERTY**

Located Claims:

Merry Me 1	( 1 unit )	370102
Merry Me 2	( 1 unit )	370103
Merry Me 3	( 1 unit )	370104
Merry Me 4	( 1 unit )	370105
Merry Me 5	( 1 unit )	370106
Merry Me 6	( 1 unit )	370107
Mary 1	( 1 unit )	379151
Mary 2	( 1 unit )	379152

Location:

Lillooet Mining Division  
N.T.S.: 92 J/15  
50° 51' 40" N., 122° 41' 13" W.  
U.T.M.: 5,634,200 N., 522,080 E.

Owner and Optionor:

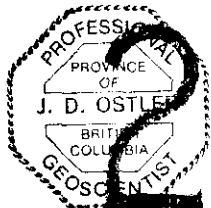
Alan Brent Hemingway  
50-1640 162<sup>nd</sup> Street  
Surrey, British Columbia  
Canada  
V4A 6Y9

Optionee:

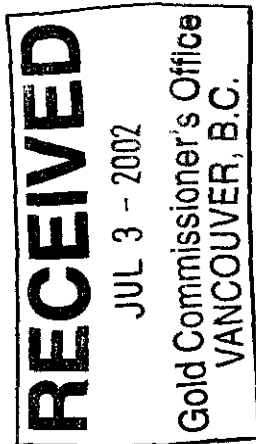
PRINCETON VENTURES, INC.  
1000-355 Burrard Street  
Vancouver, British Columbia  
Canada  
V6C 2G8

By:

**GEOLOGICAL SURVEY BRANCH**  
John Ostler, M.Sc., P. Geol. Assessor  
Consulting Geologist  
March 20, 2002



26,898



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## AIR PHOTO AND SATELLITE IMAGE INTERPRETATION OF THE MERRY PROPERTY

### SUMMARY

The Merry property is located on the northeastern slope of the Bendor Range of the Coast Mountains in southwestern British Columbia. The property comprises eight located claims containing 8 claim-units that covers 200 ha (494 A). The claims are centered on 50° 51' 40" north latitude and 122° 41' 13" west longitude (U.T.M.: 5,634,200 N., 522,080 E., Zone 10) in the Lillooet Mining Division.

It is about 240 km (146 mi) from Vancouver via British Columbia Highway 99 to the town of Pemberton and thence by a good forest access road to the village of Gold Bridge, the nearest supply centre to the property. Only basic camp supplies and services can be obtained at Gold Bridge. The closest regional centre to the Gold Bridge area, is the town of Lillooet, located about 100 km (61 mi) to the east via good gravel road. Access to the property is via a gravel road that extends eastward from Gold Bridge along the southern shore of Carpenter Lake and up Truax Creek. Vehicles with 4-wheel drive may be required to drive up the Truax Creek section of the road. The central part of the Merry property-area hosting the main showings area is accessible during the snow-free part of the year, from May until November.

Elevations on the property range from about 1,270 m (4,166 ft) at the creek near the northeastern corner of the claim to about 1,720 m (5,642 ft) on the valley slopes at the southeastern and southwestern corners of the property. The Mary Mac showings and workings, the main focus of previous exploration in the property-area, are at an elevations near 1,400 m (4,592 feet) in the central part of the property.

Soils in property-area were developed beneath a fir, cedar, pine, and hemlock forest. Generally, their profiles were sufficiently mature to have distinct horizons amenable to meaningful soil survey results, despite their development on steep slopes. However, soil surveys in the Truax Creek area are complicated by two factors: landslides and a volcanic ash layer. The slopes of the Truax creek valley are quite steep and some areas are subject to periodic landslides that disrupt soil profiles. Care must be taken to penetrate the ash layer to access the illuviated "B" soil horizon when sampling these soils to obtain reliable results.

As a result of recent logging, there is insufficient timber suitable for mining purposes on the Merry claim.

Truax Creek is a permanent creek that flows northward across the property-area. It could provide adequate fresh water for mining purposes.

The property boundaries of the Merry claim have not been surveyed, so their exact positions on the ground have not been defined. The private land owners in the Truax Creek valley. No part of the land covered by the Merry property is part of a park, mineral reserve, or aboriginal homeland.

There is no plant, equipment, inventory, mine or mill structure of any value on the Merry property.

Two mineralizing events have affected the Merry property-area, producing two overlapping styles of economic mineralization: an early molybdenum-bearing quartz stockwork, and later, high-grade, gold-bearing stibnite veins and disseminations.

The 1980 soil-geochemical survey revealed that molybdenite mineralization extends an unknown distance southeast of the Main zone on the Merry Me 3 claim. This mineralization has a peripheral gold halo around it's western side. Such precious-metal halos are common around molybdenum porphyry deposits. The pyritic gossan zone around the base of Mount Williams, southeast of the Merry property may also be related to this system. The high intensity of the soil-molybdenum anomaly southeast of the Main zone on the Merry Me 3 claim is probably a topographic effect. The centre of molybdenum mineralization probably is somewhere east of the Merry claim group. If this target is to be seriously explored, more claims must be staked south and east of the Merry claim group.

High-grade, gold-bearing stibnite veins have been identified in three locations on the Merry property. These are the Mary Mac, North, Main, and South zones. A drill-inferred resource of 60,400 tonnes (66,400 tons) grading an average of 8.125 gm/mt (0.237 oz/ton) has been calculated for the three zones using a cut off grade of 3.428 gm/mt (0.10 oz/ton). All of these zones are open along strike and to depth. Soil-geochemical surveys have been of little use in discovering more stibnite bodies; however, A.B. Hemingway's magnetometer survey demonstrated that stibnite mineralization may respond well to geophysical surveys.

Air photography of the Merry property area shows that all three known stibnite-gold zones in the property-area are arranged in a radial pattern around the northwestern margin of the 1980 soil-molybdenum anomaly. Also, the gold zones are oriented at moderate to high angles to the margin of the anomaly.

It is possible that pressure induced by advancing molybdenum-bearing hydrothermal fluids, created dilation in peripheral zones of weakness. This could have provided ground preparation for subsequent gold-bearing stibnite mineralization. With the general trend of the soil-molybdenum anomaly being northwest-southeasterly, the orientation of any major dilation and subsequent injection of high-grade, stibnite-gold mineralization should be northwest of the Main and North zones along trend with the nose of the soil-molybdenum anomaly.

These spatial relationships could explain the location of both the molybdenite and stibnite mineralization in the same general area. However, they alone, are insufficient to prove any genetic relation between the two mineralization types exposed on the Merry property.

Iron oxide colour anomalies are numerous throughout the schists and gneisses of the Bridge River Complex. They are particularly plentiful and intense in the stratigraphy that crosses the southern part of the Merry property. This stratigraphy includes the rusty area around the base of Mount Williams that has been reported upon by several mappers of this area.

In the property-area itself, both the South and Main zones have co-incident clusters of iron oxide colour anomalies that are related to rusty material exposed in trenches and cuts in these workings areas. Although the area of the 1980 soil-molybdenum anomaly in the eastern part of the property-area is almost completely in a dark shadow on the satellite image where no anomalies could be detected, very intense iron oxide anomalies are present on the ridges immediately south and east of that area. The soil molybdenum anomaly may be part of a mineralized system that extends southeastward off the property-area onto these ridges.

The pattern of hydroxyl colour anomalies is far more concentrated in this area than is that of the oxide anomalies. The hydroxyl anomaly pattern on the property indicates that clay alteration is most prevalent around the margin of the 1980 soil-molybdenum anomaly. Unfortunately, the central part of the soil-anomaly area is in a shadow on the satellite image where almost no colour anomalies were recognized. However, two areas of intense hydroxyl colour anomalies occur about 1.5 and 3.0 km (0.6 and 1.2 mi) along strike in Bridge River Complex rocks southeast of the property. These areas of hydroxyl anomalies are generally co-incident with areas of intense iron oxide anomalies and within the rusty area defined by previous mappers.

The vein stibnite-gold mineralization and soil-molybdenum anomaly on the Merry property may be spatially related to a larger northwest-southeasterly trending mineralized system. This larger system may extend along from the lower slope of Mount Williams for 3.0 km (1.2 mi) southeast of the Merry property, and for an unknown distance north of it. The area southeast of the Merry property is most prospective for porphyry molybdenum mineralization, the area northwest of the property is most prospective for vein and replacement, gold-bearing stibnite mineralization.

The current program of air photo and satellite imagery study has indicated that more gold-bearing stibnite mineralization is most likely to be found northwest of the Main and North zones, along trend with the nose of the soil-molybdenum anomaly. The results of the current program are sufficiently encouraging to justify continuing with the next phase of the previously recommended program, the magnetometer survey.

However, the results of the current program also have indicated that an hydrothermal system hosting a body of porphyry-type molybdenum mineralization, may exist southeast of the Merry property. This area should be diligently prospected to investigate this possibility.

# AIR PHOTO AND SATELLITE IMAGE INTERPRETATION OF THE MERRY PROPERTY

## 1.0 INTRODUCTION

### 1.1 Introduction and Terms of Reference

The writer was retained by Princeton Ventures, Inc. through Cassiar East Yukon Expediting Ltd. to conduct a program of air photo and satellite image interpretation on the Merry property. These interpretations, as reported upon herein, were based on previous exploration in the Mara property area, data in the literature, British Columbia government air photos, and Landsat TM images.

### 1.2 Property Description and Location

The Merry property is located on the northeastern slope of the Bendor Range of the Coast Mountains in southwestern British Columbia (Figure 1). The claim-area occupies part of the Truax Creek valley, a steep cleft that drains northward to Carpenter Lake about 2 km (1.2 mi) north of the claim-area. It comprises eight located claims containing 8 claim-units that cover 200 ha (494 A). The claims are centered on 50° 51' 40" north latitude and 122° 41' 13" west longitude (U.T.M.: 5,634,200 N., 522,080 E., Zone 10) in the Lillooet Mining Division (Figure 2).

The Merry property comprises eight located claims as follows (Figure 2):

Claim Name	Record Number	No. of Units	Record Date	Expiry Date	Owner
Merry Me 1	370102	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 2	370103	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 3	370104	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 4	370105	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 5	370106	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 6	370107	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Mary 1	379151	1	July 10, 2000	July 10, 2003	A.B. Hemingway
Mary 2	379152	1	July 10, 2000	July 10, 2003	A.B. Hemingway





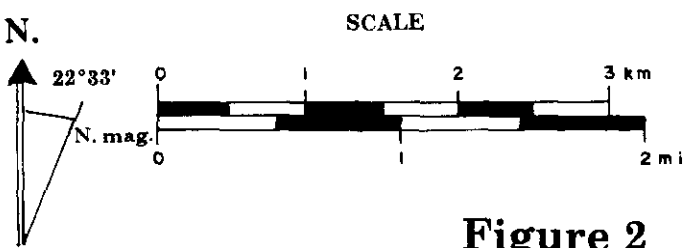
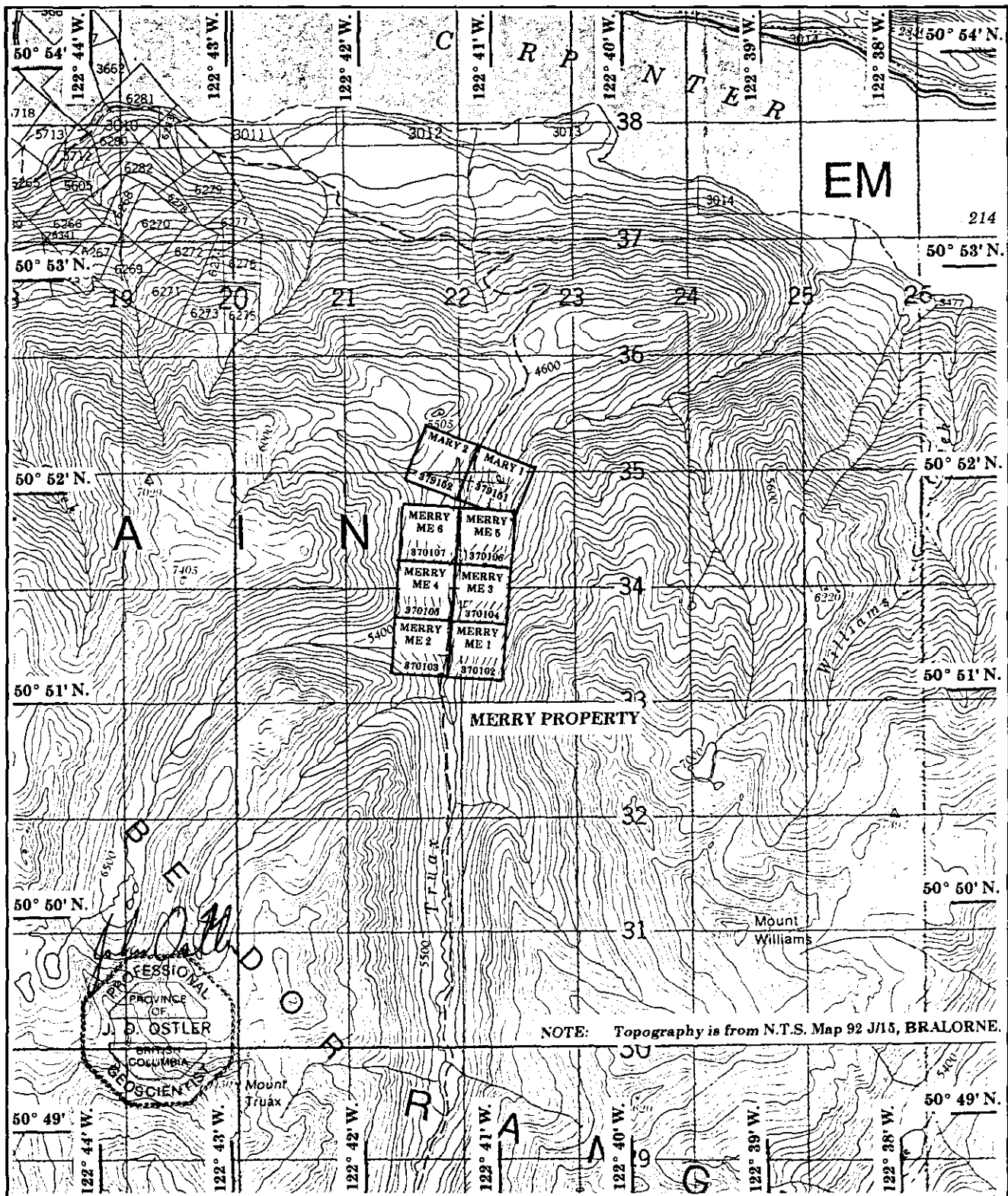


Figure 2

CASSIAR EAST YUKON EXP. LTD.

PRINCETON VENTUERS, LTD.

### LOCATION and TERRAIN

#### MERRY PROPERTY

50° 51' 40" N., 122° 41' 13" W.  
U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002

Princeton Ventures, Inc. acquired an option to purchase 100% ownership in the Merry property from Alan Brent Hemingway on May 18, 2001. To exercise its option, Princeton must make payments of \$US 1,000 and a total of 55,000 shares of the common stock of the Company to Hemingway by June 30, 2003. Also the Company must spend a total of \$US 135,000 on exploration of the Merry property by June 30, 2003.

The property boundaries of the Merry claim-group have not been surveyed, so their exact positions on the ground have not been defined. All of the area covered by the Merry property is crown land. There is no private land in the Truax Creek valley. No part of the land covered by the Merry property is part of a park, mineral reserve, or aboriginal homeland.

There is no plant or equipment, inventory, mine or mill structure of any value on the Merry property.

The exploration reported upon herein is the first phase of a three-phase exploration program (Ostler, 2001). The first two phases of that exploration program comprise air photo and satellite interpretation, and ground magnetic survey. Those programs are non-destructive and require no permits or damage bonds. The induced polarization survey comprising the third phase of the recommended exploration program probably would require a damage bond of less than \$CDN 3,000 (\$US 2,000). That bond will be applied for before that phase of exploration is commenced.

### **1.3 Accessibility, Climate, Local Resources, Infrastructure, and Physiography**

The Merry property is located 2 km (1.2 mi) southwest of Carpenter Lake, which separates the Chilcotin Ranges to the northeast and the Pacific Ranges of the Coast Mountains to the southwest (Holland, 1976). Although the Merry property is in the Pacific Ranges, it's topography more closely resembles that of the Chilcotin Ranges located on the northeastern side of the lake.

Holland's description of the terrain of the Chilcotin Ranges is as follows:

The Chilcotin Ranges ... lie along the east side of the Pacific Ranges and are a subdivision of them. They extend southeastward from the head of Klinaklini River to Lillooet. They are very largely composed of non-granitic rocks and lie east of the eastern contact of the Coast Intrusions. On their east the Chilcotin Ranges are flanked by the Fraser Plateau and, southeast of Churn Creek, by the Camelsfoot Range, which lies within the Fraser Plateau. The boundary between plateau and mountains is sharply defined ... by a narrow transition zone. Between the Klinaklini River and the north end of Taseko Lakes the generalized line of the 5,500-foot contour serves as a boundary, and between Taseko Lakes and the head of the Yalakom River the boundary is more or less along the 6,000-foot contour. The Yalakom River, which follows the Yalakom fault northwest of Moha, separates the Shulaps Range of the Chilcotin Ranges from the Camelsfoot Range of the Fraser Plateau.

High points in the ranges include Mount Tatlow (10,058 feet) west of Taseko Lakes, Taseko Mountain (10,047 feet) east of Taseko Lakes, and Big Dog Mountain (9,391 feet) and Shulaps Peak (9,446 feet) in the Shulaps Range.

The Chilcotin Ranges are underlain by a great variety of non-granitic rocks. The ranges between Tatlayoko and Taseko Lakes consist very largely of northeasterly striking Mesozoic volcanic and sedimentary rocks. Between Taseko Lakes and the Fraser River, Palaeozoic and Mesozoic sedimentary and volcanic rocks are intruded by small granitic stocks, and Big Dog Mountain and Shulaps Peak are the highest points of a peridotite of Triassic age.

The Chilcotin Ranges rise progressively higher in approaching the granite ranges to the west. For the most part, they display a combination of high serrate peaks rising above lower rounded summits and gently sloping areas of undissected upland. Glaciation has scalloped the northern slopes and modified the valley profiles. Timberline is between 6,000 and 6,500 feet. The ranges experience a rainfall of 40 inches or less, and as a result, timber is only moderately heavy and undergrowth is relatively sparse.

Holland, S.S.; 1976: p. 43.

The property is located in the Truax Creek valley, a steep cleft that drains northward to Carpenter Lake about 2 km (1.2 mi) north of the claim-area. Elevations on the property range from about 1,270 m (4,166 ft) at the creek near the northeastern corner of the claim to about 1,720 m (5,642 ft) on the valley slopes at the southeastern and southwestern corners of the property. The Merry Mac showings and workings, the main focus of previous exploration in the property-area, are at an elevations near 1,400 m (4,592 feet) in the central part of the property.

Soils in property-area were developed beneath a fir, cedar pine, and hemlock forest.

Generally, their profiles were sufficiently mature to have distinct horizons amenable to meaningful soil survey results, despite their development on steep slopes. However, soil surveys in the Truax Creek area are complicated by two factors: landslides and a volcanic ash layer.

The slopes of the Truax creek valley are quite steep and some areas are subject to periodic landslides that disrupt soil profiles. Soil surveys are generally not effective in such areas.

A Holocene ash layer is present near the tops of soil profiles throughout the Bridge River gold camp. Brent Hemingway (2000) described the Bridge River ash as follows:

A volcanic ash layer covers most of the Merry claims from a thickness of 6 to 30 cm (2.4 to 11.8 inches). This ash layer is known as the Bridge River ash. It regionally covers a large area over the glacial colluvium. The ash is a light yellow coloured, coarse-grained rhyodacitic pumice dated at 2,350 years before present. The source of the ash apparently ... (is) a volcanic vent on Plinth Mountain in the upper Lillooet River valley, about 50 km (30.5 mi) distant from the Gold Bridge area. The ash covers all but the highest peaks, steepest slopes, and outcrops where the action of the weather has washed it clear.

Hemingway, A.B.: 2000: p. 11.

Care must be taken to penetrate the ash layer to access the illuviated "B" soil horizon when sampling these soils. Hemingway (2000) raised a concern that acidification of soil profiles by the ash layer could remobilize metals and distort soil survey results. The results of the writer's work in the Bridge River gold camp indicate that acidification from the ash layer does not significantly affect soil survey results unless the ash is quite thick locally, and the soil sample is taken from part of the soil profile adjacent to the ash layer.

Much of the original forest covering the claims has been removed by recent logging. There is not sufficient timber suitable for mining purposes on the Merry claims. However, timber is readily available at Lillooet.

Truax Creek is a permanent creek that flows northward across the property-area (Figure 2). It could provide adequate fresh water for mining purposes.

It is about 240 km (146 mi) from Vancouver via British Columbia Highway 99 to the

town of Pemberton and thence by a good forest access road to the village of Gold Bridge, the nearest supply centre to the property. Only basic camp supplies and services can be obtained at Gold Bridge. The closest regional centre to the Gold Bridge area, is the town of Lillooet, located about 100 km (61 mi) to the east via good gravel road. Access to the property is via a gravel road that extends eastward from Gold Bridge along the southern shore of Carpenter Lake and up Truax Creek. Vehicles with 4-wheel drive may be required to drive up the Truax Creek section of the road. The central part of the Merry property-area hosting the main showings area is accessible during the snow-free part of the year, from May until November.

The closest weather station to the property-area is at Shalalath located near Lillooet, British Columbia. Climatic statistics for that station are quoted from Environment Canada as follow:

Average temperature: January, High 0.7°C. (33.3°F.) August, High 27.4°C. (81.3°F.)  
Low -5.0°C. (23.0°F.) Low 14.4°C. (57.9°F.)

Average annual precipitation: 418.3 mm (16.5 in) of rain and 97.1 cm (38.2 in) of snow.

Snow stays in sheltered parts of the northerly facing Truax Creek valley from November until May or June.

#### **1.4 History of Previous Exploration the Merry Property**

A summary of exploration and development in the Merry property-area is as follows:

##### **1932-1936**

The original Mary Mac claims were staked. Gold-bearing stibnite veins were explored by trenching and a short adit was driven into what later became known as the Main and South zones at the eastern bank of Truax Creek.

- 1949** A truck road was built up Truax Creek through the Merry property-area to claims farther south at the top of the valley.

##### **1960-1974**

H. Street of Gold Bridge, B.C. acquired the area and built a small mill to concentrate high-grade stibnite. The mill reportedly was operated at a rate of 3 to 4 tonnes (3.3 to 4.4 tons) per day. Several small adits and cuts were made in search of high-grade pockets of mill-feed.

- 1980** The area was staked on behalf of W.A. Cook of Lillooet, B.C., who subsequently sold a 50% interest in the property to Keron Holdings Ltd. of Vancouver, B.C. A sparse reconnaissance soil survey was conducted over most of the lower Truax valley and a more detailed survey was done between the south and main zones in the area currently covered by the Merry property (Gruenwald, 1980). The soil surveys were accompanied by an inspection of H. Street's trenches in the main showing area.

- 1981** The property-area was optioned to Hudson's Bay Oil and Gas Company Limited which conducted a program of drill-access road building on the eastern slope of the valley adjacent to the main zone. Soil and rock-chip samples were taken from the road cuts (Hall, 1981). Hudson' Bay dropped it's option.

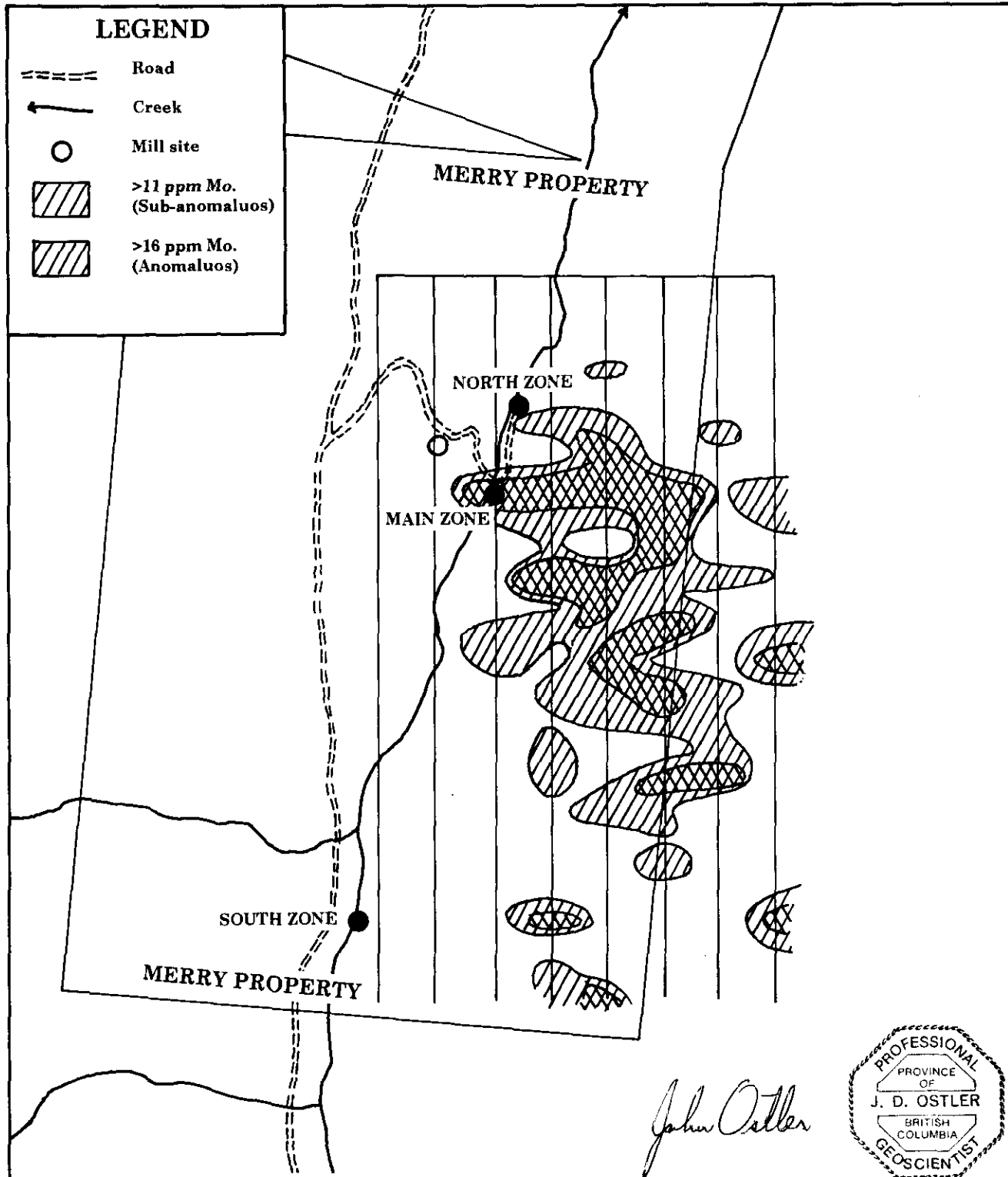
- 1983** W.A. Cook and Keron Holdings Ltd. Optioned the property-area to Andaurex Resources Inc. of Toronto, Ont., which completed a total of 1,000 m (3,280 ft) of drilling in the Main, North and South zones. A resource for each zone was calculated (Kerr, 1983)

- 1987** small trenching program by Pilgram Holdings Ltd. Subsequently, all claims on the Mary Mac showings lapsed.

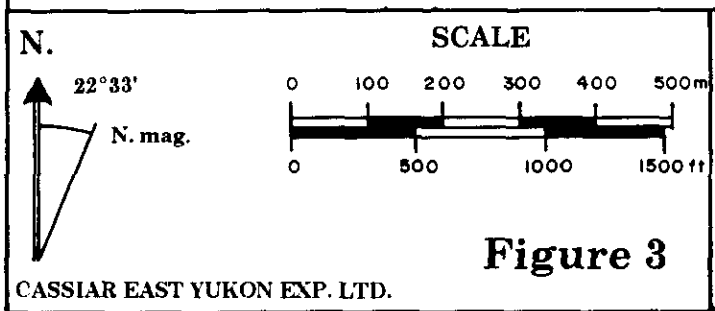
##### **1999-2000**

The area was staked by A. B. Hemingway of Surrey, B.C., the current owner of the Merry property. Hemingway conducted a preliminary slide and magnetometer surveys over the property-area (Hemingway, 2000).

- 2001** The Merry property was optioned to Princeton Ventures, Ltd. on May 18, 2001.



NOTE: This figure is adapted from Gruenwald, Werner; 1980: Figure 224-5.

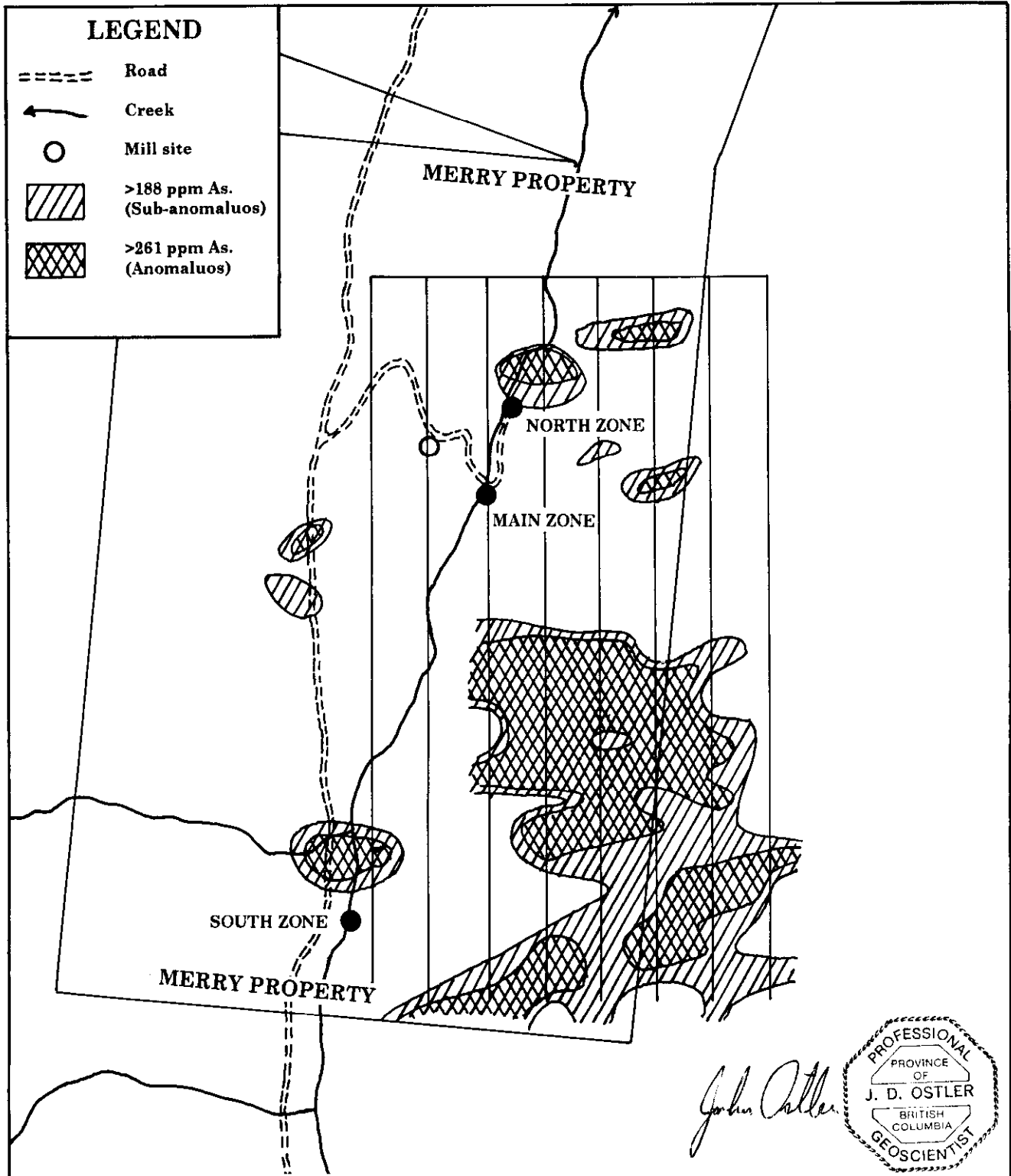


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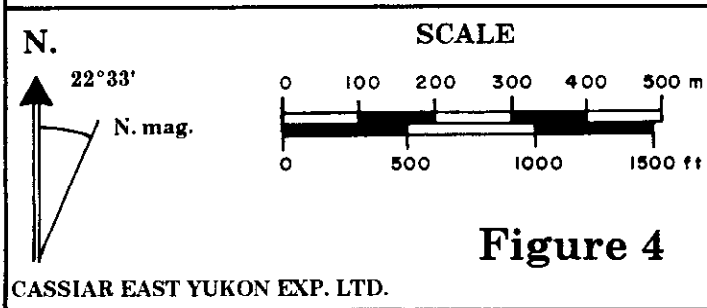
**1980 SURVEY:  
MOLYBDENUM in SOILS**

**MERRY PROPERTY**  
50°51'40" N., 122°41'13" W.  
U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002



NOTE: This figure is adapted from Gruenwald, Werner; 1980: Figure 224-6.



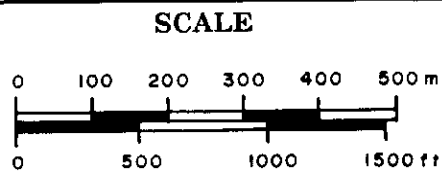
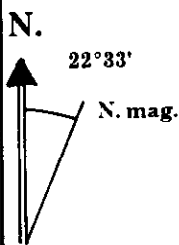
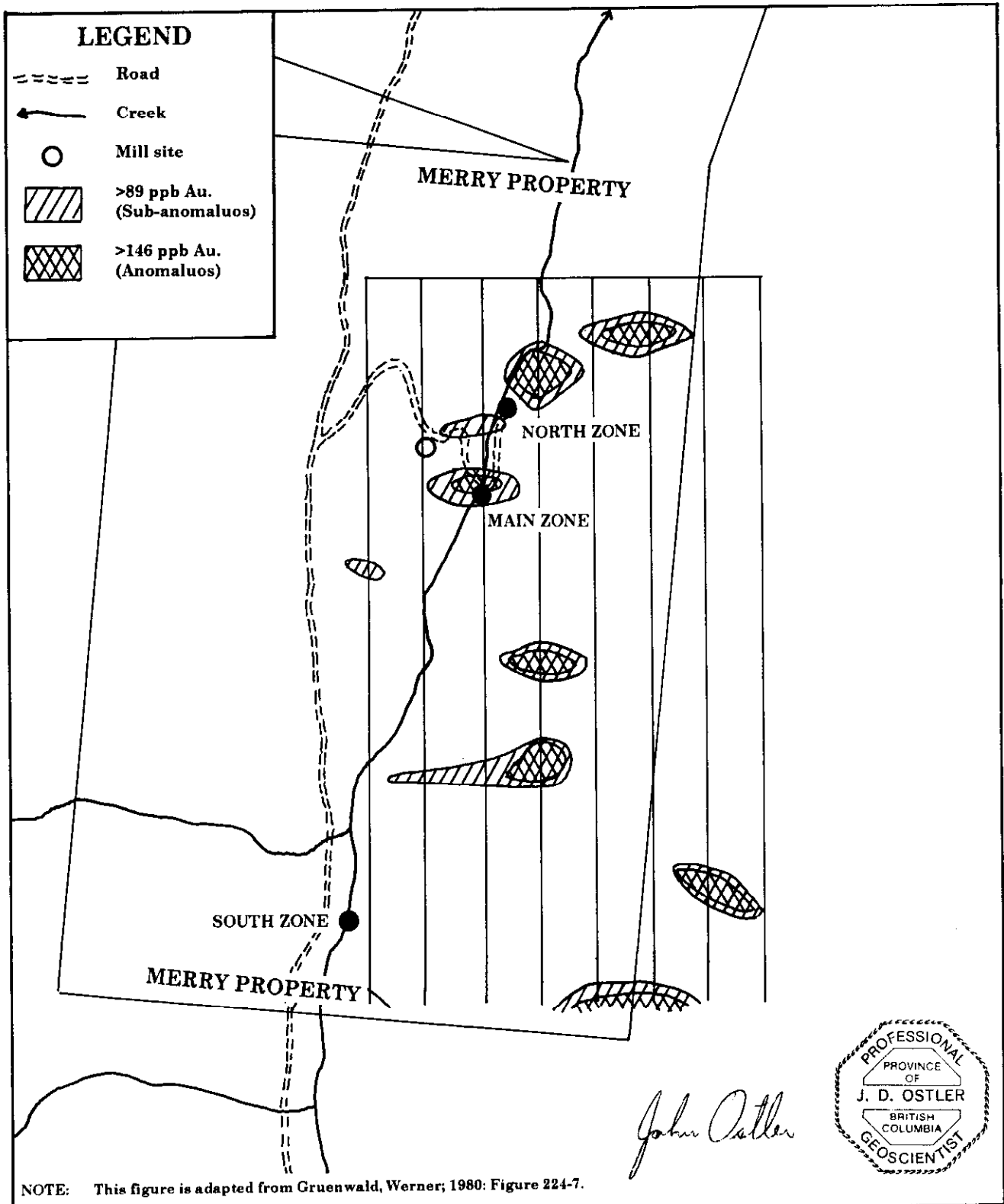
PRINCETON VENTURES, LTD.

**1980 SURVEY:  
ARSENIC in SOILS**

**MERRY PROPERTY**  
50°51'40" N., 122°41'13" W.  
U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002





**Figure 5**

CASSIAR EAST YUKON EXP. LTD.

PRINCETON VENTUERS, LTD.

**1980 SURVEY:  
GOLD in SOILS**

**MERRY PROPERTY**

50°51'40" N., 122°41'13" W.

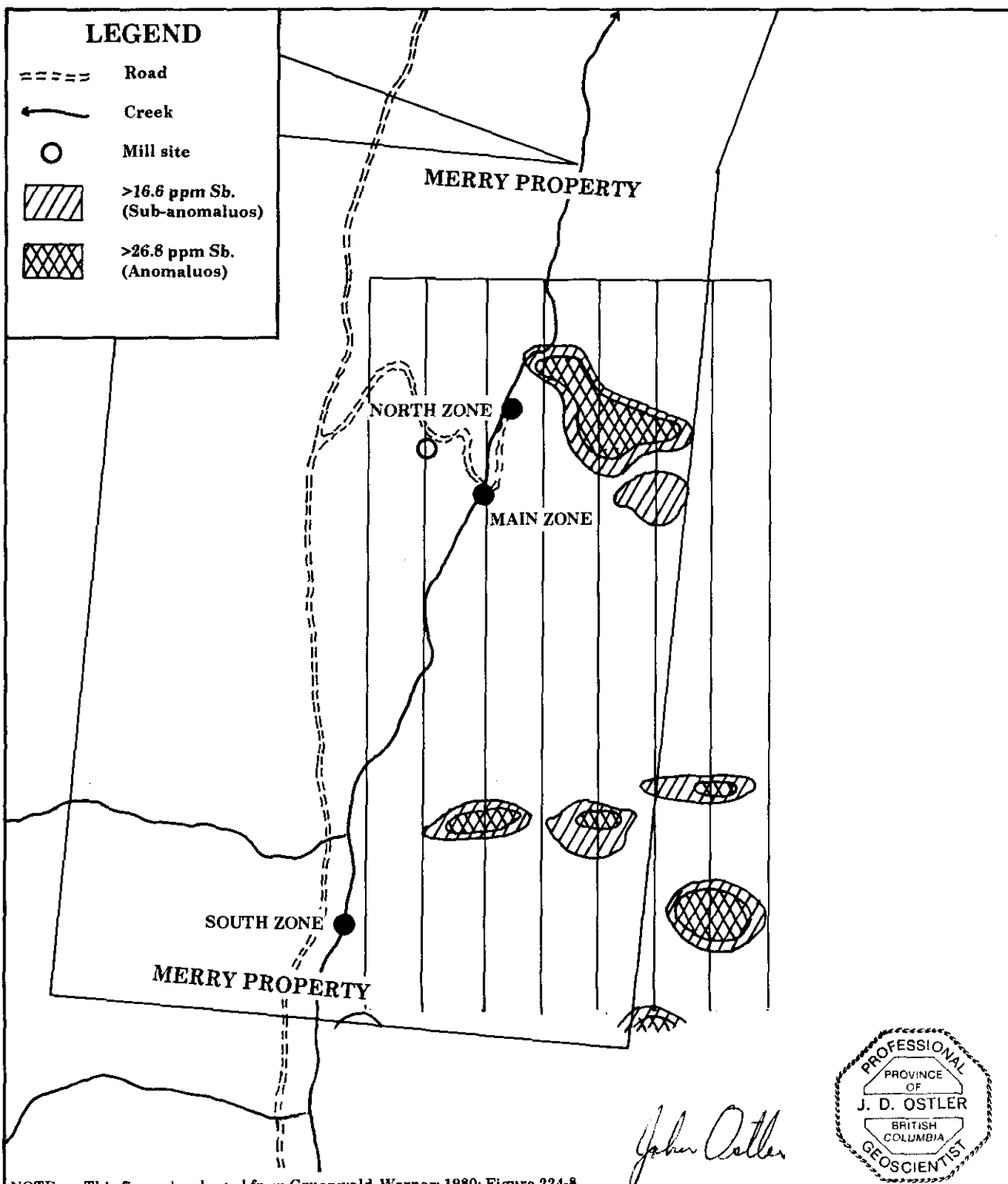
U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15

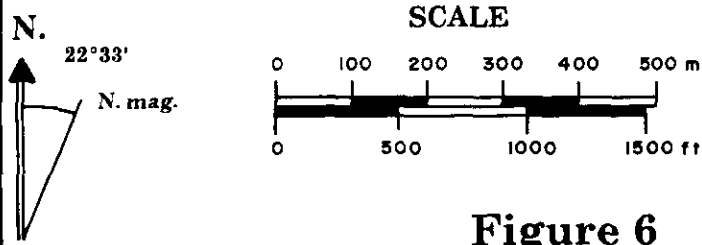
LILLOOET M.D., B.C.

JOHN OSTLER; M.Sc., P.Geo.

MARCH, 2002



NOTE: This figure is adapted from Gruenwald, Werner; 1980: Figure 224-8.



CASSIAR EAST YUKON EXP. LTD.

PRINCETON VENTURES, LTD.

**1980 SURVEY:  
ANTIMONY in SOILS**

**MERRY PROPERTY**

50°51'40" N., 122°41'13" W.

U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15

LILLOOET M.D., B.C.

JOHN OSTLER; M.Sc., P.Geo.

MARCH, 2002

The first significant modern exploration on the Merry property-area was conducted by Werner Gruenwald (1980) for Keron Holdings Ltd. A sparse reconnaissance soil survey was conducted over most of the lower Truax valley, and a more detailed one was done around the main zone, in the area currently covered by the Merry property. The soil surveys were accompanied by an inspection of H. Street's trenches in the main showing area.

Sample spacing was 100 m (328 ft) along east-west lines that were spaced 500 m (1,640 ft) apart in the reconnaissance soil survey. Such a sparse survey was of ineffective for identifying soil anomalies. Probably, it was more important to Gruenwald's crew as an exercise in prospecting. The detailed soil survey, however, comprised a much tighter sampling grid covering a rectangular area measuring 700 m (2,296 ft) east-west and 1,250 m (4,100 ft) north-south. That grid had north-south lines spaced 100 m (328 ft) apart that were sampled at 50 m (164 ft) intervals (Figures 3 to 6). That sampling program was quite successful at identifying soil anomalies around the main workings areas. Gruenwald (1980) summarized the results of the detailed soil survey as follows:

Geochemical sampling outlined several large areas with highly anomalous values for molybdenum and arsenic. These two partially overlapping anomalies are located within the detailed grid immediately southeast of the known stibnite-gold showings (the Main zone). Found within these large anomalous zones are smaller co-incident areas of anomalous antimony and gold values. The spatial relationships between the individual anomalies and the known mineralized areas would seem to suggest the possible presence of a large molybdenite mineralized intrusive body and peripheral gold-antimony +/- arsenic mineralization (i.e. system of veins).

Gruenwald, Werner: 1980: p.3.

Gruenwald performed a statistical analysis on the distribution of soil-metal concentrations with the following results:

STATISTICAL ANALYSIS OF SOIL-METAL CONCENTRATIONS

Concentration Threshold	Molybdenum (ppm)	Antimony (ppm)	Arsenic (ppm)	Gold (ppb)
Background	<5.8	<6.4	<75	<32
Possibly Anomalous	5.8	6.4	75	32
Probably anomalous	11.0	16.7	169	90
Definitely anomalous	16.0	26.8	261	146

NOTE: This table is created from the data of Gruenwald, Werner; 1980: p.17.

Gruenwald (1980) used the mean of each metal distribution to define his "possibly anomalous" contour. This excluded only 50% of the data and resulted in soil geochemical maps that contained an excessive amount of statistical noise. On Figures 3 to 6, the writer omitted Gruenwald's "possibly anomalous" contour to make the soil anomalies more distinct. Gruenwald used the first positive standard deviation of each metal distribution to define his "probably anomalous" contour. This contour excludes 84% of the data and is normally used to define sub-anomalous soil-metal concentrations as is noted in the legends of Figures 3 to 6. Gruenwald's "definitely anomalous" contour was defined by the second standard deviation which excludes 92.5% of the data. Soil-metal concentrations that plot within this contour were truly anomalous.

With a more cautious use of contours, soil-metal anomalies, the molybdenum anomaly (Figure 3) is displayed as most intense just east of the Main zone. It decreases in intensity south-southeastward up the hillside. It is possible that this trailing off of soil-molybdenum concentrations is due to exposure at progressively higher elevations, farther from the centre of molybdenum mineralization, and not necessarily due to a lessening of intensity of that mineralizing system in that direction.

A series of isolated soil-gold anomalies form a distinctive halo around the western side of the molybdenum anomaly (Figure 5). The lack of a gold halo around it's eastern side may

be due to that feature extending eastward off the grid-area. Precious-metal halos and pyritic zones commonly surround porphyry molybdenum deposits. The molybdenum anomaly east of the main zone may be a reflection of the western edge of an extensive body of porphyry molybdenum mineralization. The high-intensity area within that anomaly just east of the Main zone may be entirely a topographic effect and not a reliable indicator of the centre of mineralization. It is interesting to note that a pyritic belt surrounds the base of Mount Williams southeast of the Merry property (Figure 2). This may also be a topographic effect related to an extensive body molybdenum mineralization.

Antimony soil-anomalies are concentrated in two areas: northeast of the Main and North zones, and east of the South zone (Figure 6). These anomalies may be the reflections of more high-grade gold-bearing stibnite veins and disseminations east of Truax Creek.

Although there is a small arsenic soil-anomaly down-stream from both the South and North zones, the most extensive arsenic soil-anomalies are concentrated in the southeastern part of the 1980 detailed soil-survey area (Figure 4). This concentration of anomalies has an apparent east-northeasterly trend and seems not to be related to any known mineralization. The writer believes that these anomalies are caused by arsenic leakage from east-northeasterly trending shears that post-date both the molybdenite and stibnite mineralization. Such shears were mapped in road cuts southeast of the Main zone (Hall, 1981 and Kerr, 1983).

The results of the 1980 soil geochemical survey were sufficiently positive for Hudson's Bay Oil and Gas Limited to option the Truax Creek property and continue exploration of it in 1981. G.I. Hall (1981) supervised the construction of a series of drill access roads on the hill side southeast of the Main zone to test the extent and character of mineralization in that direction (Figure 7). Soil and rock-chip samples were taken from selected rock exposures along the road cuts, in an effort to understand the distributions and associations of economic metals, including antimony, arsenic, copper, silver, and gold.

Hall's (1981) conclusions were as follow:

Bulldozed drill access roads were completed on the northwesterly facing slope of the Truax Creek valley over a gold-molybdenum-arsenic soil anomaly discovered in 1980. A thick sequence of very fine-grained cherty tuffs striking from 100-110 degrees and dipping 60-80 degrees south is cut by numerous steeply dipping sills and dikes of feldspar porphyry or hornblende diorite up to 5 m (16.4 ft) thick trending ESE. Results of soil sampling along the cut banks reveal sporadic soil anomalies in gold and molybdenum. Detailed rock sampling results indicate that gold is sporadic and unpredictable in its occurrence within the tuffs. In general, there appears to be a close association between gold and arsenic values. Molybdenum values tend to be highest at lower elevations and in road cuts nearest the small creek to the southwest of the avalanche slope (Figure 7). The northwesterly trending lineament now occupied by the small creek may be related to a mineralizing system only weakly exposed in a zonal pattern at the present surface.

The highest precious metal values on the property assaying 7.64 gm/mt (0.223 oz/ton) gold and 17.1 gm/mt (0.5 oz/ton) silver across 5 m (16.4 ft) are associated with the contact zone between feldspar porphyry and cherty volcanics on the east bank of Truax Creek in the Main showing area. Gold is not directly associated with high-grade stibnite but occurs in the same ribbon-quartz system. Silver, on the other hand, appears to be directly associated with high-grade stibnite, resulting in a deep blue colour of the otherwise steel grey stibnite. The strike extension to the southeast of this mineralized zone was not encountered in any of the road cuts sampled and mapped.

Hall, G.I.; 1981: p.1.

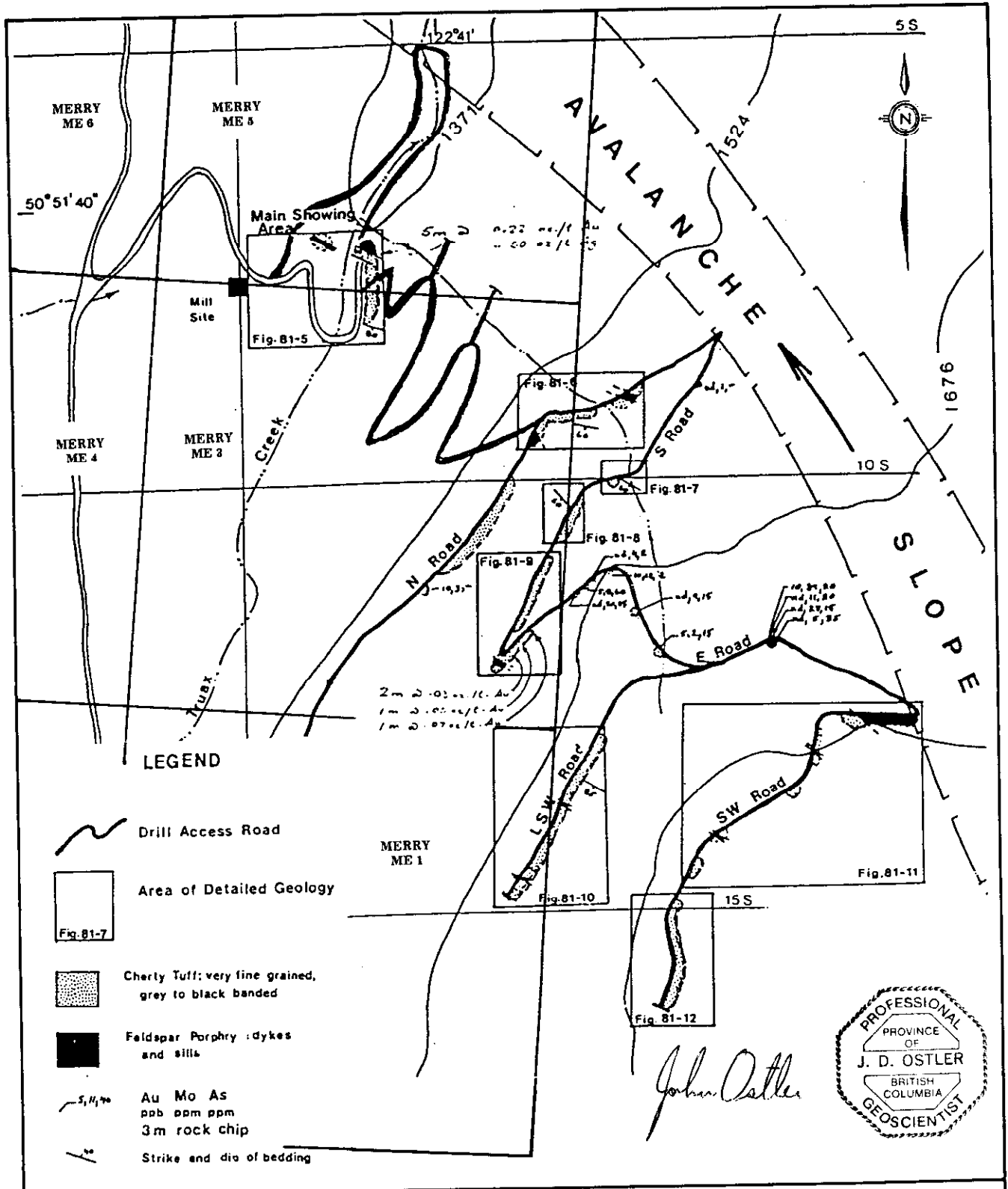
Hall (1981) described the Main zone in detail as follows:

Detailed sampling and mapping in the area of the main showings has revealed a contact zone between feldspar porphyry and footwall cherty tuff on the east side of Truax Creek containing a 5 m (16.4 ft) width of 7.64 gm/mt Au (0.223 oz/ton) and 17.1 gm/mt Ag (0.5 oz/ton). The contact strikes 110 degrees and dips to the north at 40 degrees. In the footwall cherty tuff there are lenses of stibnite and ribbon quartz up to 10 cm (4 inches) thick. A grab sample of massive stibnite returned 1.7 gm/mt Au (0.05 oz/ton) and 329 gm/mt Ag (9.6 oz/ton).

Within the feldspar porphyry there are 1 cm (0.4 inch) quartz veins striking from 030 -040 degrees with variable steep dips that contain scattered specks of molybdenite. One dry fracture striking 120 degrees and dipping 70 degrees southerly near the portal on the east side of Truax Creek contains traces of molybdenite and pyrite.

On the west side of Truax Creek, ribbon quartz and stibnite are banded in very fine-grained tuffaceous material about one-half metre (1.65 ft) in width in the portal of a 30 m (98.4 ft) long adit. The feldspar porphyry at this location occupies the footwall to the stibnite zone probably as a sill, whereas across the creek, the stibnite is in the footwall tuff below the feldspar porphyry. A 1m (3.3 ft) sample across the ribbon quartz zone gave 3,300 ppb (0.01 oz/ton) Au. A 1 m (3.3 ft) sample across the shear zone striking northeasterly in feldspar porphyry just south of the portal gave 2,000 ppb (0.006 oz/ton) Au.

Hall, G.I.; 1981: p.11.



Hudson's Bay seemed to have been discouraged by not having been able to trace the Main zone to the southeast up the hillside. The company dropped its option despite G.I. Hall's recommendation that the property be drilled in search for the continuation of mineralization.

In 1983, the property was optioned to Andaurex Resources Inc. who commissioned J.R. Kerr (1983) to direct the drilling program on the high-grade stibnite veins that had been recommended two years earlier by G.I. Hall.

The 1983 drill program comprised 872.2 m (2,861 ft) of NQ core drilling. A total of 11 holes were drilled, of which 2 were lost in overburden (Figures 8 to 10). The program was designed to identify and extend near-surface stibnite mineralization that could be added to the mineral inventory of the three known zones. It was successful.

J.R. Kerr's (1983) description of the three known stibnite zones after drilling were as follow:

Main Zone: The main zone has been intersected in all six holes, and occurs in both the *sediments/volcanics and the feldspar-porphyry*. It is within the *feldspar-porphyry* that economic gold intersections over substantial widths occur (surface showing, DDH-2, 5 & 9). The zone appears to plunge to the west, with an apparent decrease in content of gold with depth. The zone is open in both directions along strike.

South Zone: The south zone is exposed in two surface trenches and in three drill holes, and occurs in only the *volcanic/sedimentary rocks*. The zone is very strong, with consistent mineralized widths ranging from 1 to 4 metres (3.3 to 13.2 ft). The zone is open in both directions along strike and with depth.

North Zone: The north zone is indicated in two drill holes, and occurs in both *volcanics and feldspar-porphyry*. The interpretation of this zone can be regarded as inconclusive, partly due to drill problems and poor core recovery of DDH #4, and due to lack of correlation of the intersected zones to surface showings. The zone can be regarded at this time to be open in all directions and at depths. The indicated reserves are very speculative.

Kerr, J.R.; 1983: p. 10.

Kerr (1983) used both surface mineral showings and drill intersections to calculate a drill-inferred resource for each to the three known stibnite zones. The results of his calculations are as follow:



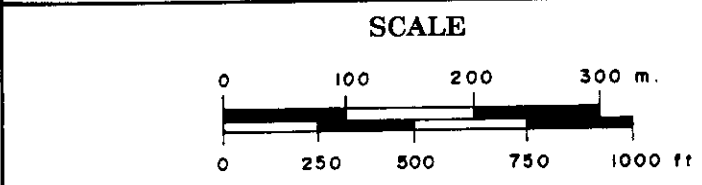
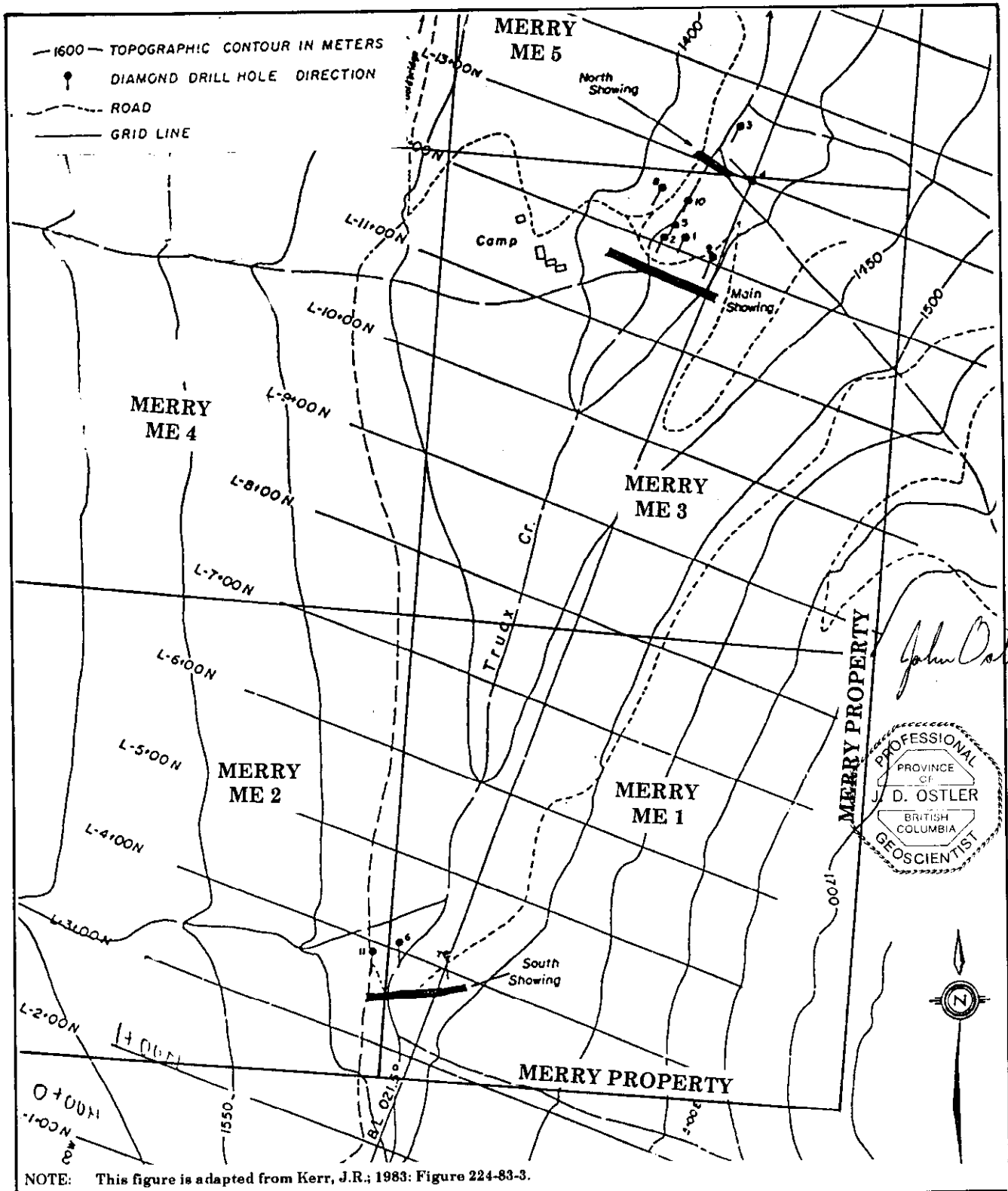


Figure 8

CASSIAR EAST YUKON EXP. LTD.

PRINCETON VENTURES, LTD.

**LOCATION of  
 1983 DRILLING**

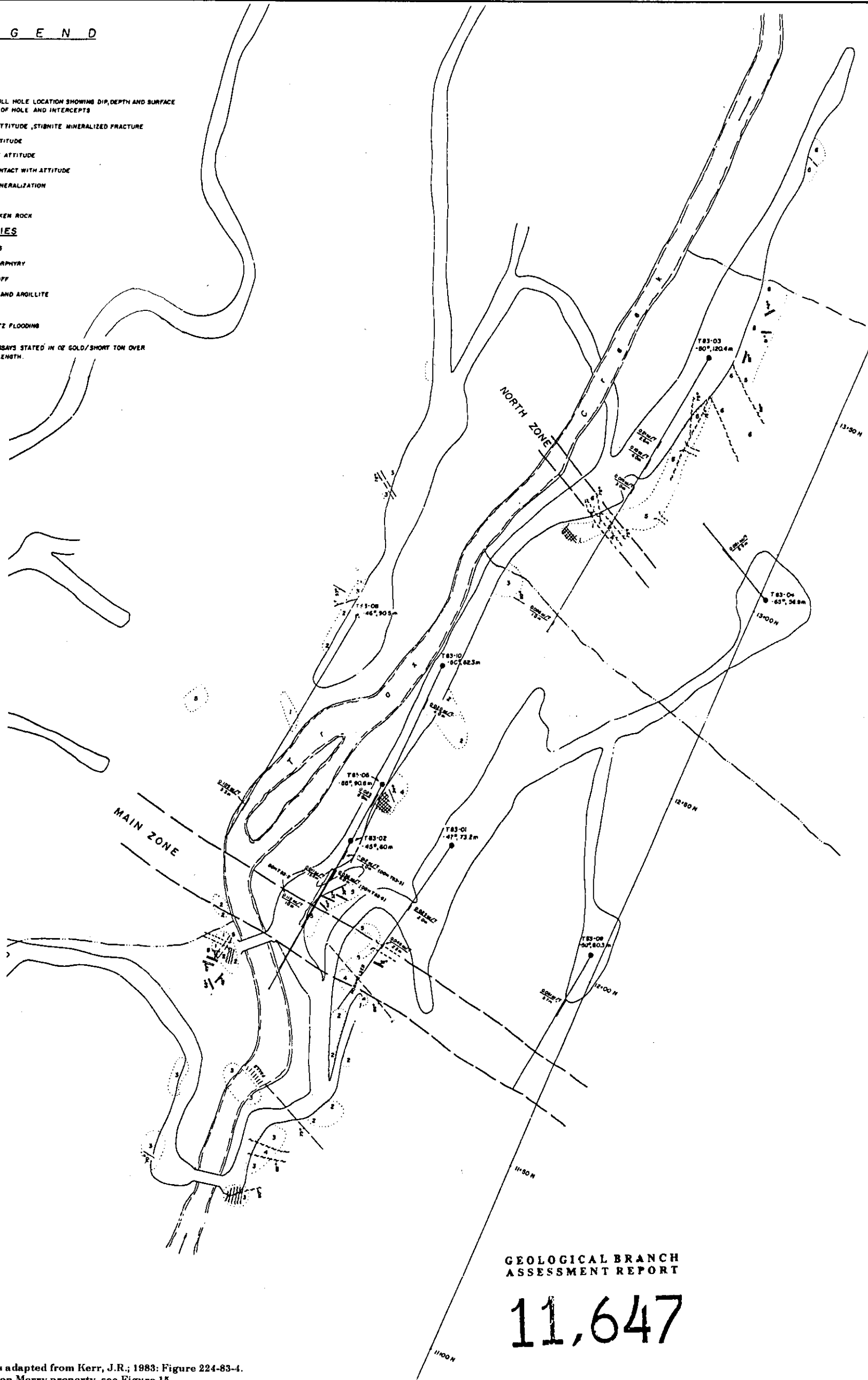
**MERRY PROPERTY**  
 50°51'40" N., 122°41'13" W.  
 U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
 JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002

LEGEND

- ROAD
  - CREEK
  - OUTCROP
  - DIAMOND DRILL HOLE LOCATION SHOWING DIP, DEPTH AND SURFACE PROJECTION OF HOLE AND INTERCEPTS
  - FRACTURE ATTITUDE, STIBNITE MINERALIZED FRACTURE
  - BEDDING ATTITUDE
  - SHEAR ZONE ATTITUDE
  - ASSUMED CONTACT WITH ATTITUDE
  - STIBNITE MINERALIZATION
  - MYLONIZED
  - HIGHLY BROKEN ROCK
- LITHOLOGIES**
- 6 ULTRAMAFICS
  - 8 FELDSPAR PORPHYRY
  - 4 ANDESITE TUFF
  - 3 RIBBON TUFF AND ARGILLITE
  - 2 ARGILLITE
  - 1 >85% QUARTZ FLOODING

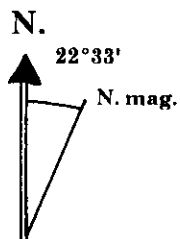
NOTE: INTERCEPT ASSAYS STATED IN OZ GOLD/SHORT TON OVER INTERCEPT LENGTH.



GEOLOGICAL BRANCH ASSESSMENT REPORT

11,647

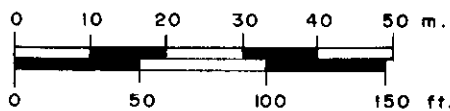
NOTE: This figure is adapted from Kerr, J.R.; 1983: Figure 224-83-4. For location on Merry property, see Figure 15. For location of drilling in the South zone, see Figure 17.



*John Ostler*



SCALE



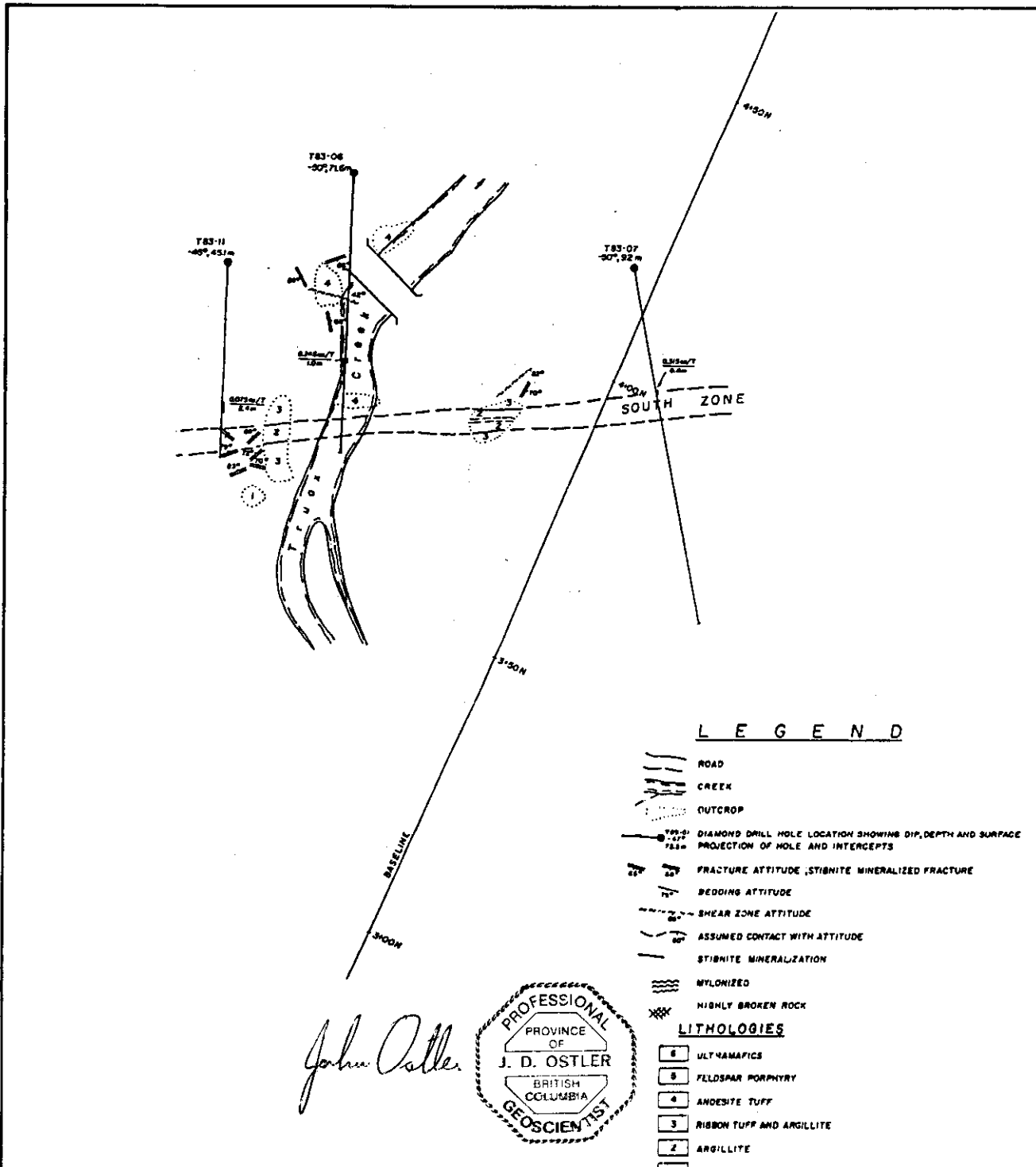
PRINCETON VENTURES, LTD.

1983 DRILLING at the MAIN and NORTH ZONES

MERRY PROPERTY

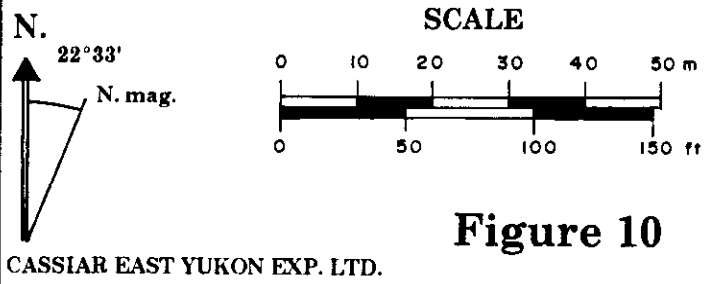
50°51'40" N., 122°41'13" W.  
 U.T.M.: 5,634,200 N., 522,080 E.  
 N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
 JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002

Figure 9



NOTE: This figure is adapted from Kerr, J.R.; 1983: Figure 224-83-5. For location on Merry property, see Figure 15. For location of drilling in the Main zone, see Figure 16.

NOTE: INTERCEPT ASSAYS STATED IN OZ GOLD/SHORT TON OVER INTERCEPT LENGTH.



PRINCETON VENTUERS, LTD.

**1983 DRILLING at the SOUTH ZONE**

**MERRY PROPERTY**  
50°51'40" N., 122°41'13" W.  
U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002

GOLD RESOURCE USING A CUT-OFF GRADE OF 0.10 oz/ton (3.428 gm/mt)

ZONE	TONNAGE		GRADE		VERTICAL DEPTH		STRIKE LENGTH		AVERAGE WIDTH	
	tonnes	tons	gm/mt	oz/ton	metres	feet	metres	feet	metres	feet
Main	22,300	24,500	8.193	0.239	60	196.8	140	459.2	2.7	8.9
South	27,300	30,000	9.016	0.263	40	131.2	110	360.8	2.4	7.9
North	10,800	11,900	5.794	0.169	40	131.2	40	131.2	2.0	6.6
Total:	60,400	66,400	8.125	0.237					2.4	7.9

GOLD RESOURCE USING A CUT-OFF GRADE OF 0.03 oz/ton (1.028 gm/mt)

ZONE	TONNAGE		GRADE		VERTICAL DEPTH		STRIKE LENGTH		AVERAGE WIDTH	
	tonnes	tons	gm/mt	oz/ton	metres	feet	metres	feet	metres	feet
Main	78,500	86,400	3.188	0.093	60	196.8	140	459.2	6.4	21.0
South	33,300	36,600	7.576	0.221	40	131.2	110	360.8	2.6	8.5
North	39,200	43,100	2.571	0.075	40	131.2	40	131.2	4.2	13.8
Total:	151,000	166,100	3.977	0.116					5.1	16.8

No further work was done by Keron Holdings on its Truax Creek property, which eventually lapsed. The area was restaked as the Merry property in 1999 and 2000 by A.B. Hemingway.

Hemingway conducted a reconnaissance magnetometer survey extending from the South zone to the North zone. The survey was done as three lines: along the main access road west of Truax Creek, along a parallel road west of the main road, and along Hall's (1981) north road that runs east of the creek (Figures 7 and 8).

Hemingway's (2000) discussion of the results of the magnetometer survey were as follow:

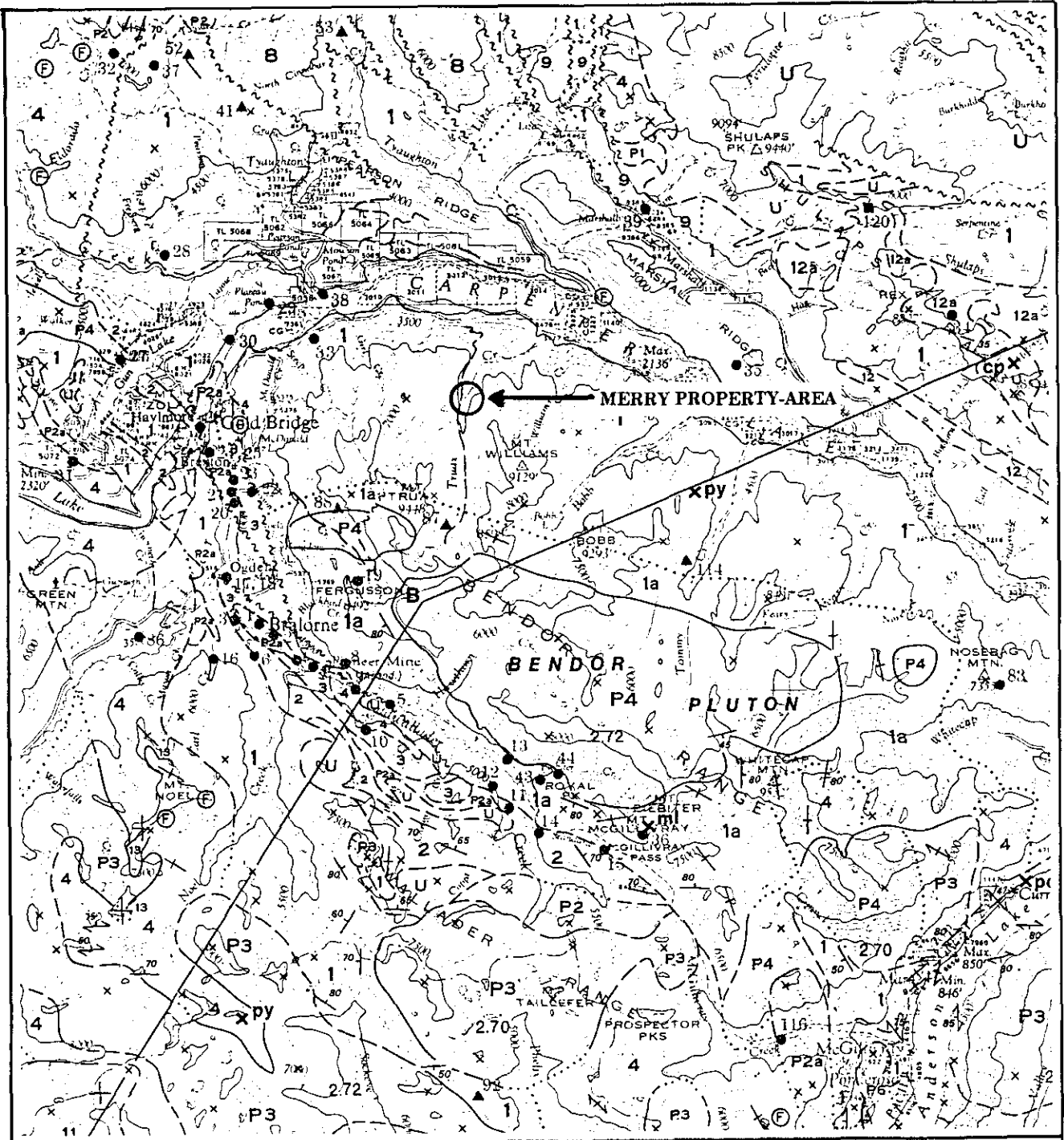
The preliminary magnetometer survey was successful in identifying three magnetic peaks across Truax Creek. The first anomaly rises about 4,000 gammas above background ... (It is located about 200 metres (656 ft) north of the South zone and is about 330 metres (1,082.4 ft) in width). The choppy nature of the anomaly may indicate a series of magnetic-bearing layers ... (spaced about 50 m (164 ft) apart) dipping steeply to the south. This anomaly crosses Truax Creek on the east road and is coincident with gold, antimony and arsenic soil anomalies higher on the east hillside (Figures 11 to 13). ... depth to the anomaly may be less than 25 metres (82 ft).

The second anomaly rises 1,250 gammas and may be close to the surface. It occurs for a distance of 190 metres (623 ft) (along the main access road). On the west creek road, there is a slight gamma rise ... of about 100 gammas; this may represent the continuation of (this) anomaly across Truax Creek at greater depth. (This anomaly is located just east-southeast of the Main zone (Figures 3 to 8).

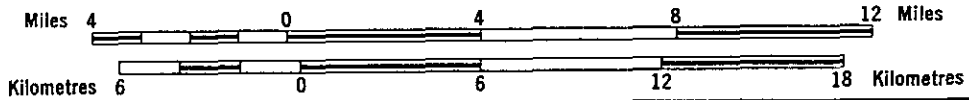
The third anomaly (is located just north of the North zone. It) rises slowly over a distance of 500 metres (1,640 ft) to a peak of 1,700 gammas above background ... on the east road. The choppy nature may indicate a series of magnetic-bearing horizons, but the slow rise over this distance may also indicate a geological contact dipping to the south ...

Hemingway, A.B.; 2000: p. 14.

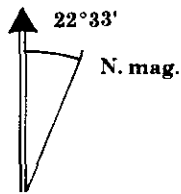
The importance of Hemingway's reconnaissance magnetometer survey is that it demonstrates that the rocks in the Merry property-area respond well to geophysical surveys. Such surveys are very useful for looking through deep overburden, and that which has been disrupted by slides. Both of those conditions exist in the Truax Creek valley, especially west of the creek where almost no exploration has been conducted.



Scale 1:250,000



**N.** NOTE: For Legend, see Figure 5A.  
For a list of mineral occurrences, see Figure 5B



*John Ostler*

**Figure 11**

CASSIAR EAST YUKON EXP. LTD.

PRINCETON VENTURES, LTD.

**REGIONAL GEOLOGY**  
from G.S.C. MAP 13-1973

**MERRY PROPERTY**

50°51'40" N., 122°41'13" W.  
U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15

JOHN OSTLER; M.Sc., P.Geo.

LILLOOET M.D., B.C.

MARCH, 2002

# Figure 11A

## LEGEND to FIGURE 11

- CENOZOIC**
- QUATERNARY**  
**PLEISTOCENE AND RECENT**
- 14 Unconsolidated alluvial and glacial deposits
- TERTIARY**  
**MIOCENE (?)**
- 13 Basalt and rhyolite flows
- 12 Rhyolite and dacite breccia, tuff and flows;  
12a, Rexmount Porphyry (intrusive equivalent of 12?)
- 7 <P4a> Miarolitic granodiorite and syenodiorite
- LOWER TERTIARY**
- 11 Andesite flows and breccia; basalt and minor dacite
- 10 Shale, siltstone, sandstone, arkose and conglomerate
- MESOZOIC**
- CRETACEOUS**  
**UPPER CRETACEOUS**
- <P4> SCUZZY PLUTON (K-A 70 m.y.): granodiorite
- KINGSDALE GROUP**
- 9 Arkose, greywacke, shale and minor conglomerate
- LOWER CRETACEOUS**  
**TAYLOR CREEK GROUP**  
Chert-pebble conglomerate, black banded limy shale, green tuff,  
volcanic breccia, andesite and basalt
- 8
- JACKASS MOUNTAIN GROUP**  
Undifferentiated; 7a, Interbedded carbonaceous argillite and greywacke;  
minor conglomerate and coal; 7b, greywacke; pebble conglomerate, argillite  
and gritty sandstone; 7c, argillite; conglomerate and greywacke; 7d, massive  
greenish greywacke, argillite, gritty sandstone and pebble conglomerate
- 7
- JURASSIC AND CRETACEOUS**  
**UPPER JURASSIC AND LOWER CRETACEOUS**  
**RELAY MOUNTAIN GROUP**
- 6 Argillite; greywacke and pebble conglomerate
- JURASSIC**  
**LOWER JURASSIC**
- 5 Argillite and shale; minor sandstone, limestone and pebble conglomerate
- TRIASSIC**  
**UPPER TRIASSIC**
- <U> Ultrabasic rocks
- 4 HURLEY FORMATION: Thin-bedded limy argillite, phyllite, limestone,  
tuff, conglomerate, agglomerate, andesite, and minor chert
- 3 PIONEER FORMATION: Greenstone derived from andesitic flows and  
pyroclastic rocks; 3a, andesite breccia, tuff and flows, greenstone;  
minor rhyolitic breccia and flows, slate, argillite, limestone and  
conglomerate
- 2 NOEL FORMATION: Thin-bedded argillite; chert, conglomerate and  
greenstone
- MIDDLE TRIASSIC AND (?) OLDER**  
**BRIDGE RIVER GROUP (FERGUSON GROUP)**  
1 Chert, argillite, phyllite and greenstone; minor limestone, schist;  
1a, metamorphosed rock of map-unit 1; mainly biotite schist

# Figure 11A

## LEGEND to FIGURE 11

### Continued

#### METAMORPHIC AND PLUTONIC ROCKS (Mostly of unknown age)

- B Metasedimentary rocks, mainly micaceous quartzite, biotite-hornblende schist, and minor schists bearing garnet, staurolite and possibly sillimanite
- A Granitoid gneiss, migmatitic complexes, minor amphibolite and biotite schist
- P6 Granite
- P5 Quartz monzonite
- P4 Granodiorite; 4a, microlitic granodiorite and syenodiorite
- P3 Quartz diorite
- P2 Diorite; 2a, Bralorne intrusions: Augite diorite, gabbro, minor soda granite and quartz diorite
- P1 Gabbro
- U Ultrabasic rocks: serpentine, peridotite, dunite

- Map-unit.....
- Intrusive episode.....
- Mean specific gravity of specimens from pluton .....2.85
- Outcrop examined (where not otherwise indicated by attitude or other symbol)..... X
- Geological boundary (defined, approximate, assumed) .....
- Limit of geological mapping.....
- Bedding (horizontal, inclined, vertical, dip not known).....
- Foliation (horizontal, inclined vertical, dip not known) .....
- Fault or shear zone .....
- Thrust fault .....
- Fossil locality .....
- Minor mineral occurrence observed (Chalcopyrite, cp; magnetite, ma; malachite, ml; pyrrhotite, po; pyrite, py)..... X
- Accuracy of location of mineral property (from Mineral Inventory Map, B. C. Dept. Mines and Petroleum Resources)
  - Known within radius of 1000 feet) ..... ●
  - 1000 feet to 2 miles ..... ▲
  - Not known within radius of 2 miles..... ■



## Figure 11B

### LIST of MINERAL PROPERTIES noted on FIGURE 11 (G.S.C. Map 13-1973)

LIST OF MINERAL PROPERTIES

<u>Map No.</u>		<u>Property No.</u>
92J- 1	Bralorne (Au, Ag)	1661
2	Blackbird and Ida May (Au)	1662
3	Alma (Au)	1663
4	Pioneer (Au)	1664
5	Mix (Au)	1665
6	Native Son (Au)	1666
7	Coronation (Au)	1667
8	Holland (Au)	1668
9	Pioneer Extension (Au)	1669
10	Paymaster (Au)	1670
11	Butte - EKL (Au)	1671
12	Red Hawk and Dan Tucker (Au)	1672
13	Bramoose (Au)	1673
14	Royal (Au)	1674
15	Standard (Au)	1675
16	Short o' Bacon (Au)	1676
17	Gruhl (Au)	1677
18	Success (Au)	1678
19	Waterloo (Au)	1679
20	California (Au)	1680
21	Whynot (Au)	1681
22	Gloria Kitty and Jewess (Au)	1682
23	Forty Thieves (Au)	1683
24	Arizona (Au)	1684
25	Golden Gate (Au)	1685
26	Haylmore (Au)	1686
27	Pilot (Au)	1687
28	B & F (Au)	1688
29	Congress (Au, Hg)	1689
30	Wayside (Au)	1690
31	Veritas (Au)	1691
32	White and Bell (Au)	1692
33	Reliance (Sb, Au)	1693
34	Spokane (Au)	1694
35	Summit (Au)	1695
36	Empire (Au)	1696
37	Wide West	1697
38	Stibnite (Sb)	1698
39	Primrose (Au)	1699
40	Benn Expl.	1700
41	Charlotte, Ann (Hg)	1701
42	London (Cu, Fe)	1702
43	Chalco 5 (W, Cu)	1703
44	Chalco 12 (W, Cu)	1704
45	N. Texas, Flo, Pen (Cu, Au, Ag, Fe)	1706
47	Apex (Fe)	1707
48	Copper Queen (OWL CR. A Zone) (Cu, Mo)	1708
49	Azurs (Cu)	1709
52	Lucky Strike, Ricky	1712
53	Paul (Hg)	1713
54	Owl Cr. B Zone (Cu, Mo)	1714
55	Owl Cr. C Zone (Cu, Mo)	1715
56	Eagle (Cu, Fe, Zn)	1716
57	Lake (Cu, Fe, Zn)	1717

LIST OF MINERAL PROPERTIES

<u>Map No.</u>		<u>Property No.</u>
92J- 58	Boulder (Cu, Zn, Ag, Fe)	1718
59	Moffat (Eva) (Cu, Ag, Zn)	1719
60	Copper Mountain (Fe, Cu, Zn, Hg)	1733
61	Seneca (Cu, Fe)	1720
62	Wonder (Pb, Zn, Cu)	1721
63	Silver Bell (Pb, Ag, Au, Cu, Zn)	1722
64	Li-Li-Kel (Gridiron) (Ag, Pb, Zn, Au)	1723
65	Pemberton (Cu)	1724
66	Margery (Zn, Fe, Au, Pt)	1725
67	Fitzsimmons (Cu)	1726
69	Owl Mountain (Northstar) (Fe, Au, Ag)	1728
74	Crown (Ag, Zn, Cu, Pb, Fe)	1734
75	Gold King (Ag, Au, Zn, Pb)	1735
76	Cougar (Fe)	1736
78	Index (Mo)	3776
79	Silver Queen (Ag, Pb, Zn)	3221
80	Patrick, (Ag, Pb, Zn)	3222
81	J (Py)	
82	Gin (Yes) (W, Cu, Zn)	
83	Lubra (Flora) (W, Mo)	
86	Stibnite (Lost Gold) (Sb)	
87	Truax (Spruce) (Au, Sb)	
88	Rock (Ag, Sb)	
90	R.M (Cu)	
92	Sno (Cy, Mo)	
96	Ample, (Golden Cache) (Au)	
102	Red Eagle (Hg)	
103	Golden Eagle (Hg)	
114	Benboe (Au, Ag)	
115	Barkley Valley Mines (Au, Ag)	
116	Golden Contact, (Brett Group) (Au)	
117	Excelsior, (Jumbo) (Cu, Au, Ag, Pb)	
118	Congress (Au)	
119	Golden (Au)	
120	Yalakom, (Ridge) (Mo)	

Omitted map numbers do not occur within map-area

Chemical Notations: Silver - Ag; arsenic - As; gold - Au; copper - Cu; iron - Fe; mercury - Hg; molybdenite - Mo; lead - Pb; platinum - Pt; pyrite - Py; antimony - Sb; tungsten - W; zinc - Zn.

## 2.0 GEOLOGICAL SETTING

### 2.1 Regional Geology

The geology of the region surrounding the Bridge River gold belt and the Merry property was mapped by J.A. Roddick and W.W. Huchison (1973) of the Geological Survey of Canada. Their report and accompanying G.S.C. Map 13-1973 (Figure 11) became the standard reference for geologists exploring the Gold Bridge area.

More recently, the geology of the Bridge River gold camp including the area around the Merry property was succinctly described by B.N. Church (1996) of the British Columbia Geological Survey as follows:

The rocks of the Bridge River mining camp comprise a variety of Palaeozoic, Mesozoic and Tertiary sedimentary and volcanic rocks and igneous intrusions (Figures 12 and 13). The oldest rocks are deformed and fragmented; greenschist grade metamorphism is common throughout the area. The younger cover beds are locally folded and tilted by block faulting and exhibit significant metamorphism only near the contact with major intrusions.

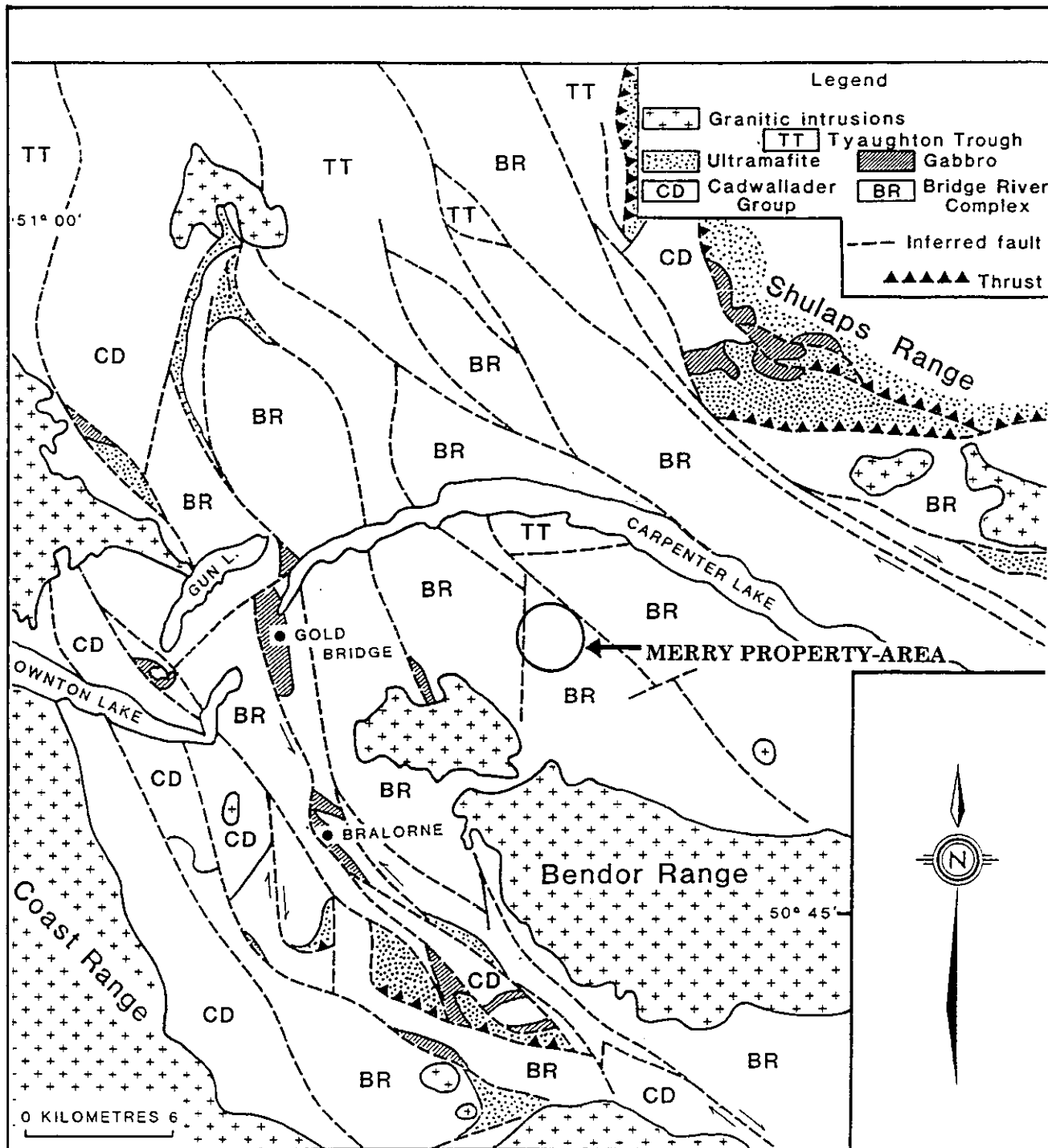
The bedded rocks range in age from mid-upper palaeozoic to mid-Tertiary (Figure 13). The oldest rocks are assigned to the Fergusson Group ... This unit is a Palaeozoic ocean-floor assemblage that forms part of a metamorphic terrain referred to ... as the Bridge River Complex. The Triassic Cadwallader Group is thought to be an arc assemblage (Stikinia) accreted to the Bridge River Complex ... The Jurassic and Cretaceous Relay Mountain and Taylor Creek Groups were deposited in a seaway known as the Tyaughton trough that was developed on the Bridge River-Cadwallader basement ...

Outlying Tertiary beds (Eocene) are preserved as down-faulted blocks, mainly along the Marshall Lake fault. The youngest Tertiary rocks occur as small remnants of Miocene basalt (Chilcotin Group) uplifted in the Coast Range.

Intrusive rocks span about the same age range as the bedded units. The oldest intrusions are the Permo-Carboniferous Bralorne gabbro/diorite ... These rocks occur along many of the major faults, accompanied by ultramafites and small granitic stocks. The principal ultramafic bodies are the Shulaps Complex and the 'President Intrusions'. These may be part of a disrupted ophiolite complex of about the same age as the Bralorne intrusions although there is no sheeted dyke system such as associated the classic ophiolite rocks of Cyprus ...

The Coast Plutonic Complex comprises an assortment of Late Cretaceous to Early Tertiary granite to diorite plutons and smaller satellitic stocks scattered along the axis of the Coast Range Mountains ...

The Middle Eocene Rexmount porphyry is the youngest of the major intrusions. A variety of basic to felsic dykes related to the Rexmount porphyry and to volcanic rocks of several ages are found throughout the area ...



NOTE: This figure is adapted from Church, B.N.; 1996: Figure 1.1.

*John Ostler*

PROFESSIONAL  
PROVINCE OF  
J. D. OSTLER  
BRITISH COLUMBIA  
GEOSCIENTIST

**Figure 12**

CASSIAR EAST YUKON EXP. LTD.

PRINCETON VENTUERS, LTD.

**GENERAL GEOLOGY of the  
BRIDGE RIVER GOLD CAMP**

**MERRY PROPERTY**  
50°51'40" N., 122°41'13" W.  
U.T.M.: 5,634,200 N., 522,080 E.  
N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002

Age	Units / Lithology / Structural History	
	- block faulting -	
Neogene	Chilcotin Gp. plateau basalt lavas; 100-150 m.	- strike = slip faulting -
Paleogene	Rexmount porphyry (~47.5 Ma)	quartz - feldspar porphyry and equivalent volcanic rocks ~500 m and some coal-bearing sedimentary rocks ~50 m.
	- thrusting -	
U. Cretaceous	Coast Plutonic Complex (60-110 Ma)	biotite hornblende granodiorite plutons, minor diorite and granite.
	- Tyaughton trough -	
M. Cretaceous	Taylor Creek Gp.	cyclic polymictic conglomerate beds with minor sandstone and shales.
L. Cretaceous/ U. Jurassic	Relay Mountain Gp.	<i>Buchia</i> beds of varying lithologies, mostly grey shales with minor conglomerate, ~650 m.
	- terrane docking (imbrication) -	
L. Jurassic/ U. Triassic	Stikine Terrane/ Cadwallader Gp. Hurley sandstones, mudstones, limestones ~700 m; Noel black argillite ~350 m; Pioneer spilitic basalts ~300 m	Cache Creek Terrane/ Bridge River Complex/ Ophiolitic rocks  ultramafics, ribbon chert, schists, minor limestones, greenstone with chlorite, prehnite, epidote and epidote
Permo- Carboniferous	Bralorne intrusions (260-293 Ma) px-hb diorite, gabbro and anorthositic gabbro; soda granite	Fergusson Gp. + 1000 m.

*John Ostler*



NOTE: This figure is adapted from Church, B.N.; 1996: Table 2.1.

PRINCETON VENTUERS, LTD.

**TABLE of FORMATIONS**

**MERRY PROPERTY**

50°51'40" N., 122°41'13" W.

U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15

LILLOOET M.D., B.C.

JOHN OSTLER; M.Sc., P.Geo.

MARCH, 2002

**Figure 13**

CASSIAR EAST YUKON EXP. LTD.

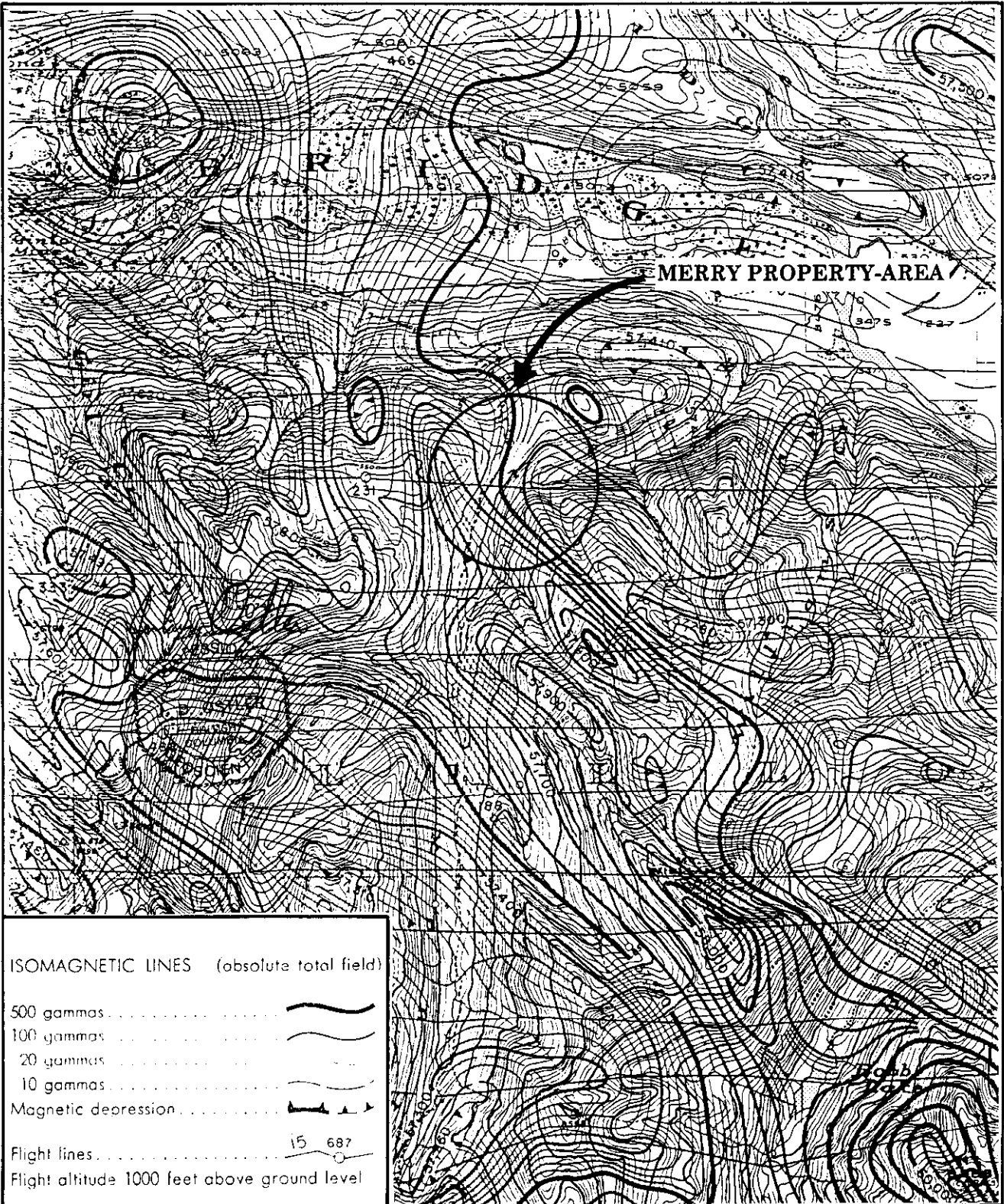
## 2.2 Regional Geophysics

An aeromagnetic survey was flown over the area around the Merry property by Geoterrex Limited for the federal Department of Energy, Mines and Resources during 1972. The results were published on E.M.R. Map 8552G (Figure 14).

The Merry property is located near the northern end of a distinct northwesterly trending regional magnetic high that coincides with a metamorphosed belt of Bridge River Complex volcanic, sedimentary, and ultramafic rocks near the northeastern margin of the Bendor Pluton (Figures 11, 12 and 14). The orientation and general shape of this magnetic high seems to be related to the orientation of schistosity developed in rocks along the margin of the pluton during thermal metamorphism. Mineralization on the Merry property has no obvious regional magnetic expression.

The magnetic high separates two magnetic lows, one to the northeast and the other to the southwest. The northeastern magnetic low is a broad feature that coincides with less metamorphosed Bridge River Complex rocks around Carpenter Lake. The magnetic low southwest of the Merry property-area has a cauliform pattern, that may reflect intrusive lobes of the Bendor pluton.

A 58,000 gamma (Nanotesla) magnetic peak occurs on the northern slope of Mount Williams just east of the Merry property. It may be related to gossanous pyritic rocks that outcrop in that area.



ISOMAGNETIC LINES (absolute total field)

500 gammas . . . . .

100 gammas . . . . .

20 gammas . . . . .

10 gammas . . . . .

Magnetic depression . . . . .

Flight lines . . . . . 15 687

Flight altitude 1000 feet above ground level

**N.**

22°33'

N. mag.

**SCALE**

0 1 2 3 km

0 1 2 mi

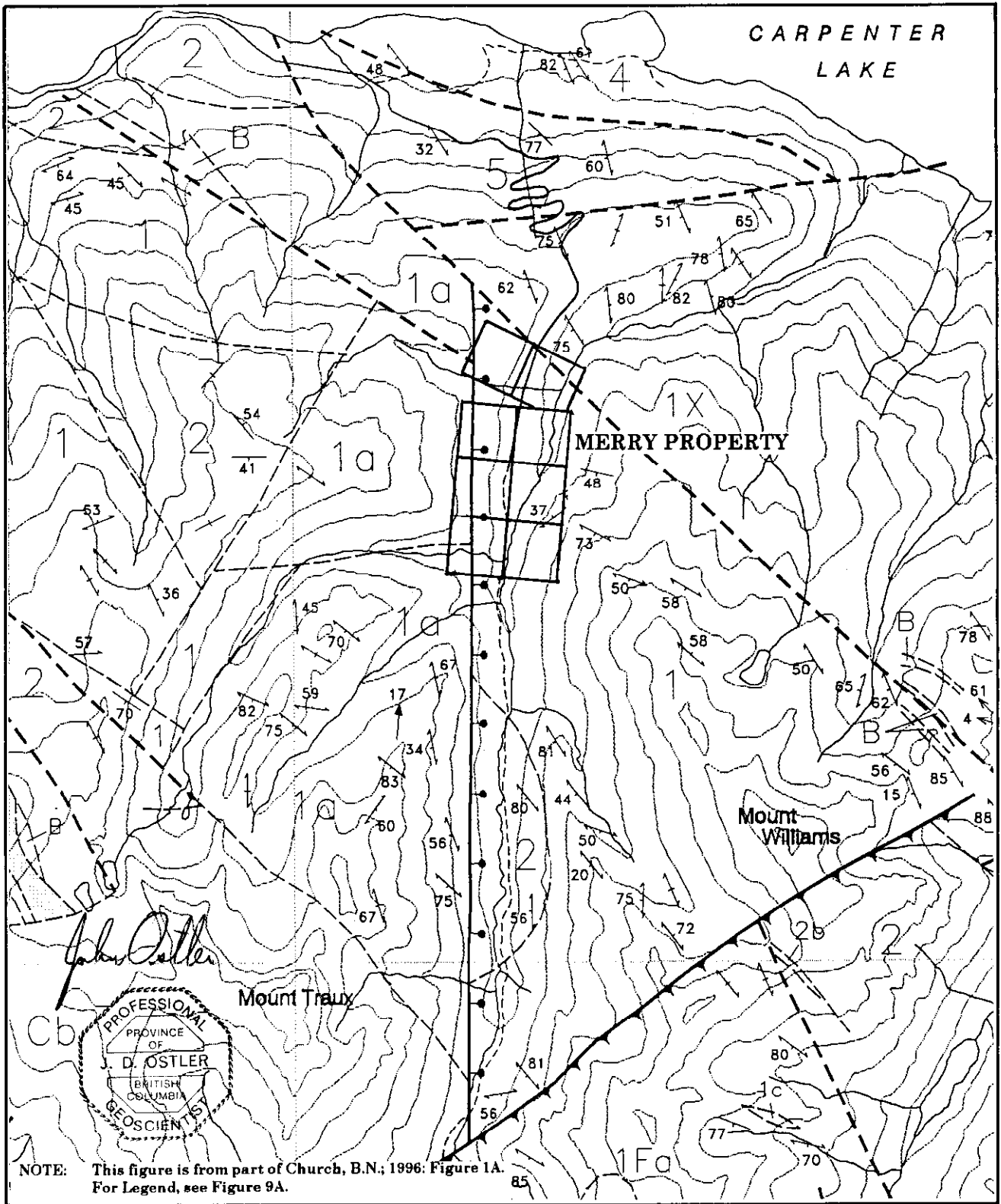
PRINCETON VENTUERS, LTD.

**AEROMAGNETISM**  
from E.M.R. MAP 8552G

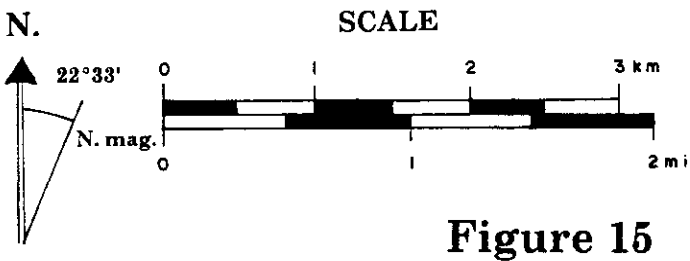
**MERRY PROPERTY**  
50°51'40" N., 122°41'13" W.  
U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002

**Figure 14**



NOTE: This figure is from part of Church, B.N.; 1996: Figure 1A.  
For Legend, see Figure 9A.



**Figure 15**

CASSIAR EAST YUKON EXP. LTD.

PRINCETON VENTUERS, LTD.

**PROPERTY GEOLOGY from  
B.C.G.S PAPER 1995-3**

**MERRY PROPERTY**  
50°51'40" N., 122°41'13" W.

U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15

LILLOOET M.D., B.C.

JOHN OSTLER; M.Sc., P.Geo.

MARCH, 2002

# Figure 15A

## LEGEND to FIGURE 15

### BEDDED ROCKS

#### MIOCENE

8 Plateau basalt (Chilcalin group): rather flat lying lavas and breccias transitional in composition between quartz tholeiites and alkali olivine basalt

#### EOCENE?

7 Intermediate to basic lava and breccia (7a), felsic volcanic breccia, dikes and sills (7b)

#### CRETACEOUS

6 Interbedded polymictic conglomerate containing mostly chert and greenstone clasts (6a) intercalated with shale (6b) and mica bearing sandstone (including Taylor Creek group)

#### LOWER CRETACEOUS / UPPER JURASSIC

5 Mainly grey shales, siltstone, minor conglomerate, and Buchia beds (mainly Relay Mountain group)

#### UPPER TRIASSIC

4 Interbedded siltstones, calcarenite, and minor conglomerate (4a), limestone (4b), and volcanoclastics (4c)-(Hurley formation)

#### MIDDLE MESOZOIC TO UPPER PALEOZOIC

3 Mainly black argillite with minor calcareous beds (Noel formation)

2 Spilitic (MORB-type basalt) pillow lava (2a), aquagene breccia with lenses of limestone (2b), tuff and amygdaloidal lava-including Pioneer formation

1 Mostly ribbon chert and phyllite (1a), schist and gneiss (1b), limestone and marble (1c), and hornfels (1d)-including Tyax (1X) and Fergusson (1F) assemblages

### IGNEOUS INTRUSIONS

#### TERTIARY

D Quartz-feldspar porphyry stocks, sills and dikes, including the Rexmount porphyry

#### LATE CRETACEOUS / EARLY TERTIARY

C Mostly biotite-hornblende granodiorite, diorite and granite including various phases of the Coast (Ca) and Bendor (Cb) intrusions


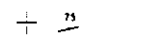
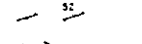

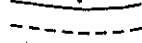
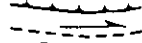
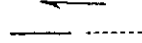
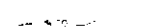
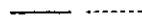
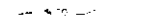
#### JURASSIC?

E Ultrabasic rocks including hornblende (Eh), serpentinite (Es) and listwanite (El) -Shuldas and President intrusions

#### PERMIAN / CARBONIFEROUS

A Gabbro, anorthositic gabbro and amphibolite including other Bratona intrusions such as soda granite (Ac)

### SYMBOLS

Geological boundary	
Bedding - horizontal, inclined	
Foliation, schistosity	
Fold Axis (plunge)	
Faults: normal	
assumed	
thrust	
strike slip	
Roads	
Topographic contours	



### 2.3 Property Geology

Previous explorers of the Merry property area have tended to concentrate their efforts on known showings areas. This, combined with limited rock exposure over part of the property-area has resulted in a sparse geological data base.

B.N. Church (1996) reviewed the geological data accumulated during previous exploration and conducted some additional field work around Mount Williams (Figure 15). His summary of the geology of the Truax Creek valley around the Merry property is as follows:

The bedded rocks ... were assigned to the Bridge River series ... and are here subdivided into the Fergusson Group (Palaeozoic?) And the Relay Mountain Group (Upper Jurassic). These units are intruded by dykes, possibly related to the Bendor stock ...

The Fergusson beds underlie much of the claim group. They consist mostly of metamorphosed ribbon chert, schist and minor carbonate layers. Near the contact with the dykes they are pyritized, recrystallized and cut by numerous small quartz veins. The beds are locally contorted but generally dip steeply to the southwest.

The Relay Mountain beds are well exposed in road cuts on the northern part of the property (north of the present Merry claims), just south of Carpenter Lake. The beds range from massive chert-cobble and boulder conglomerate to *Buchia*-bearing laminated siltstones and argillites ... These rocks are locally downfaulted and dip 45° to 60° to the southwest against the Fergusson basement. The source of the conglomerate appears to be mostly the adjacent Fergusson and Bridge River terrain and intruding granitic plutons. A K-Ar date on a granitic boulder sampled by the writer and analyzed by J. Harakal, yielded a date of 119+/-4.0 Ma.

Church, B.N.; 1996: p. 82.

### 3.0 DEPOSIT TYPES SOUGHT ON THE MERRY PROPERTY

#### 3.1 Exploration in the Bridge River Gold Camp

Gold has been produced from the Bridge River area since 1859, and for many years, this camp was one of premier gold-producing areas of British Columbia. A brief description of exploration and mining in this area as written by B.N. Church of the British Columbia Geological Survey is as follows:

Gold was first discovered in the Bridge River valley by placer miners on Gun Creek (Figure 11) in 1859 and along the lower section of Tyaughton Creek by 1866. It was not until 1882 that the Halymore placer gravels were found at the mouth of the Hurley River near the present town of Gold Bridge, and in 1886 on Cadwallader Creek ... Total recovery from the Halymore placer is estimated to be "over 1000 ounces" (31,000 grams) of coarse gold ... It is also reported that many nuggets were in the 31 to 156 gram (1 to 5 oz) range, the largest weighing 404 grams (11.785 oz).

Most of the lode gold occurrences were located from 1896 to 1915, although discoveries and desultory development continued until the construction of the Terzaghi dam in 1959 and rerouting the main road to the north shore of the B.C. Hydro reservoir that now forms Carpenter Lake.

The Pioneer mine (Figure 11) began production in 1928 followed by the Bralorne mine in 1932. These operations were amalgamated in 1959 and soon became the primary gold producer in British Columbia. The mines closed in 1971. Combined operations from 160 kilometers (100 mi) of tunnels attained a total ore output of 7.2 million tonnes (7.9 million tons), yielding on average, 17.9 grams per tonne (0.522 oz/ton) gold and 3.9 grams per tonne (0.114 oz/ton) silver.

Other past producing properties include the Wayside, Congress and Minto mines north of Carpenter lake. At these mines most development occurred from 1933 to 1940. The Minto mine was the most important with an output of 80,650 tonnes (88,715 tons) of ore that yielded 6.8 grams per tonne (0.198 oz/ton) gold and 19.5 grams per tonne (0.569 oz/ton) silver. The Wayside mine produced 39,094 tonnes (43,003 tons) yielding 4.2 grams per tonne (0.123 oz/ton) gold and 0.67 grams per tonne (0.02 oz/ton) silver, and the Congress mine 943 tonnes (1,037 tons) yielding 2.7 grams per tonne (0.079 oz/ton) gold and 1.4 grams per tonne (0.041 oz/ton) silver ...

Church, B.N.: 1996: pp. 3-4.

High gold and silver prices caused a staking rush in the Bridge River gold camp during the early 1980s. At that time the whole region was staked and many areas, including that now covered by the Merry property, were explored. Exploration in this camp diminished during the flight of exploration away from North America in the 1990s. However, recently, interest in exploration of this area has been renewed.

### **3.2 Stockwork Molybdenum Mineralization and Gold-bearing Stibnite Veins: The Primary Economic Targets on the Merry Property**

The Merry claim group covers an area where molybdenite stockwork vein mineralization is overprinted by gold-bearing stibnite veins and disseminations.

Stockwork vein molybdenite mineralization, like that exposed in the Merry property-area, commonly occurs on the peripheries of low-fluorine type molybdenum deposits. These deposits are the source of most of British Columbia's molybdenum production.

Low-fluorine molybdenum deposits in British Columbia were described by W.D. Sinclair of the British Columbia Geological Survey (in Lefebure and Ray ed., 1995). Some of the characteristics of these veins were summarized as follow:

*DEPOSIT FORM: Deposits vary in shape from an inverted cup, to roughly cylindrical, to highly irregular. They are typically hundreds of metres across and range from tens to hundreds of metres in vertical extent.*

...

*ORE MINERALOGY [Principal and subordinate]: Molybdenite is the principal ore mineral; *chalcopyrite, scheelite, and galena* are generally subordinate.*

...

*ALTERATION MINERALOGY: Alteration mineralogy is similar to that of porphyry Cu deposits. A core zone of potassic and silicic alteration is characterized by hydrothermal K-feldspar, biotite, quartz and, in some cases, anhydrite. K-feldspar and biotite commonly occur as alteration selvages on mineralized quartz veinlets and fractures but may be pervasive in areas of intense fracturing and mineralization. Phyllic alteration typically surrounds and may be superimposed to various degrees on the potassic-silicic core; it consists mainly of quartz, sericite and carbonate. Phyllic alteration is commonly pervasive and may be extensive. Propylitic alteration consisting mainly of chlorite and epidote may extend for hundreds of metres beyond the zones of potassic-silicic and phyllic alteration. Zones of argillic alteration, where present, are characterized by clay minerals such as kaolinite and are typically overprinted on other types of alteration; distribution of argillic alteration is typically irregular.*

...

*ORE CONTROLS: Quartz veinlet and fracture stockwork zones superimposed on intermediate to felsic intrusive rocks and surrounding country rocks; multiple stages of mineralization commonly present.*

...

TYPICAL GRADE AND TONNAGE: Typical size is 100 million tonnes at 0.1 to 0.2% Mo.

...

Sinclair, W.D.: 1995 pp. 93-96;  
in Lefebure, D.V. and Ray, G.E., ed.; 1995.

Previous exploration in the Merry property-area has focused on stibnite and gold-bearing veins and disseminations. Such stibnite bodies have been classified as a major variety of polymetallic veins and mantos by Andre Panteleyev of the British Columbia Geological Survey (in Lefebure and Hoy, 1996). Some of the characteristics of these veins are summarized as follow:

DEPOSIT FORM: Stibnite occurs in veins; also as fine to coarse grains in sheared or brecciated rocks. Some stibnite is disseminated in carbonate-altered wallrocks surrounding structures and may form within pressure shadows at crests of folds. Massive stibnite-pyrite replacements which may form pods or lenses up to tens of metres long, are relatively uncommon, but are the sources of rich ore.

...

ORE MINERALOGY [Principal and *subordinate*]: Stibnite, pyrite, arsenopyrite; *sphalerite, galena, tetrahedrite, marcasite, chalcopyrite, jamesonite, berthierite, gold, cinnabar, scheelite, argentite, and sulphosalt minerals. Other than stibnite, the overall sulphide content of the veins is low.*

...

ORE CONTROLS: Fissure, shear zones and breccia associated with faults. Some open-space filling in porous rocks and structurally induced openings (joints, saddle reefs, ladder veins). Minor replacement in limestones.

...

TYPICAL GRADE AND TONNAGE: Veins typically have high grade but small ore shoots; the disseminated deposits are also relatively small. Grade-tonnage data from 81 "typical" vein deposits (predominantly hand-sorted ore from USA mines) is 180 tonnes with 35% Sb; 10% of the deposits contained >1 gm/mt gold and >16 gm/mt Ag. The disseminated deposits average 88,000 tonnes with an average grade of 3.6% Sb.

Panteleyev, Andre: 1996 pp. 77-79;  
in Lefebure, D.V. and Hoy, T. ed.; 1996.

J.R. Kerr (1983) reported that a resource of 22,300 tonnes (24,530 tons) grading 7.4338 gm/mt (0.217 oz/ton) gold or 78,000 tonnes (85,800 tons) grading 2.8927 gm/mt (0.169 oz/ton) gold was identified in the main zone on the Merry property-area, and a resource of 10,800 tonnes (11,880 tons) grading 5.256 gm/mt (0.153 oz/ton) gold or 39,200 tonnes (43,120 tons) grading 2.3328 gm/mt (0.068 oz/ton) gold was identified in the north zone. Mineralization on the Merry property seems to be much more extensive and gold-rich than the average stibnite vein deposit as described by Panteleyev (Lefebure and Hoy ed.; 1996).

### 3.3 Mineralization on the Merry Property

A description of the gold-antimony-molybdenum-silver-copper mineralization located on the Merry property is recorded in the British Columbia Mineral Inventory (B.C. MINFILE) as follows:

MINFILE NUMBER: 092JNE067

NAME(S): MARY MAC (MAIN), MARY MAC (NORTH), BEN DOR,  
MAIN, NORTH

STATUS: Past Producer

N.T.S. MAP: 092J/15E

LATITUDE: 50° 51' 40" UTM: 5,634,117 N

LONGITUDE: 122° 41' 15" 521,897 E

COMMODITIES: gold, antimony, molybdenum, silver, copper

DEPOSIT TYPE: I09 Stibnite veins and disseminations with possible relation to  
L05 Low fluorine molybdenum porphyry

#### CAPSULE GEOLOGY:

The country rocks are Mississippian to Jurassic Bridge River Group metasediments and volcanics. Fine-grained chloritic meta-andesite and fragmented basalts and flows are intercalated with argillite, chert, phyllite and minor limestone. This package represented mainly by bedded cherts on the property, is cut by hornblende-feldspar porphyry dykes probably related to the Tertiary to Cretaceous Bendor pluton.

There are two distinct types of occurrences, earlier molybdenum mineralization followed by later stibnite-gold mineralization. The molybdenum is concentrated as selvages along the margins of quartz stringers forming a reticulated pattern in the hornblende feldspar porphyry. The mineralization extends into the country rock where molybdenum is fine-grained and appears as a purplish-grey sheen.

The gold-bearing quartz-carbonate-stibnite veins transect all the rock types; they are well-defined in the faulted meta-volcanics and become more diffuse as they crosscut the porphyry stockwork. The veins range from 0.5 to 2 metres in width, dipping 40 to 70 degrees

north along the general west-northwest trend which the dykes, fractures and shears all follow. Mineralization consists of massive coarsely crystalline stibnite with associated gold, arsenopyrite, pyrrhotite, chalcopyrite, limonite and traces of tetrahedrite and/or jamesonite (?). High but spotty values of silver are reported. Chloritic alteration is widespread with local sericite and abundant pyrite.

Assay values quoted for the main zone run 10.3 grams per tonne gold over 0.75 metres and 3.4 grams per tonne gold over 5 to 6 metres. The main zone is about 100 metres wide. Assays in the north zone run 1.7 to 3.4 grams per ton gold over 4 to 5 metres in quartz-stibnite veins; this was the source of ore used in an antimony mill which operated in 1974 producing about 4 tonnes of rough stibnite per day. The grade of stibnite was reported at 20 per cent over 2.1 metres reserves being 13.6 to 18.1 thousand tonnes (1974 Application for Production Permit).

Other workings on the property include several adits, and 8 diamond-drill holes put down by Andaurex Resources Ltd. Indicated reserves for the main zone in 1983 were reported to be 22,300 tonnes grading 7.4338 grams per tonne gold or 78,000 tonnes of ore grading 2.8927 grams per tonne (Kerr, 1983). Indicated reserves for the north zone in 1983 were reported to be 10,800 tonnes grading 5.256 grams per tonne gold or 39,200 tonnes grading 2.3328 grams per tonne gold (Kerr, 1983).

NAME(S):	MARY MAC (SOUTH), SOUTH
STATUS:	Developed Prospect
N.T.S. MAP:	092J/15E
LATITUDE:	50° 51' 50" UTM: 5,634,735 N
LONGITUDE:	122° 41' 25" 521,797 E
COMMODITIES:	gold, antimony, molybdenum, copper
DEPOSIT TYPE:	109 Stibnite veins and disseminations with possible relation to L05 low fluorine molybdenite porphyry deposit

#### CAPSULE GEOLOGY:

The Mary Mac-South zone showing is hosted in Mississippian to Jurassic Bridge River Complex (Group) meta volcanics of andesitic composition. The breccia is cemented by quartz and contains "globular" stibnite and pyrite. The mineralized breccia zone strikes east and dips 70 degrees north; the mineralization is strong in widths of 1 to 6 metres (3.3 to 19.7 ft). Above the brecciated metavolcanics are meta-argillites/hornfels, thought to belong to the Bridge River Complex, which are completely impregnated with disseminated pyrite (5 to 8 per cent). This strong zone of pyritization forms a "halo" in the sediments around the base of Mount Williams.

The north and main zones on the Mary Mac property, approximately 0.8 kilometers (0.5 mi) to the north contain distinctly different mineralization from the south zone. The mineralization occurred in two stages; early molybdenum-quartz veining in hornblende-feldspar porphyry dykes was crosscut by gold-bearing quartz-carbonate-stibnite veins found in both the porphyry dykes and the intruded Bridge River meta-cherts. Copper values are also obtained.

Workings on the South zone consist of surface trenching and three drill holes. Ore reserves calculated in 1983 consist of 27,300 tonnes (30,030 tons) grading 8.18 grams per tonne (0.239 oz/ton) gold, over an average width of 2.4 metres (7.9 ft) (cut-off grade is 3.11 grams per tonne)(Kerr, 1983). The calculation is based on a 140 metre (459 ft) strike length and 60 metre (197 ft) vertical depth.

## 4.0 CURRENT EXPLORATION ON THE MERRY PROPERTY

### 4.1 Air Photo Interpretation

Air photographs of the Merry property area (Figure 16) show the trellis style drainage on the northeastern slope of the Bendor Range. Carpenter Lake is located just north of the area covered by the air photos (Figures 16 and 2). The main trellis branches are oriented in a northwest-southeasterly direction, generally parallel with the trend of rock strata in this area.

The trend of the soil-molybdenum and associated gold anomalies also seems to be oriented in a northwest-southeasterly direction. However, an extension of the 1980 soil survey to the northwest and southeast of the property would be required to confirm this with any *certainty*.

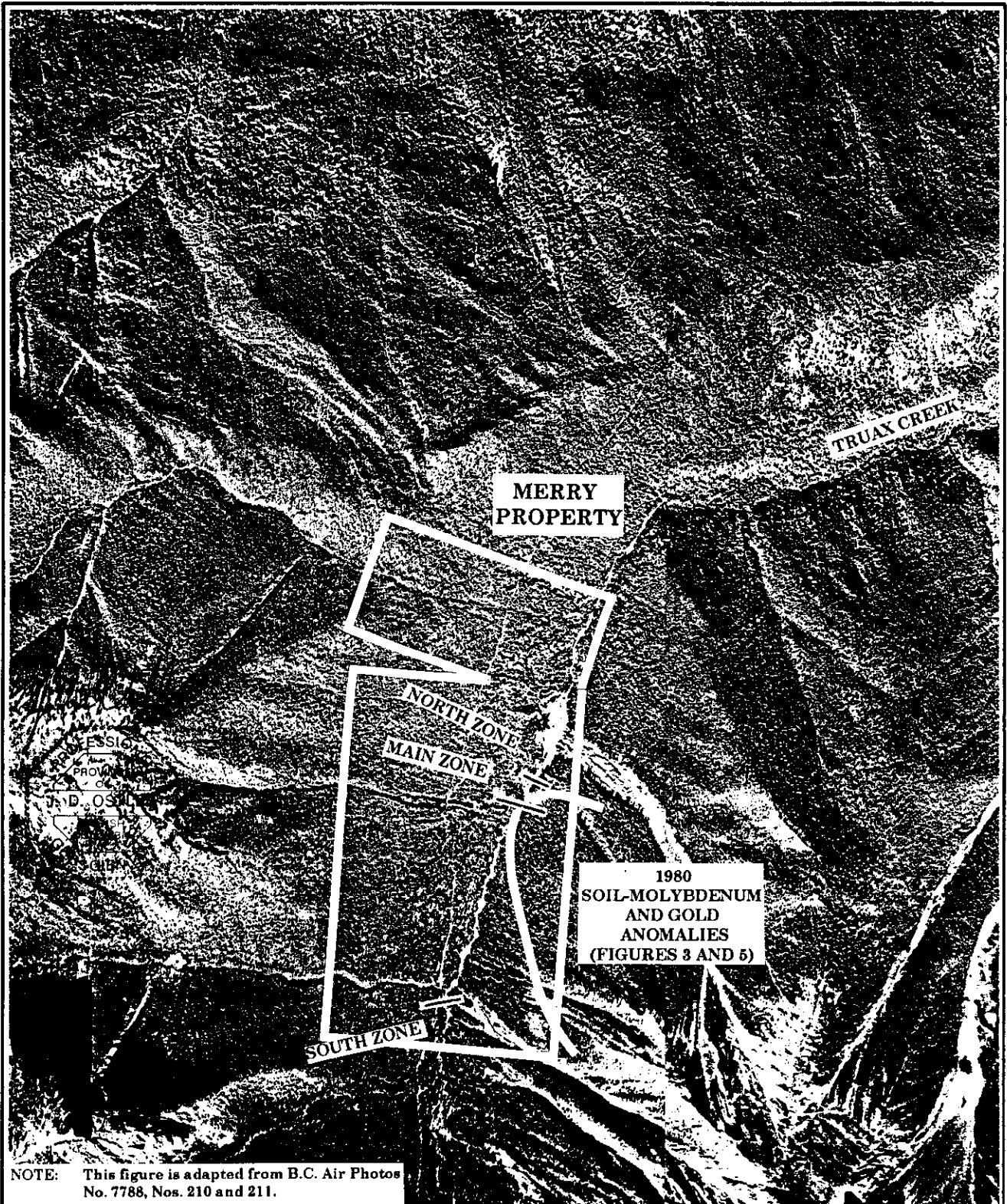
Some of the faults mapped by C.N. Church (1966) (Figure 15) can be traced quite easily across the air photos of the Merry property-area; others are masked by debris slides on the steep local slopes.

Previous workers have been in agreement that the molybdenum mineralization in the Merry property-area predates the high-grade stibnite-gold mineralization, and that no direct relation between them can be discerned from outcrop-scale mapping.

It is interesting to note that all three known stibnite-gold zones in the property-area are arranged in a radial pattern around the northwestern margin of the 1980 soil-molybdenum anomaly. Also, the gold zones are oriented at moderate to high angles to the margin of the anomaly.

It is possible that pressure induced by advancing molybdenum-bearing hydrothermal fluids, created dilation in peripheral zones of weakness. This could have provided ground preparation for subsequent gold-bearing stibnite mineralization.

These spatial relationships could explain the location of both the molybdenite and stibnite mineralization in the same general area. However, they alone, are insufficient to prove any genetic relation between the two mineralization types exposed on the Merry property.



**N.**

22°33'

N. mag.

**SCALE**

0 200 400 600 800 1000 m.

0 1000 2000 3000 ft.

**Figure 16**

CASSIAR EAST YUKON EXP. LTD.

PRINCETON VENTUERS, LTD.

**AIR PHOTO INTERPRETATION**

**MERRY PROPERTY**  
 50°51'40" N., 122°41'13" W.  
 U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15 LILLOOET M.D., B.C.  
 JOHN OSTLER; M.Sc., P.Geo. MARCH, 2002



## 4.2 Satellite Imagery

The object of the current satellite image interpretation program was to define any colour-anomaly trends that could enhance the definition of mineralization in the property-area, and to connect that mineralization with any larger scale economic targets in the area.

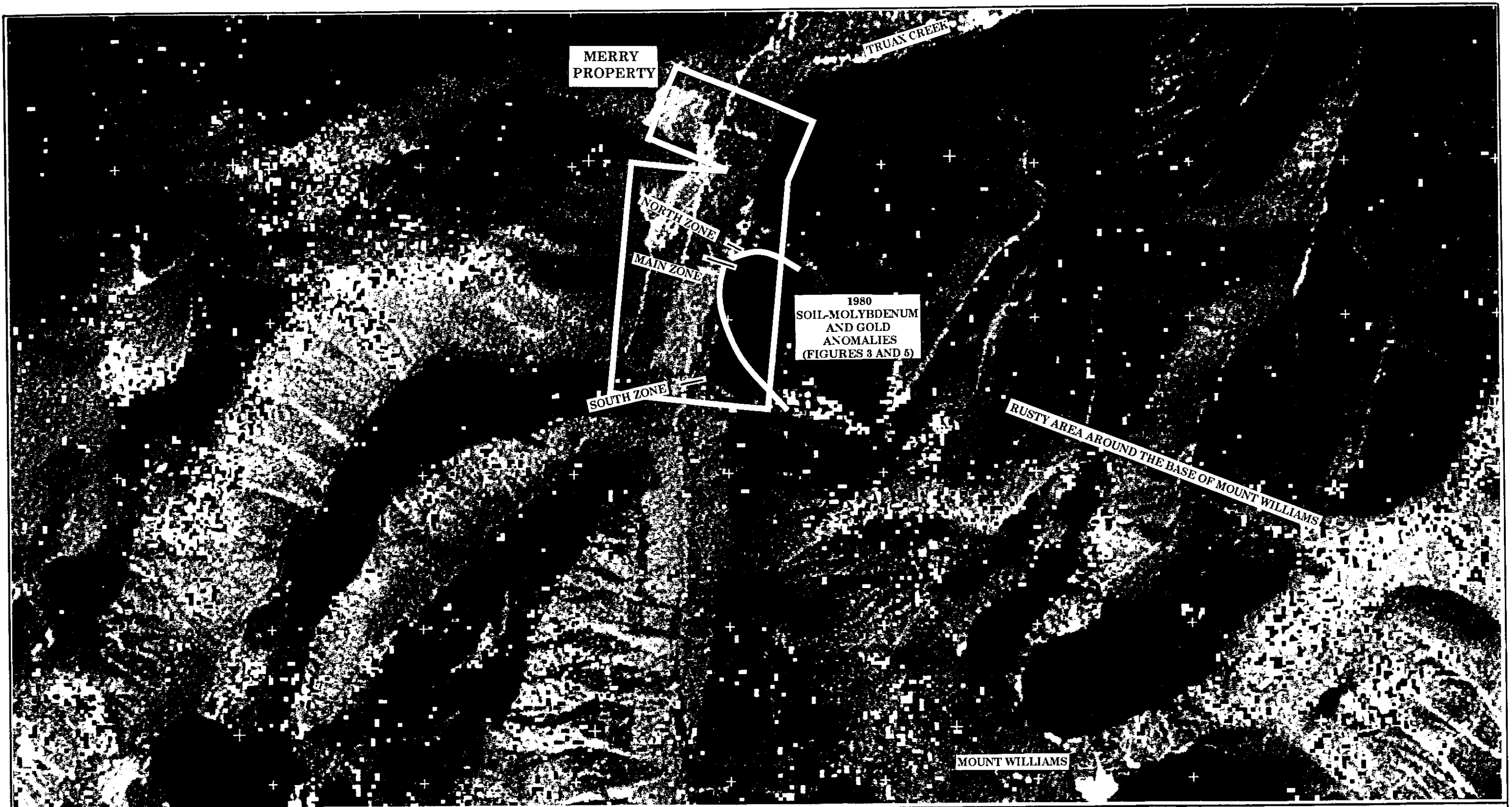
RGI Resource GIS and Imaging Ltd. was contracted to process Landsat TM satellite data of the area around the Merry property and produce images at a scale of 1:25,000. Four image types were delivered as follow:

False colour;	Landsat 7 - Bands 3 / 1+ Pan
Vegetation;	Landsat 7 - Band 4
Iron Oxide Alteration;	Landsat 7 - Band 3 / Band 1 + Pan
Hydroxyl Alteration;	Landsat 7 - Band 5 / Band 7 + Pan

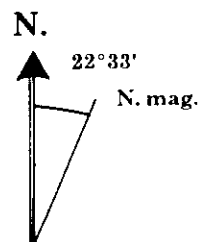
Data for these images was compiled on October 5, 2001.

RGI (Mitchell, 1995) defines colour anomalies due to iron oxidation as a strong reflector in the red portion of the visible electromagnetic spectrum (Landsat band 3) compared to the blue and green bands, bands 1 and 2, combined with a relatively low response in the near infrared portion of the spectrum, band 4. Much of the red radiation from vegetation is in the near infrared portion of the spectrum so a low response from band 4 increases the confidence level that the red-brown colour anomalies that are recorded are due to iron oxidation rather than vegetation.

Most of the economic minerals contained within ultramafic hosted copper-nickel deposits are base metal sulphides that form rusty iron oxides upon weathering. These oxides tend to form gossans, and turn overlying soil and glacial till red. This can generate intense red-brown Landsat TM colour anomalies.



NOTE: This figure is adapted from a multi-colour  
LANDSAT TM image from band 3 / band 1 + pan.



CASSIAR EAST YUKON EXP. LTD.

*John Ostler*



SCALE

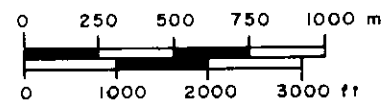


Figure 17

PRINCETON VENTURES, LTD.

LANDSAT TM 7 DATA  
IRON OXIDE ANOMALIES

MERRY PROPERTY

50° 51' 40" N., 122° 41' 13" W.

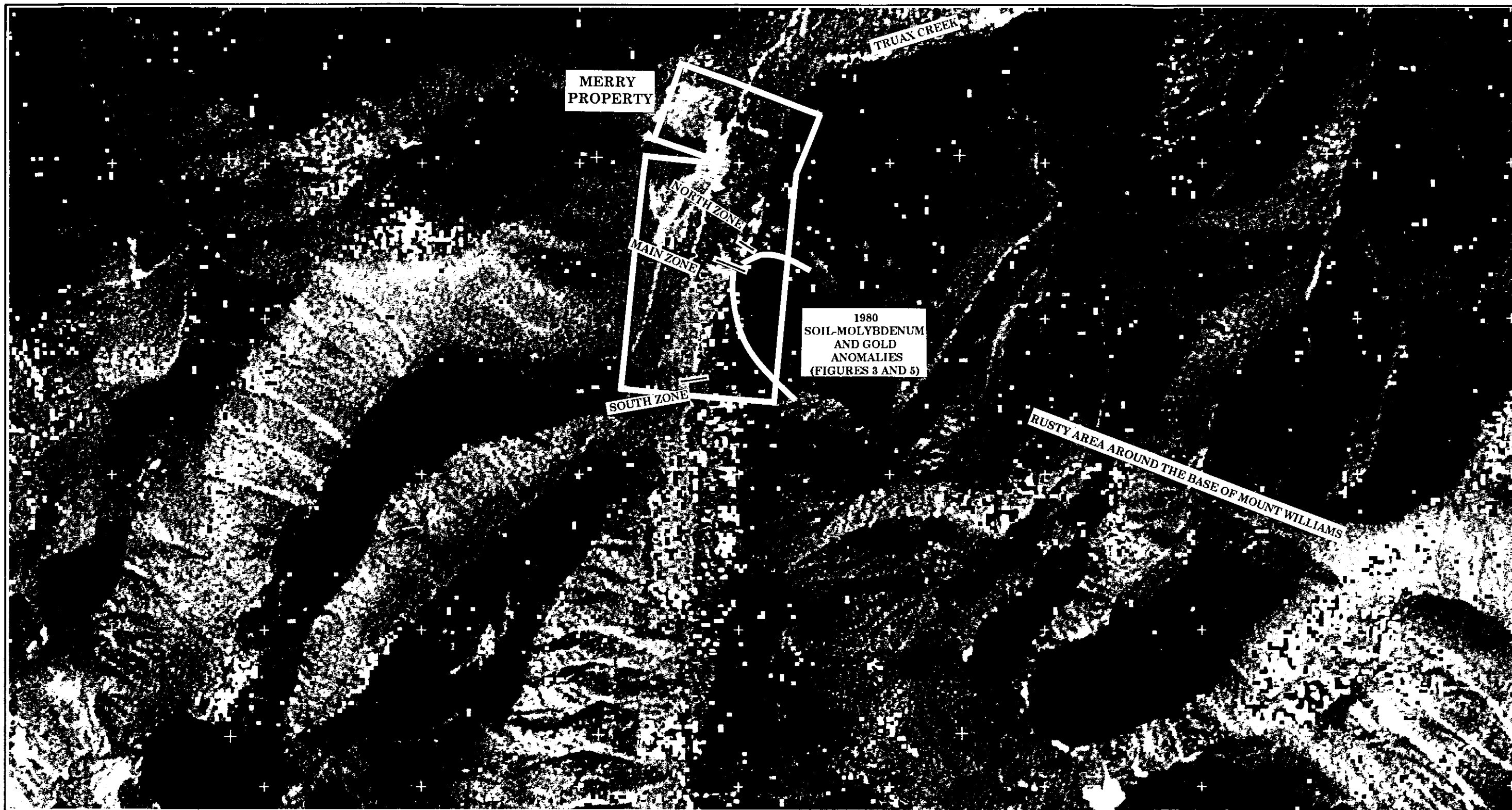
U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15

LILLOOET M.D., B.C.

JOHN OSTLER; M.Sc., P.Geo.

MARCH, 2002



MERRY PROPERTY

NORTH ZONE

MAIN ZONE

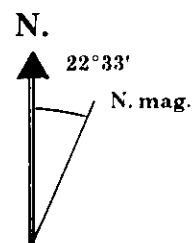
SOUTH ZONE

1980 SOIL-MOLYBDENUM AND GOLD ANOMALIES (FIGURES 3 AND 5)

TRUAX CREEK

RUSTY AREA AROUND THE BASE OF MOUNT WILLIAMS

NOTE: This figure is adapted from a multi-colour LANDSAT TM image from band 5/ band 7 + pan.



CASSIAR EAST YUKON EXP. LTD.

*John Ostler*



SCALE

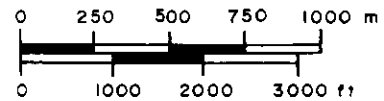


Figure 18

PRINCETON VENTUERS, LTD.

LANDSAT TM 7 DATA  
HYDROXYL ANOMALIES

MERRY PROPERTY

50°51'40" N., 122°41'13" W.

U.T.M.: 5,634,200 N., 522,080 E.

N.T.S.: 92 J/15

LILLOOET M.D., B.C.

JOHN OSTLER: M.Sc., P.Geo.

MARCH, 2002

Landsat TM colour anomalies due to hydroxyl alteration and associated clay formation, are generated by a high response in band 5 and an accompanying low response in band 7. Band 5 measures radiation with wavelengths ranging from about 1.57 to 1.8 micro metres. Band 7 radiation has wavelengths between about 2.13 and 2.4 micro metres. Both these bands measure radiation in the low-frequency radio to audio portions of the electromagnetic spectrum. They are within a radiation window that extends through wavelengths ranging from about 1.5 to 2.4 micro metres. This window is characterized by low radiation absorption by the earth's atmosphere, and consequently, radiation from this part of the electromagnetic spectrum is easy for a satellite to receive.

*Hydroxyl alteration patterns commonly occur around areas of hydrothermal alteration and intense weathering of pelitic rocks. Porphyry copper systems can produce large, intense hydroxyl alteration anomalies. Alteration halos associated with other types of mineral deposits generally host smaller and less intense hydroxyl alteration colour anomalies. These anomalies are also useful to map stratigraphy, because some formations produce much more clay upon weathering than do others.*

Landsat TM 7 data pixels cover areas of 15 X 15 metres (50 X 50 ft) on the ground. That data can be used to produce maps at a scale of 1:25,000 with individual pixels appearing as squares of various colours that are about 1<sup>2</sup> mm. The colours of the pixels represent the intensity of the signal from that area, and hence, the intensity of the colour anomaly generated there and not its actual colour. Intense anomalies appear as groups of red and orange pixels; moderate anomalies are represented by clusters of blue, yellow and green pixels. On the black and white copies of the satellite images (Figures 17 and 18) blue pixels show up black, yellow and green ones become white, and red and orange pixels become grey. Areas of low response appear as a variety of grey tones that make the satellite image look somewhat like a very grainy air photo.

Vegetation masks signals from both iron oxide and hydroxyl alteration, thus Landsat TM images are most diagnostic in arid areas with bare land surfaces, and least diagnostic in

wet areas that have thick forests. The Truax Creek area is in a transition zone between the wet, forest-covered coast of British Columbia and its drier interior. The air photo of the Merry property area (Figure 16) confirmed that the lower slopes of the Truax Creek valley near the eastern and western margins of the claims are covered by a dense canopy of vegetation that masks Landsat colour anomalies (Figures 17 and 18). The central part of the property-area near the creek and showings areas has been logged off recently, and there, colour anomalies are more discernable. The relatively bare alpine slopes west and southeast of the property area host a complex pattern of colour anomalies.

Iron oxide colour anomalies are numerous throughout the schists and gneisses of the Bridge River Complex (Figures 12, 15, and 18). They are particularly plentiful and intense in the stratigraphy that crosses the southern part of the Merry property. This stratigraphy includes the rusty area around the base of Mount Williams that has been reported upon by several mappers of this area.

The lower, densely forested slopes along geological strike with the northern part of the property-area, host scattered intense iron oxide colour anomalies where the satellite is able to identify them among the trees. This dispersed group of isolated anomalies may indicate that gossanous sulphide-bearing rocks are located throughout this area.

In the property-area itself, both the South and Main zones have co-incident clusters of iron oxide colour anomalies. These are related to rusty material exposed in trenches and cuts in these workings areas. Although the area of the 1980 soil-molybdenum anomaly in the eastern part of the property-area is almost completely in a dark shadow on the satellite image where no anomalies could be detected, very intense iron oxide anomalies are present on the ridges immediately south and east of that area. The soil molybdenum anomaly may be part of a mineralized system that extends southeastward off the property-area onto these ridges (Figure 17).

The pattern of hydroxyl colour anomalies is far more concentrated in the area covered by these images, than is that of the oxide anomalies (Figures 17 and 18). The hydroxyl anomaly

pattern on the property indicates that clay alteration is most prevalent around the margin of the 1980 soil-molybdenum anomaly. Unfortunately, the central part of the soil-anomaly area is in a shadow on the satellite image where almost no colour anomalies were recognized. However, two areas of intense hydroxyl colour anomalies occur about 1.5 and 3.0 km (0.6 and 1.2 mi) along strike in Bridge River Complex rocks southeast of the property. These areas of hydroxyl anomalies are generally co-incident with areas of intense iron oxide anomalies and within the rusty area defined by previous mappers.

Lower, densely forested slopes northwest of the Merry property host very few visible hydroxyl colour anomalies, making satellite imagery of little use in exploring for a northwesterly extension of mineralization.

#### **4.3 Summary of Present Work**

Field work on the Merry property comprised air photo and satellite image interpretation conducted intermittently from November 1, 2001 to March 20, 2002. The work was conducted by:

John Ostler; M.Sc., P.Ge. West Vancouver, B.C.	Consulting Geologist
A. Brent Hemingway, B.Sc. Surrey, B.C.	Consulting Geologist

The November 2001-March 2002 work program on the Merry property included the following:

A. Air photo and Landsat TM image data interpretation	2.0 man-days
B. Research, data compilation, and report production	7.0 man-days
Total time spent during the current work program	9.0 man-days

During the November 2001-March 2002 program, work was done on images of the following claims:

Claim Name	Record Number	No. of Units	Record Date	Expiry Date	Owner
Merry Me 1	370102	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 2	370103	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 3	370104	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 4	370105	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 5	370106	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Merry Me 6	370107	1	July 10, 1999	July 10, 2002	A.B. Hemingway
Mary 1	379151	1	July 10, 2000	July 10, 2003	A.B. Hemingway
Mary 2	379152	1	July 10, 2000	July 10, 2003	A.B. Hemingway

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conclusions

Air photography of the Merry property area shows the trellis style drainage on the northeastern slope of the Bendor Range. The main trellis branches are oriented in a northwest-southeasterly direction, generally parallel with the trend of rock strata in this area. The trend of the soil-molybdenum and associated gold anomalies also seems to be oriented in a northwest-southeasterly direction.

All three known stibnite-gold zones in the property-area are arranged in a radial pattern around the northwestern margin of the 1930 soil-molybdenum anomaly. Also, the gold zones are oriented at moderate to high angles to the margin of the anomaly.

It is possible that pressure induced by advancing molybdenum-bearing hydrothermal fluids, created dilation in peripheral zones of weakness. This could have provided ground preparation for subsequent gold-bearing stibnite mineralization. With the general trend of the soil-molybdenum anomaly being northwest-southeasterly, the orientation of any major dilation and subsequent injection of high-grade, stibnite-gold mineralization should be northwest of the Main and North zones along trend with the nose of the soil-molybdenum anomaly.

These spatial relationships could explain the location of both the molybdenite and stibnite mineralization in the same general area. However, they alone, are insufficient to prove any genetic relation between the two mineralization types exposed on the Merry property.

Iron oxide colour anomalies are numerous throughout the schists and gneisses of the Bridge River Complex. They are particularly plentiful and intense in the stratigraphy that crosses the southern part of the Merry property. This stratigraphy includes the rusty area around the base of Mount Williams that has been reported upon by several mappers of this area.

In the property-area itself, both the South and Main zones have co-incident clusters of iron oxide colour anomalies that are related to rusty material exposed in trenches and cuts in these workings areas. Although the area of the 1980 soil-molybdenum anomaly in the eastern part of the property-area is almost completely in a dark shadow on the satellite image where no anomalies could be detected, very intense iron oxide anomalies are present on the ridges immediately south and east of that area. The soil molybdenum anomaly may be part of a mineralized system that extends southeastward off the property-area onto these ridges.

The pattern of hydroxyl colour anomalies is far more concentrated in this area than is that of the oxide anomalies. The hydroxyl anomaly pattern on the property indicates that clay alteration is most prevalent around the margin of the 1980 soil-molybdenum anomaly. Unfortunately, the central part of the soil-anomaly area is in a shadow on the satellite image where almost no colour anomalies were recognized. However, two areas of intense hydroxyl colour anomalies occur about 1.5 and 3.0 km (0.6 and 1.2 mi) along strike in Bridge River



Complex rocks southeast of the property. These areas of hydroxyl anomalies are generally coincident with areas of intense iron oxide anomalies and within the rusty area defined by previous mappers.

The vein stibnite-gold mineralization and soil-molybdenum anomaly on the Merry property may be spatially related to each other and to a larger northwest-southeasterly trending mineralized system. This larger system may extend along from the lower slope of Mount Williams for 3.0 km (1.2 mi) southeast of the Merry property, and for an unknown distance north of it. The area southeast of the Merry property is most prospective for porphyry molybdenum mineralization, the area northwest of the property is most prospective for vein and replacement, gold-bearing stibnite mineralization.

## **5.2 Recommendations**

Previously, I recommended that a three-phase program of exploration be conducted on the Merry property (Ostler, 2001). Those phases of exploration comprised: 1. air photo and satellite imagery of the property and surrounding area. 2. a magnetometer survey using a base station and a programmable field magnetometer, and 3. an induced polarization survey over the entire Merry property using an expanded version of the grid that was established for the previous magnetic survey. The main focus of exploration was the search for additional gold-bearing stibnite mineralization.

The current program of air photo and satellite imagery study has indicated that more gold-bearing stibnite mineralization is most likely to be found northwest of the Main and North zones, along trend with the nose of the soil-molybdenum anomaly. The results of the current program are sufficiently encouraging to justify continuing with the next phase of the previously recommended program, the magnetometer survey.

However, the results of the current program also have indicated that an hydrothermal system hosting a body of porphyry-type molybdenum mineralization, may exist southeast of the Merry property. This area should be diligently prospected to investigate this possibility.

More claims should be staked both northwest and southeast of the Merry property to secure rights to any mineralization that may be found there.

**5.3 Cost of Current Exploration Program**

<b>Wages:</b>		
John Ostler; M.Sc., P.Geo., 7 days @ \$400/day . . . . .	\$ 2,800.00	
Brent Hemingway, B.Sc., 2 days @ \$300/day . . . . .	\$ 600.00	
	\$ 3,400.00	\$ 3,400.00
<b>Field Supplies and Expenses:</b>		
Acquisition cost of Landsat TM images . . . . .	\$ 1,070.00	
Acquisition cost of air photos . . . . .	\$ 42.00	
	\$ 1,112.00	\$ 1,112.00
<b>Report Production Costs:</b>		
Report covers and set up . . . . .	\$ 14.06	
Copy of text . . . . .	\$ 40.87	
Diagram changes and set up . . . . .	\$ 6.75	
	\$ 61.68	\$ 61.68
		\$ 4,573.68
<b>G.S.T (7%).</b> . . . .		\$ 320.16
<b>Total cost of Current Work:</b> . . . . .		\$ 4,893.84

West Vancouver, British Columbia  
March 20, 2002



John Ostler; M.Sc., P.Geo.  
Consulting Geologist



## 6.0 REFERENCES

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Vol. 1 - Metallics and Coal; B.C. Min. Energy, Mines and Petr. Res.,  
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1932: p. A216.  
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**APPENDIX 'A'**

**CERTIFICATE OF QUALIFICATION**

I, John Ostler, of 2224 Jefferson Avenue in the City of West Vancouver, Province of British Columbia do hereby certify:

That I am a consulting geologist with business address at 2224 Jefferson Avenue, West Vancouver, British Columbia;

That I am a graduate of the University of Guelph in Ontario where I obtained my Bachelor of Arts degree in Geography (Geomorphology) and Geology in 1973 and that I am a graduate of Carleton University of Ottawa, Ontario where I obtained my Master of Science degree in Geology in 1977;

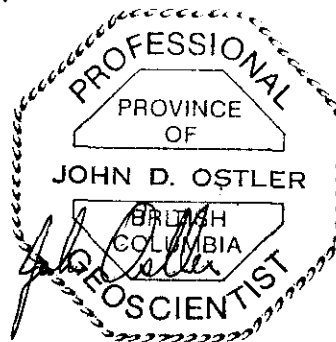
That I am registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia and that I am registered as a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, and that I am a Fellow of the Geological Association of Canada;

That I have been engaged in the study and practice of the geological profession for over 30 years;

That this report is based on data in literature on the Merry property and exploration personally conducted by me in the Bridge River gold camp intermittently since 1980;

That I have no interest in the Merry property nor in the securities of Princeton Ventures, Inc., nor do I expect to receive any.

West Vancouver,  
British Columbia  
March 20, 2002



John Ostler: M.Sc., P.Geo.  
Consulting Geologist