

2642

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 2642 MAP.....

AEROMAGNETIC SURVEY

TANJO MINES LTD. (N.P.L.)

BY CLAIM GROUP

RACING RIVER AREA, LIARD M.D., B.C.

94K/11W

BY Claim Group: 100 miles S80 W. of Ft. Nelson, B.C.

58° 125° NE

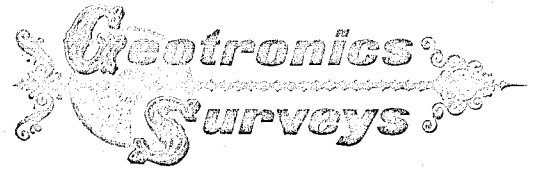
N.T.S. - 94K/11W

Report by: GEOTRONICS SURVEYS LTD.

Barclay C. Isherwood, B.Sc.  
Geophysicist

October 1970

Submitted to: TANJO MINES LTD. (N.P.L.)  
12503 Grandview Drive  
Edmonton, Alberta

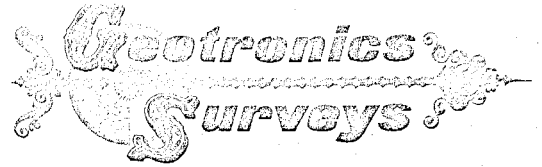


517 - 602 West Hastings Street, Vancouver, British Columbia, Canada X Telephone 688-4342

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AEROMAGNETIC SURVEY  
ON THE  
BY CLAIM GROUP  
RACING RIVER AREA, LIARD M.D., B.C.

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INTRODUCTION

This report discusses the results of an airborne magnetic survey conducted by Geotronics Surveys Ltd. of Vancouver, B.C. The instrument operator was T. Rolston with E. Dodd as navigator. The survey covered BY Claims No. 1 to No. 40 in the Liard Mining Division.

The object of the survey was to obtain information on the structural geology of the area. Of particular interest was the possibility of delineating any basic igneous dykes, common to this area, which are associated with high grade copper deposits (Menzies 1951). Since it was known that magnetite comprises nearly 15% of some of the dyke rocks, a magnetic survey was undertaken.

### LOCATION

The property is located approximately 100 miles west of Fort Nelson at  $58^{\circ}32'$  latitude and  $125^{\circ}21'$  longitude.

### TOPOGRAPHY

The terrain over the property is very rugged with a relief in excess of 3000 feet. The elevation varies from 5000 feet in the southwest corner to 8000 feet in the northeast corner. A tributary of the Delano Creek flows through the west side of the property in a southerly direction.

### INSTRUMENTATION

The instrument used to carry out this survey was an ELSEC nuclear free precession proton magnetometer. This magnetometer measures the total magnetic field intensity and has a sensitivity of  $\pm 0.5$  gammas. The data was recorded on a Bausch and Lomb 6-inch strip chart recorder which was operated on the 4000 gamma full scale deflection scale for the entire survey. The equipment was mounted and operated from a helicopter owned and operated by Okanagan Helicopters Ltd.

### SURVEY PROCEDURE

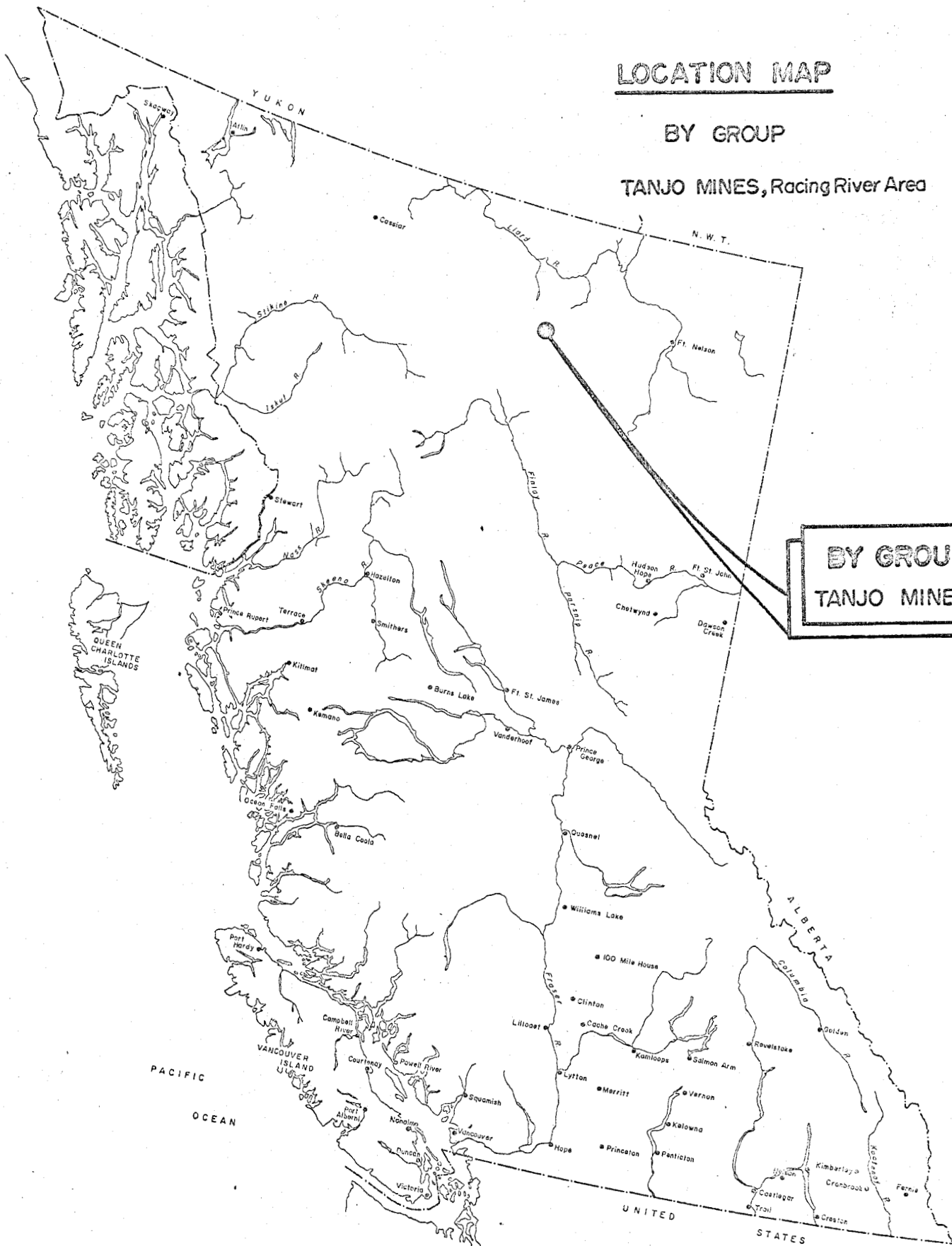
Operating from the Fort Nelson Airport, the equipment was test-flown and calibrated before proceeding with the survey.

# LOCATION MAP

BY GROUP

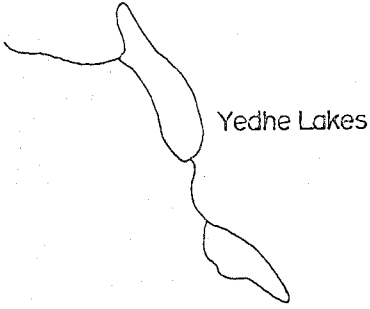
TANJO MINES, Racing River Area

BY GROUP  
TANJO MINES



SCALE 1" = 110 miles

CLAIM MAP



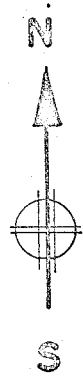
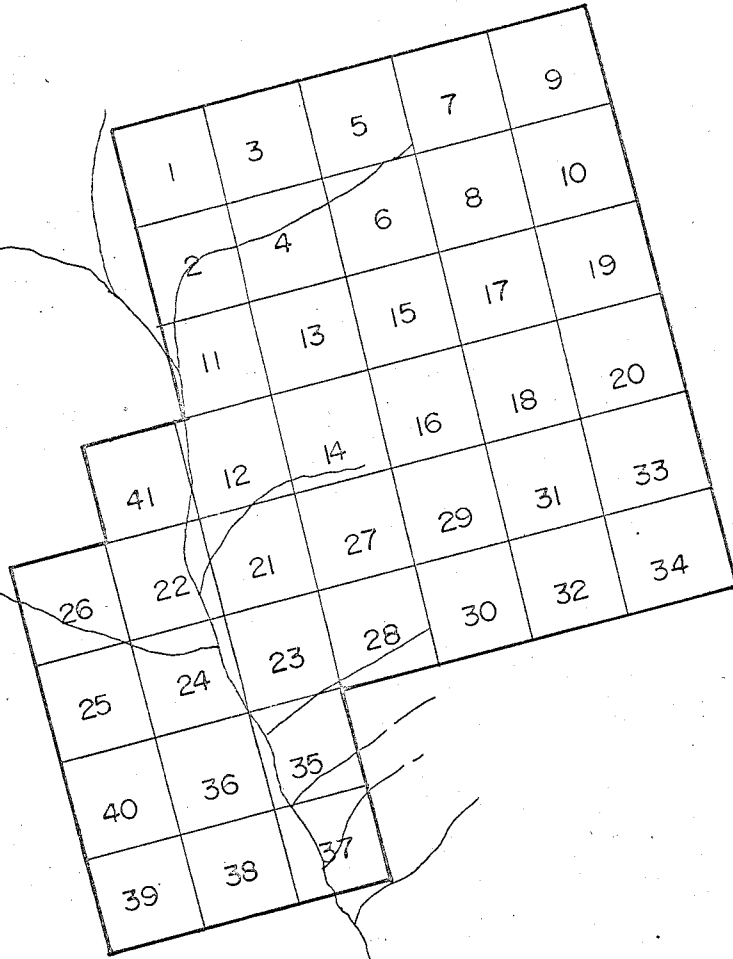
Yedhe Lakes

BY GROUP

TANJO MINES

Racing River Area

Liard M.D.



SCALE 1" = 3000'

Because of the rugged terrain in the area, most of the flight lines were flown with the terrain contours at an elevation of 500 feet above the local topography. However, some of the high points could not be flown due to high winds and adverse weather conditions. The total air survey miles flown was 80 line miles. All magnetic field intensity values were transferred from the recorder chart paper, plotted, contoured, and mapped at a 1 inch to  $\frac{1}{4}$  mile scale.

### GEOLOGY

The BY claim group is located on lower Cambrian sediments of the Windermere Formation. According to Vail, 1957, this sequence consists of shales, in places calcareous, then sandstone and quartzite bands, limestones and argillites. Cutting these older sedimentary rocks are a series of basic igneous dykes. They are generally vertical or dip at angles and strike in mainly northeast and northwest directions. Vail has done an extensive microscopic analysis of the rocks from these dykes and found them to contain as much as 15% magnetite. In many cases, these basic dykes contain quartz-carbonate fissure veins which carry "pockety" copper mineralization, principally in the form of chalcopyrite. 1!

### INTERPRETATION

The overall magnetic relief is only 900 gammas, with a relative minimum of 600 gammas and a relative maximum of 1500 gammas. The regional background value is approximately 1100 gammas. The absence of marked magnetic relief is pro-

# GEOLOGY BY GROUP LIARD, M. D. TANJO MINES

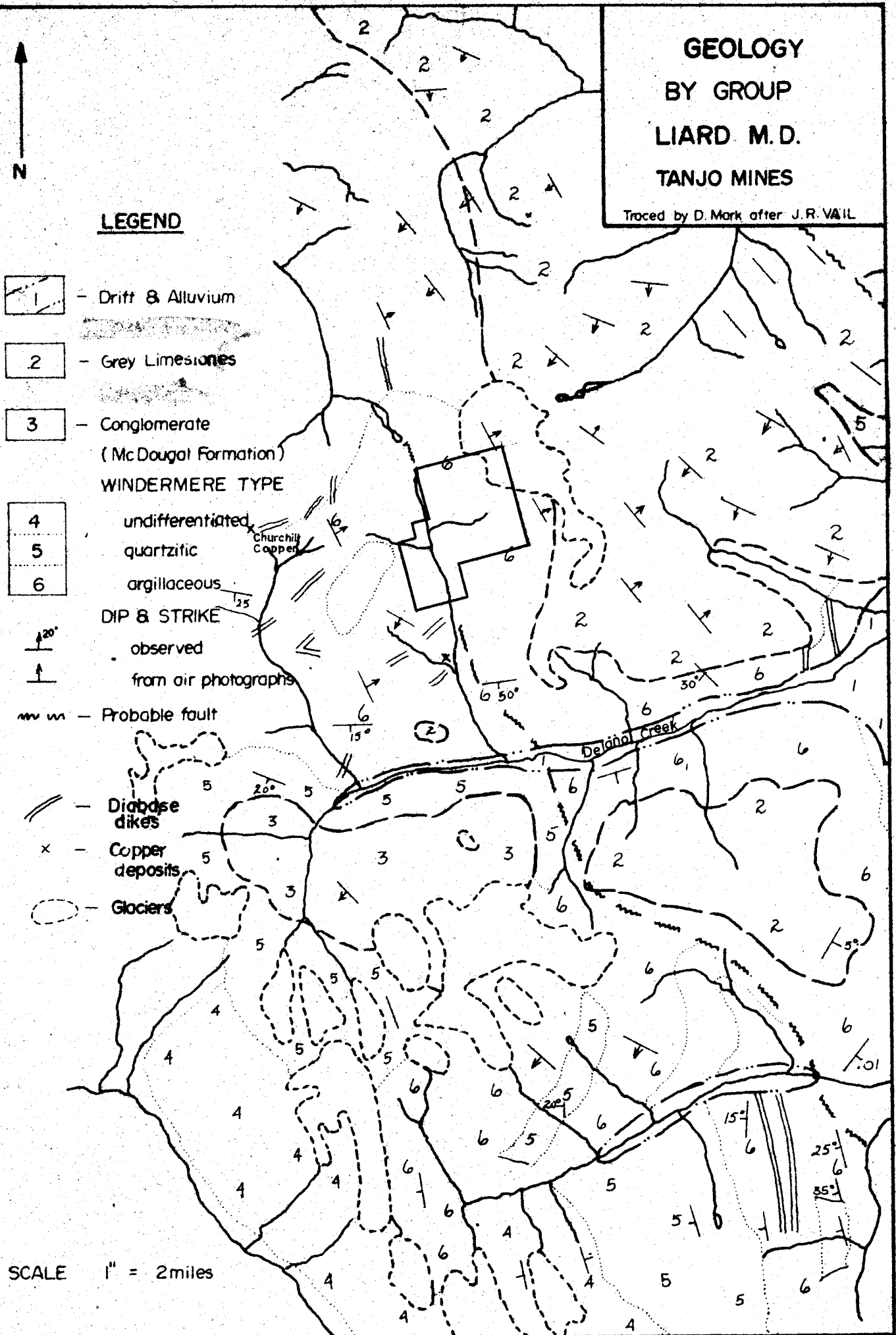
Traced by D. Mark after J. R. VAIL



## LEGEND

- Drift & Alluvium
- Grey Limestones
- Conglomerate  
(McDougal Formation)
- WINDERMERE TYPE**
- 4 - undifferentiated
- 5 - quartzitic
- 6 - argillaceous
- DIP & STRIKE**
- 20° - observed
- from air photographs
- Probable fault
- Diabase dikes
- Copper deposits
- Glaciers

SCALE 1" = 2 miles





bably due to uniformity of rock types underlying the BY claim group.

This low magnetic relief coupled with the apparent "noise" present in the data makes a definitive interpretation difficult. However, there does appear to be one anomalous magnetic high (1500 gammas) on the property, appearing on the north central part of the survey. This anomaly is elongated in an east-west direction, and has a total length of about 800 feet. Possibly this indicates the presence of disseminated magnetite associated with the igneous dykes common to the Delano River valley.

There are several "sharp" anomalous lows indicated by the survey. The largest one in areal extent, which has a minimum value of 600 gammas, is located on the west central portion of the property. A smaller magnetic low (700 gammas) is located on the south central part of the property. The writer is unable to provide a plausible explanation for these low features. They do not appear to be related to the topographical relief, nor does the geology of the area explain such anomalies. The magnetic susceptibility contrast for the rock types which underlay this property is definitely not large enough to produce such "sharp" changes. Although, it is probable that the broad magnetic low on the north central part of the property reflects changes within the sedimentary rocks which underly this claim group.

#### RECOMMENDATIONS

It is difficult to make any concrete recommendations for

the property based on the results of this survey. Possibly some reconnaissance geological work would be the next logical step especially in the area of the magnetic high.

Also, the writer feels that some digital filtering techniques might be applied to the present data to remove the effects caused by the high topographical relief in the area. In this case a downward continuation operator would produce the best results.

Respectfully submitted,

GEOTRONICS SURVEYS LTD.

*Barclay C. Isherwood*

BARCLAY C. ISHERWOOD, B.Sc.  
Geophysicist

BCI:ly

Oct. 20, 1970

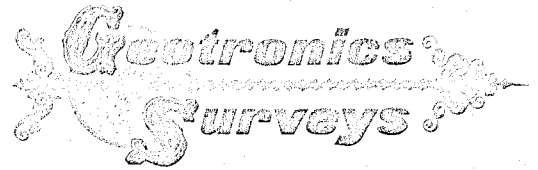
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Grant, F.S., and West, G.F.: Interpretation Theory in Applied Geophysics; New York, McGraw-Hill Book Company, Inc., 1965.

Menzies, M.M.: Geology and Mineralogy of the Strangward Copper Property, South Tetsa River, B.C.; University of British Columbia, M.A.Sc. Thesis, 1951.

Parasnis, D.S.: Mining Geophysics; New York, Elsevier Publishing Co., 1966.

Vail, J.R.: Geology of the Racing River Area, British Columbia; University of British Columbia, M.Sc. Thesis, 1957.



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RESUME OF TECHNICAL AND FIELD EXPERIENCE

OF

BARCLAY C. ISHERWOOD, B.Sc.

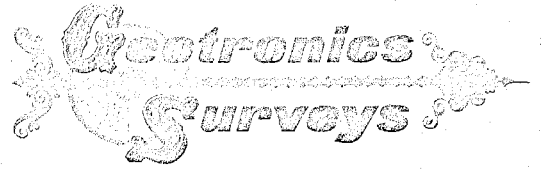
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EDUCATION

1. Graduate of the University of British Columbia with a B.Sc. in Geophysics.
2. Presently completing the thesis requirements for a M.Sc. in Geophysics.

EXPERIENCE IN INDUSTRY

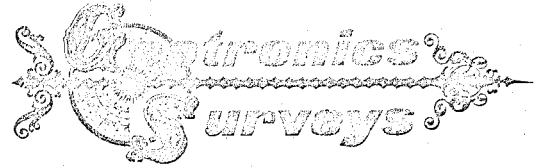
1. Seismological and geological studies for the Department of Geophysics at the University of British Columbia during the exploration season of 1967.
2. Geophysicist with Chevron Standard Ltd., Calgary, Alberta, during the exploration season of 1968.
3. Geophysicist with Geo-Recon Explorations Ltd., Vancouver, B.C., during the exploration season of 1969.
4. Presently geophysicist for Geotronics Surveys Ltd., Vancouver, B.C.
5. Considerable experience in the computer analysis of seismic and potential field data, at both the hardware and software levels.
6. Member of the British Columbia Geophysical Society, Vancouver, B.C.
7. P. Eng. applied for with the Association of Professional Engineers of B.C.



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RESUME OF TECHNICAL AND FIELD EXPERIENCE OF T. W. ROLSTON

1. Eleven years with the R.C.A.F. as Instrument and Electronic Technician with crew supervisory capacity in various electronic and instrumentation systems.
2. Two years with Kerr-Addison Mines Ltd. as Electronic Technician servicing, repairing and maintaining various types of geophysical instruments. Also 2 seasons as Field Supervisor and Geophysical Instrument Operator in mining exploration, including airborne and ground geophysical surveys, geochemical surveys, geophysical and geochemical drafting and mapping.
3. Three years as Field Supervisor of geophysical and geochemical surveys and Instrument Operator of various geophysical instruments, such as airborne and ground systems magnetometer, electromagnetic, gravity meter, self potential meter, scintillometer and induced polarization.
4. Three years contracting geophysical/geochemical surveys in close association with mining engineers for various mining companies.
5. President and Manager of Geotronics Instruments Ltd., geophysical instrument design, manufacture and distribution.
6. President and Project Manager of Geotronics Surveys Ltd., mining exploration, geophysics and services.
7. Electronics Engineering understudy with Cleveland Institute of Electronics.
8. Member of the B.C. Geophysical Society.



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RESUME OF TECHNICAL AND FIELD EXPERIENCE OF E. A. DODD

1. Presently Field Manager for Trans-Arctic Explorations Ltd.
2. Three years of applied field experience in various aspects of geophysical surveying, prospecting, blasting, sampling and geochemistry.
3. Two years contracting experience in geophysics, property management, expediting and property evaluation.
4. Instrument operator on ground and airborne magnetic surveys, Ronka EM-16, Sabre Magnetometer, Geotronics G-100 Magnetometer, Sharpe MF-1 Magnetometer, Sharpe Ground Scintillometer, Worden Gravity Meter, Self Potential, Crone J.E.M. Shootback E.M., Sharpe Horizontal Loop E.M. and Induced Polarization.
5. Workable knowledge of placer gold properties.
6. Field Supervisor for Geotronics Surveys Ltd. since November 1, 1969 and presently employed by same.
7. Above mentioned experience applied in Idaho, Montana, Nevada, British Columbia but primarily in the Arctic region of the Northwest Territories and Yukon Territory.
8. Specializing in exploration in the western and eastern Arctic regions of Canada.

E. P. SHEPPARD & ASSOCIATES LTD.

CONSULTING GEOLOGISTS

314-402 WEST PENDER STREET,  
VANCOUVER 3, B.C.

October 20, 1970

Mr. T. W. Rolston  
Geotronics Surveys Ltd.  
514 - 602 W. Hastings St.  
Vancouver 2, B. C.

Dear Mr. Rolston:

At your request I have reviewed the references cited below and examined the report prepared by employees of your Company:

AEROMAGNETIC SURVEY  
Tanjo Mines Ltd. (N.P.L.)  
BY Claim Group  
Racing River Area, Liard M.D., B.C.

The 40-claim group is located approximately 100 miles west of Fort Nelson, B.C. at  $58^{\circ} 32'$  latitude and  $125^{\circ} 21'$  longitude.

The topography is rugged and elevation varies from less than 3000 feet in the broad U-shaped river valleys to over 9000 feet on the mountain peaks.

**Geology:** The area is underlain by Windermere type grey-black argillite shale, cut by near vertical green basic dikes trending southwest-northeast. The series exhibits 3 sets of fracturing. The principal deposits of the area - Churchill Copper, Davis-Keays and Largo Mines - are vein deposits containing chiefly chalcopyrite in quartz-calcite veins. They are associated with basic dikes over 100 feet in width, striking SW-NE which is the direction of one set of fracturing.

**Airborne magnetic survey:** The overall magnetic relief is 900 gammas, minimum 600 gammas and maximum 1500 gammas. The regional background value is 1100 gammas.

Oct. 20, 1970

The absence of marked magnetic relief is due to uniformity of the sedimentary rocks underlying the area. It would further indicate that the rock could well be limestone carrying low and uniform amounts of magnetite.

One magnetic anomaly of 1500 gammas appears on the north central part of the property. It is expected that the lineal dikes would give a more lineal configuration to the anomalies over them. However, this feature is completely lacking on this survey. It is felt that the surveyed area should be checked thoroughly for geologic features which may enhance the economic possibilities of the area.

The geophysical report and maps submitted by your Company show careful preparation and professional presentation. I am satisfied that the field work performed was of the same high quality as that carried out on assignments where your crews were under my direct supervision.

Respectfully submitted,

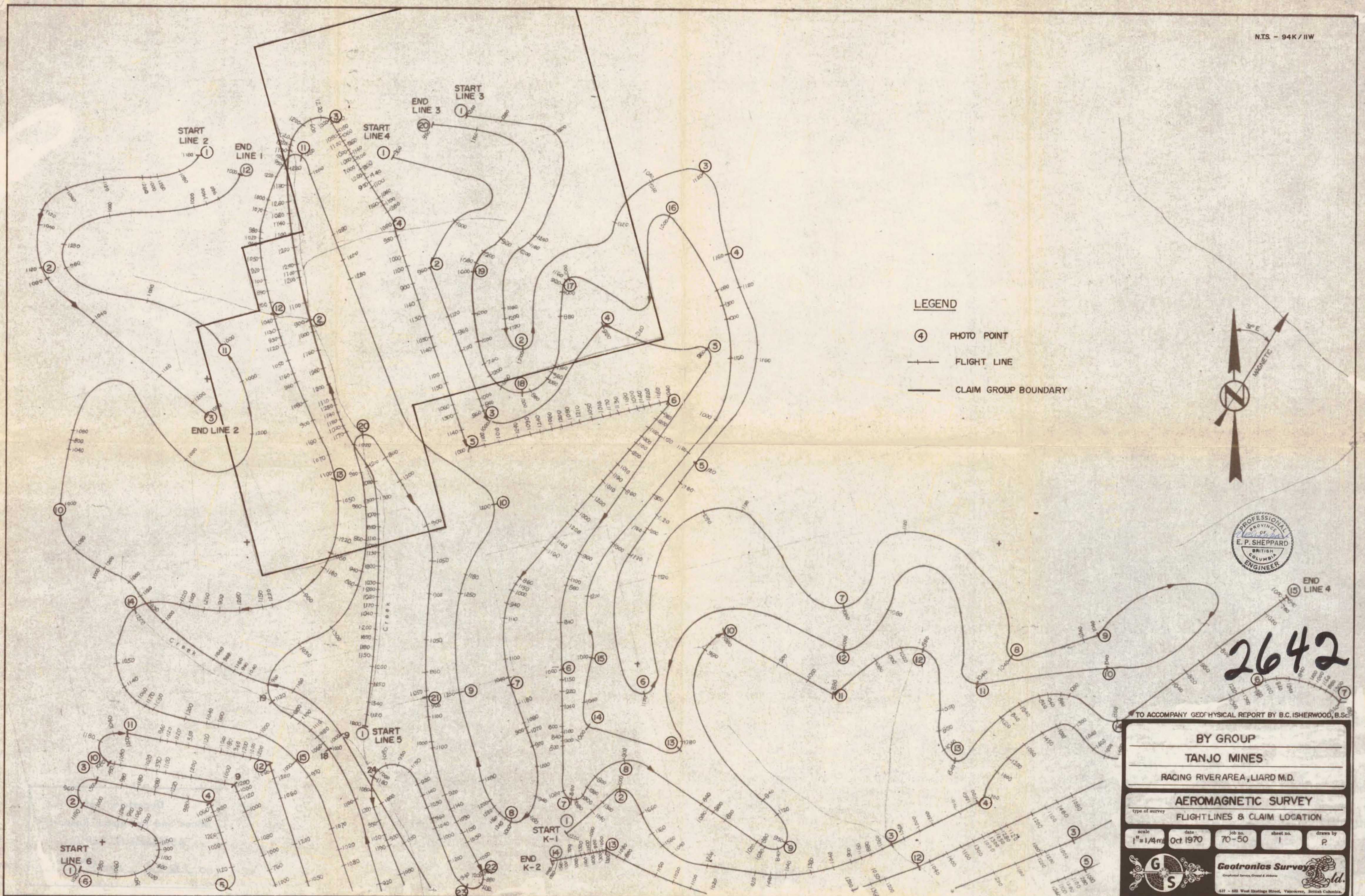


*E. P. Sheppard*  
E. Percy Sheppard, P.Eng.  
Consulting Geologist

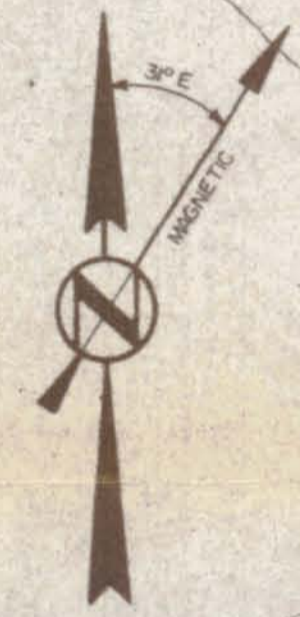
REFERENCES:

- Grant, F.S., and West, G.F.: Interpretation Theory in Applied Geophysics; New York, McGraw-Hill Book Company, Inc., 1965.
- Menzies, M.M.: Geology and Mineralogy of the Strangword Copper Property, South Tetsa River, B.C.; University of British Columbia, M.A.Sc. thesis, 1951.
- Parasnis, D.S.: Mining Geophysics; New York, Elsevier Publishing Co., 1966.
- Vail, J.R.: Geology of the Racing River Area, British Columbia; University of British Columbia, M.Sc. thesis, 1957.





- LEGEND**
- ④ PHOTO POINT
  - +— FLIGHT LINE
  - CLAIM GROUP BOUNDARY



2642





TO ACCOMPANY GEO PHYSICAL REPORT BY B.C. ISHERWOOD, B.Sc.

<b>BY GROUP</b>			
<b>TANJO MINES</b>			
RACING RIVER AREA, LIARD M.D.			
<b>AEROMAGNETIC SURVEY</b>			
FLIGHT LINES & CLAIM LOCATION			
scale 1" = 1/4 mi	date Oct 1970	job no. 70-50	sheet no. 1
		<b>Geotronics Survey Ltd.</b> <small>Geophysical Surveys, Ground &amp; Airborne</small>	
611 - 613 West Hastings Street, Vancouver, British Columbia			



**LEGEND**

CONTOUR INTERVAL = 100 GAMMA

-  BELOW 1000 GAMMA
-  1200 to 1400 GAMMA
-  1400 to 1600 GAMMA
-  ABOVE 1600 GAMMA

2642



TO ACCOMPANY GEOPHYSICAL REPORT BY B.C. ISHERWOOD, B.Sc.

**TANJO MINES LTD. (NPL)**  
 BY claim group, Liard M.D.  
 Delano Creek - Racing River area, B. C.

**AEROMAGNETIC SURVEY**  
 type of survey **ISOMAGNETIC MAP**

scale 1" = 1/4 mile	date Sept. 1970	job no. 70-50	sheet no. 2	drawn by TWR
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**Geotronics Surveys Ltd.**  
 Geophysical Services, Ground & Airborne  
 517 - 602 West Hastings Street, Vancouver, British Columbia