# GEOLOGICAL AND GEOPHYSICAL INVESTIGATION

of

THE "LAKE" #9 TO #16 AND

"GLENNA" #1 to #8 CLAIMS

Located at

61° 15½' N. Lat.
128° 33 ' W. Long.

on

Mineral Claim Sheet #105-H-7,

WATSON LAKE MINING DIVISION, YUKON TERRITORY

August 14 to September 13, 1965

by

Albert F. Reeve, P.Eng.
Geological Engineer

April 15, 1966

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(cont'd.)

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MAPS

## INTRODUCTION

During the period of August 14 to September 13, 1965 a geological and geophysical investigation of the Glenna and Lake claim groups was carried out by the following employees of Norquest Joint Venture, 320, 355 Burrard Street, Vancouver, B.C.

J.M. Dawson - Geologist, 1066 Harwood Street, Vancouver, B.C.

G.A. Leamy - Geophysical technician, c/o Bralorne Pioneer Mines Ltd., 320, 355 Burrard Street, Vancouver, B.C.

P.J. Colbert - Field assistant, 1066 Harwood Street, Vancouver, B.C.

J.H. Heal - Field assistant, Box 329, Oliver, B.C.

M. Davenport - Labourer, 725 Greenwood, West Vancouver, B.C.

A.F. Reeve - Field supervisor

Certificate enclosed.

## WORK DONE

1. Geology
   - 16 claims were mapped at a scale of 1" = 400'.
   - 5 channel samples were taken for assay across the mineralized zones.

2. Geophysics
   - 11,000 line feet of detailed magnetic observations were taken at 25' intervals on lines 500' apart.

3. Survey control -
   a) 43,000 ft. of grid lines, with stations at 100' intervals were laid out and surveyed by compass and tape.
   b) All claim lines were surveyed by compass and tape.
   c) Compass altimeter traverses were run across the property and adjacent areas at 500' intervals to establish topographic control

## PROPERTY (16 claims)

| Claim Name | Record No. | Record Date | Owner |
|---|---|---|---|
| Glenna #1 to#8 | 89250 to 89257 | August 13, 1965 | Bralorne Pioneer Mines Ltd. |
| Lake #9 to #16 | 89151 to 89158 | June 23, 1965 | J.C. Turner (Power of Attorney to Bralorne) |

## GEOLOGY

### Table of Formations

Mesozoic - Cenozoic (?) - Intrusives; diorite and quartz monzonite pluton and feldspar porphyry dikes.

- intrusive contact -

Late Paleozoic - Black argillite and greywacke

- unconformity -

Cambrian or Early Precambrian - Siliceous paragneisses and altered limestone.

### Local Geology

The Glenna Lake claims are situated along an east-southeast trending ridge which is mainly composed of meta-sedimentary rocks. The contact of a large batholithic intrusive mass lies about parallel to and just inside the northeast property boundary.

Locally, the intrusive is of granodiorite-quartz monzonite composition. The contact appears to be vertical or dipping steeply southward.

The meta-sediments are impure quartzite, quartz mica schist, paragneiss, limestone and skarn. These rocks strike at S 60° E. and dip moderately southward away from the intrusive contact. This sequence somewhat similar to the siliceous-calcareous rocks which occur in the Tyres River area about 10 miles to the north.

## MINERALIZATION

Sulphide minerals in the order of their abundance are sphalerite, galena and minor pyrrhotite and chalcopyrite. These occur as small submassive lenses and disseminations in a sequence of skarn bands with a stratigraphic horizon that has a maximum thickness of 300'. Remnants of limestone in this unit are only slightly mineralized at three or four locations. There are up to twenty-five concordant skarn bands which occur within the control horizon. The skarn bands have an estimated average thickness of 3'. The surface trace of this layer runs east-southeast subparallel to the intrusive contract, and 100' to 600' to the south of it. Ithas been traced along strike for a distance of about 5½ miles. Two miles of this strike length is drift-covered, but float and geophysical results suggest that the horizon is more or less continuous in the buried areas.

The western-most portion of the mineralized formation lies on the Glenna-Lake claims. (3 miles). At the extreme west end of the property the mineralized beds are flexed and cut off by the intrusive. The most heavily mineralized section occurs in this area; it is estimated to be 25' thick and not more than 200' long. Assay results for this portion are as follows:

| Sample | W' | Pb | Zn | Cu | Au | Ag | $WO_3$ |
|---|---|---|---|---|---|---|---|
| 70287 | 25' | .88 | 4.49 | .35 | Tr. | 5.9 | .15 |

From the preceding section to a point 6000' southeastward, the mineralized beds are exposed almost continuously along a steep north-facing cliff. The following samples are from this 6000' section. The material sampled includes mineralized skarn bands and barren intercalations of meta-sedimentary rock.

| Sample | W' | Pb | Zn | Cu | Au | Ag | $WO_3$ |
|---|---|---|---|---|---|---|---|
| 70288 | 40' | .29 | 1.65 | .04 | Tr. | 1.0 | .05 |
| 70289 | 12' | Tr. | 1.45 | .09 | Tr. | 1.1 | Tr. |
| 70290 | 60' | .74 | 1.85 | .06 | Tr. | 1.8 | .03 |
| 30% mineralized skarn | | | | | | | |
| 70291 | 60' | .59 | 2.25 | .02 | Tr. | 1.4 | .01 |
| 30% mineralized skarn | | | | | | | |

Mineralization (cont'd.)

A selected highgrade specimen from this area assayed as follows:

| Sample | Pb | Zn | Cu | Ag |
|---|---|---|---|---|
| 70292 | 26.47 | 8.35 | .24 | 2.4 |

From the east end of the above section to a point 4500' south-eastward, the zone is buried; however, float and magnetic anomalies suggest that there is 80 per cent continuity of the mineralized skarn, in this section. It is estimated from float specimens that the mineralization is of about the same grade as that in the 6000' exposed portion.

South-eastward to the property boundary (6000') only scattered occurrences of mineralized float were found.

At the southeastern property boundary, in the creek bed, eight or nine skarn bands outcrop. They average 1' to 2' in thickness and are sparsely mineralized with sphalerite and galena.

About 3000' beyond the property line (southeast), the skarn horizon was picked up again. It was traced intermittently from this point for about 3000'. It consists of two to eight bands of skarn which are sparsely mineralized with sphalerite and galena. Some of the bands are up to 10' thick but are barren in many places.

The results of sampling do not suggest any significantly uniform relationship between silver values and base metals content; suggesting the possibility that the silver is not being directly carried by base metal sulphides.

## GEOPHYSICS

### Method

Detailed magnetic observations were taken at 25' intervals on traverse lines 500' apart, over a drift covered area on the Lake claims.

Adjacent pairs of traverse lines were "looped" together and corrected internally for diurnal variation. Individual loops were not tied together.

Geophysics (cont'd.)

Magnetic readings were taken with a Sharpe MF-1R fluxgate magnetometer. Measurements of the vertical component of the total field were made to the nearest 10 gammas.

It is estimated that this method maintained a relative profile reliability of 30 gammas.

Sample calculation for a traverse loop.

| Station | Reading | Diurnal Correction | Result | Time |
|---|---|---|---|---|
| base | 240 | -30 | 210 | 2:00 p.m. |
| 1 | 260 | -30 | 230 | |
| 2 | 270 | -20 | 250 | |
| 3 | 270 | -20 | 250 | |
| 4 | 260 | -10 | 250 | |
| 5 | 250 | -10 | 240 | |
| 6 | 240 | 0 | 240 | |
| base | 210 | 0 | 210 | 2:30 p.m. |

Results.

The targets sought were inclined skarn beds mineralized with sphalerite, galena pyrrhotite and minor chalcopyrite.

Test work over known zones of this type showed that a sharp narrow magnetic response could be expected. Buried sources yield broader and smoother profile results. Background "noise" is exceptionally low.

The results are shown on figs. 4 to 8 incl. (magnetic profiles). The profiles are keyed to the 400 scale geology plan (Fig. 2) which also shows interpretation of the anomalies.

This magnetic data suggests that the mineralized zones which occur on the "Glenna" claims, extend across the drift covered "Lake" claims with 80% continuity for a distance of at least 4500'.

## CONCLUSIONS

1. The zinc, lead, silver mineralization on this property and its stratigraphic control horizon demonstrate notable length and continuity. However, assuming that the known exposures are representative of the type of material that can generally be expected, it is unlikely that a zone of presently commercial ore could be developed over substantial mining widths.

2. This property was approached on the basis of silver being the important commodity. There is a remote possibility that highgrade sulphide lenses within individual skarn bands could be developed as highgrade silver material. However, preliminary assay results suggest that substantially increased silver values in zones high in sulphide material cannot be predicted at this point. Secondly, massive or submassive sulphides are discontinuously localized within any selected band.

3. No significant relationship has been established between the Glenna-Lake and the adjacent properties. The showings on the "BM" to the northwest (Mr. Billings Venture) might possibly be of a similar type, but potential continuity is interrupted by an intrusive between the two properties. The Ventures property on apparent strike to the southwest is underlain by a sequence of rocks which are distinctly different from those on the Glenna-Lake.

Summarizing: It is not likely that a large zone of low-grade commercial material or smaller highgrade bodies could be developed in the Glenna-Lake control horizon. This horizon does not appear to be the direct extension of mineralization which occurs on nearby properties.

## RECOMMENDATION

No further work is recommended at this time.

# APPENDIX

# NORQUEST JOINT VENTURE

## GLENNA AND LAKE CLAIMS

## Statement of Expenditures

| | | |
|---|---|---|
| **A. Wages** | | |
| Geologist 12/30 x 600 | = | $ 240.00 |
| Geophysical Technician 2/30 x 500 | = | 33.30 |
| 2 Field Assistants 2 x 10/30 x 350 | = | 233.30 |
| **B. Services** | | |
| Field supervisor drafting and report writing 5/30 x 1000 | = | 166.65 |
| Instrument rental 2/30 x 220 | = | 14.65 |
| Printing and stenographer | = | 23.00 |
| Helicopter support 7 hrs. @ 106.50 | = | 745.50 |
| **C. Supplies** | | |
| Food 34 man days @ 4.25 | = | 144.50 |
| Office and miscellaneous | = | 13.00 |
| | | $ 1,613.90 |

Note - Only $1600.00 to be applied covering one year's assessment requirements for 16 claims.

This is Exhibit "A" referred to in the ~~affidavit~~ statutory declaration of Albert A. Reeve

Sworn before me herein, at Vancouver B. C.

this 25th day of April 1966

A Notary Public in and for the Province of British Columbia

ALBERT F. REEVE, P.ENG.
GEOLOGICAL ENGINEER

ASSOCIATE
RONALD A. GRANGER

400, 837 W. Hastings Street,
Vancouver 1, B. C.

TELEPHONE: [redacted]
685-0167

# CERTIFICATE

I, Albert F. Reeve, of Vancouver, B.C., hereby certify that:

1. I am a Geological Engineer residing at 2267 West 2nd Ave., and maintain an office at 400, 837 West Hastings St., Vancouver, B.C.

2. I graduated from the Provincial Institute of Mining, Haileybury, Ontario in 1958 and received a B.Sc. degree at Michigan College of Mining and Technology, Houghton, Michigan in 1961.

3. I am a registered member of the Association of Professional Engineers of British Columbia and Ontario.

4. During the period of January to November, 1965 I was retained by Bralorne Pioneer Mines Ltd. as manager of the Morquest Joint Venture exploration project in the Yukon Territory.

5. I have compiled this report and the field work described herein was carried out under my supervision.

Albert F. Reeve, P.Eng.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. F. REEVE

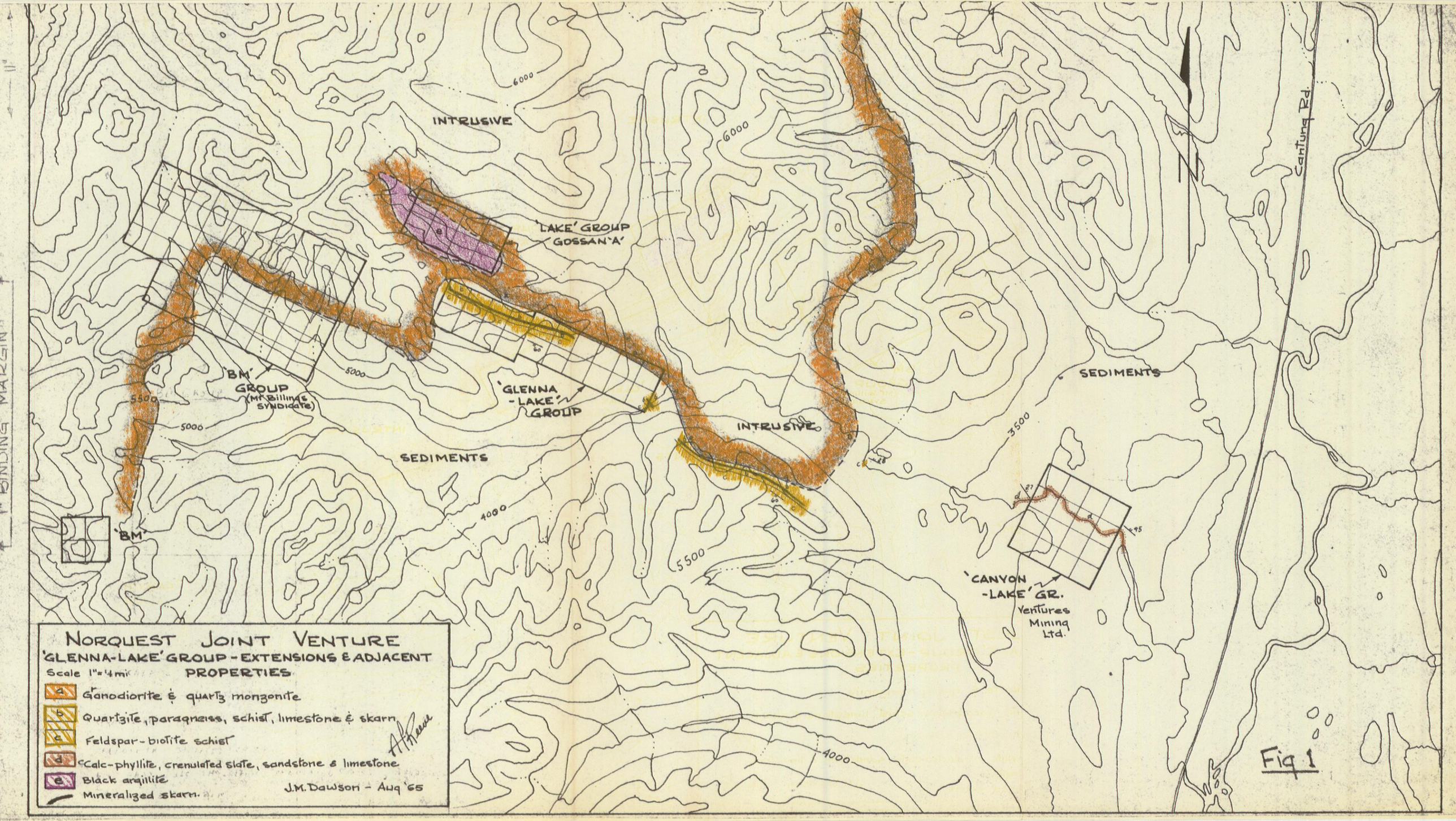

INTRUSIVE
'LAKE' GROUP
GOSSAN 'A'
'BM' GROUP
(Mr Billings SYNDICATE)
'GLENNA - LAKE' GROUP
SEDIMENTS
INTRUSIVE
SEDIMENTS
'BM'
'CANYON - LAKE' GR.
Ventures Mining Ltd.
Cantung Rd.
6000
5000
5500
4000
3500
BINDING MARGIN
NORQUEST JOINT VENTURE
'GLENNA-LAKE' GROUP - EXTENSIONS & ADJACENT PROPERTIES
Scale 1"=¼mi
a Granodiorite & quartz monzonite
b Quartzite, paragneiss, schist, limestone & skarn
c Feldspar-biotite schist
d Calc-phyllite, crenulated slate, sandstone & limestone
e Black argillite
Mineralized skarn.
J.M. Dawson - Aug '65

Fig 1

70287 - 25'
Pb Zn Cu Au Ag $WO_3$
.88 9.19 .35 Tr. 5.9 .15

70288 - 40'
Pb Zn Cu Au Ag $WO_3$
29 1.65 .04 Tr. 1.0 .05

70289 - 12'
Pb Zn Cu Au Ag $WO_3$
Tr 1.45 .09 Tr. 1.1 Tr.

70292 GRAB - Ag
Pb Zn Cu Ag
26.47 8.35 .04 2.4

70290 - 60'
Pb Zn Cu Au Ag $WO_3$
.74 1.85 .06 Tr. 1.8 .03

70291 - 60'
Pb Zn Cu Au Ag $WO_3$
.53 2.26 .02 Tr. 1.4 .01

GLENNA 1
89250

GLENNA 2
89251

GLENNA 3
89252

GLENNA 4
89253

GLENNA 5
89254

GLENNA 6
89255

GLENNA 7
89256

GLENNA 8
89257

GLENNA 9
89258

GLENNA 10
89259

GLENNA 12
89261

LAKE 9
89151

LAKE 10
89152

LAKE 11
89153

LAKE 12
89154

LAKE 13
89155

LAKE 14
89156

LAKE 15
89157

LAKE 16
89158

Base-line

128° 32'
61° 16'

CAMP

Fig 2

# NORQUEST JOINT VENTURE

## 'GLENNA-LAKE' CLAIM GROUP

GEOLOGY PLAN - SCALE 1"=400'

- c — Granodiorite and quartz monzonite
- g — Feldspar porphyry dikes
- d — Impure quartzite, quartz-mica schist & gneiss. Silicified limestone & chert.
- e — Limestone.
- f — Black argillite & greywacke.
- a, b — (a) unmineralized skarn; (b) mineralized skarn
- XXX — mineralized float
- Sphalerite, galena +minor chalcopyrite
- Magnetic anomaly

J.M. Dawson Aug 1965

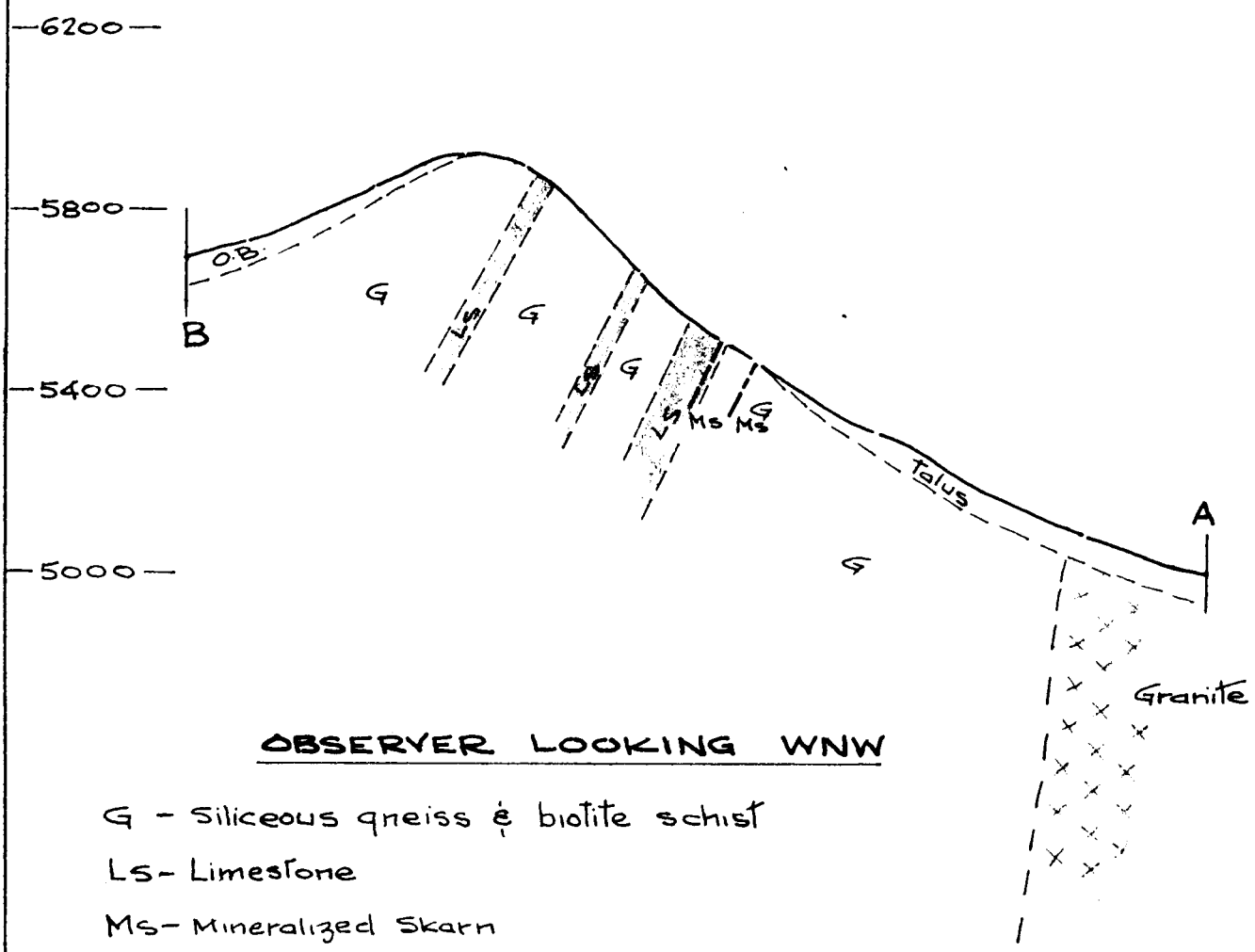
# Norquest Joint Venture

## Glenna - Lake Claim group

## Typical Geological Cross Section (A-B)

Scale 1"=400'

Fig. 3




**OBSERVER LOOKING WNW**

G - Siliceous gneiss & biotite schist

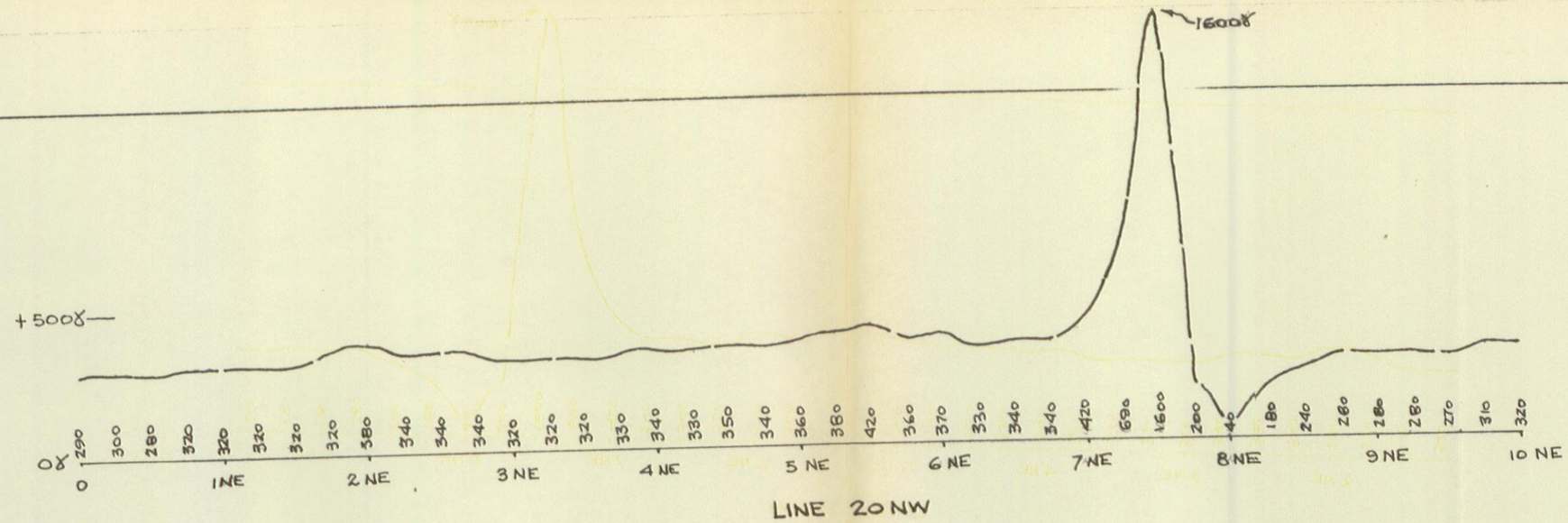
Ls - Limestone

Ms - Mineralized Skarn

Sept, 1965

A.F. Reeve

Fig. 4

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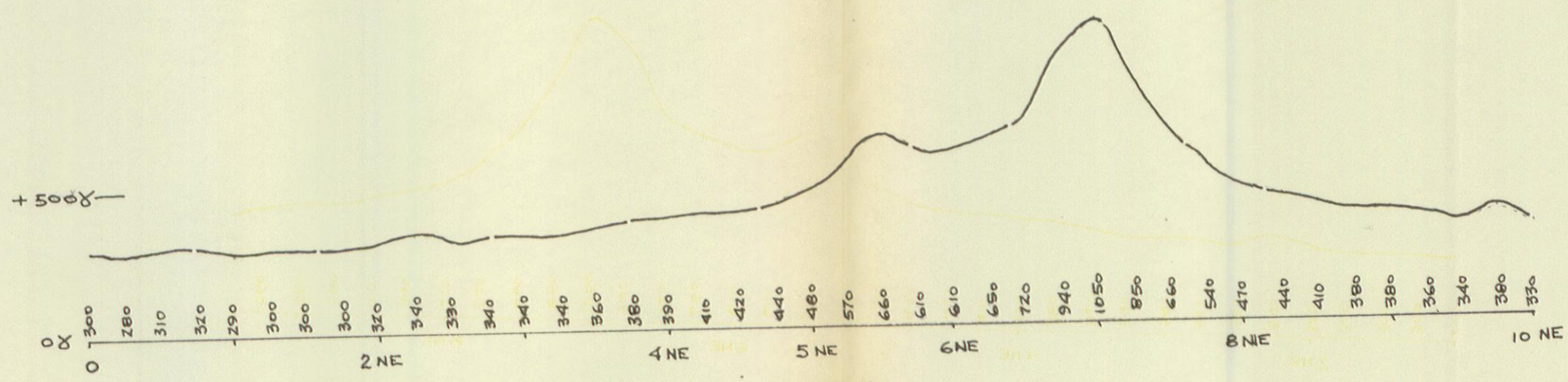


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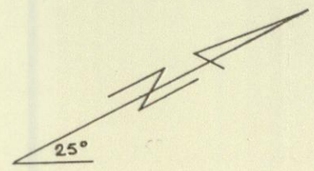
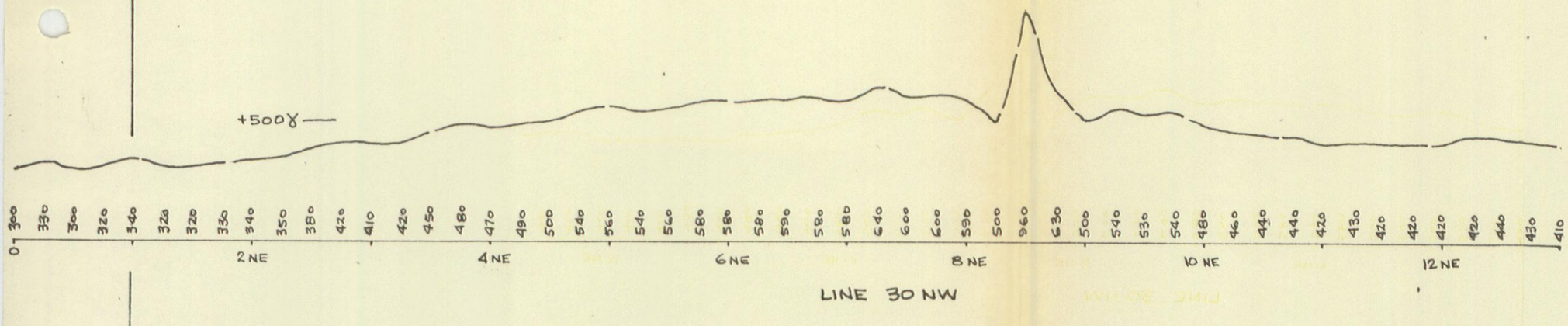


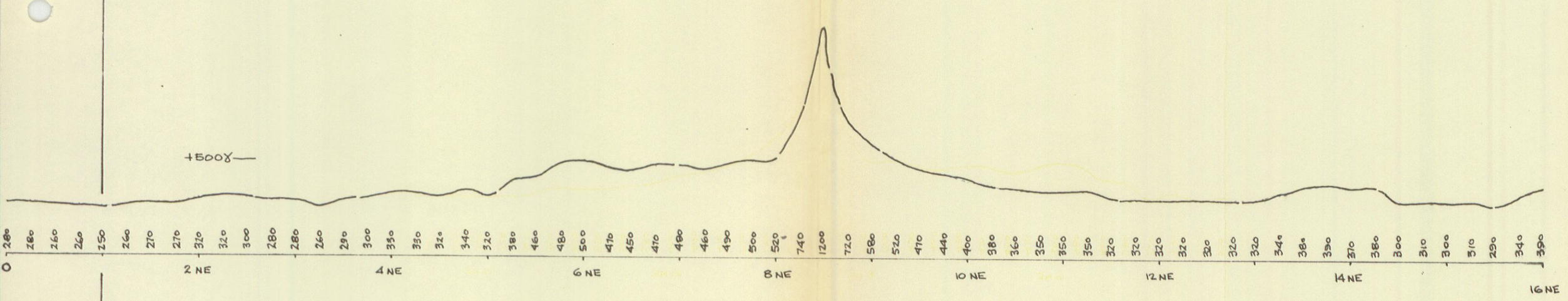

NORQUEST JOINT VENTURE
MAGNETIC PROFILES
GLENNA-LAKE GROUP
SCALES
HOR. 1"=100'
VERT. MAG.- 1"=500γ

A P Keeve G. Leamy Sept 1965

Fig. 5




LINE 30 NW

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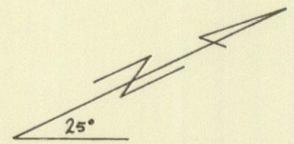
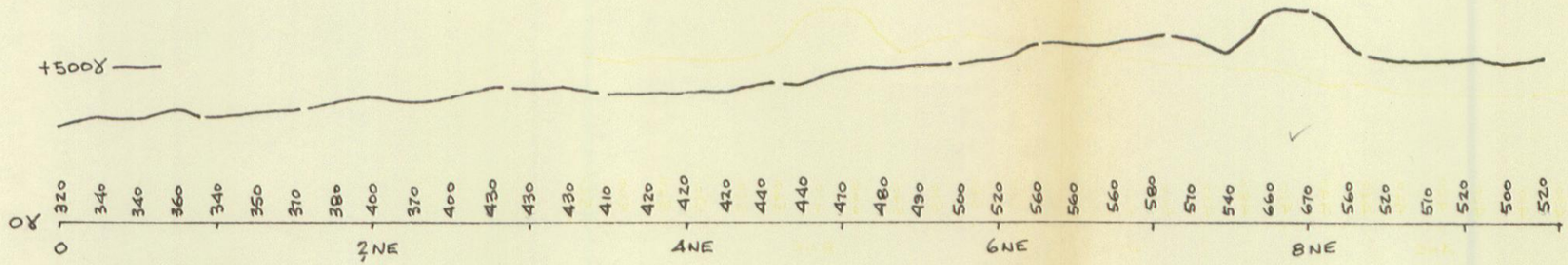



NORQUEST
MAGNETIC PROFILES
GLENNA LAKE GROUP
SCALES
HOR. 1" = 100'
VERT. MAG. 1" = 500γ

G. Leamy Sept 1965.

Fig 6

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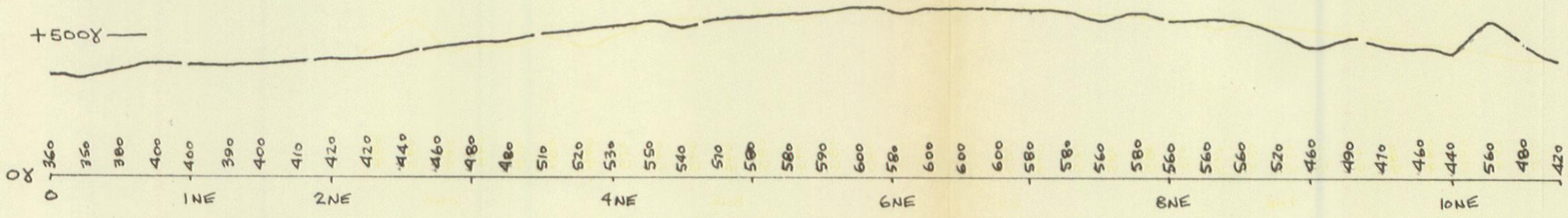


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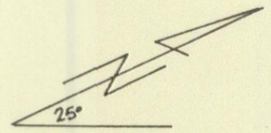
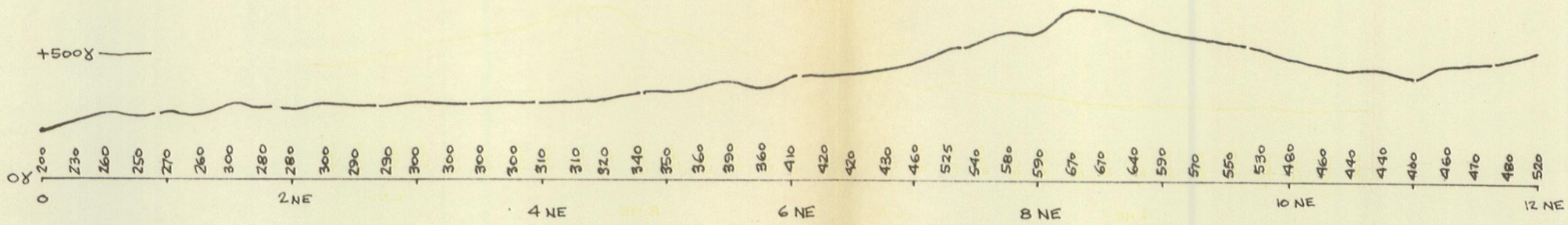



NORQUEST
MAGNETIC PROFILES
GLENNA-LAKE GROUP
SCALES —
HOR. 1" = 100'
VERT. MAG. 1" = 500γ

G. Leamy Sept 1965

A.F. Reeve

Fig. 7

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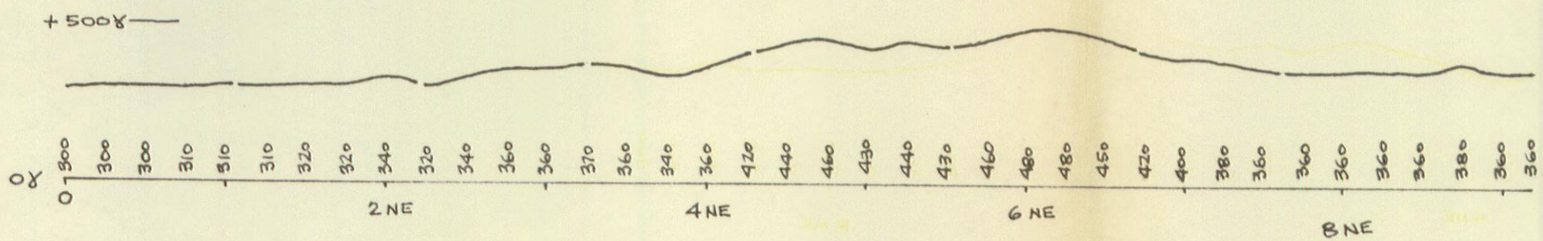


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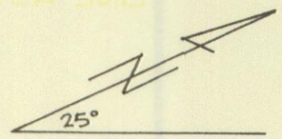
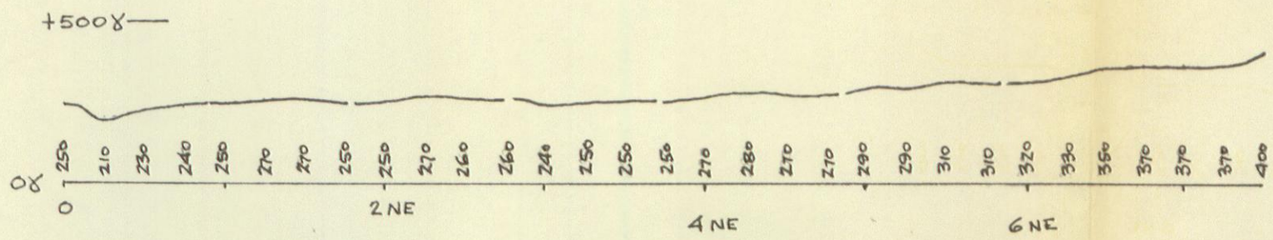



NORQUEST
MAGNETIC PROFILES
GLENNA-LAKE GROUP
SCALES
HOR. 1"=100'
VERT. MAG. 1"=500γ

G. Leamy Sept 1965

Fig. 8

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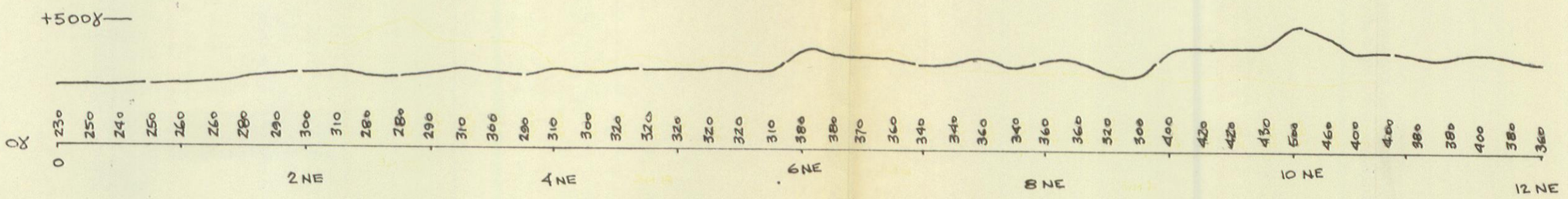


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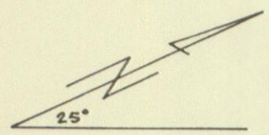


NORQUEST
MAGNETIC PROFILES
GLENNA-LAKE GROUP
SCALES –
HOR. 1" = 100'
VERT. MAG. 1" = 500γ

G. Leamy Sept 1965

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