

69-591

COMSTAFF PTY. LIMITED

Review of Summer Exploration Programme

Exploration Licence 19/68

St. Valentines Peak

**MICROFILMED**

1968-1969

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## Plans:

Geological Plan - In plastic envelope

Geochemical Results	Pb
Geochemical Results	Zn
Geochemical Results	Cu
Geochemical Results	Sn

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ST. VALENTINES PEAK1. INTRODUCTION

This report reviews the field reconnaissance programme undertaken in Exploration Licence 19/68 in the St. Valentines Peak area 22 miles south-south-west of Burnie in North-western Tasmania.

During 1968 hand specimens of massive galena mineralisation were brought to the Waratah Field Office by a prospector. He declined to be more specific in locating his discovery other than to mention it was near St. Valentines Peak. At the time he was not interested in taking a geologist to the locality nor did he show any enthusiasm in having the company take an interest in his find.

In planning the Comstaff 1968-1969 summer field programme a two pronged approach was decided upon. This took the form of concentrated work in selected target areas as well as regional work in other areas of interest, time permitting, to gain positive information to help in the planning of the 1969-1970 field programme.

St. Valentines Peak was treated as a selected target area but it did not fall within the Exploration Licences then current. It was thought that any lead mineralisation of economic potential would occur within Cambrian rocks. Accordingly a small Exploration licence, covering the only available outcrop area of Cambrian rocks, was applied for. The application was initiated on 4th November 1968, and granted on 17th December for a period of six months.

2. SUMMARY

The area had been mapped as part of a B.Sc. (Hons.) Thesis by Pike in 1964. This mapping was checked and then used as a basis on which to carry out a regional geochemical stream sediment sampling programme.

3. CONCLUSIONS

Geochemical results have indicated four areas in which follow-up sampling and detailed geological mapping are warranted. Two of these localities are in the south; one, an area where thin post-Palaeozoic scree (glacial?) masks undifferentiated Cambrian rocks and the other an area where pyritic Cambrian volcanics are intruded (?) by quartz feldspar porphyries containing galena and pyrite. The other two localities are in the north where Cambrian lime-rich meta-sediments are intruded by Devonian granite.

Another two localities in the central part of the licence need follow up sampling to check sporadically occurring anomalous and possibly anomalous metal values.

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4. LOCATION

Exploration Licence 19/68 of 15 square miles is 22 miles south-south-west of Burnie and 14 miles north-east of Waratah in north-western Tasmania.

5. ACCESS

Access into the area is very good for this part of Tasmania. Timber rights for the area belong to Associated Forrest Holdings Pty. Limited and a permit is required for entry. A gravel road traverses the area and there are numerous minor roads and logging tracks. However, vegetation in streams had to be cut to allow access for sampling teams.

6. TOPOGRAPHY AND DRAINAGE

Altitudes range from about 2,000 feet in the valleys to 3,637 feet at St. Valentines Peak. Cambrian rocks occupy a corridor of about 8 square miles between two ridges of Ordovician conglomerate - St. Valentines Peak in the east and Companion Hill to the west.

The area is well drained by tributaries leading into the Old Park River to the east and into the Companion River to the west.

7. CLIMATE AND VEGETATION

The climate is cool and damp with an annual rainfall averaging about 80 inches mainly during the winter months. Vegetation ranges from button grass on the flats through dense scrub of banera, cutting grass and tee tree to dense tall timber with horizontal undergrowth, especially in the north.

8. WORK CARRIED OUT

8.1 Geology

The area was mapped as part of a Thesis, "Geology of the Region around St. Valentines Peak, Tasmania", submitted for a B.Sc. (Hons.) degree by G. Pike in April 1964.

Pike's mapping in the licence area was checked by east-west traverses and was deemed to be a suitable basis on which to carry out a preliminary investigation of the area. Aerial photographs were used as base maps.

8.2 Geochemistry

A geochemical stream sediment sampling programme was planned and thirteen University students, supervised by a geologist, were employed to undertake the field work.

Samples were collected from all streams in the area, except the Companion River in the west, at intervals of 500 feet and pH readings noted at each sample site. The samples were dried, lightly ground with a pestle and mortar and the minus 80 mesh fraction screened off. This fraction was then forwarded to Geochemical and Mineralogical Laboratories Pty. Limited, Sydney, for determination of copper, lead and zinc content by A.A.S. and tin by Colorimetric Analysis.

Detection limits were as follows:-

Lead	10 ppm
Zinc	3 ppm
Copper	5 ppm
Tin	1 ppm

A total of 309 samples were collected from 101,250 feet feet of cut drainage channels.

## 9. RESULTS OBTAINED

### 9.1 Geology and Mineralisation (see accompanying plan)

The area consisted of a north-south striking more or less assymetrical anticline with the eastern limb dipping more steeply than the western limb.

Cambrian rocks outcrop along the axial zone of the anticline in a topographic corridor between St. Valentines Peak and Companion Hill, both consisting of Ordovician Owen Conglomerate. Tertiary basalt overlies the Ordovician in the north, west and south. In the southern part of the area, at the base of the two ridges formed by the Owen Conglomerate in the east and west, tillitic deposits are to be found. These consist, in the main, of large boulders of Owen Conglomerate and are designated Quaternary screes by Pike. In the northern part of the corridor a granite designated as Devonian by Pike, intrudes the Cambrian rocks. In the south, to the east of Companion Hill, there is some evidence to suggest that quartz-feldspar porphyries are intrusive into the volcanics.

Pike gives the following stratigraphic sequence for the area:-

- Ordovician: Owen Conglomerate  
Disconformity or Unconformity
- Cambrian:
1. Interbedded laminated cherty hornfels and talc-silicate hornfels.
  2. Laminated silty limestone.
  3. Fossiliferous pink shales, grey mudstones and tuffaceous sandstones.
  4. Lavas, pyroclastics, tuffaceous sediments.

Field work tends to confirm this sequence as well as Pike's correlation with Lower to Lower Middle Cambrian sediments and volcanics to the south-west.

Silification of shales and mudstones is a common feature and in places a type of banded chert has resulted. Pyritisation is associated with the banded cherts in the form of thin veins selectively (?) replacing bands as well as being disseminated.

Intense pyritisation and silicification is also found associated with what are suspected to be intrusive quartz-feldspar porphyries in the south near 27 Mile Road. Pike mentions galena associated with these porphyries but it was not observed during the reconnaissance programme.

As mentioned previously no detailed geological mapping was undertaken. However, the widespread occurrence of pyrite, both as thin veins and disseminated, was noted in the volcanics and metasediments from 27 Mile Road in the south to the Companion River in the north. Lack of time did not allow a detailed field study of the occurrence of the pyrite or an examination of the carbonate sequence in the vicinity of the intrusives.

## 9.2 Geochemistry (See accompanying plans)

Anomalous and possibly anomalous metal values were returned for samples from six localities as indicated in the following table:-

Locality	Pb	Zn	Cu	Sn
A	a + pa	pa	-	-
B	a + pa	a + pa	pa	a + pa
C	pa	pa	pa	pa
D	pa	a + pa	a + pa	a + pa
E	a + pa	a + pa	-	a
F	pa	a + pa	pa	a + pa

a = anomalous      pa = possibly anomalous

### 9.2.1 Locality A

Slightly cemented post-Palaeozoic scree deposits have accumulated beneath the Owen Conglomerate forming St. Valentines Peak. Inliers of Cambrian rocks are to be found in the area. The scree deposits contain numerous boulders of Owen Conglomerate and are similar in many respects to the glacial deposits in the Pinnacles area to the south-west where anomalous lead and zinc values are being investigated.

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The area clearly warrants further investigation. As the scree is relatively thin ( $\pm$  10 feet) the investigation of anomalous values here may throw some light on the origin of anomalous values at Pinnacles.

#### 9.2.2. Locality B

Quartz-feldspar porphyries which have been compared with the dykes at Mt. Bischoff are thought to intrude Cambrian volcanics in the axial zone of the anticline near 27 Mile Road. Check sampling and geological mapping are required as a basis for future work.

#### 9.2.3 Locality C

Possibly anomalous values reported from samples along the contact zone between Cambrian volcanics and metasediments overlain by Tertiary basalt. The drainage may be contaminated as a main road traverses the area.

#### 9.2.4 Localities D and (E) F?

An area of Cambrian lime-rich metasediments along the western margin of the Devonian (?) granite. Two heavy mineral concentrates taken from the Companion River reported 1,500 and 10,000 ppm tin respectively. The zinc content of the river is also abnormally high. Follow-up investigations are warranted.

#### 9.2.5 Locality E

Sporadic anomalous and possibly anomalous samples from drainage on Owen Conglomerate near the eastern boundary of the licence need checking.

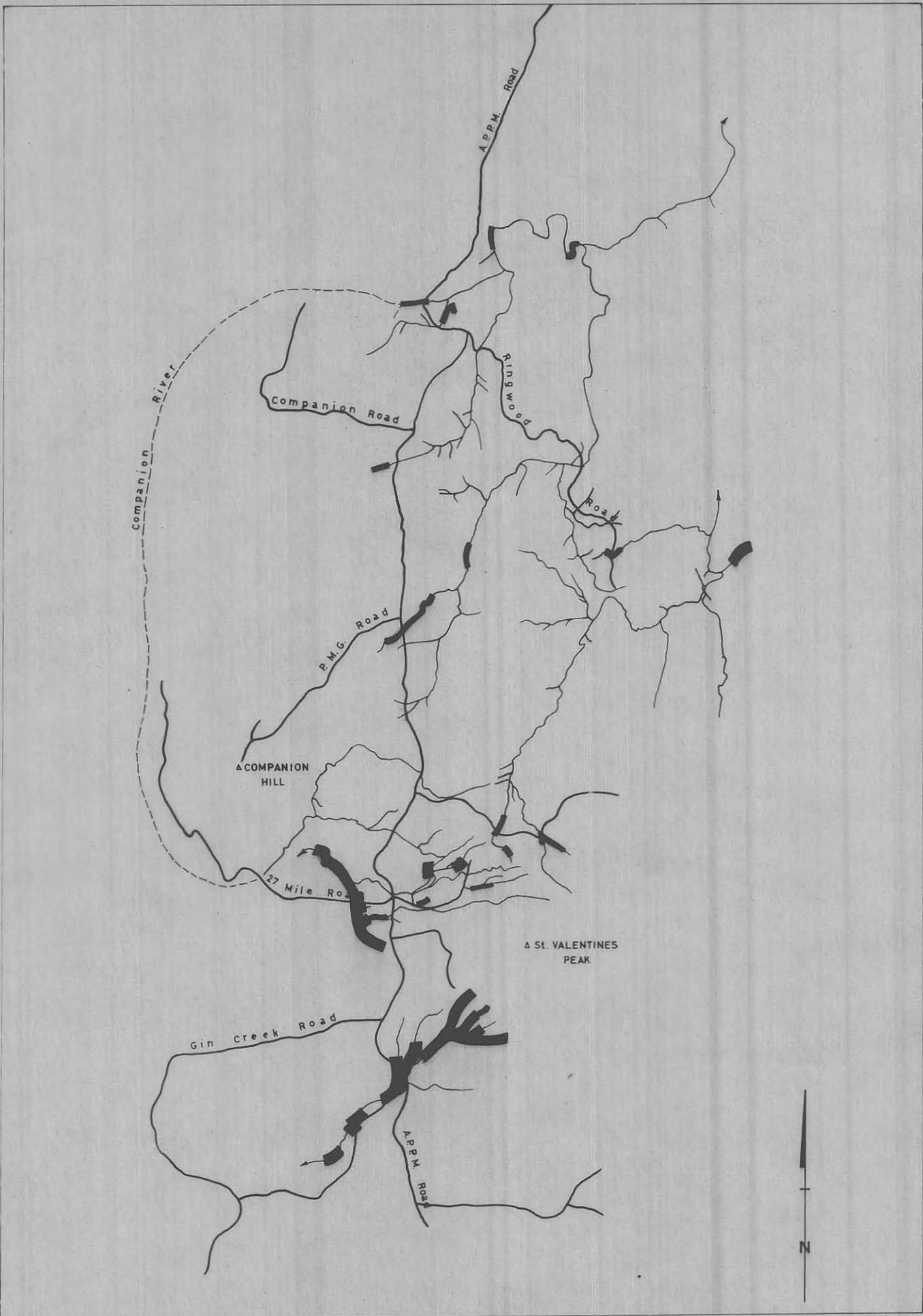
### 10. GENERAL

Follow up work to check results obtained during the season and detailed investigations of the indicated anomalous areas will be carried out during the 1969-1970 field season as part of the Comstaff Pty. Limited programme for north-western Tasmania.

B. McBRIDE

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GEOCHEMICAL

RESULTS:

Pb by AAS



ROADS.....

RIVERS AND STREAMS.....

APPROX MAIN RIVER COURSE.....

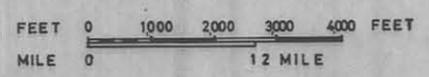
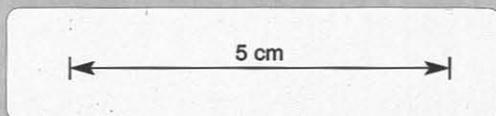
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ST VALENTINES PEAK

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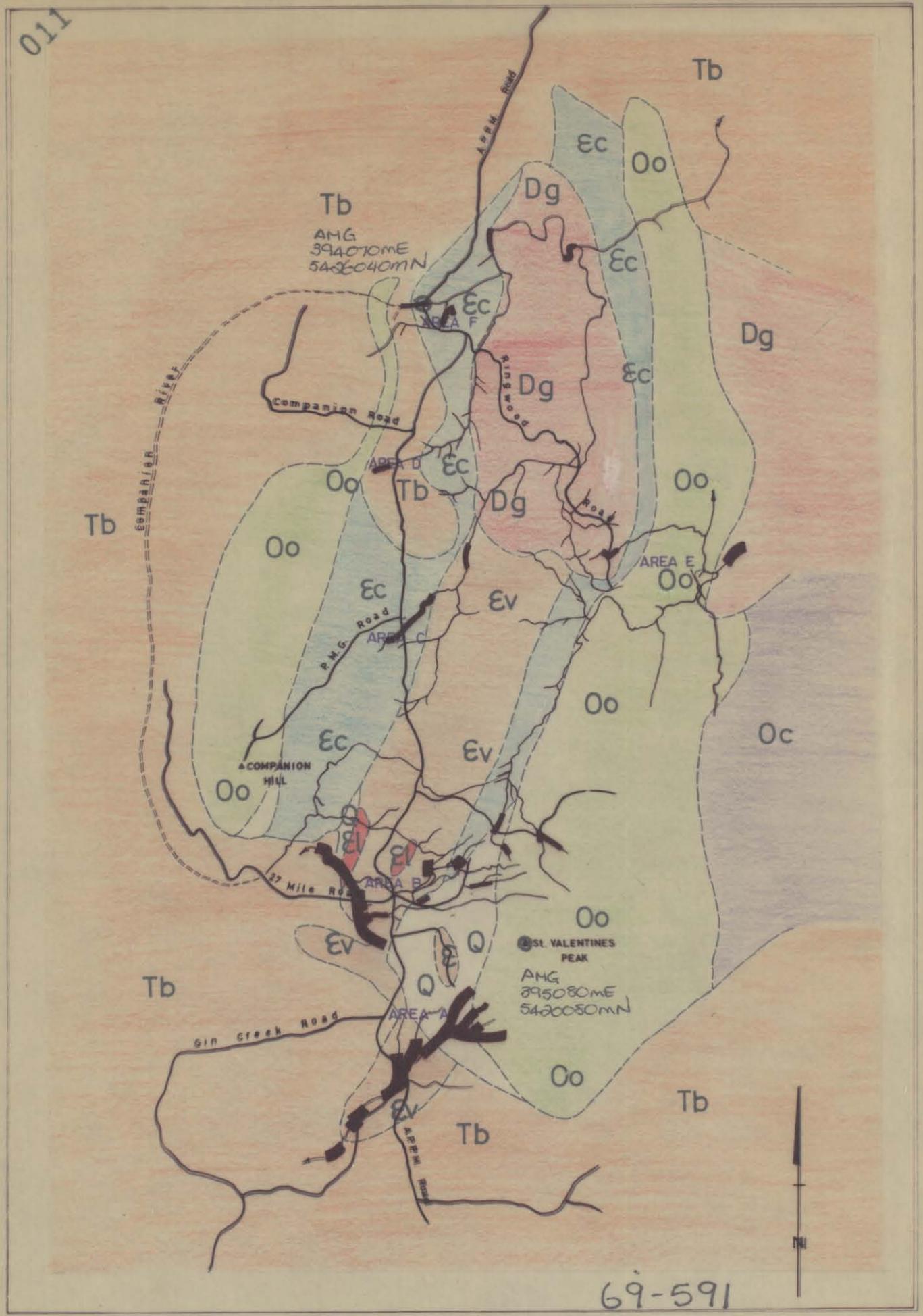
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GEOLOGY: BY G. PIKE Bsc(Hon) Thesis 1964  
 GEOCHEMICAL RESULTS

ORDOVICIAN:

Og	Gordon limestone
Oc	Caroline ck sandstone
Op	Owen conglomerate

by AAS

CAMBRIAN:

Ec	Lamirah hornfels
Ev	volcanics
E	Undifferentiated

IGNEOUS ROCKS:

Tb	Tertiary basalt
Dg	Devonian granite
El	Cambrian lavas

- ROADS: ———
- ROADS: ———
- RIVERS AND STREAMS: ———
- RIVERS AND STREAMS: ———
- APPROX. MAIN RIVER COURSE: - - - - -

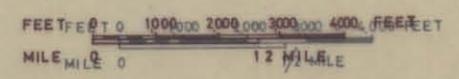
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ST VALENTINES PEAK

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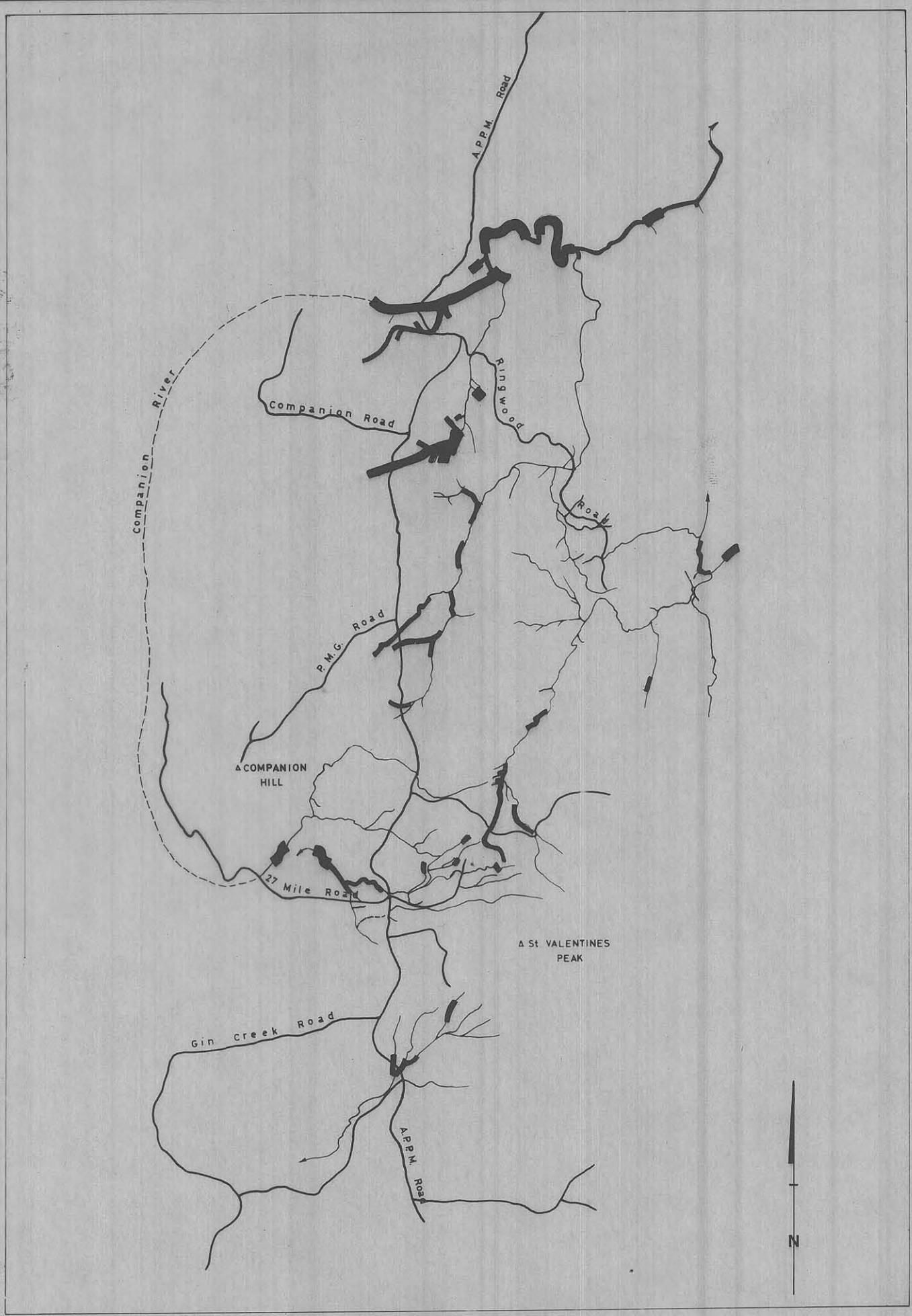


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GEOCHEMICAL

RESULTS

Zn by A.A.S.



ROADS.....

RIVERS AND STREAMS.....

APPROX MAIN RIVER COURSE.....

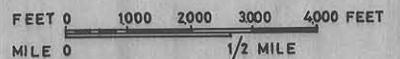
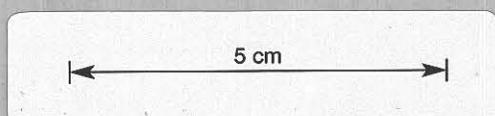
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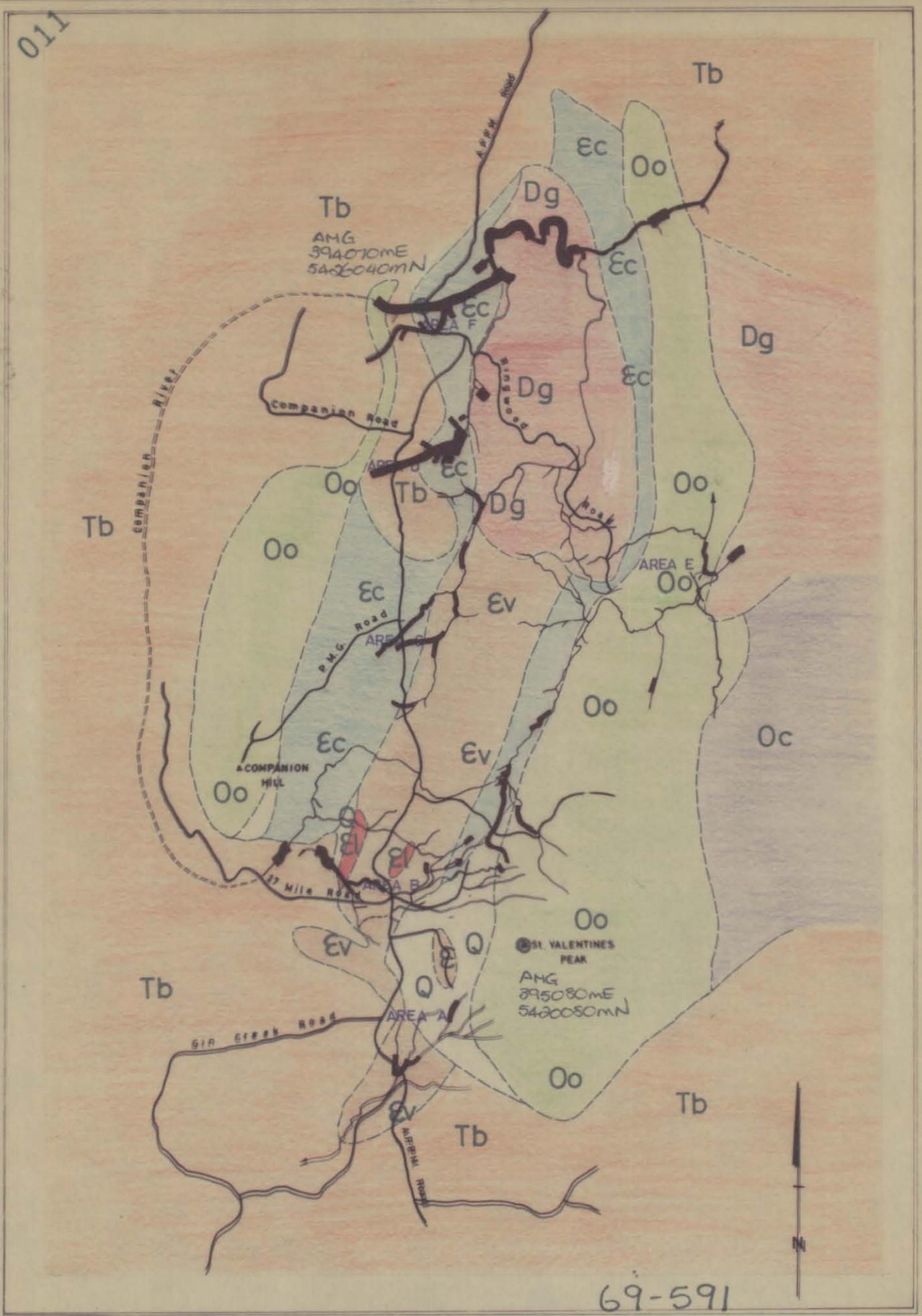
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GEOLOGY BY G. PIKE BSc (Hon) Thesis 1964

**GEOCHEMICAL RESULTS**  
 Zn by A.A.S.

ORDOVICIAN:  
 Oo Gordon limestone  
 Oc Caroline ck sandstone  
 Oo Open conglomerate

CAMBRIAN:  
 Q Laminated hornfels  
 Ev Volcanics  
 E Undifferentiated

IGNEOUS ROCKS  
 Tb Tertiary basalt  
 Dg Devonian granite  
 El Cambrian lavas

ROADS  
 ROADS  
 RIVERS AND STREAMS  
 RIVERS AND STREAMS  
 APPROX MAIN RIVER COURSE

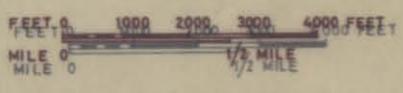
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ST VALENTINES PEAK

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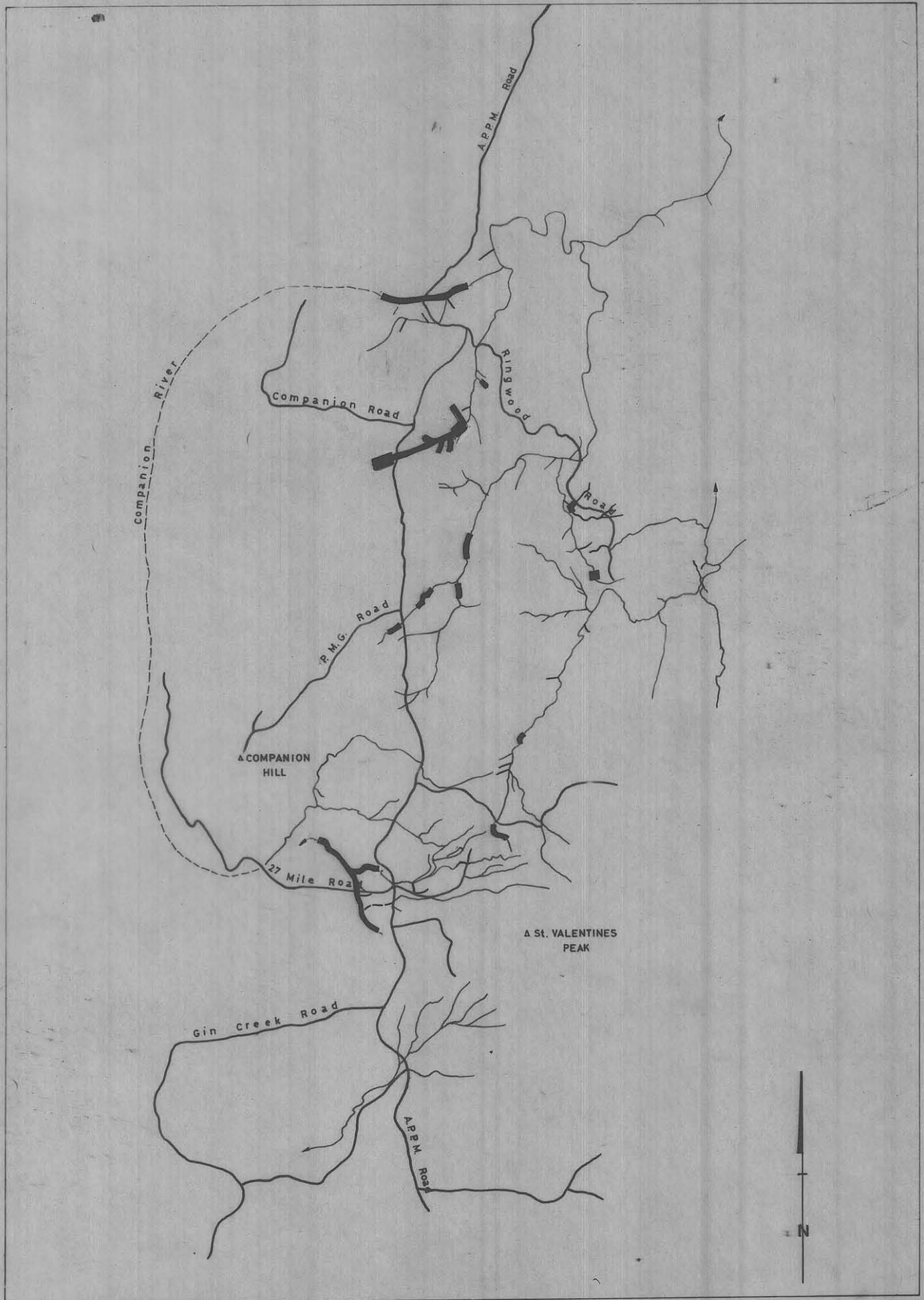


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GEOCHEMICAL

RESULTS:

Cu by A.A.S.



ROADS.....

RIVERS AND STREAMS.....

APPROX MAIN RIVER COURSE.....

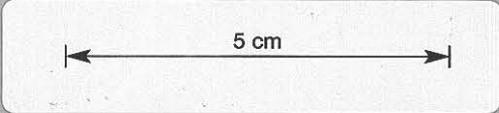
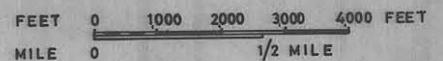
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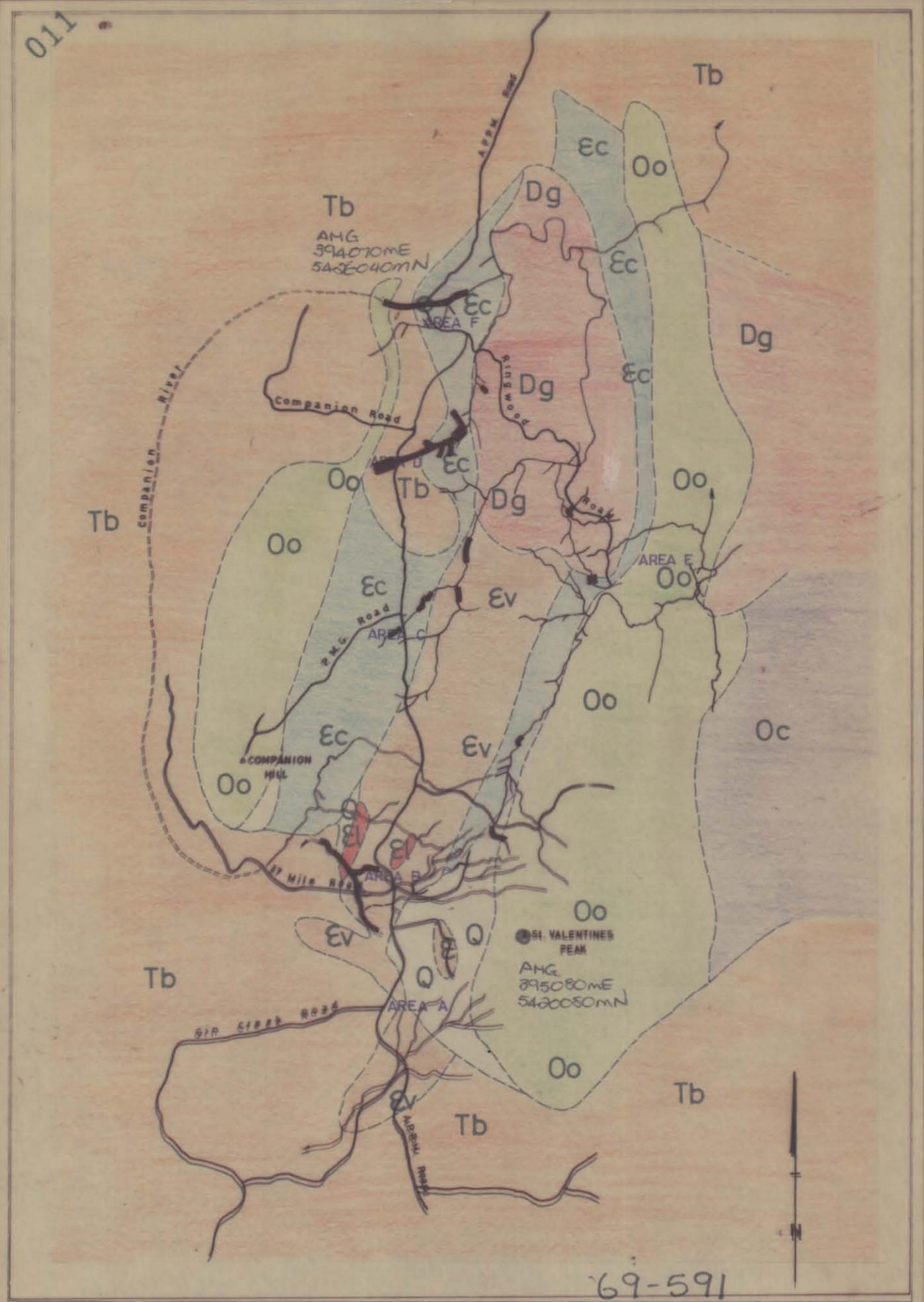
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GEOCHEMICAL RESULTS BY G. PIKE BSc(Hon) Thesis 1964

ORDOVICIAN:

- O<sub>1</sub> Gordon limestone
- O<sub>2</sub> Caroline ck sandstone
- O<sub>3</sub> Conglomerate

Cu by A.A.S.

CAMBRIAN:

- Ec 35 Laminated hornfels
- Ev Volcanics
- E Undifferentiated

IGNEOUS ROCKS:

- Tb Tertiary basalt
- Dg Devonian granite
- EL Cambrian lavas

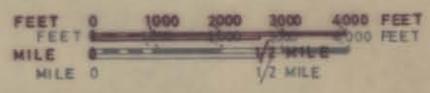
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RIVERS AND STREAMS: ———

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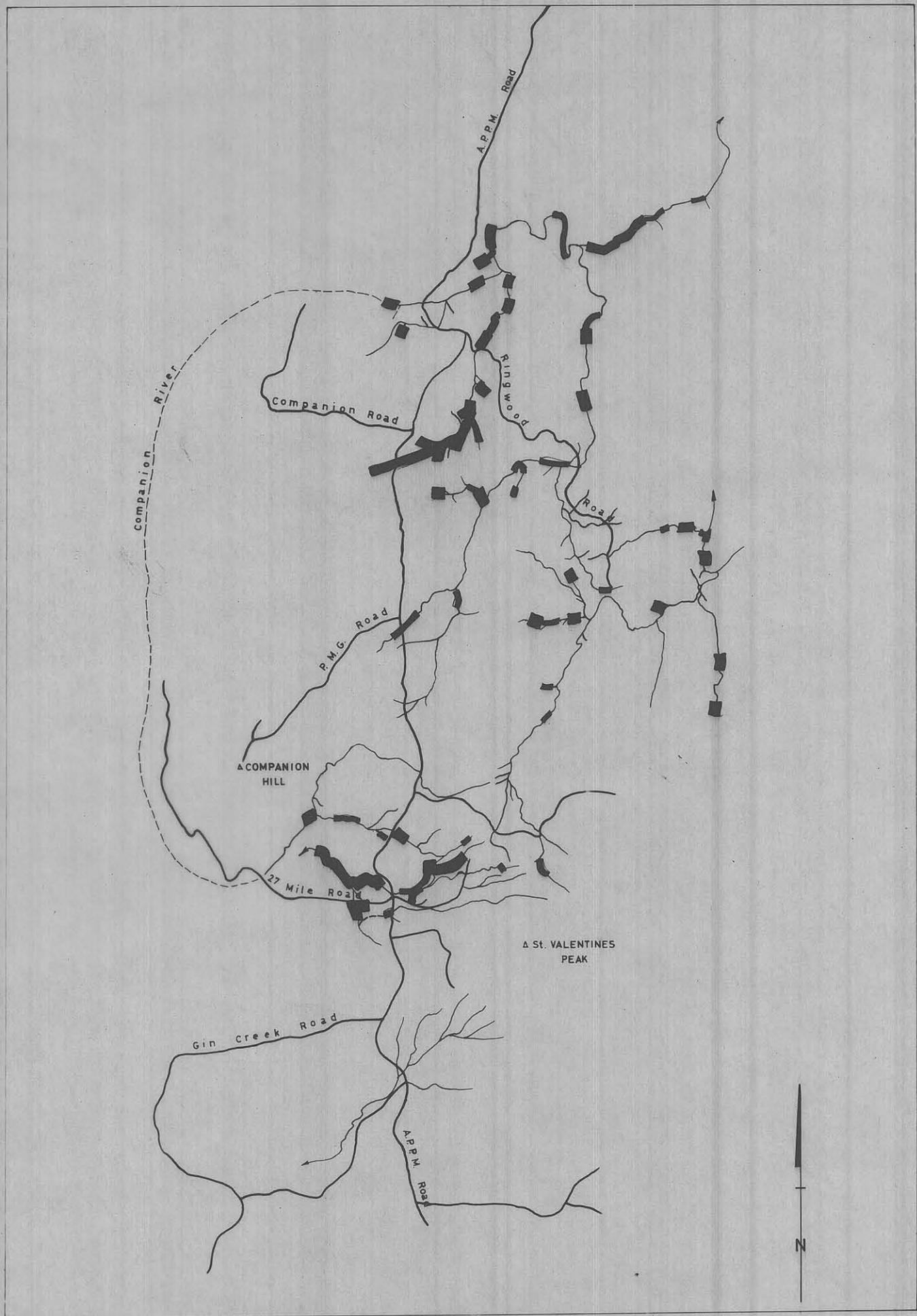


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GEOCHEMICAL

RESULTS

Sn by colorimetric analysis

ROADS ..... ———

RIVERS AND STREAMS ..... ———

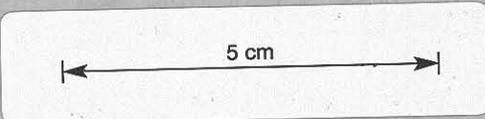
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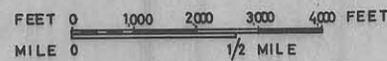
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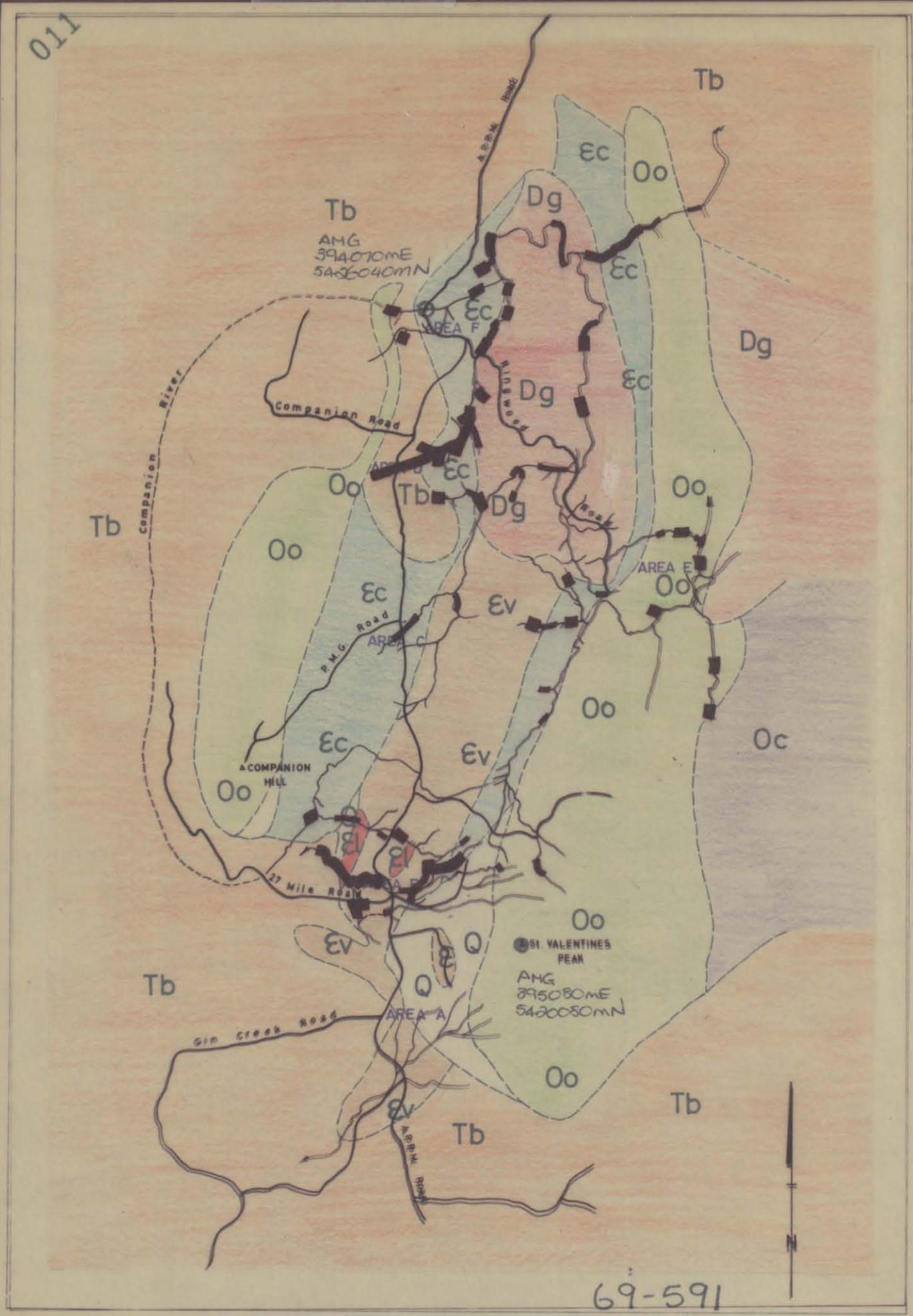
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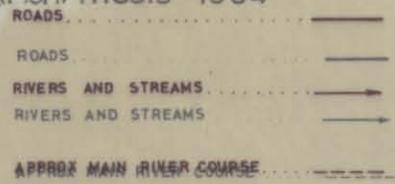
**GEOCHEMICAL RESULTS**

Sn by colorimetric analysis

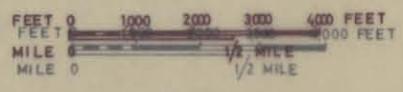
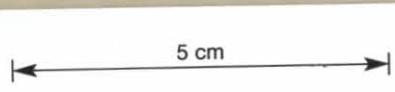
Oo	Gordon limestone
Oc	Caroline ck sandstone
Op	Owen conglomerate
Ec	Laminated hornfels
Ev	Volcanics
El	Undifferentiated

**IGNEOUS ROCKS**

Tb	Tertiary basalt
Dg	Devonian granite
El	Cambrian lavas



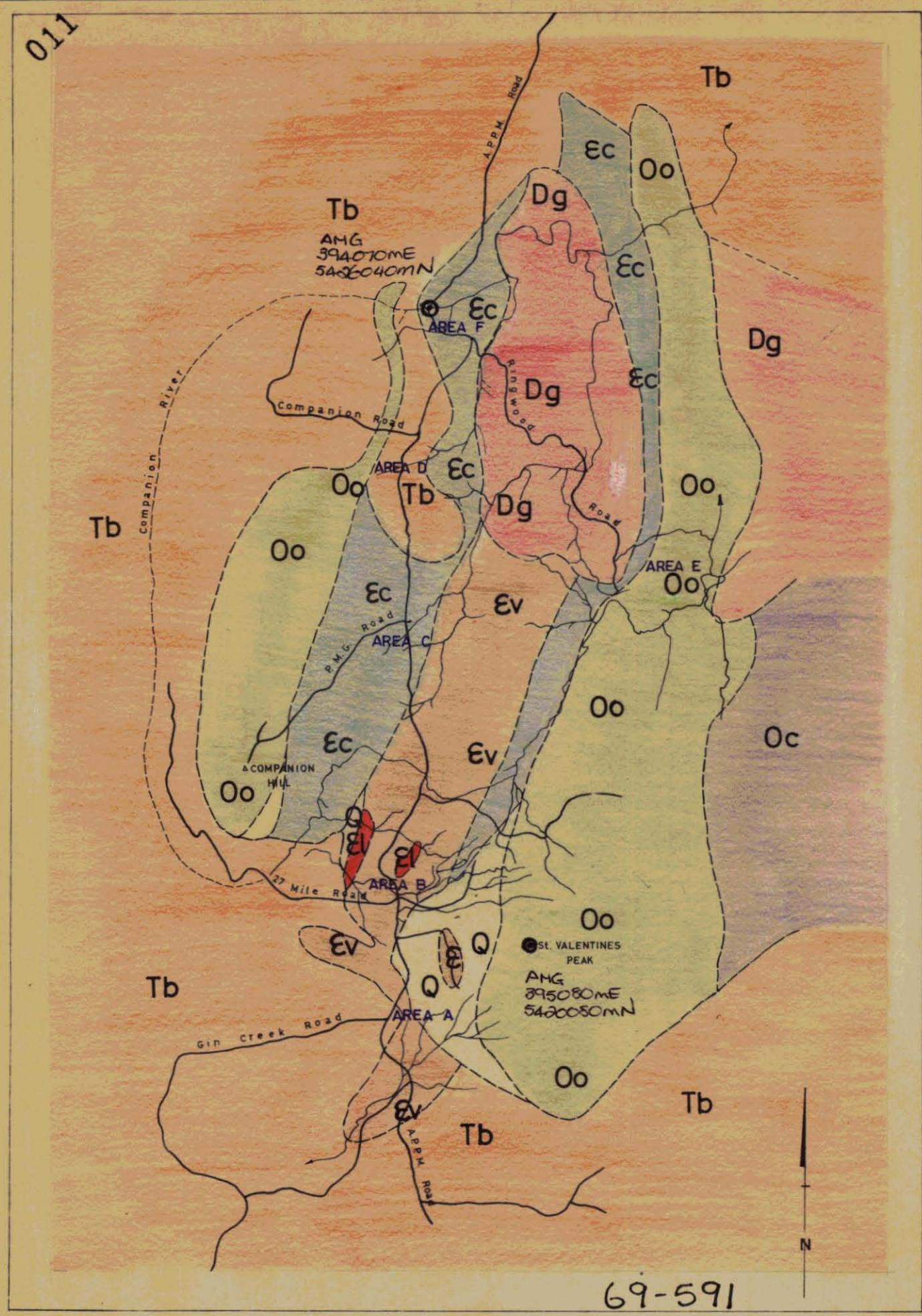
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GEOLOGY: BY G. PIKE Bsc(Hon) Thesis 1964

ORDOVICIAN:

O	Og	Gordon limestone
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ROADS	—
RIVERS AND STREAMS	—
APPROX MAIN RIVER COURSE	- - -

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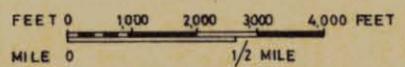
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