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371001

GEOLOGY OF AIRBORNE
GEOPHYSICAL ANOMALY
20/8

MICROFILMED

59-241

Anomaly 20/8.

LEE 4/5/59.

(+ FIGURES ATTACHED)

371E

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LYELL - E.Z. - EXPLORATIONS

371002

680
Q71

4th May, 1959

To: Mr. G.F. Hudspeth

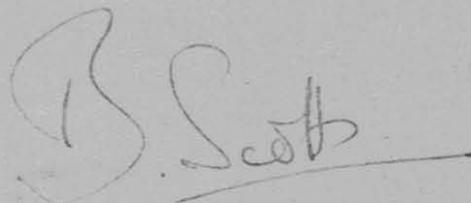
Anomaly 20/8

The accompanying reports describe the geological and geophysical setting of airborne anomaly 20/8.

The anomaly is in a geologically favourable area, placed between the Lyell Shear and the Wanderer Fault, to the west. Difficulty was experienced with the ground follow-up owing to the rugged relief of this location but sufficient effective work was carried out to demonstrate that the airborne response is spurious. For this reason, soil sampling was not carried out on the grid.

Conclusion

No further work is warranted on this anomaly.



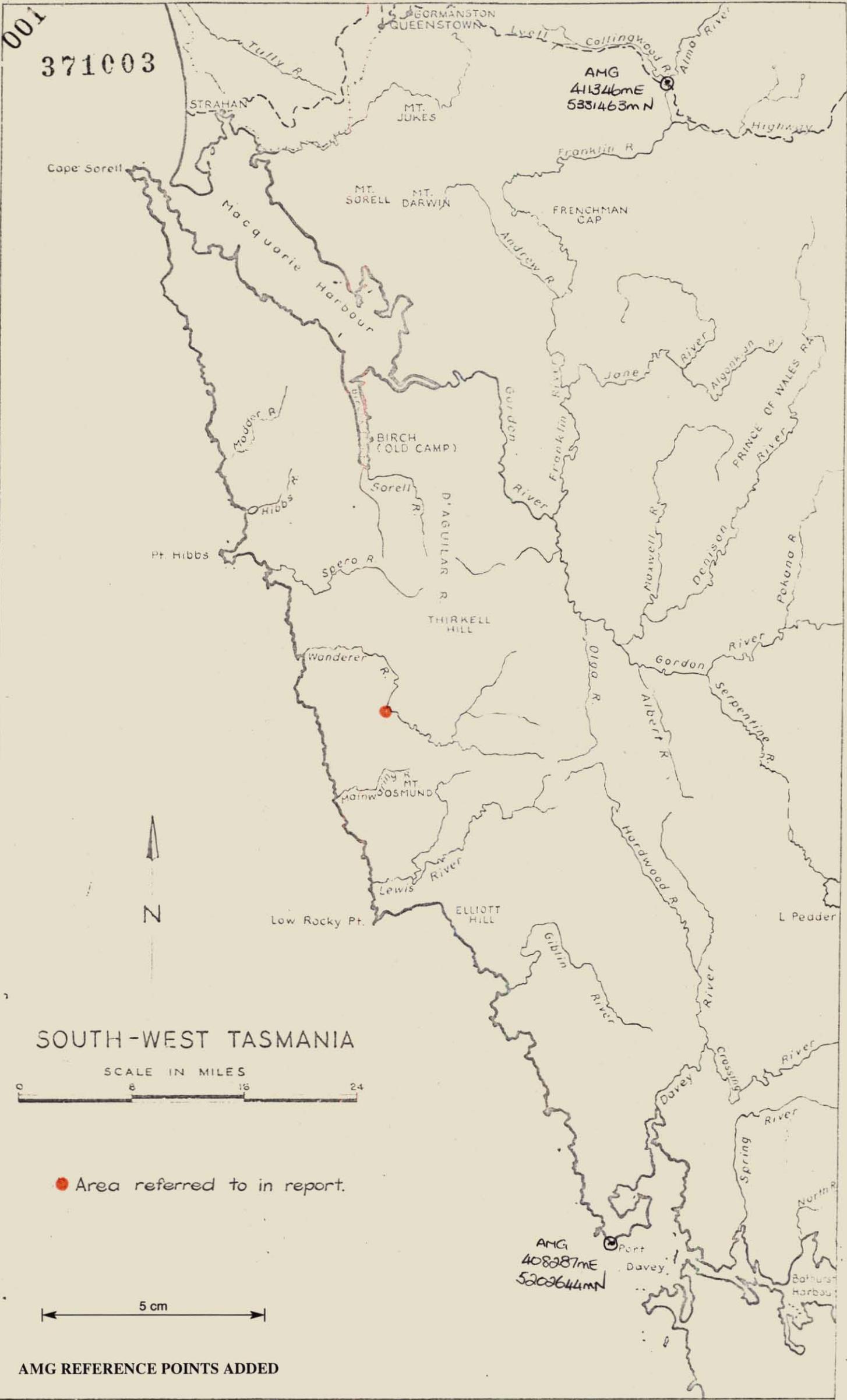
Chief Geologist, L.E.E.

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AMG
41346mE
5331463mN

AMG
408287mE
5202644mN

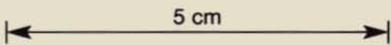


SOUTH-WEST TASMANIA

SCALE IN MILES



● Area referred to in report.



AMG REFERENCE POINTS ADDED

I. GEOLOGY OF ANOMALY 20/8

1. Date of Investigation: 13.3.59 to 15.3.59
 (Geological)
2. Man Days in the Field: 12
Personnel: Geologist: R.G. Elms
 Bushman: M. Maywood
3. Location: Anomaly 20/8 lies some 17 or 18 miles due south of Birch Inlet Camp. The 00/0 peg of the 20/8 anomaly grid lies at a distance of 120 chains from photocentre 20/904/65.

4. Topography

The terrain of the grid area was very rugged. Between the northernmost three lines, the baseline crossed a steep sided valley at a very acute angle. Between the remaining two lines to the south, the baseline lies very close to the Wanderer River, the gorge of which is not very pronounced at this point. The bulk of line distance occurs on very steep slopes, relatively flat ground being generally found only at the extreme end of lines.

The central part of the grid is characterised by thick horizontal scrub, the eastern part by bauera scrub, and the extreme western part was in fairly open forest with mainly fern underbrush.

5. Geology

A. Lithology

(i) Dundas: The grid area of anomaly 20/8 lies mainly in an area of Dundas schists, the foliation of which exhibit a northerly (0° - 010°) strike and a steep westerly (70° - 80°) dip.

The schists vary little in character, quartz-chlorite schists, quartz-sericite schists, and quartz-chlorite-sericite schists being present. Specimens LEL157 to LEL160 are quite typical of the schists.

A generalised description would be as follows - a fine grained, soft, grey-green, chloritic to sericitic matrix in which abundant rounded quartz occurs.

However, to the east of the baseline, and particularly to the east of the fault shown striking at 015° , are a number of occurrences of apparently unshered siliceous sediments, for example, LEL146 on line 16S, and LEL167 on the baseline midway between lines 16S and 12S. Both of these are micaceous quartz sandstones.

Occurrences of siltstone and chloritic shale were also observed.

Unfortunately none of these occurrences of unshisted sediments were outcrops. Although in some instances the rock fragments were found in places where little transportation would have been possible, it is still impossible to deduce the relationship of these sediments to the schists.

The 015° striking fault has fragmentary occurrences of sediments on either side of it, so that it cannot be suggested that movement on this fault alone brought the sedimentary assemblage against the schisted sequence, though perhaps if one postulates a parallel fault some 200' to the west the best of several explanations is reached.

There is no evidence to encourage the invocation of disconformable or unconformable relationships between the sediments and schists.

It should be noted that although it is convenient at this early stage to place these sediments in the Dundas, they could equally well be placed in the Owen, there being no real evidence for either.

(ii) Gordon: Where the western ends of lines 16S and 12S meet the Wanderer River, outcrops of a mid to dark grey, hard, dense, fine grained limestone (LE1149) were noted. At times the grey surface of the limestone was mottled with abundant fine white anastomosing calcite veins. No fossils were found, but on structural grounds the limestone is placed in the Ordovician.

The limestone presumably occurs as a thin down-faulted wedge bounded to the east by a fault having an 015° trend, and possibly to the west by a sub-parallel one some 200' away. To the north the wedge may be cut off by a fault striking at 120° . To the south, nothing is yet known. No outcrop was available on the western side of the Wanderer River to confirm these inferences.

On weathering the limestone developed a rusty coloured surface, which, coupled with the apparently massive nature of the rock made determination of dip and strike difficult. The best estimate of strike bearing is 350° , and of dip, 55° west.

On the Wanderer River, midway between lines 16S and 12S evidences of shearing in the limestone were available.

Several small (6" wide) parallel zones of brecciation striking at 015° were noted, and in another instance a near vertical zone several feet wide, consisting of soft brecciated material, was found striking at 315° .

004

371006

6th March, 9

A.E.M. Anomaly 20/8

Selection of this anomaly for ground investigation was almost wholly due to the latter's proximity to the Lyell Shear.

The nature of the airborne response is not only poor - best line 563 : 0.3° phase shift with ratio .6 with high frequency - but shows a decided tendency to the spurious. The low frequency expression consists of a series of jagged short period departures from the base level which even in sum effect show no faithful peak correlation with the high frequency response. This result is duplicated on flight line 561 but noticeably well to the east. The strike thus implied is transverse to geology but is seen to roughly parallel the river course, that is the dissected topography.

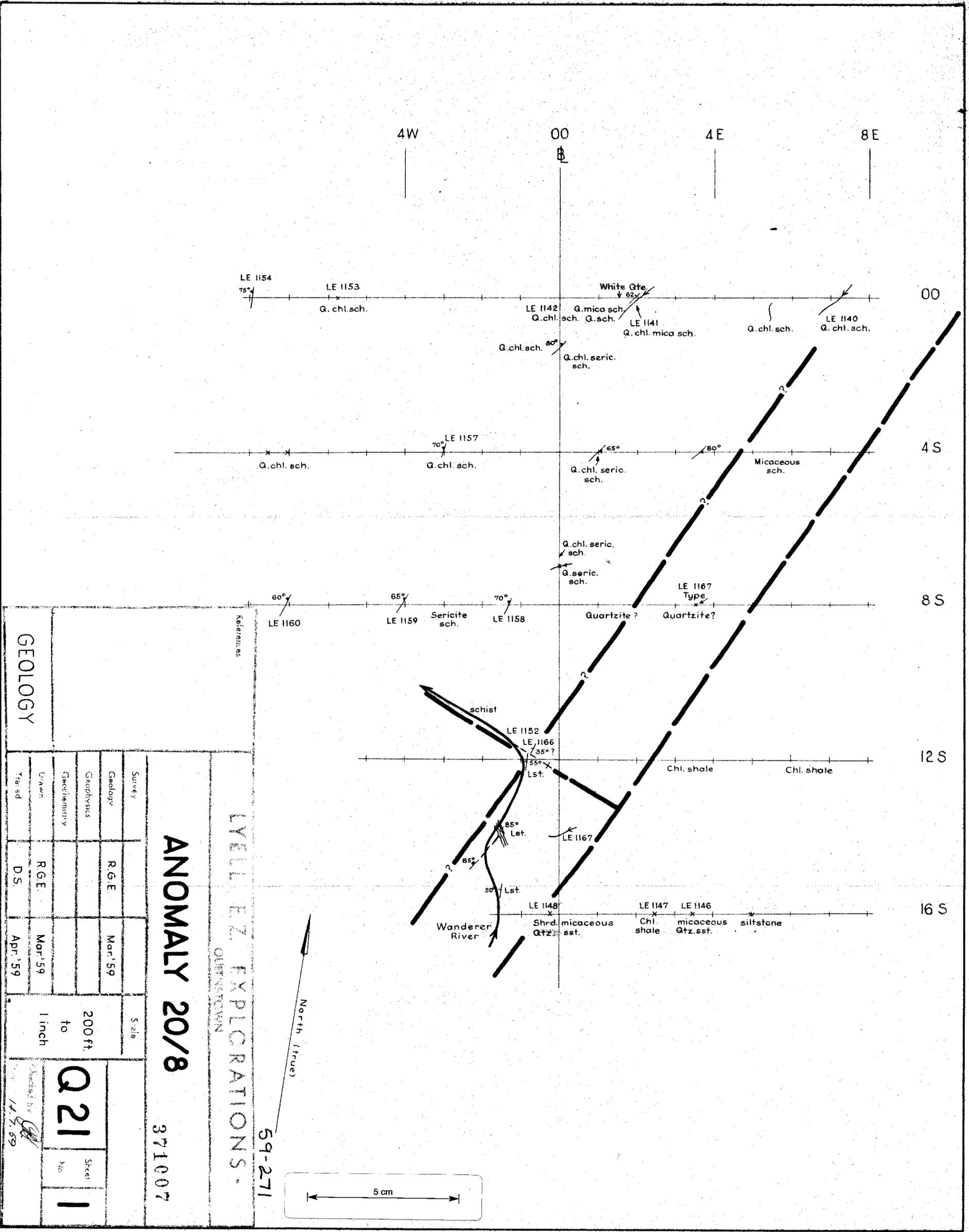
Ground coverage by vertical loop e.m. failed to resolve a real conductor. A phantom indication on line 4B/4-5E, not confirmed from transmitter set up "B", is entirely attributable to poor station control in an area of marked relief. Likewise the large tilts recorded on the CL. Magnetic activity in the grid area is featureless.

It is concluded, therefore, that the A.E.M. anomaly is unreal, that it has most likely been induced by aircraft manoeuvres in rugged terrain.

Samuel

Q21

1 inch



LYELL EXPLORATIONS.
OLINGTOWN

ANOMALY 20/8 371007

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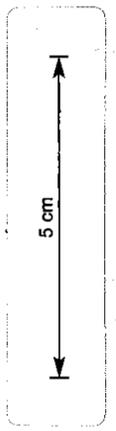
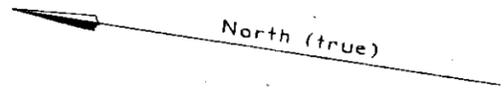
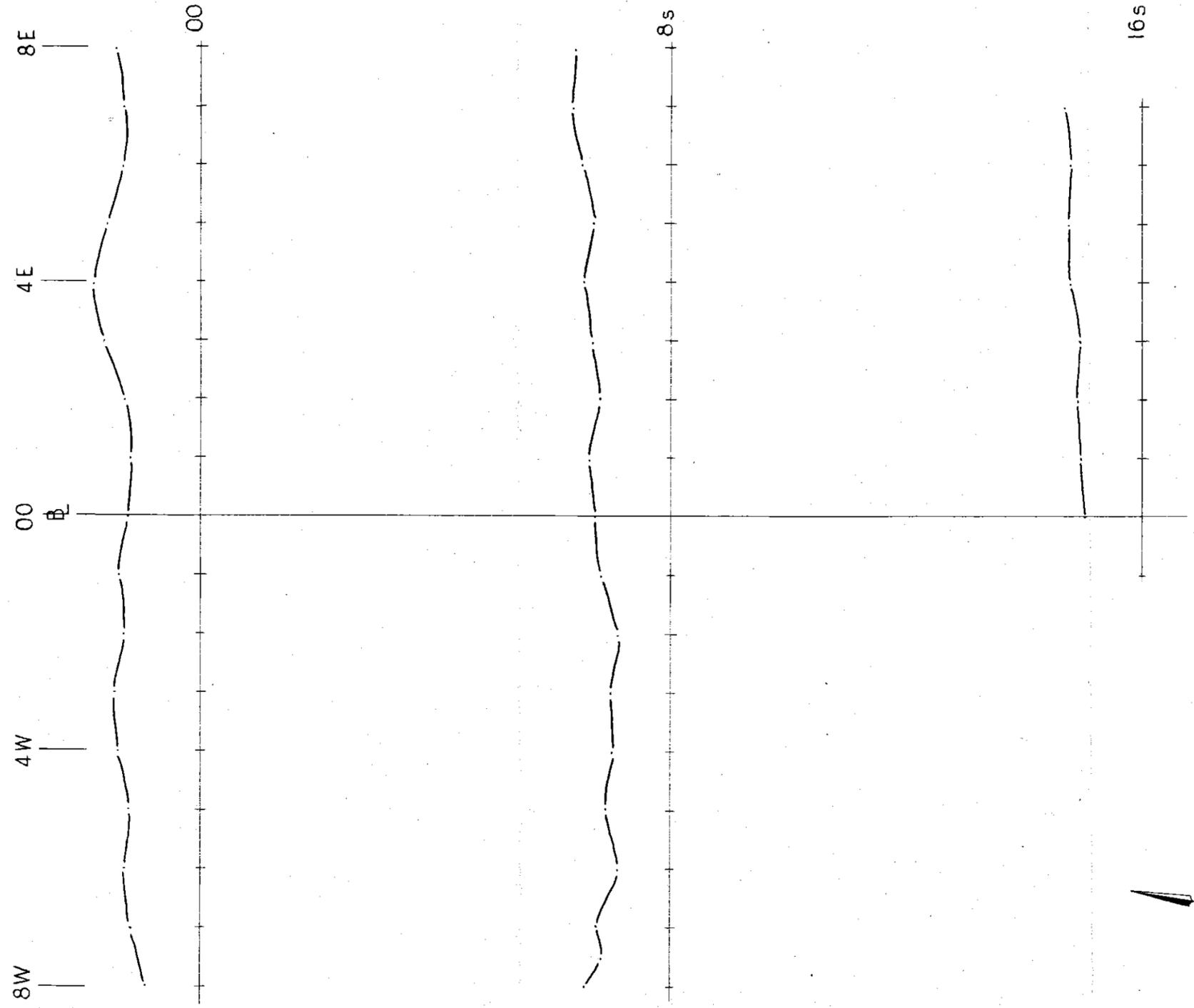
Scale: 200 ft to 1 inch

Checked by: *[Signature]* 11/7/59

Survey		R.G.E.	Mar '59
Geology		R.G.E.	Mar '59
Geophysics			
Geochemistry			
Drawn		R.G.E.	Mar '59
Traced		D.S.	Apr '59

GEOLOGY

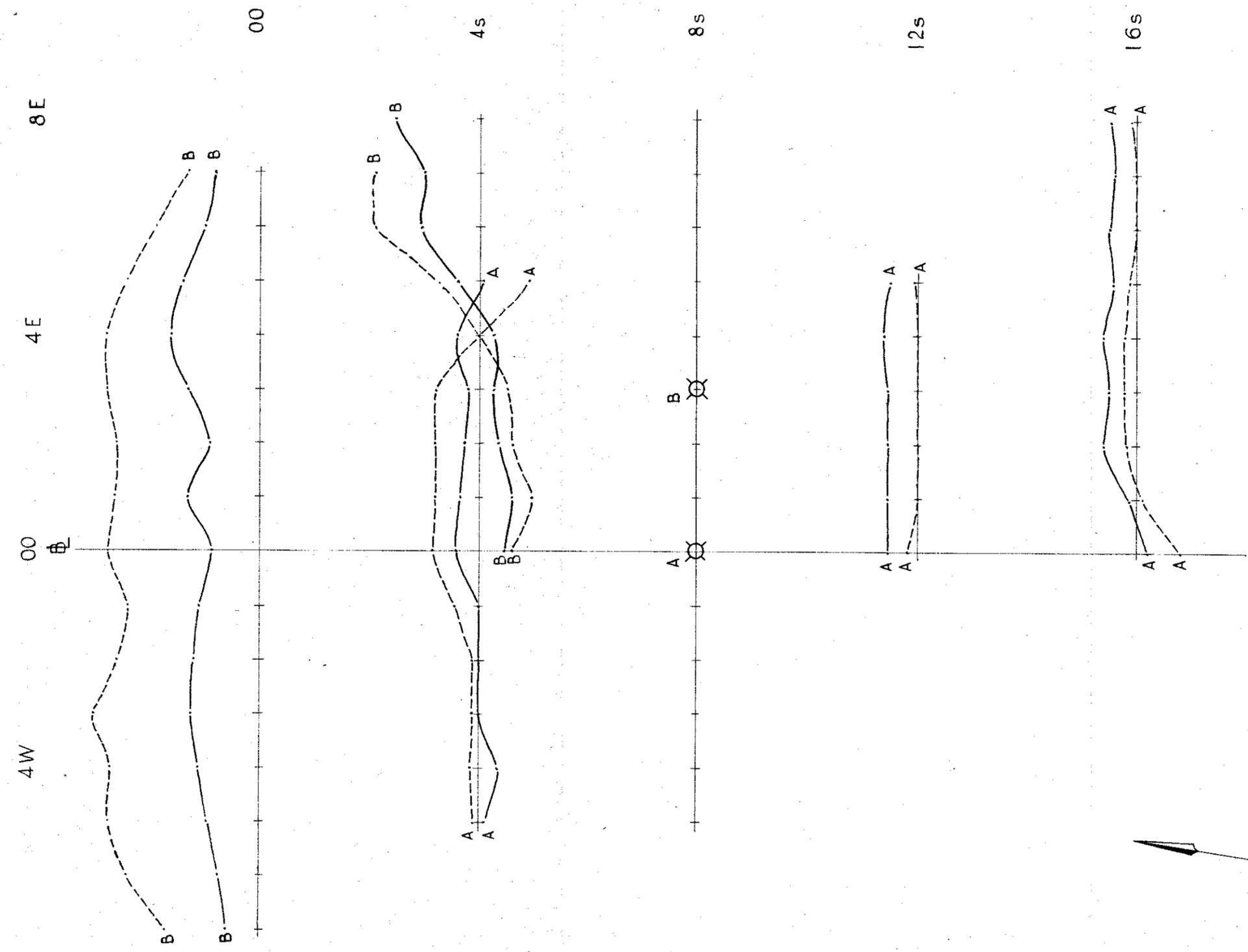
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References	LYELL E.Z. EXPLORATIONS QUEENSTOWN			
	ANOMALY 20/8			371008
	Survey			Hor. 200 ft. to 1 inch
	Geology			
	Geophysics	I.M.S.	Feb.'59	Vert. 100 ft. to 1 inch
Geochemistry				
Drawn	J.B. Boniwell	Feb.'59	Checked by: <i>[Signature]</i>	
Traced	D.S.	Mar.'59	Date: 13.7.59	
MAGNETIC				Sheet No. 3

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Reference		LYELL E.Z. EXPLORATIONS		QUEENSTOWN	
----- 5000 cps		ANOMALY 20/8			
——— 1000 cps					
Survey		Scale			
Geology		Hor.			
Geophysics	J.M.S., T.N.B.	Feb. '59	200 ft.	Sheet	10
Geobotany			to		
Drawn	J.B. Boniwell	Feb. '59	1 inch	Checked by: <i>[Signature]</i>	Date: 13.7.59
Traced	J.R. Gillie	Mar. '59	20°		
VERTICAL COIL			to		
			1 inch		