

000

64-378

MELBOURNE OFFICE

261001

GROUND MAGNETIC SURVEY

GREAT PYRAMID TIN PROSPECT, TASMANIA

...

By

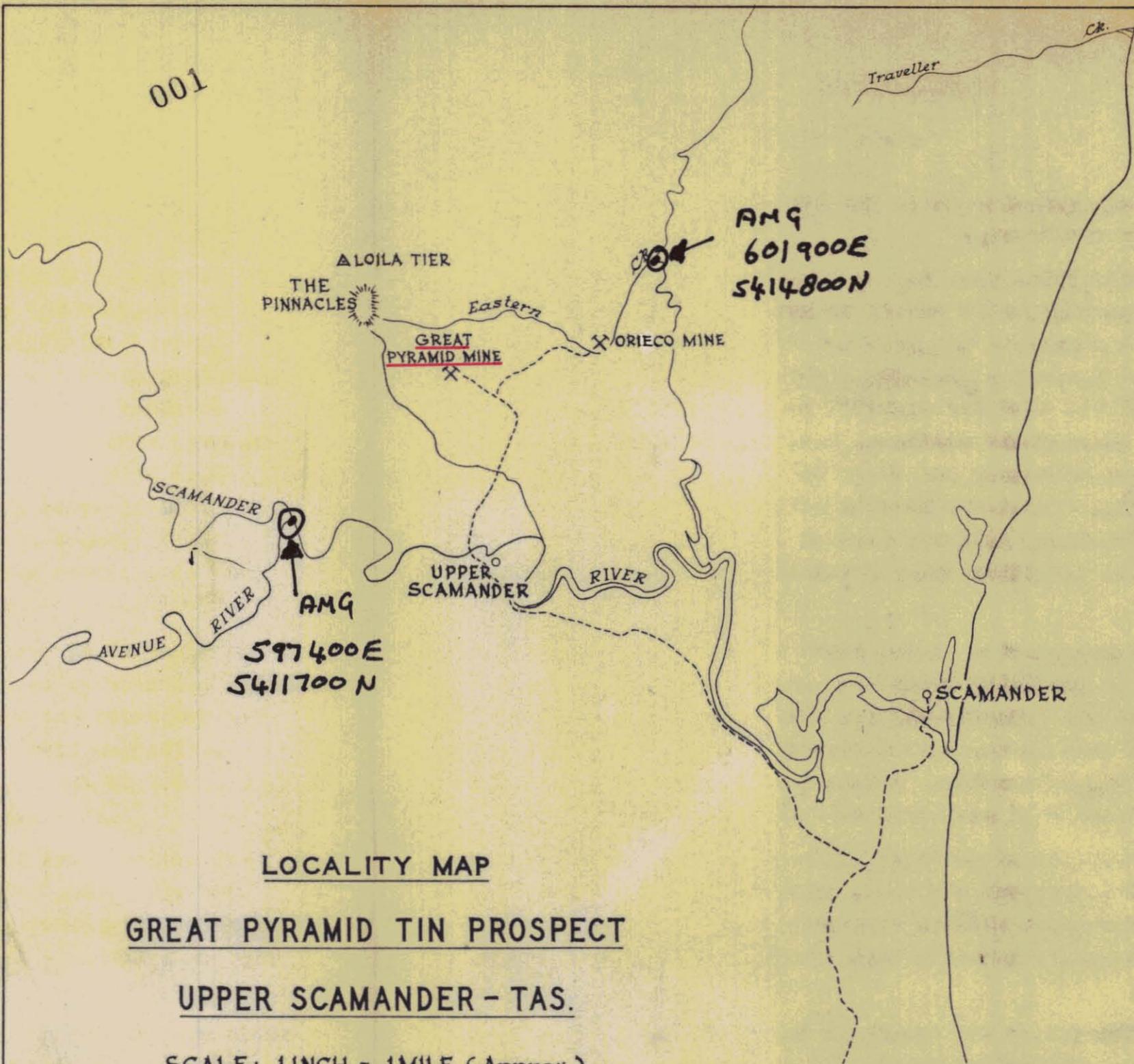
C. P. Taylor

MELBOURNE

AUGUST 1964

AMG REFERENCE POINTS ADDED

001



LOCALITY MAP

GREAT PYRAMID TIN PROSPECT

UPPER SCAMANDER - TAS.

SCALE: 1 INCH = 1 MILE (Approx.)

5 cm

AMG REFERENCE POINTS ADDED

INTRODUCTION

. . .

The map opposite shows the location of the area covered by the survey.

In July 1964, C.P. Taylor assisted by K.W. Hughes made a ground magnetic survey to assist tin prospecting at the Great Pyramid tin prospect near Upper Scamander, north east Tasmania. The Askania-Werke torsion magnetometer Gfz 582374 was used and magnetic readings were taken at existing plane table stations, intermediate points between these where necessary and every 25' in North Adit, No.2 N.L.L. Adit, C Adit and Brock's Adit. A value of 300 gammas at Station A.11 was assumed and instrument drift and diurnal variations were obtained from readings at this station.

Most cassiterite at the Great Pyramid is in veins or fissures in quartzite which are controlled by jointing that strikes NE and dips steeply NW. Neither the veins nor the quartzite contain the main magnetic minerals magnetite, ilmenite and pyrrhotite. A dolerite dyke cut by S.L.L. No.1 Adit contains 5-8% magnetite and some ilmenite.

As a result of detailed prospecting iron objects are scattered throughout the area, especially near adits and dumps. When such objects were seen no readings were taken nearby but it is possible that concealed iron affected some readings.

Mine workings and assays at the Great Pyramid are shown on G.4760. Geological mapping is in progress.

Copper occurs along a fault at the Orieco mine which is 1 mile NE of the Great Pyramid and tin has been reported at the Pinnacles which are 1 mile NW of the Great Pyramid. A

003

2.

261004

traverse was made across the fault near the copper mine
and another was made from the Great Pyramid to Lolla Tier
Trig over the Pinnacles.

. . .

RESULTS

A magnetic contour map of the Great Pyramid and profiles of the separate traverses are shown at the back of this report.

The linear anomaly striking NE and crossing the hill near the crest is the main feature of the contour map. It is due to the dolerite dyke intersected by the S.L.L. No.1 Adit. It indicates that the dyke:

- (1) has the position shown on the contour map;
- (2) strikes NE;
- (3) dips steeply NW - approximately 65° . This dip:
 - (a) causes low magnetic values approximately 40' - 100' east of the dyke;
 - (b) produces a high axis parallel to the dyke and approximately 10' - 40' west of it;
 - (c) raises the magnetic level west of the dyke above that east of it, this effect decreasing with distance from the dyke. The normal magnetic field at the Great Pyramid is about 325 gammas on the scale chosen;
- (4) has a varying width estimated to average 20';
- (5) is oxidised to varying depths. The highest magnetic readings were obtained at and NE of the origin where comparatively unweathered dolerite was found. Near the portal to No.1 N.L.L. Adit the dyke appears deeply weathered and the thick clay at the portal supports this;
- (6) may be displaced by a fault at 0/70'W.

Other magnetic trends indicated are shown on the contour map. There is a high axis striking NE - ENE passing through the portal to C Adit. This is a well defined axis which extends the full length of the survey. There are two sub-parallel high axes striking ESE and two nearby N - S. Part of the irregularities in the directions of these trend lines are due to topography and also, especially in the case of the dyke, to depth of oxidation.

Correlation of the magnetic trends with structure indicates that the ESE axes correspond to bedding and the NE - ENE axes to the pronounced jointing direction which is followed by the dyke. The higher tin assays shown on map G.4760 correlate generally with magnetic high axes.

The widespread minor magnetic variations not due to the dyke have sharp gradients indicating shallow sources. They are probably caused by recent goethite in the quartzite and iron oxides and sulphides in the NE veins and fissures. The former may produce more irregular and scattered anomalies than the latter which would give lineated anomalies. Linear anomalies, particularly in the NE direction, are logical targets for further prospecting for cassiterite.

Profiles along the traverses in adits were in agreement with surface readings, the general magnetic level being slightly lower due to the magnetic effects of rocks above the magnetometer.

On the traverse from the Great Pyramid to Loila Tier Trig anomalies were delineated at stations Z.26 and Z.49 at the Pinnacles and Z.66 near Loila Tier Trig. Numerous quartz veins containing cubic cavities indicating pyrite were observed near each of these stations.

On the short traverse across the Orieco fault anomalous magnetic variations were detected at the fault and about 200' north of it.

CONCLUSIONS AND RECOMMENDATIONS

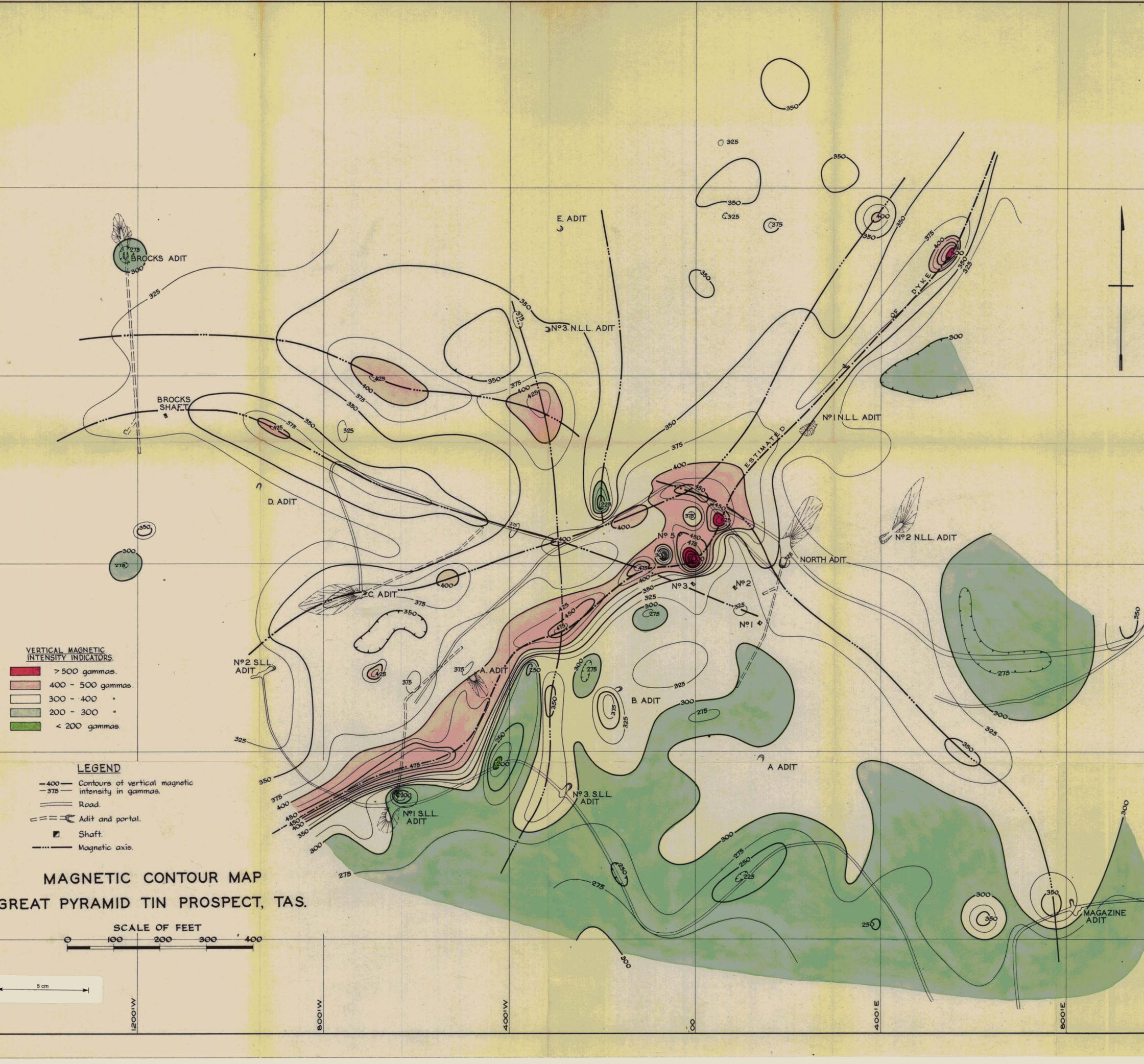
Trends on the magnetic contour map of the Great Pyramid appear to follow joints and bedding, apparently because of iron oxides and sulphides in fractures. Several distinct jointing and bedding planes were delineated and it is recommended that these be considered in future tin prospecting, both at depth and beyond the limits of known high tin values.

If detailed investigations are carried out at the Pinnacles or near the Orieco fault it is recommended that ground magnetic surveys be made.

.....

C. P. Taylor
C. P. Taylor

MELBOURNE
CPT:LAF
6th August, 1964.



VERTICAL MAGNETIC INTENSITY INDICATORS

Red	> 500 gammas.
Light Red	400 - 500 gammas.
White	300 - 400 "
Light Green	200 - 300 "
Dark Green	< 200 gammas.

LEGEND

- 400 - Contours of vertical magnetic intensity in gammas.
- 375 - Contours of vertical magnetic intensity in gammas.
- Road.
- - - Adit and portal.
- Shaft.
- Magnetic axis.

**MAGNETIC CONTOUR MAP
GREAT PYRAMID TIN PROSPECT, TAS.**

SCALE OF FEET

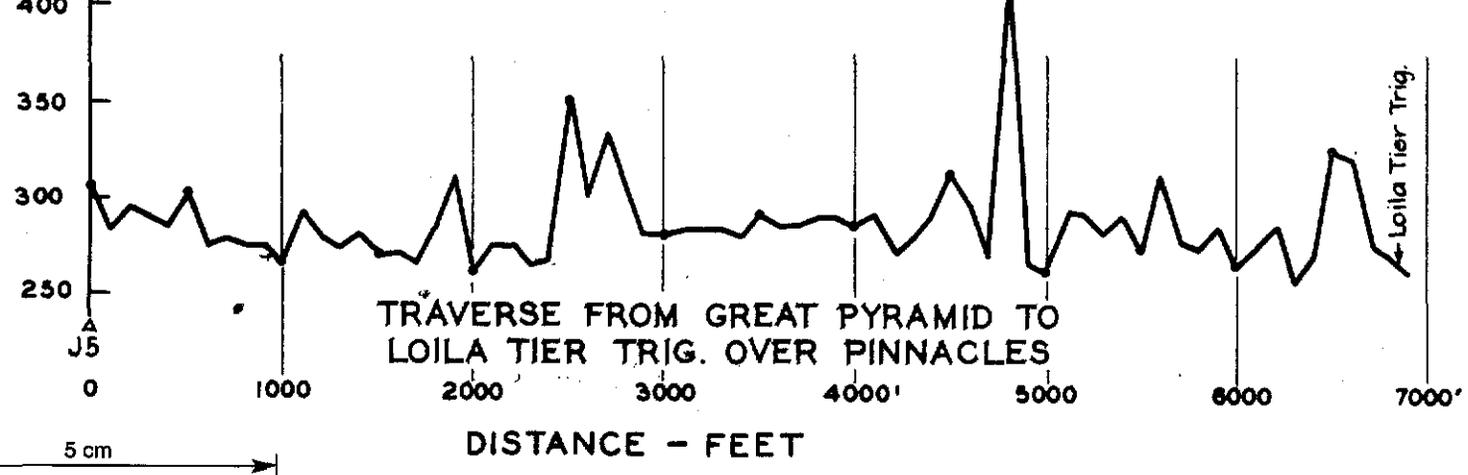
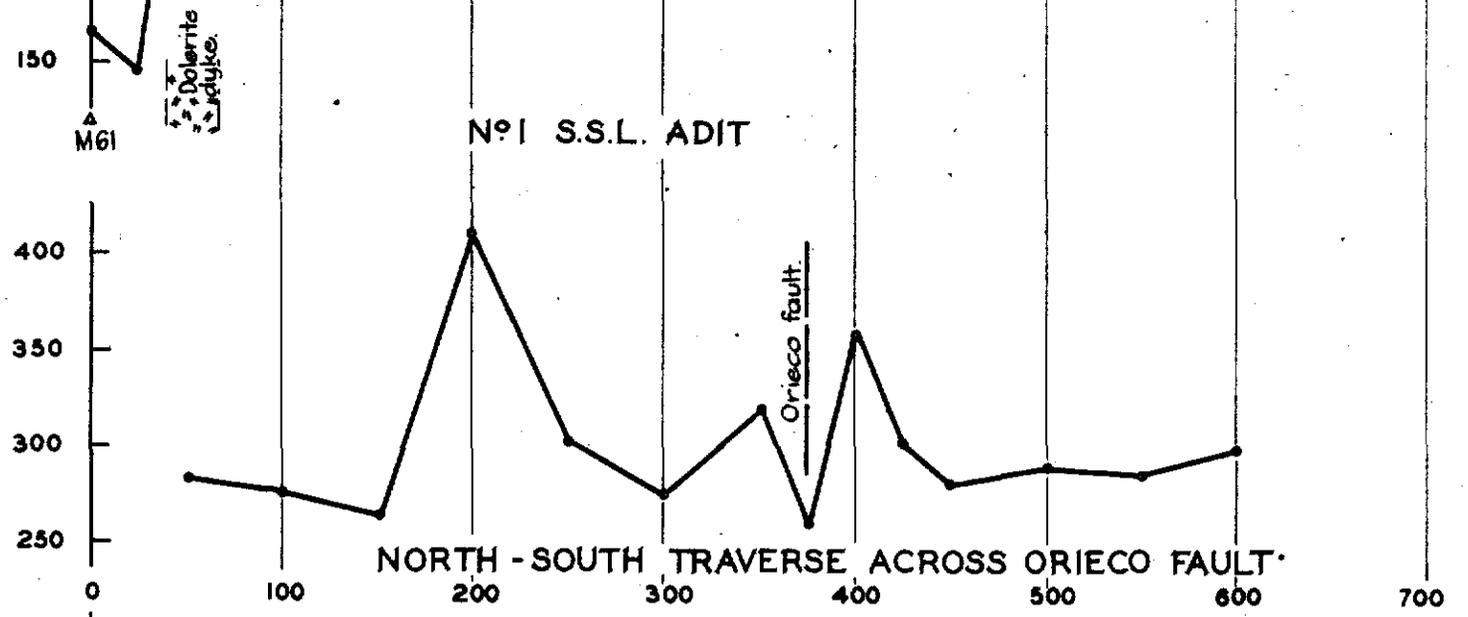
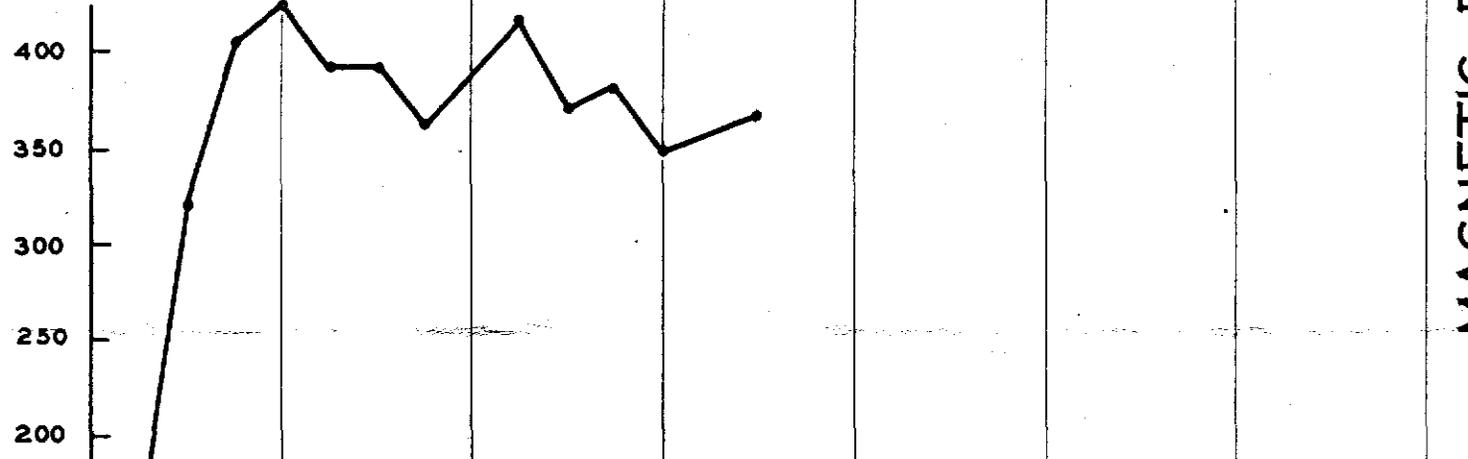
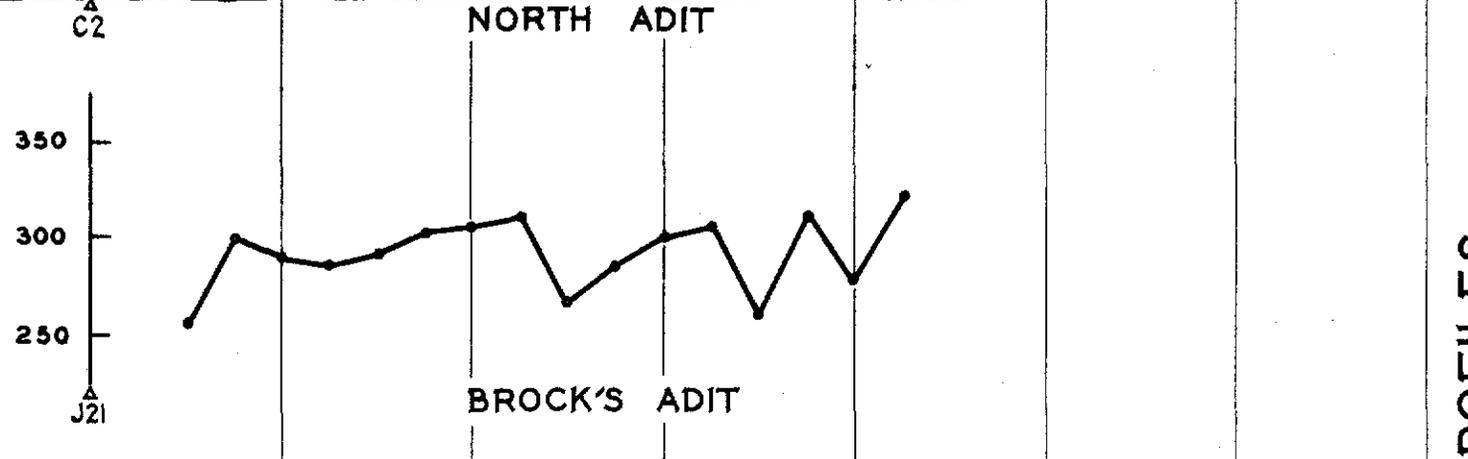
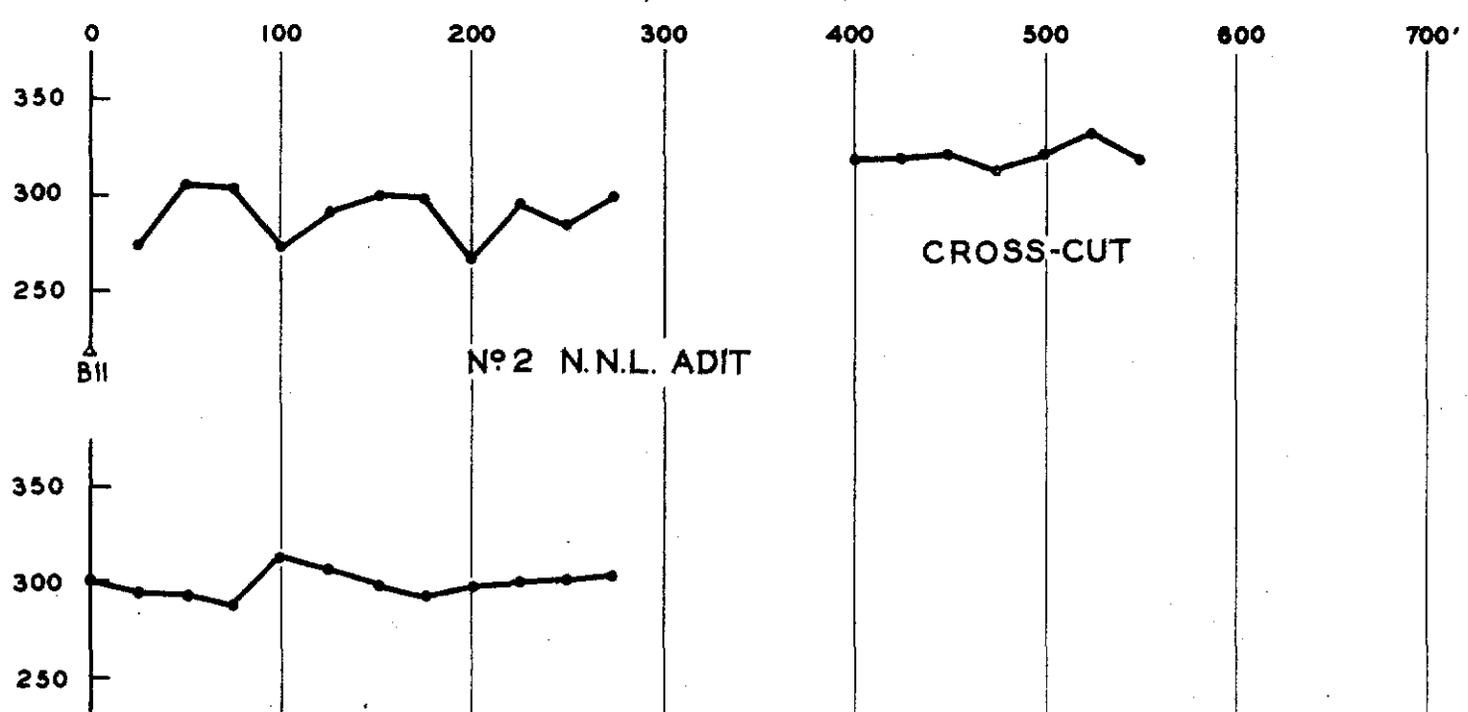
0 100 200 300 400

5 cm

008

GSS 819

VERTICAL MAGNETIC INTENSITY - GAMMAS



MAGNETIC PROFILES
GREAT PYRAMID TIN PROSPECT, TAS.

5 cm

DISTANCE - FEET

30-7-64