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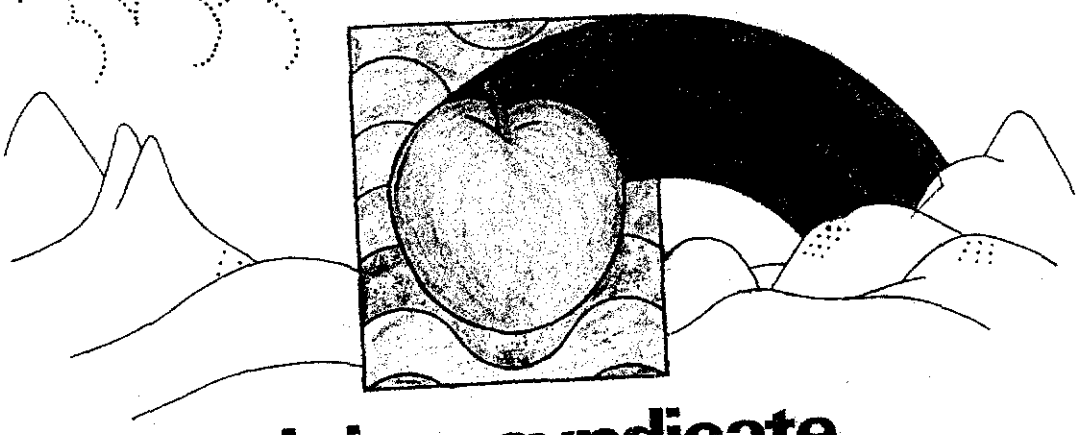
golden apple



mining syndicate

GEOLOGICAL REPORT OF EL. 8/80

TO THE DIRECTOR OF MINES

1980

Mineral Exploration Licence

Cygnet Area

as taken out by J.R. Wall Dip. Sci. Geol.

on the 2/2/ 80

AMG REFERENCE POINTS ADDED

CONTENTS

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(1)

1. ABSTRACT

Detailed geophysical maps have been produced for the Toby's Hill survey area which has been studied over the past six months. In analysis, there is still a little scope for some more prospecting here; however any back-hoe-costeaning work will be restricted by the steepness of the hillside.

Detailed ground magnetics is proving a useful and accurate technique. Experience is building up.

Marine surveying has commenced over Port Cygnet. Basic geophysical and sampling work has revealed interesting results. Other areas of developing interest are Mt. Mary, the Black Jack Spur of Lymington and the other sulphide mineralization zones of the cygnet Pensinsula, eg. Mt Windsor area.

2. LIST OF ILLUSTRATIONS

3. INTRODUCTION

This report describes the 1980 exploration activities of E.L. 8/80 held under the name of J.R. Wall.. This comprises approximately 100 square kilometers of nearly all privately owned land of which about one third is still unproductive and bush covered due largely to the steepness of hill slopes.

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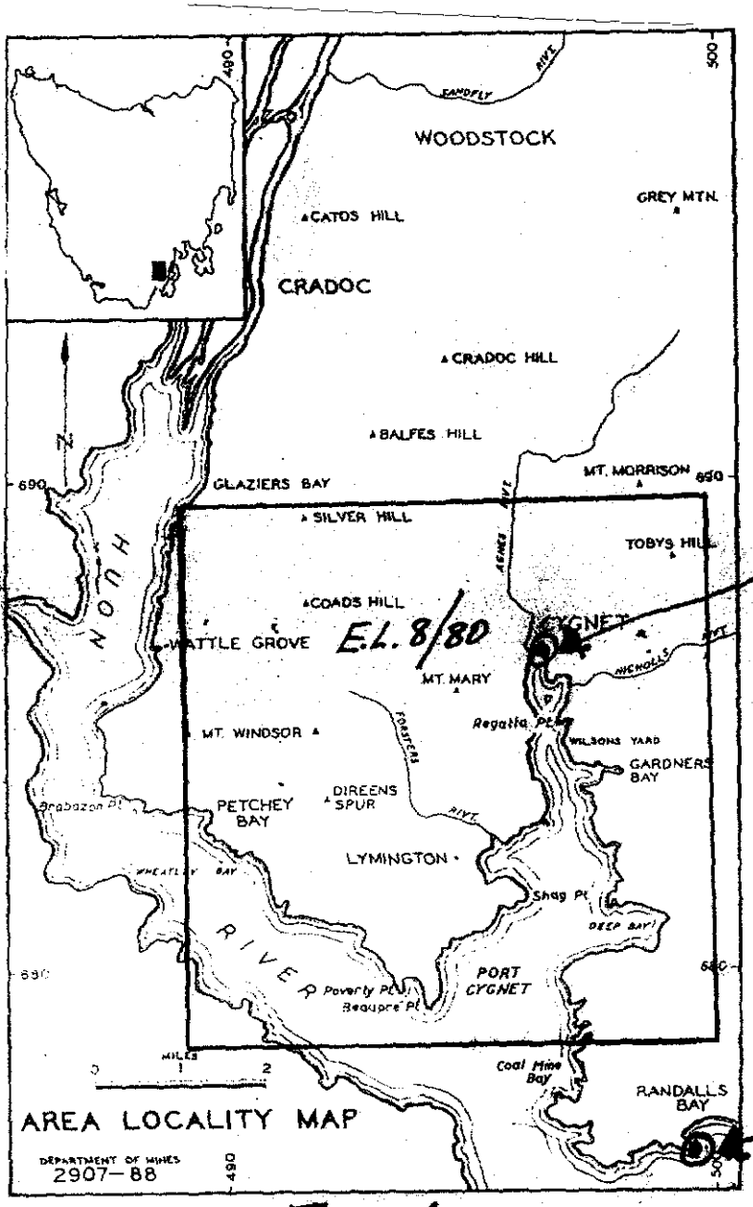

AMG
506600E
5220800N

AMG
509900E
5211500N

FIG. 1.

5 cm

Finance for the exploration work is provided by a new Limited Partnership by Tasmanian Law, the Golden Apple Mining Syndicate, of which the above mentioned geologist is the General Manager.

The Golden Apple Mining Syndicate is wholly Tasmanian owned and an enviromentally aware group which also recognises the importance of careful Public Relations with property owners and the local people.

During the past six months the Toby's Hill gold area has been surveyed in detail and sampled. Two transparency plans (Gams 1 & 2) accompany this report. Furthermore three other areas have been delineated for specific exploration surveys in 1981.

They are:

1) Mt. Mary
2) Mt Windsor-Black Jack Spur, Lymington
3) Marine Surveys for both primary and secondary mineralization in Port Cygnet itself.

Finally, an office-equipment store has been established in a disused apple-packing shed opposite the bottom hotel, next to Clements-Marshall hardware, in Mary Street Cygnet.

4. PREVIOUS WORK

a) Exploration.

The area was last held for exploration, being E.L. 23/71 by Quilko Mining Pty. Ltd., in 1971. However, the area was pending for B.H.P. Pty. Ltd., during the latter part of 1979, who undertook some preliminary investigations.

Some regional geochemical work was carried out for Quilko by Petchiney (Aust) Explorations Pty. Ltd. Apparently this work appears to be of a basic, general and broad nature. However, their List of Outcrops described by J. Hourdin (1971) may be useful to us.

b) Mines Department.

Thureau (1881) first reported on the area. The notable geologist, W.H. Twelvetrees (1903) (1907) described the region and first studied the petrology of the Port Cygnet alkaline intrusives in detail.

J.B. (1927), State Mining Engineer examined the Mt. Mary and drew up a plan.

Leaman and Nagvi (1967) published a comprehensive study on the geology and geophysics of the Cygnet district.

Dr. N. Farmer has more recently mapped the area in detail for the Geological Survey of Tasmania.

c) Academic

Edwards (1947) published a revised geology for the area in a petrological treatise. (fig. 2.)

Skeats (1971) fist postulated a younger age for the alkaline intrusive. A paleomagnetic study was undertaken by Robertson and Hastie (1962) for these rocks. Finally, Mr. Ramsey Ford, of the University of Tasmania Geology Department, is currently completing his thesis on the origin of the Port Cygnet alkaline intrusive rocks.

A list of references summarising my literature research is included in the Appendix to this report.

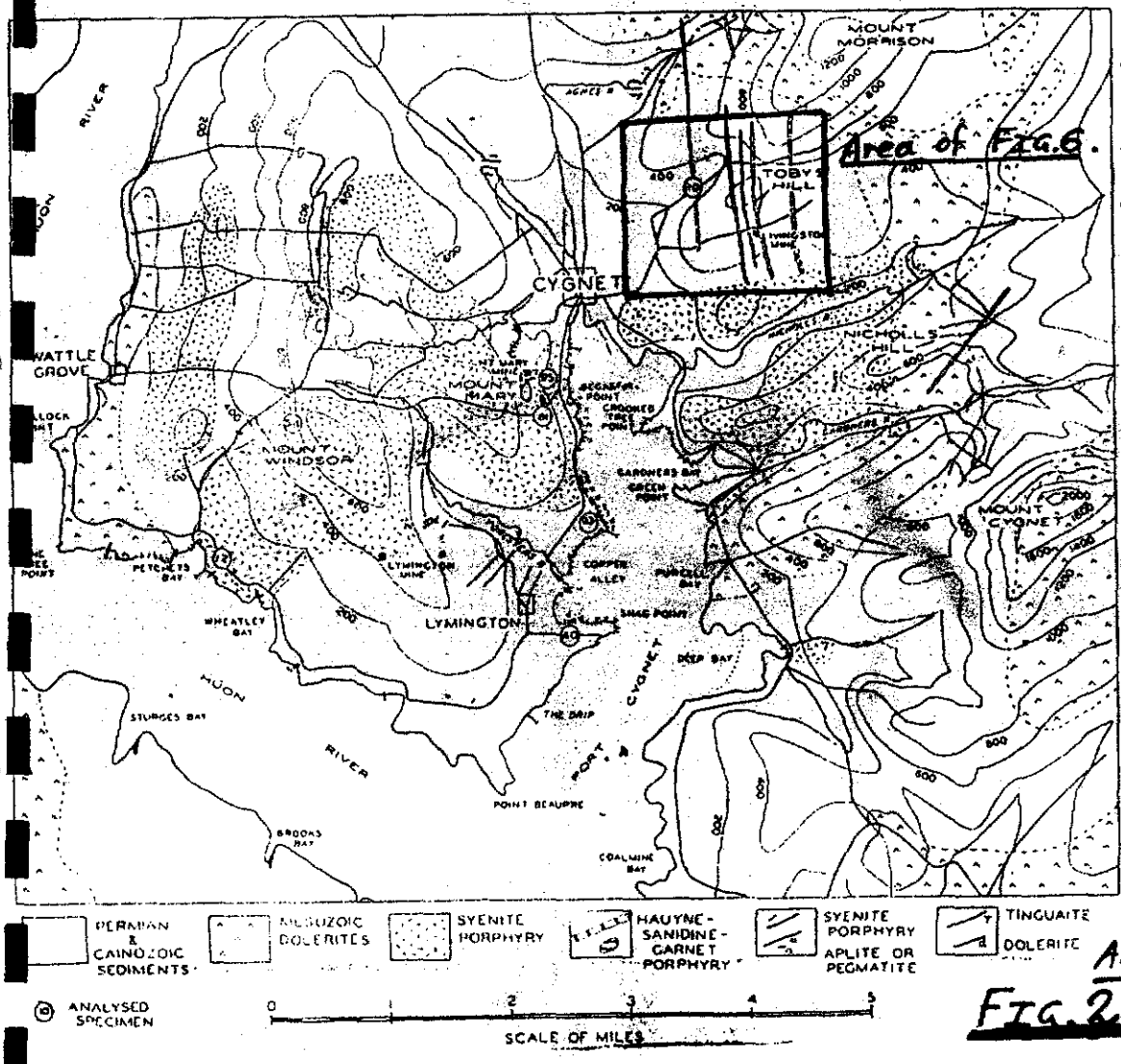

Fig. 2.

HAUYNE-SANIDINE-GARNET-PORPHYRY DYKES.

This striking rock, known locally as "magpie rock," occurs in a series of dykes and plugs extending northwards from Toby's Hill, north and north-east of Cygnet township (fig. 2). The Livingstone gold mine was situated on the contact of one such dyke, on the north-west flank of Livingstone Hill, which is a spur of Toby's Hill. The rock consists of numerous white to glassy tablets of sanidine, up to 20·0 mm. long by 3·0 mm. thick, together with crystals of black garnet, 1 to 2·0 mm. across, and less numerous black prisms of hornblende or pyroxene, up to 3 mm. by 1 mm., set in a grey felspathic ground-mass. The sanidine phenocrysts generally show parallel alignment with the strike of the dyke.

A.B. Edwards (1947).

5 cm

5. GENERAL GEOLOGY.

Fig. 1. shows an area locality map.

A major N-S divide extends the length of the Cygnet Peninsula. The highest point is Mt. Windsor (400 m); other high points are Coads Hill (300 m) Direen Spur (267 m) Silver Hill (254 m) and Toby's Hill is (220 metres). No one rock type dominates the topography of this area although considerable amounts of syenite porphyry occur in the vicinity of Mt. Windsor and Mt. Mary. The ridges and the hills in the southern parts of the area are mostly composed of the Permian sedimentary rocks.

Soils within the area fall into three groups:

(5)

i) alluvial soils
ii) soils on the siliceous Permian rocks
iii) soils on the igneous rocks.

The neutral to alkaline alluvial soils are to be found in the lower reaches of the Agnes and Nicholls Rivulets. These soils are of limited extent, but are well drained and there is often a gravel base to the subsoils. Podzols are developed on the Permian rocks and they often contain many rock fragments. They are grey-yellow in profile with sandy A horizons and mottled clayey B horizons; both having highly acid reactions. Soils found on the dolerite are generally darker and browner than those on the alkaline igneous rocks.

Some of the largest bodies of syenite porphyry on the Cygnet Peninsula are covered by a great deal of scree which has recently been mapped by Dr. N. Farmer in detail. This work negates the general geology map of Leaman and Nagvi (1967). Furthermore, the trend and extent of the N-S trending dykes plotted on the map compiled by Edwards (1947) are now inconsistent with known information for the Toby's Hill area. (compare figs. 2 & 6). However the petrology descibed has been checked and is still accurate although we have discovered a new rocktype for this area. (pink augite porphyry - see section 7 c).

In the licence area, approximately 900 metres of Permian marine and terrestial sediments are intruded by Jurassic dolerites, and by stocks (laccolithic) and narrow dykes of mid - cretaceous alkali intrusive rocks. The dolerite intrusion has caused regional doming of the sediments. Faulting mainly preceded and accompanied the dolerite intrusion and is thus of pre-Alkali intrusion age.

The gold is associated with the alkali intrusives.

Fig. 2. shows the early generalized geological map compiled by Edwards (1947).

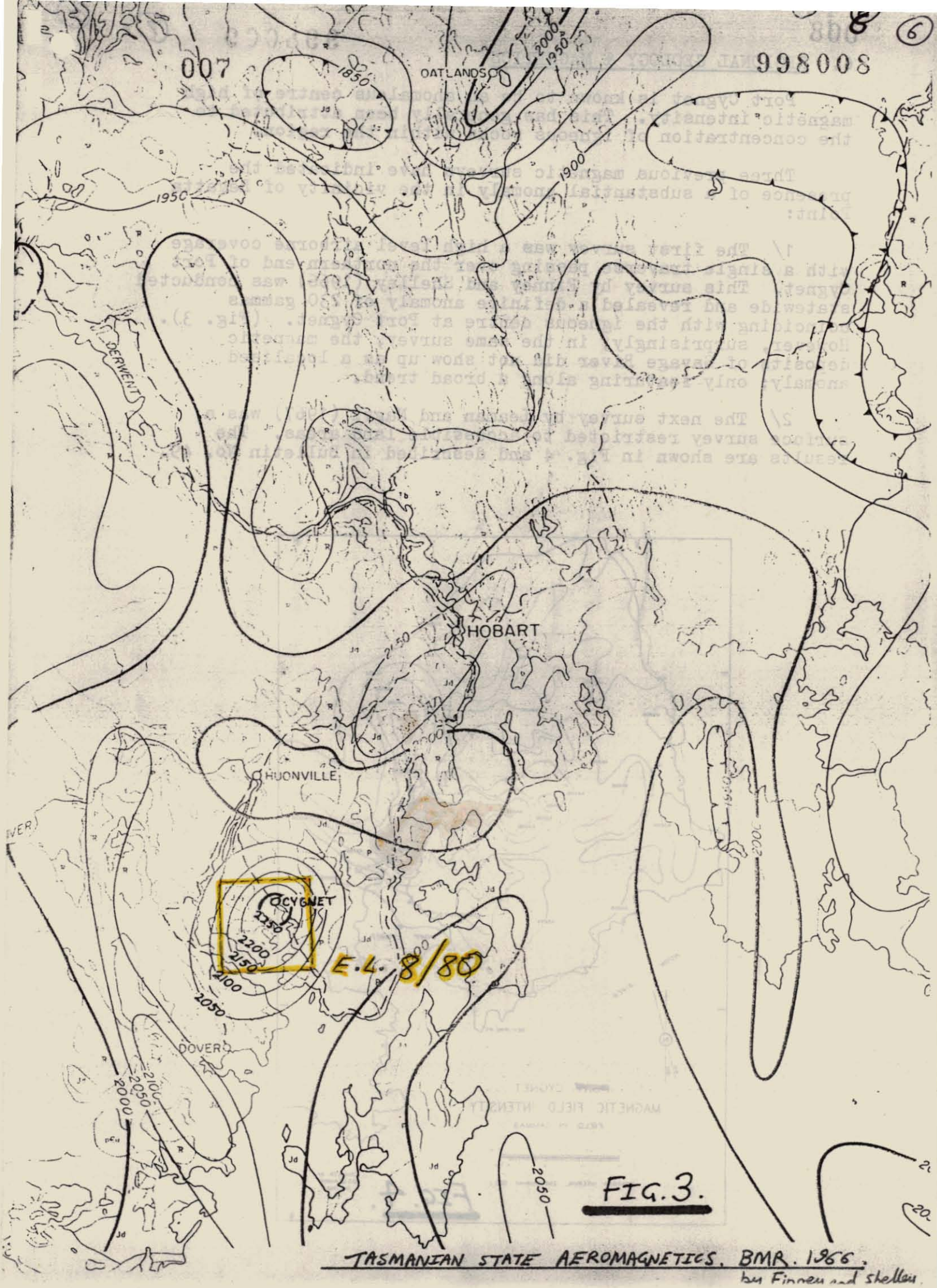

FIG. 3.

TASMANIAN STATE AEROMAGNETICS. BMR. 1966.
by Finney and Shelley.

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6. REGIONAL GEOLOGY & MAGNETICS

Port Cygnet is known to be an anomalous centre of high magnetic intensity. This has generally been attributed to the concentration of igneous rocks within the region.

Three previous magnetic surveys have indicated the presence of a substantial anomaly in the vicinity of Regatta Point:

1/ The first survey was a high level airborne coverage with a single traverse passing over the northern end of Port Cygnet. This survey by Finney and Shelley (1966) was conducted statewide and revealed a definite anomaly of 230 gammas coinciding with the igneous centre at Port Cygnet. (Fig. 3). However, surprisingly, in the same survey, the magnetic deposits of Savage River did not show up as a localised anomaly; only featuring along a broad trend.

2/ The next survey by Leaman and Nagvi (1967) was a surface survey restricted to accessible land areas. The results are shown in Fig. 4 and described in Bulletin No. 49.

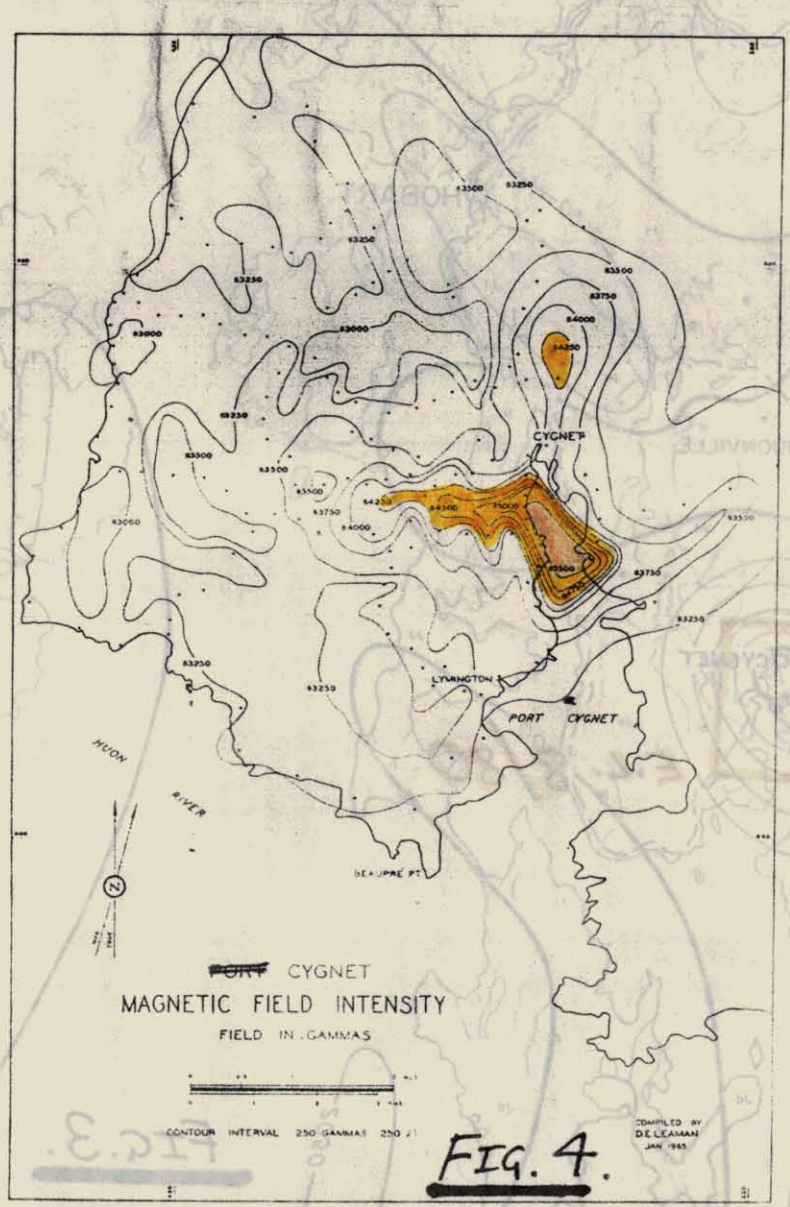

FIG. 4.

5 cm

3/ The third survey by D.E. Leaman (1975) provides detail over the water of Port Cygnet itself. (Fig. 5). This descibed two dist-inct anomalies, the eastern one of which has now been sampled and is referred to later in this report.

Finally, in 1980, the same survey of Leaman (1975) was repeated by G.A.M.S. using a Geometrics proton magnetometor, instead of a fluxgate. The same comparable shape of results were found and so have not been drawn up for this report:

Anomaly 1: Above 64000 gammas - Regatta Point
Anomaly 2: Highest reading 67312 gammas - Crooked Tree Point.

These are the values for the proton magnetometer.

Our survey showed that the narrow trend of Anomaly 2 continues directly North-Easterly onto the shore where it has a value of 64000 gammas. This was checked by ground traverses along the shore up to the main Nicholls Rivulet Road intersection.

Now, the highest reading found on shore for Anomaly 1, near the old Youth Hostel building, was 66450 gammas. In comparison, the highest reading for the Mt. Mary test traverse area was 64700 gammas.

Hence, it seems that the peak of the localised small anomaly off Crooked Tree Point is the highest point of magnetic intensity for the Cygnet region, and indeed probably for the Hobart district also. Could this be the focus of an igneous vent; being a hot spot in the earth's crust? A new rocktype? Mineralized?

The alkaline rocks, which have been shown to be Cretaceous in age, may be grouped into two main classes on the mode of occurrence: (i) as dyke rocks, and (ii) as large homogeneous masses. The rocks have been dated at 100 million years, of the Middle Cretaceous period.

Generally, the dyke rocks occur principally in the area of the Cygnet Pennisula, although some are to be found near Toby's Hill, Cradoc Hill, Nicholls Rivulet, also even around Surge's Bay in the far S-W extremity of E.L. 8/80, on the opposite side of the Huon River.

These rocks are variable in composition, normally hard and massive and only a few feet wide. They vary fron syenite porphyry to different varieties of sanidine porphyries to syenite pegmatite to garnet orthoclosite dykes (Edwards, 1947).

The occurence of the rocks differs in each locality and is affected by the nature of the intruded rocks and the composition of the dyke. The dykes do not always stand out as erosion-resistant bodies. A dyke of the converse type was detected by D.E. Leaman (1967) in the Lymington region using the resistivity method. The depth probe method of electrical resistivity was tested to determine the location of structural traps for groundwater, including faults and dykes. This technique may well be useful as a follow-up geophysical method to magnetics in later mineral exploration work.

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MAGNETIC SURVEY PORT CYGNET

(9)

D.E. LEAMAN 1974

Contour Interval 100 nT (up to 2000 nT)

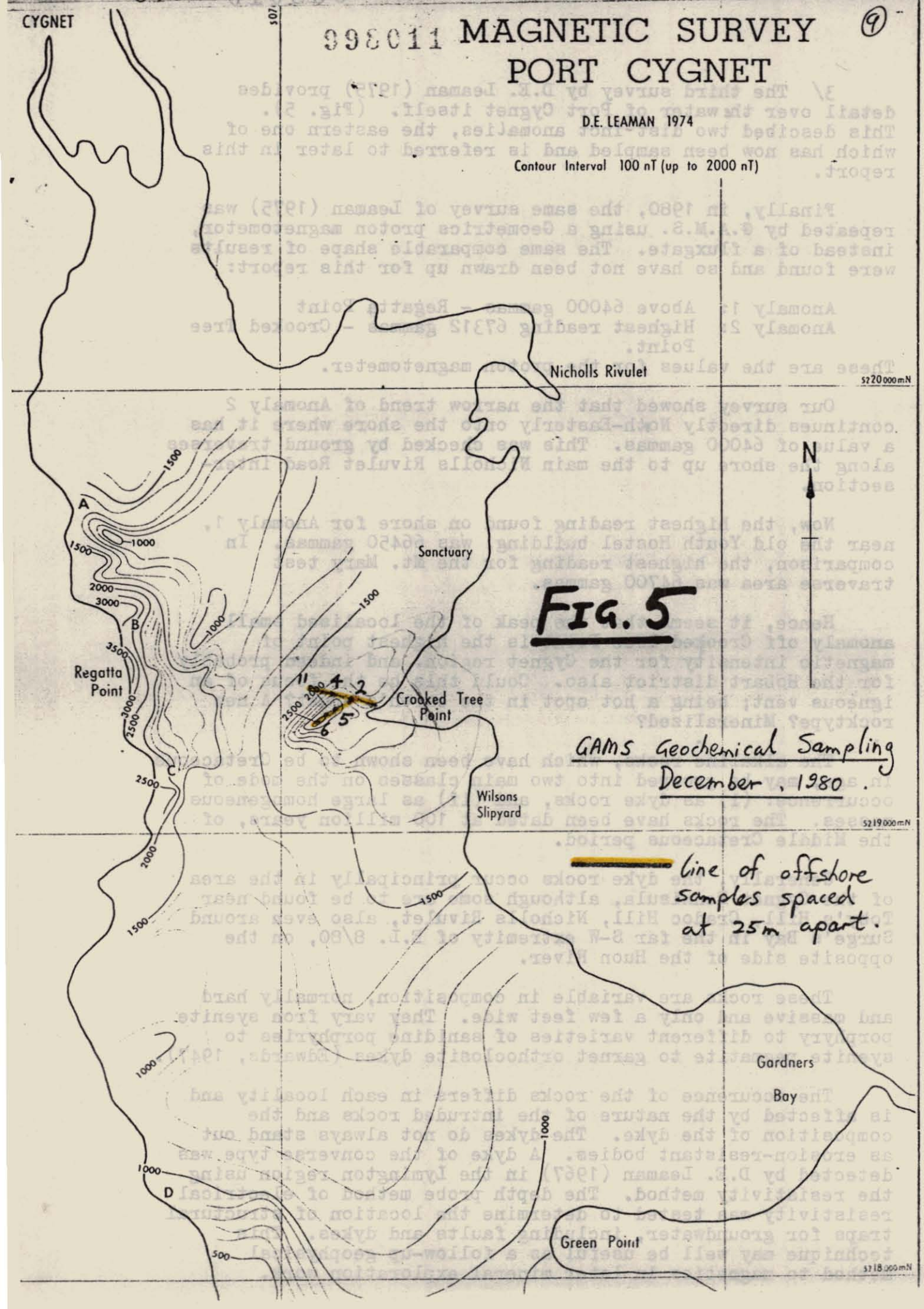

FIG. 5

GAMS Geochemical Sampling December, 1980.

Line of offshore samples spaced at 25m apart.

Finally, the Lymington mineral chart and the use of stereo-enlarged aerial photographs is providing a useful reference for regional geology as well as helping to locate old mine workings.

7. LOCAL GEOLOGY OF TOBY'S HILL

Above the Cygnet Municipal Rubbish Tip there is a narrow spur running East-West off Toby's Hill itself, towards the township. This has been called Livingston Hill (Twelvetrees, 1902, p. 4) and covers the area of gold mine workings prospected last century.

A. TWELVETREES.

The lode here has been thought to be the most promising in the district.

Twelvetrees (1907) refers to the Livingston mine shaft:

"The reef here is apparently a contact development, which may or may not be continuous. The likelihood is that the bands of quartz will be irregular along their course, though fairly constant enough in depth. Their behaviour in depth will most likely depend upon the accompanying line of the porphyry contact. The stone carries arsenopyrite, iron pyrites, copper pyrites, and a little blende and galena; an association of minerals which may be considered a favourable indication for gold. It is in fact the most promising stone found in the entire district so far, and it is the only lode found entirely in porphyry. If it continues further east, some more encouraging part may be found on its course".

"On the southern side of the ridge a tunnel was driven for about 400 feet, to intersect the reef at about 90 feet below the bottom of the shaft. The country through which it has been driven is the Permo-carboniferous mudstone or sandstone traversed by dykes of porphyry. In driving, the direction of the adit was changed and it now heads for the shaft. The reef line has not yet been intersected, but it cannot be far off".

Twelvetrees and Petterd (1898) mapped the tunnel rocks. They refer to the tunnel thus:

"First it cuts a 12 foot layer, subsequently a 2 foot band of the coarse porphyritic trachyte (now called hauyne - sanidine - garnet - porphyry) seen at the surface (the miners name for this was "magpie"), and near the end of the drive 12 to 15 feet of white trachyte rock is passed through, called "diorite" by the miners, and referred to under that name in the published reports of the company". (Still available?)

"Some of these rocks have counterparts on the Mt. Mary Hill rising on the West side of Lovett. In particular the "magpie" rock is found at the Mt. Mary mine, only there it is much decomposed, and has an abundant development of epidote.

B. EDWARDS

The Petro-logy of the "magpie" rocks from the Livingston gold line and tunnel have accurately been described by Edwards (1947). They are hauyne - sanidine- garnet- porphyry of magnetite are found in the groundmass. A thin section of tunnel porphyry made last year confirms this.

Furthermore, several large, previously unmapped, outcrops of this same rocktype have now been found in a valley on the western flank of Toby's Hill; about half a kilometer to the North-East of Livingston Hill. These are shown as Location (2) on Fig. 6. Nearby, an apparently new rock type for the Cygnet district has been discovered on one of our magnetic traverses. This dyke is plotted as Location (1) on Fig. 6.

C. A NEW ROCKTYPE (Augite - porphyry)

In land specimen, this new rocktype has both solid and lath-shaped crystals, of black hornblende or augite, 2-7mm. long and 2-3 mm. wide. Other than this obvious texture, there is only a dark pink fine-grained groundmass of quartz, feldspar (pink), magnetite apatite, microscopic pyrite and a red mineral, zincon or possibly garnet.

This new dyke has been called the "mandolin" by its discoverer, Mr. Loti Roberts. It was first picked up on a regional magnetitic traverse along the creekside track North-East of Livingston Hill. There is no outcrop at all, however a sample of the rock was obtained by prospecting higher up the hill.

A similar rock in and-specimen appearance, but with a much darker (grey-green) groundmass has been observed associated with a skarn-type rock near Mt. Winsor. The nearest written desciption to these rocktypes would be the "aegirine - trachytes" from Regatta Point and Mt. Mary, described by Twelvetrees and Petterd (1898). However the "mandolin" is lacking in sanidine. Also Rosenbusch suggested that the "aegirine trachytes" should be amended to tinguaite-porphyry, which Edwards has termed "sanidine-tinguaite". Thus, this well-known pretty rock is of a quite different nature to the "mandolin" which does not have the sanidine pherocrysts.

Now the mandolin was the first detected when the magnetometer readings jumped from 254 to 604 to 218 gammas over a 25 metre spacing. This feature was later followed up the flank of the hill almost to the four-wheel drive track (Fig. 6); with a strike of 120°. Background readings off the flanks of this anomalous feature were only 62400 gammas and the highest readings over the mandolin were around 63700 gammas. The dolerite on Toby's Hill to the West reads at 63300 gammas.

Prospecting has revealed a minimum width of 3 metres with no alteration or mineralization at all on its northern contact. However, it is an interesting rocktype which has here been proven to be younger than the "magpie" rocks which it cuts across in this area.

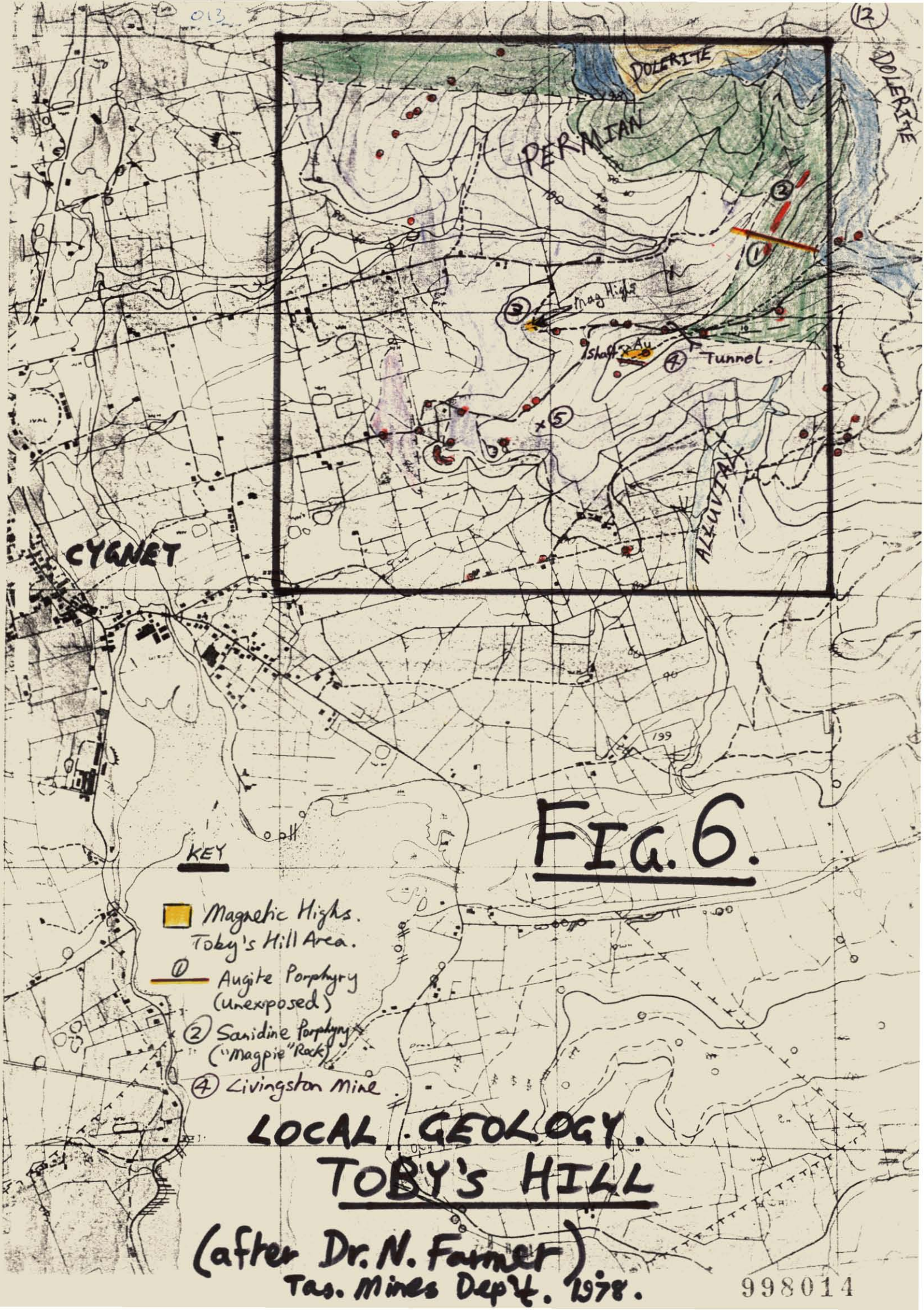

FIG. 6.

LOCAL GEOLOGY.
TOBY'S HILL

(after Dr. N. Farmer)
Tas. Mines Dept. 1978.

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Furthermore, it seems probable the the syenite porphyries of the Cygnet Penisula are younger that the tinguaites which are younger that the magpie (sanidine porphyry) rocks.
(R. Ford, pers. comm.)

So, we now have, in order of age:
1. Syenite porphyry.
2. Sanidine porphyry.
3. Hauyne - sanidine - garnet porphyry.
4. Augite porphyry of Toby's Hill.

D. PROSPECTING

Even though, in the past times, the spur - top portion of Livingston Hill has been well prospected; it does serve as a good type - case for correlating modern geophysical and sampling techniques with the dyke geology and old workings relationships.

So we now have a magnetic signature for the Toby's Hill dyke rocktype (see Tranparency plan GAMS 1 and Fig. 7) which may well be associated with gold mineralization in the Mt. Mary area also.

Generally, the mudstone in the Toby's Hill area strike at about 6° and are dipping gently to the East at about 5 -10°. The strike of the laminated reef in the Livingston Mine shaft is about 80°.

I. MAGNETICS SURVEY.

A very close spacing was chosen for the survey to enable any small or foreign ingneous bodies to be detected, and to delineate accurately the main porphyry associated with the Livingston mine.

Consequently, overall about 500 seperate readings were taken throughout the whole of the survey area. Four readings were taken between every 25 metre peg, giving us a reading interval of about 6 metres.

II. INTERPRETATION.

Four separate anomalous high points were found for the Toby's Hill area:

1: The "mandolin" augite - porphyry dyke.
2: A small high associated with the dyke rocks in the tunnel on Livingston Hill.
3: A similarly small high on the sharp corner of the interlinking road between Toby's Hill road and Guy's Road. No information is available as to it's source as yet.

4: A large high associated with the Livingston shaft workings across the spur of the hill. The following interpretation relates to this.

There is a massive sandine - hauyne - garnet porphyry dyke on plug, of limited extent, trending from its highest point (Plan GAMS 1) back North Westerly through the Livingston Shaft at about 127°. The focus of the magnetic low, which may reflect a fault, is along the same trend line. The highest readings were found in the eastern portion of the anomalous zone where it was tested with two N-S trending costeans.

Fig. 7 shows the magnetic signature described N-S through the contact point in Costean 1. The porphyry is about 16 metres wide over this section.

III SELF-POTENTIAL SURVEY

This was conducted over the three lines 25S,00,25N which covered the zone of magnetic interest.

The trend results and profiles have been plotted in (transparency) Plan No. G.A.M.S. 1.

For the areas of negative interest, two high points have been found at 25S-200W (-48) and 00-25W. (-43mV); with the trends running North-Easterly towards the tunnel.

These trends indicate that there may be not one, but two separate prophyry dyke formations involved; with the one proven in the costeans having a north-easterly trend of mineralized contacts. The other runs back into this from the Livingston Shaft.

Hence, some more prospecting may be done about 50 metres East of the Livingston Shaft:

Costean (3) Centred on 20S-195W and running through 25S-200W

Costean (4) Starting at 50S-145W and continuing to 00-125W.

If enough outcrops can be found, structural mapping is also recommended.

IV LABORATORY RESULTS.

The mineralized tunnel dyke rocks were tested and shown to contain no gold; only pyrite. Traces of barium and titanium have been found in the mudstone close to the contact; at the face of the tunnel. The mudstones in Costean 1 (plan No. GAMS 1) were analysed to consistently contain 0.63% Titanium but the Barium content increased from 0.08% over 10 metres to 0.13% towards the contact with the porphyry. It is interesting to note that the mineral sphene which contains titanium ($Ca \cdot Ti \cdot O(SiO_4)$) occurs in the porphyry. The baked-red altered contact rock on the Eastern wall of the costean contained 0.4 g/tonne and 0.2 g/tonne on the Western wall, of gold.

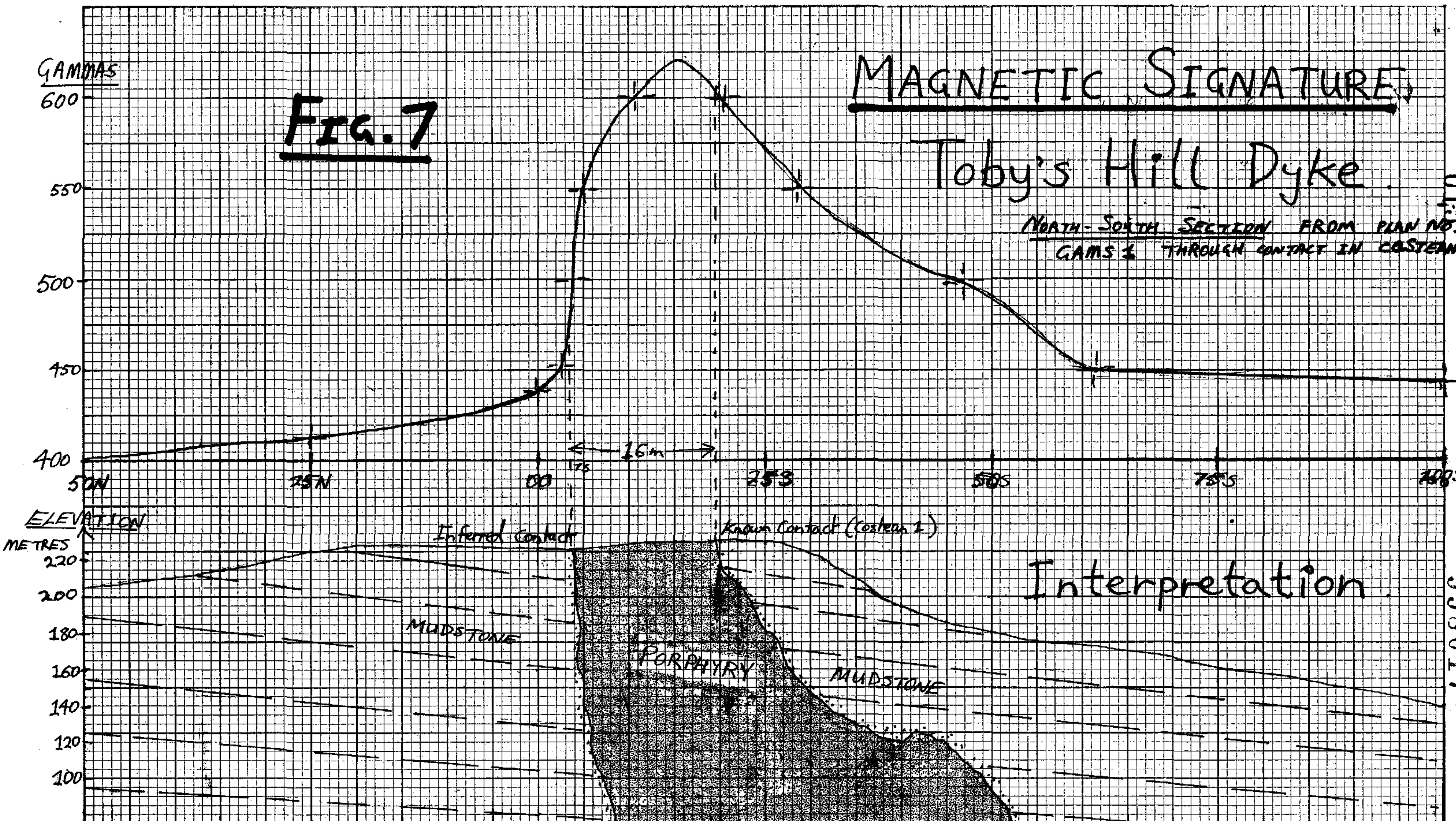
FIG. 7
MAGNETIC SIGNATURE
Toby's Hill Dyke
NORTH-SOUTH SECTION FROM PLAN NO. GAMS 1 THROUGH CONTACT IN COSTEAN 1
GAMMAS
600
550
500
450
400
50N
25N
00
25S
50S
75S
100S
16m
ELEVATION METRES
220
200
180
160
140
120
100
Inferred Contact
Known Contact (Costean 1)
MUDSTONE
PORPHYRY
MUDSTONE
Interpretation

015

998017

(5)

(16)

An unusually bright-orange soil was observed S-W of the livingston Shaft (Location (5) Fig. 6). This test sample was positive result for a soil sample and warrants further investigation. (analysed to contain 0.1 p.p.m. Au).

8. SELECTED MAGNETOMETER TRAVERSES.

A. MT. MARY: This was a detailed traverse over one kilometer long following the E-W trending ridge. Several of the local anomalies found coincided with the locations of mine diggings. There is a regional magnetic high over this area, (Leaman & Nagvi, 1967 - see Fig. 4) and so background values are higher than at Toby's Hill. The results of the first portion of this traverse along a section (see A.B. Fig. 8) through the Mt. Mary Mine are plotted in Fig. 9. This work shows that the various dykes can be located all right but we may have to choose more than one background value for each grid surveys in this area. An extensive long, narrow grid is planned for this old mining area in 1981.

B. LYMINGTON - BLACK JACK SPUR:

A local anomaly has been found on the Black Jack Spur bush-topped hill area, South of Mt Winsor. This is thought to be associated with a massive dyke body contact around some of the minor old workings on the Westerly or Wheatley's Bay side of the ridge. Further, there is an outcrop for opalised laterite - exceptional for this region - adjacent to the anomalous area. This iron - oxide is not itseld mineralized. A survey grid, of the Toby's Hill Scale, is being established on the Black Jack Spur. It is hoped that the detailed shape of the anomaly map produced will provide useful information here reflecting structural trends for mineralization. There is quite a lot of surface hill - scree covering the slope.

- LYMINGTON CENTRAL

It is interesting to note that the quartz reef in Thureau's "Report on the Gold deposits at, and in the vicinity of, Lymington" has now been located. This reef occurs in the Permian sediments and is exceptional since apparently it is not associated with any intrusives. It is located on a small bush block on the Western side of the Lymington to Wattle-Grove-Road section, below the Fosters rivulet bridge.

Thureau (1881) states:

"a defined vein of glassy, flinty, whitish, and moderately mineralized quartz has been found embedded in jointy sandstone. This vein consists of a series of semi-detached blocks of stone underlaying West, with a strike of N12°E, and about 2 feet 6 inches in width".

9. PORT CYGNET MARINE SAMPLING

As a follow-up to both our own marine magnetic traverse work (8 inter-connecting traverses) as well as the work of D.L. Leaman (1977); a trial sampling program was commenced in December.

The aim is to provide information about the source of the very abrupt anomalous feature just off-shore at Crooked Tree Point. (Fig. 5). GAMS extendable alluvial sampling equipment was operated off the side of a moored fishing boat.

Leaman (1977) refers to this anomaly which he calls Anomaly 2:

"The feature is very abrupt and it must be concluded that the anonalous source lies on the bay floor or close to it. No information is available relating to the source of this anomaly. On shore at Crooked Tree Point Lower Permian rocks are intensely metamorphosed and intruded by syenite dyke rocks and the anomaly rapidly diminishes eastward. A source simialar to Anomaly 1 (Regatta Point) seems an unreasonable possibility due to scale and it is unlikely that syenitic or Permian rocks could combine to produce the effect although metamorphism in the region is extreme".

Eleven samples at 25 metre spacings, were extracted from the sea floor in water depths varying from 4 to 7.5m. most samples were taken about one metre below the surface of sea floor sediment. They were mostly a clear blue-green clay, sometimes with black spots. This apparently does not compare with the "Lucaston Sand" Permian soils described by Stephens, (1935), which have a grey to yellow mottled B horizon.

Stephens, C.G. 1935: "The Apple-growing soils of Tasmania". Bull. Com. Sci. In. Res. Org., 92,1-31. Furthermore the dolerite soils of the region usually have a brownish colour.

Finally, since traces of gold, although only minute, were detected in four out of eleven samples; further work needs to be done to determine properly the origin of this anomaly. Also Sample 4 was shown to carry higher base metal values and sample 5 & 7 are high in manganese. It is interesting to note that a manganiferous garnet, previously referred to as "Johnstonotite" (Ford, reference No. 6), occurs on the Western bank of Port Cygnet.

I wonder if the Mines Department would be prepared to drill this interesting anomaly off Crooked Tree Point, Port Cygnet; to settle the question as to its origin?

10. CONCLUSION.

The continuation of academic studies, in the already well - studied Cygnet Area, will be supportive to the problems faced by an exploration geologist in this area.

However, this area has not yet been well studied from a modern economic geological viewpoint.

The activities of the Golden Apple Mining Syndicate for 1981 will now be directed towards a thorough survey of the Mt. Mary Goldfield and other points of interest on the Cygnet Peninsula.

J R Wall.
17/2/81.

(19)

APPENDIX A

LITERATURE RESEARCH

List of References on G.A.M.S. Files:

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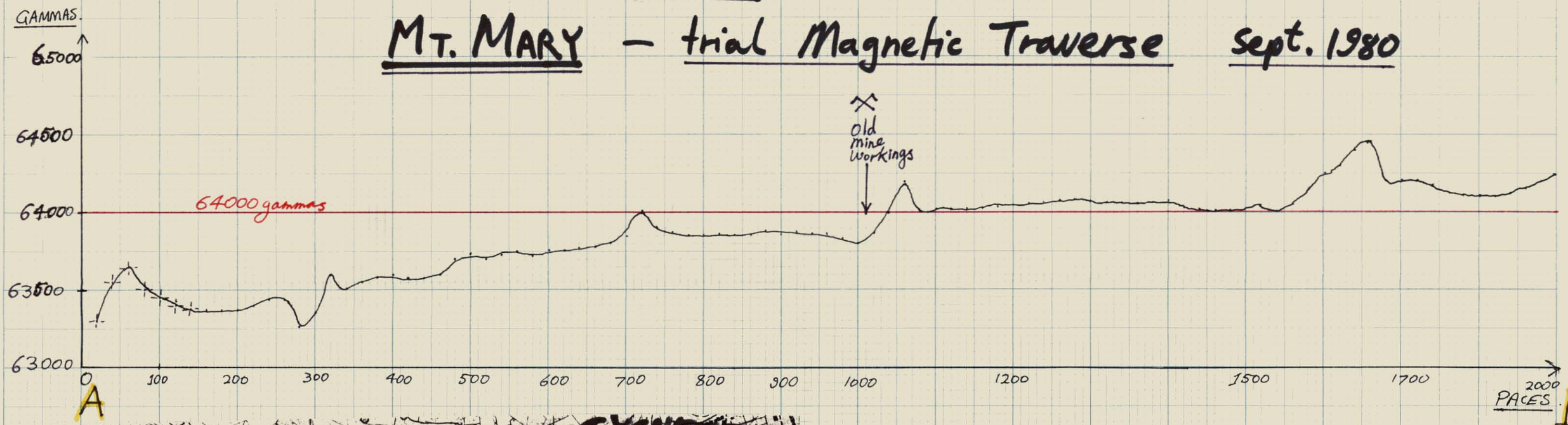
APPENDIX B

- COLLECTION OF LABORATORY RESULTS: pps. 21-25 :

FIG. 9.

MT. MARY — trial Magnetic Traverse Sept. 1980



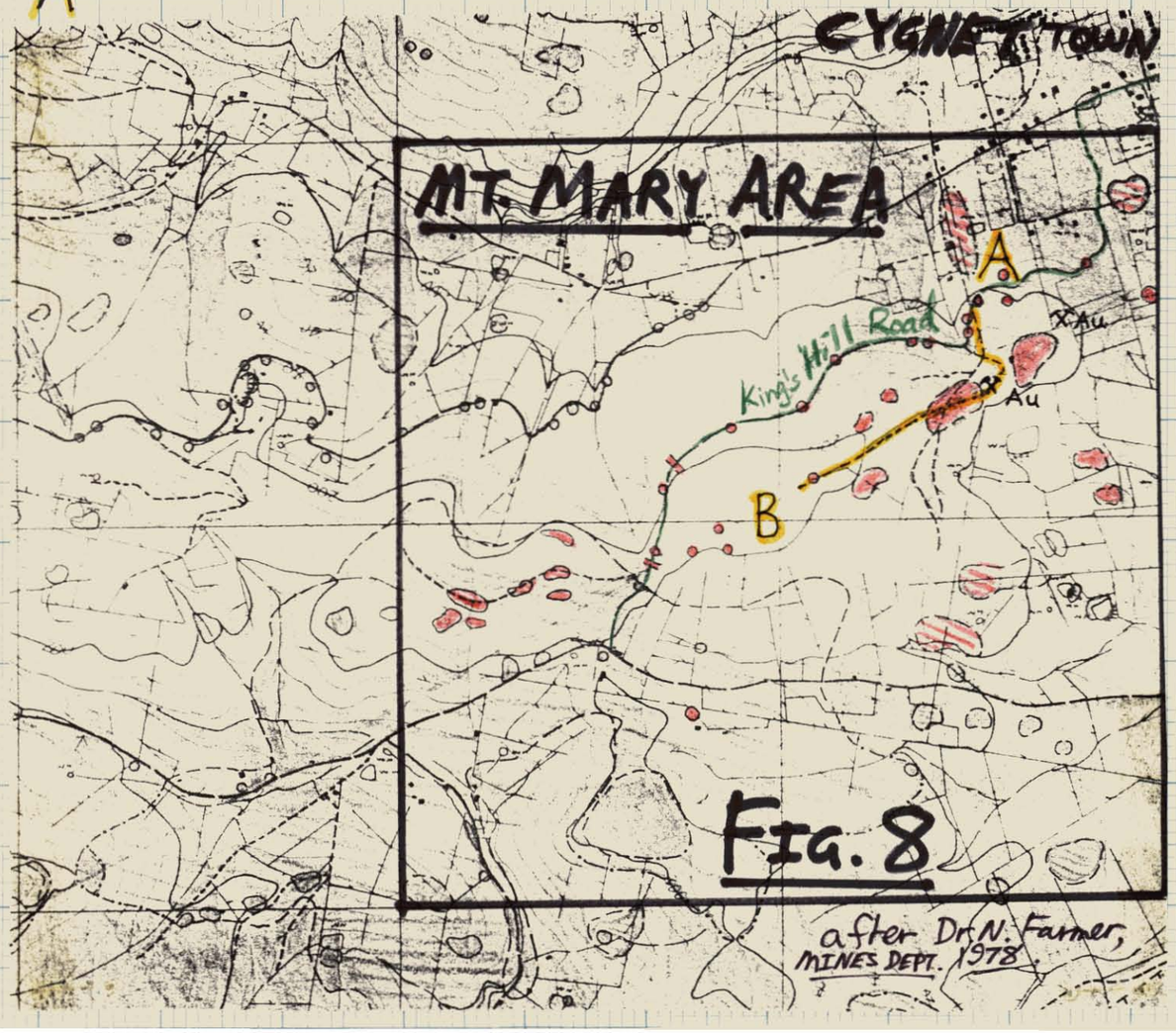


FIG. 8

after Dr. N. Farmer, MINES DEPT. 1978.

022 998024

amdel

APPENDIX "B" LAB Results.

Crooked Tree Point, Sub-marine orientation Survey. PORT CYGNET, Dec. 1980.

(21)

Analysis code C1 Report AC 3135/81 Page 1

NATA Certificate Results in ppm

Sample	Cu	Pb	Zn	Mn
001	10	20	34	45
002	10	15	38	35
003	20	10	46	50
004	38	20	50	100
005	26	15	55	140
006	28	15	48	75
007	8	15	22	170
008	24	20	40	55
009	22	15	36	75
010	20	20	48	75
011	22	10	48	80
Detn limit	(2)	(5)	(2)	(5)

Page 2.

FORM 6 JOB 3135/81 AMDEL ANALYTICAL SERVICE BATCH NO. 1 FINAL

Results in ppm unless otherwise stated

TT	Sample No.		Au						
1	001		<0.02						
2	002		<0.02						
3	003		<0.02						
4	004		0.02						
5	STD								
6	005		0.02						
7	006		<0.02						
8	007 x		<0.02						
9	008		<0.02						
10	009		0.02						
11	010		0.02						
12	011		<0.02						
13	x								
14	Blank								
15									
16									
17	CODE		C3/2						
18									
19									
20									

023 998025

Grab Samples — Black Jack Spur, Lymington

Trace Element Studies — Toby's Hill

DEPARTMENT OF MINES, TASMANIA

Laboratory, 287 Wellington Street
Launceston, Tas. 7250

10th November 1980

CERTIFICATE OF ANALYSIS

To Mr. J. R. Wall, Golden Apple Mining Syd.
P.O. Box 157, Glenorchy ~~Tas~~ 7010

The sample of Specimens *received from* you *on the* 23rd Oct'80 *and stated to be from* Lymington West & Toby's Hill E.L. 8/80 *~~has~~ have been examined, with the following results:—*

	Registered Number	Description	Au g/tonne	Cu %
23/11/80	802462	Lymington West No 1 "Skarn"	<0.3	0.02
	802463	" " No. 2 Red. Limonite	2.2	
	802464	Toby's Hill South Adit Mudstone Qualitative examination shows the presence of some Titanium & Barium	<0.3	

Analyses by. [signatures]

Fee Paid

21392

[signature]
Chief Chemist and Metallurgist

024 998026 (23)

Checking type Rock mineralization in tunnels:
No 1. Toby's Hill.
No. 3. Below Phillip Coad's House N-W. Lymington.

DEPARTMENT OF MINES TASMANIA

Laboratory, 287 Wellington Street
Launceston, Tas. 7250

CERTIFICATE OF ANALYSIS

8th August 1980

To Mr. J. Wall
P.O. Box 157 Glenorchy 7010

The sample of Specimens *received from* you *on the* 21st July 1980 *and stated to be from* N.W. Cygnet & S.W. Cygnet *has/have been examined, with the following results:—*

	Registered Number	Description	Au g/t	Ag g/t
5.8.80	801734	Hard F.G. Dyke Rock No. 1 N.W. Cygnet	<0.3	<2
	801735	Some Clay with quartz from fault zone No 2. S.W. Cygnet	<0.3	
	801736	Hard F.G. Dyke Rock No. 3 S.W. Cygnet	<0.3	

Analyses by J. L. Lethbridge

Fee Paid.

21392

Chief Chemist and Metallurgist

025 998027

Costean 1 – Toby's Hill. (24)
Samples from baked contact between Bundella Mustone and Massive Sanidine Porphyry Formation

Laboratory, 287 Wellington Street
Launceston, Tas. 7250

CERTIFICATE OF ANALYSIS

To Golden Apple Mining Syn,
P.O. Box 157, Glenorchy

The sample of Chip *received*
from you *on the* 1st Dec'80
and stated to be from Toby's Hill, Cygnet. ~~*has*~~ *have been*
examined, with the following results:—

	Registered Number	Description	Au g/tonne
0.12.80	802871	Toby's Hill C 1 E	0.4
	802872	" " C 1 W	0.2

Analyses by J.K.

Fee Paid

Other assay results will follow.

21392

Chief Chemist and Metallurgist

026

COSTEAN 1. TOBY'S HILL.
Detailed rock-chip sampling of mudstone. Increase of Barium found towards the contact.

DEPARTMENT OF MINES, TASMANIA

Laboratory, 287 Wellington Street
Launceston, Tas. 7250

CERTIFICATE OF ANALYSIS

12th January 1981

To Golden Apple Mining Syn,
P.O. Box 157 Glenorchy

The sample of Chip *received from* you *on the* 1st Dec'80 *and stated to be from* Toby's Hill Cygnet ~~*has*~~ *have been examined, with the following results:—*

	Registered Number	Description	Ti%	Ba%
12.1.81	802873	A5	0.63	0.08
	802874	A10	0.63	0.13

Analyses by [signature]

Fee Paid.

21392

[signature]
Chief Chemist and Metallurgist