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MELBOURNE OFFICE

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GROUND MAGNETIC SURVEY

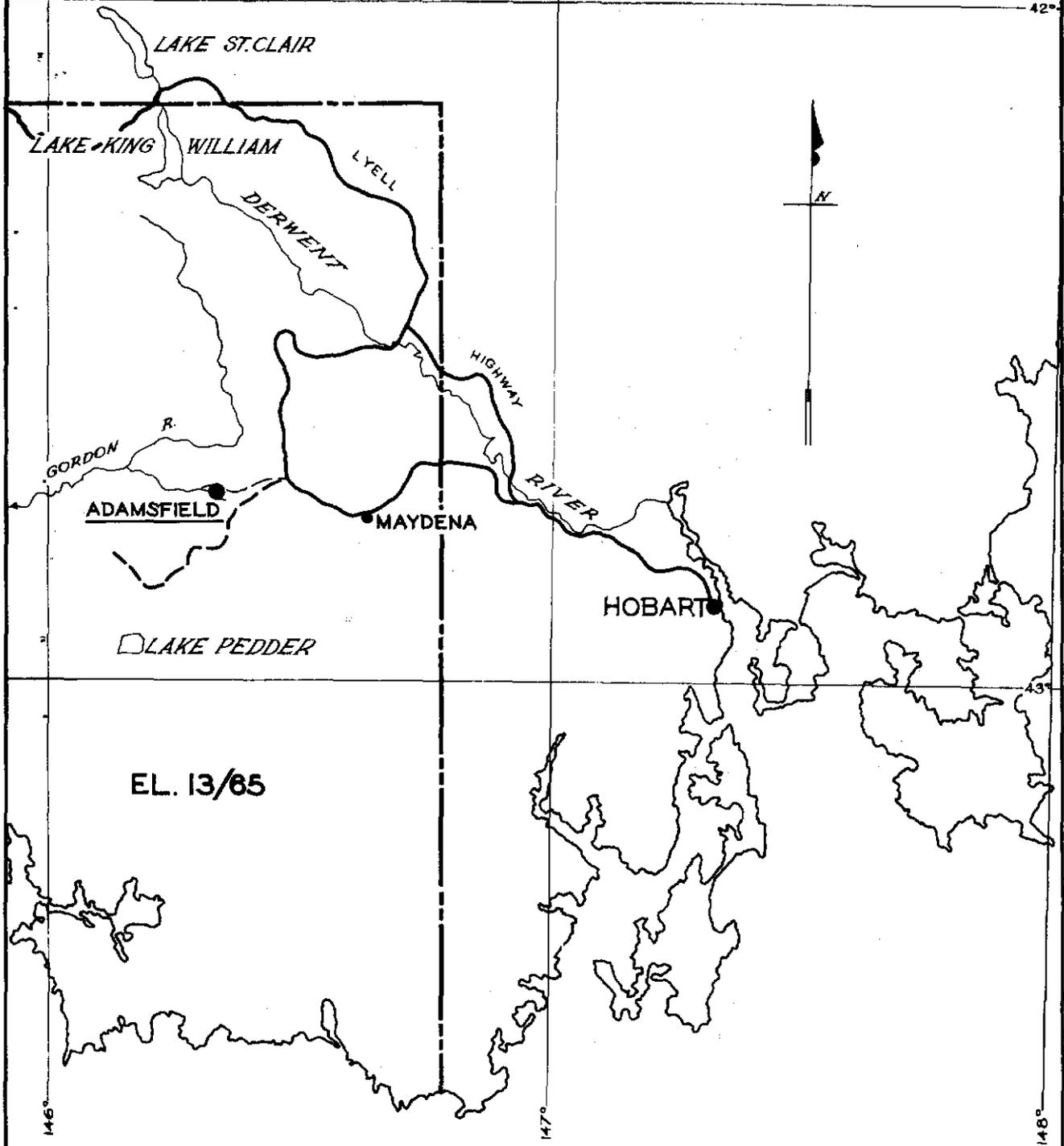
ADAMSFIELD, TAS.

By

C. P. Taylor

Melbourne

March, 1966.



LOCALITY MAP
ADAMSFIELD - TAS.

SCALE: 1 INCH = 16 MILES

5 cm

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INTRODUCTION

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Adamsfield, a ghost town 52 miles from Hobart and 20 miles by road from Maydena, is in the central part of our EL 13/65 covering south-west Tasmania.

Rich deposits of osmiridium have been mined at Adamsfield and metal to the value of over \$2,000,000 has been extracted since the deposits were discovered in 1925. Today production is confined to small sluicing plant operated by J. Bibby. Nye (1929) has described the deposits in detail.

The osmiridium is derived from an ultrabasic intrusion, now largely converted to serpentinite. Ultrabasic rocks outcrop east of Adamsfield as shown on Fig.2 and in more detail on map G1474 prepared by Gebert.

An aeromagnetic survey flown by Adastral Hunting for Mt. Lyell - Electrolytic Zinc - Exploration Co. detected a 1600 gamma anomaly over the ultrabasic belt.

The main purpose of the ground magnetic survey was to correlate the anomaly with the known surface geology. Close attention was paid to that part of the ultrabasic belt where Nye obtained evidence of millerite (NiS). The possibility of primary nickel sulphides was examined.

Eight ground magnetic traverses totalling 9.5 miles and two infill traverses totalling 0.75 miles were made during the period from 17th January to 14th February 1966 by C.P. Taylor assisted by K. Prendergast and vacation students C. Roberts and C. Arndt. The location of the traverses is shown on Fig. 2.

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Traverses were cleared by a D8 bulldozer on directions determined by compass and aerial photographs. Stations were at 100 feet intervals.

The Sharpe fluxgate magnetometer Model MPI Serial No. 408104 was used on the survey.

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RESULTS.

Magnetic profiles along all traverses are shown on Fig.3. Geological sections have been taken mainly from map G 1474 prepared by Gehert.

The observed magnetic field over the ultrabasics is usually higher than over the adjacent sandstones and conglomerates. It is irregular and anomalies at the edges of the serpentinite and over peridotite are common.

These variations are precisely those to be expected on theory. The ultrabasics are more magnetic than the surrounding sedimentary rocks because they contain more magnetite and possibly pyrrhotite. These magnetic minerals are unevenly distributed throughout the ultrabasics causing the observed irregularities on the profiles. At the boundary between two rocks of widely differing susceptibilities, such as the sediments and ultrabasics, a magnetic anomaly is expected. Pyroxenite usually contains more magnetite than serpentinite and this is the reason anomalies were often observed over this rock. On some profiles anomalies did not correspond exactly with the serpentinite contact or pyroxenite, suggesting that the geological section is incorrect.

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CONCLUSIONS AND RECOMMENDATION

The anomaly at Adamsfield detected by the L.E.E. aeromagnetic survey is caused by ultrabasic rocks. It is an oversimplification of the true magnetic field due to lack of resolving power and variation of flight height over the rugged terrain.

The ground magnetic survey defined the anomaly more precisely and allowed correlation with the known geology.

The observed anomalies could all be explained by the magnetic properties of the rock types in the area; no mineralized zone could be recognised from the results or indicated by the geology. Unless additional information can be obtained to the contrary it can be assumed that Nye's statement that the millerite is secondary is correct.

From the results of the ground magnetic survey, excluding possible investigations for osmiridium, no further work at Adamsfield is recommended.

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REFERENCES

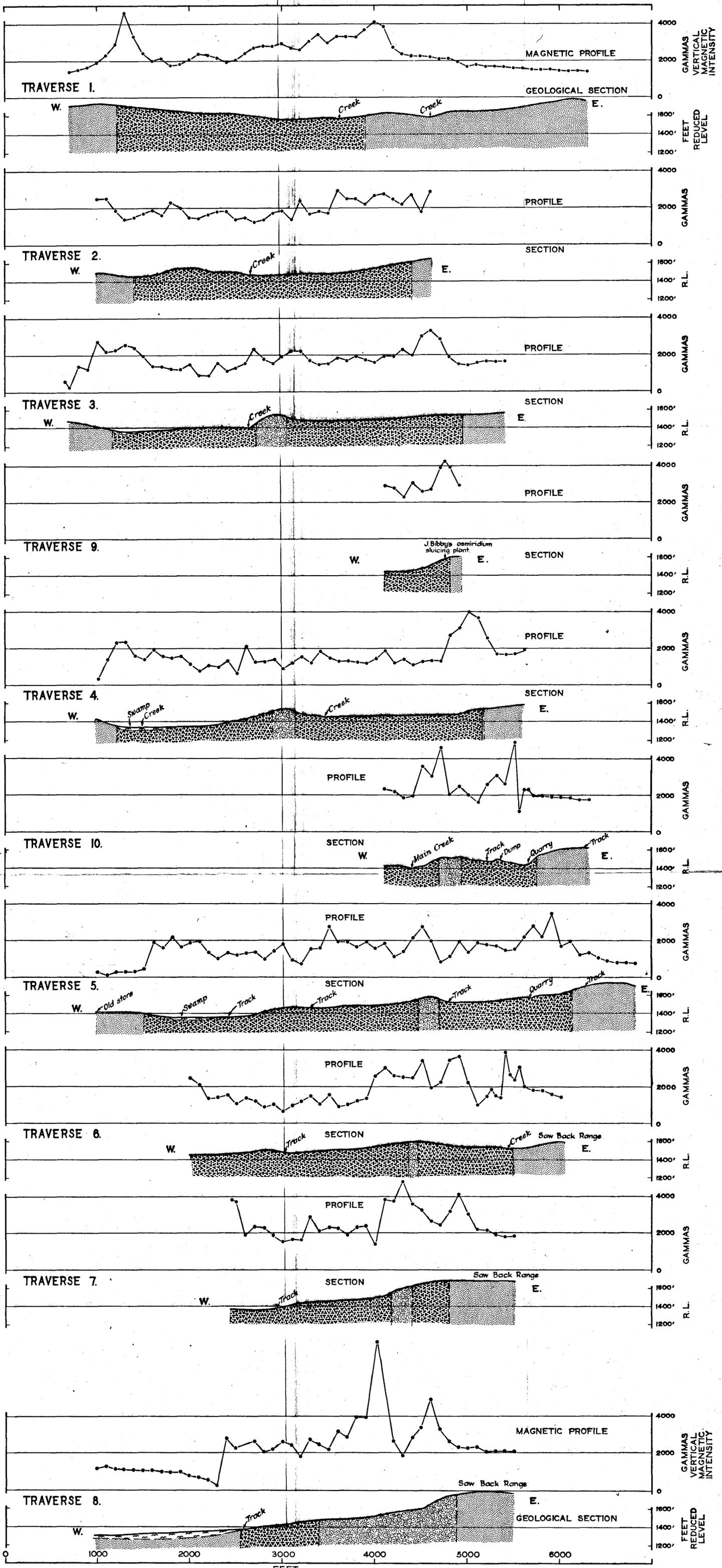
NYE, P.B. (1929)

"The Osmiridium Deposits of the
Adamsfield District". Geol. Survey
Bull. No.39. Tasmanian Department
of Mines.

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*C.P. Taylor*C.P. Taylor.

Melbourne
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CPT:PEC



- LEGEND**
- Alluvium.
 - Sedimentary rocks.
 - Pyroxenite.
 - Serpentinite.

MAGNETIC PROFILES - TRAVERSES 1-10
 GROUND MAGNETIC SURVEY
 ADAMSFIELD, TASMANIA.

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 5 cm