

RIO TINTO AUSTRALIAN EXPLORATION PTY LTD
Melbourne, Australia

GEOPHYSICAL INVESTIGATIONS

- PATTERSON HILL

by
N G Mattocks

REPORT ON GEOCHEMICAL
INVESTIGATION – PATTERSON HILL

by
E Muceniekas

March 1960

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PART IGEOPHYSICAL INVESTIGATIONS - PATTERSON HILL

by

N. G. MattocksC O N T E N T S

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P L A N S

Plan No. T.650	Locality Plan of Geophysical Grid.	1" = 20 chains
T. 651	Self Potential Survey	1" = 200'
T. 652	Magnetic Profiles and Contours.	1" = 200'

PART IIREPORT ON GEOCHEMICAL INVESTIGATION - PATTERSON HILL

by

E. MuceniekasP L A N S

Plan No. T 669	Geochemical results	1" = 400'
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GEOPHYSICAL INVESTIGATIONS - PATTERSON HILL

by

N.G. Mattocks

Interest first centred on this area three miles W.N.W. of Rosebery (see locality Plan T.650) when a number of helicopter-borne E.M. anomalies were recorded there early in 1957. During relocation surveying by S.P. a strong anomaly extending over 2000 feet of strike length was outlined, but at the time no further work was undertaken.

Geology

The anomalous zone borders a band of ultrabasics on the east limb of the Huskisson Syncline. It occupies a similar position to Renison Bell which is near the ultrabasics on the west of the syncline, where dips are generally 10 to 30 degrees to the N.E. The tin at Renison Bell is associated with pyrite and massive pyrrhotite and occurs both as flat-lying, sill-like bodies and narrow, steeply-dipping fissure lodes.

Survey

The geological setting at Patterson Hill suggested that if mineralization were present it would be of the Renison Bell type which, surveys by I.G.E.S. and the B.M.R. showed, could be detected by a combination of S.P. and magnetometer. These were the methods employed in this survey. Geophysical indications at Renison Bell are usually no greater than about 400 feet long and normally traverses at 200 foot intervals with 50 foot spacing would be required. Since the S.P. anomaly at Patterson Hill was known to occur over a considerable distance, the traverses were spaced at 400 foot intervals and a grid was prepared with a base-line bearing of 330 degrees true.

ResultsSelf Potential (Plan T.651)

The S.P. anomaly is strong, continuous and unclosed to the north with peaks of approximately 500 millivolts on C.L. and 12N. The lack of magnetic activity over the anomaly, as well as the strike length appearing too great, discouraged tracing it any further northwards. An outcrop of black slate, which could be graphitic, was observed in a creek at 5S/BL. The S.P. anomaly is attributed to this slate horizon which is along strike from a slate formation known to contain 10% graphite.

Magnetic (Plan T.652)

Considering at Renison Bell 4000 gamma anomalies are not uncommon, the magnetics are featureless. The 100 gamma anomaly is 16N/150W although genuine, is insignificant, especially when it is seen to occur on a line of weaker S.P. expression.

Similar remarks apply to the small anomaly at 8S/250W. Approaching the ultrabasic contact to the west, the magnetics increase considerably. Outcrop there was found to contain magnetite which is commonly associated with the ultrabasics.

Geochemical

No significant field geochemical anomalies were reported by Geochemist E. Muceniekas.

Conclusion

The area has been adequately tested, results being negative, and no further work is necessary.

8th March, 1960.

N.G. Mattocks,
Geophysicist.



Pieman River

AMG 377600mE, 5374250mN

AMG 376600mE, 5372600mN



ROSEBERY

5 cm

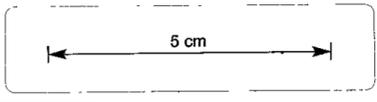
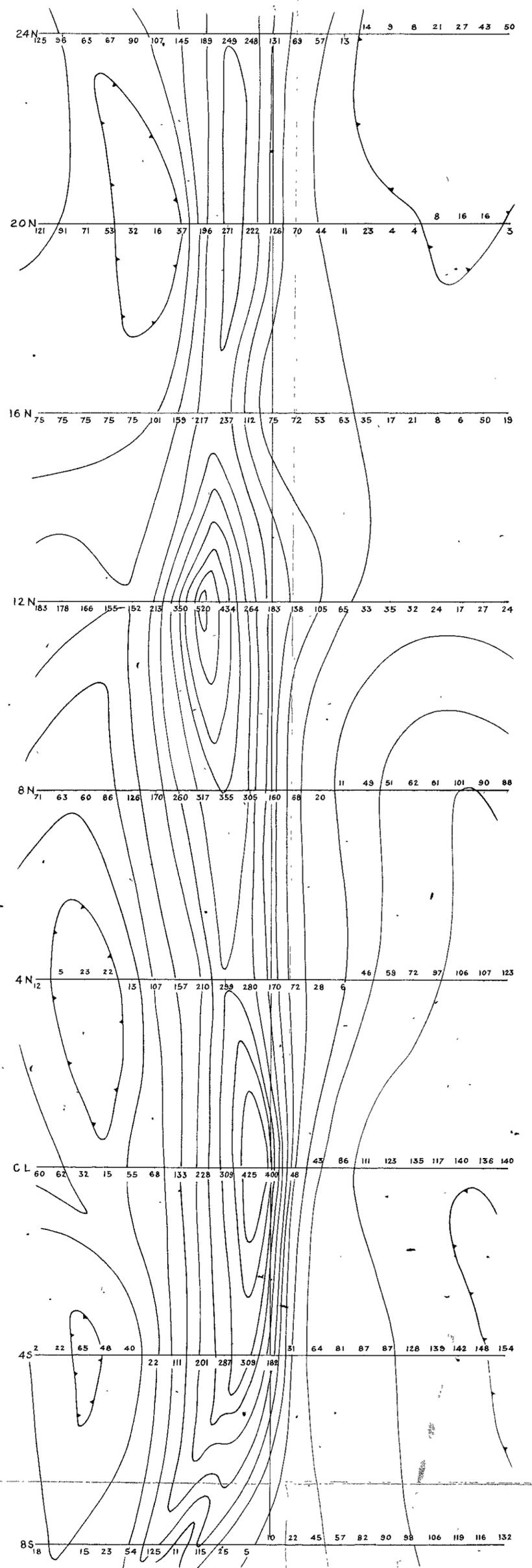
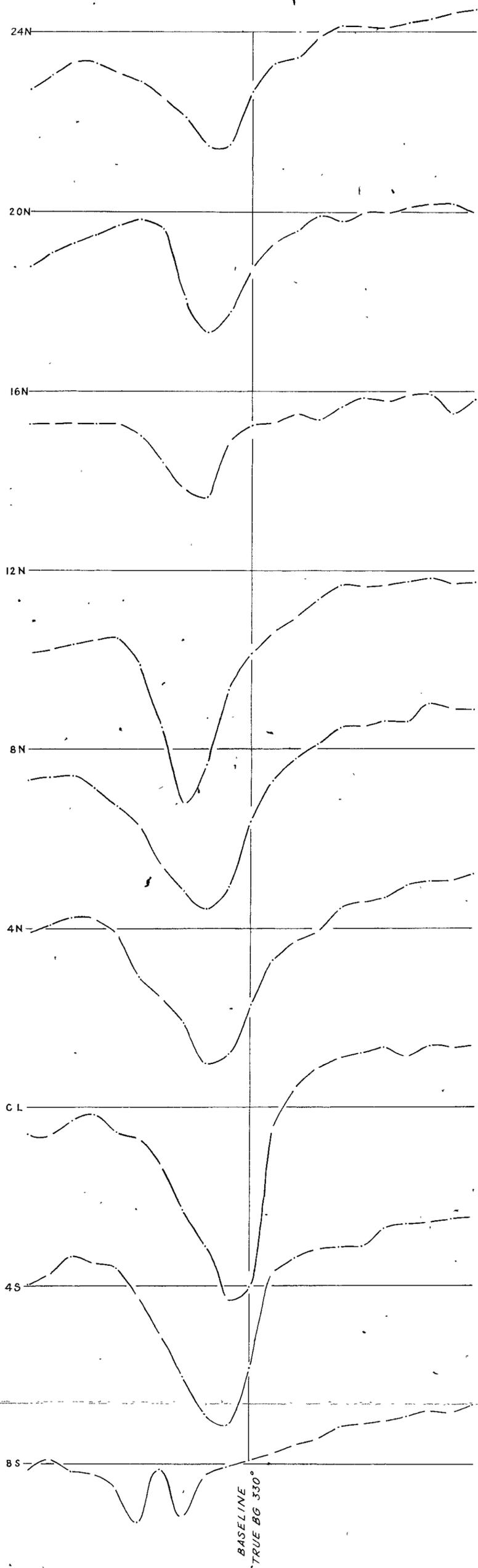
AMG REFERENCE POINTS ADDED

RIO TINTO AUSTRALIAN EXPLORATION PTY LIMITED

PATTERSON HILL
SHOWING
LOCATION OF GRID

SCALE - 20 CHNS TO 1 INCH

T650



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**PATTERSON HILL
SELF POTENTIAL SURVEY**

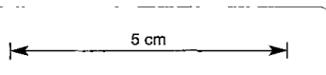
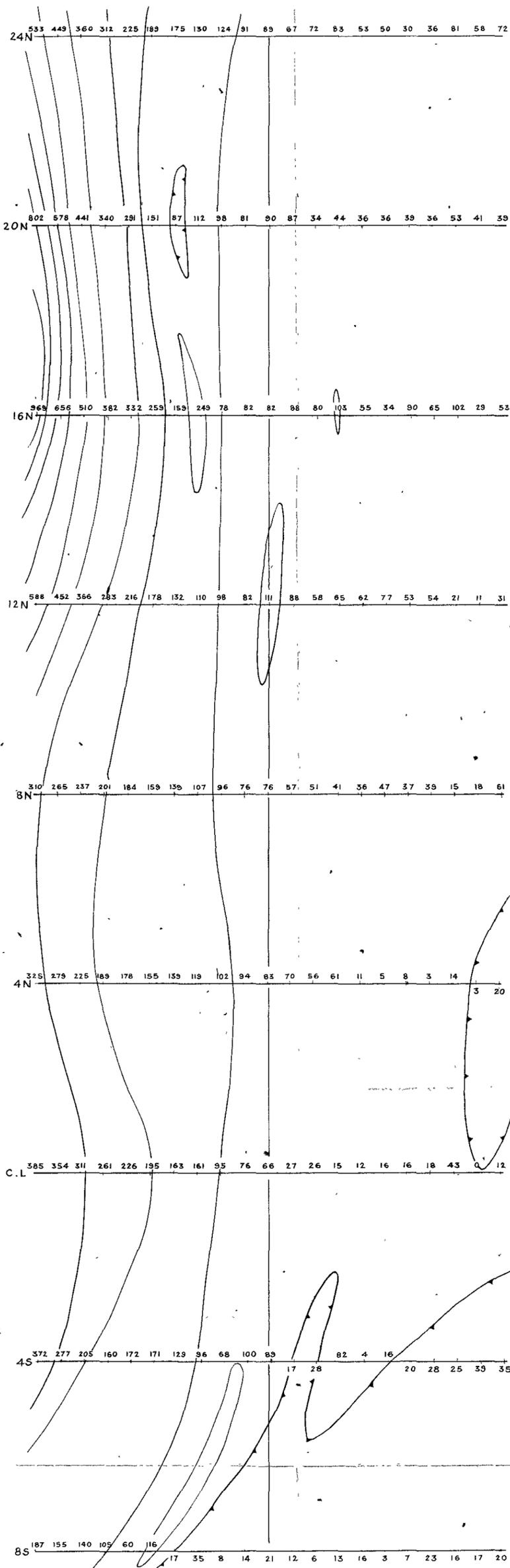
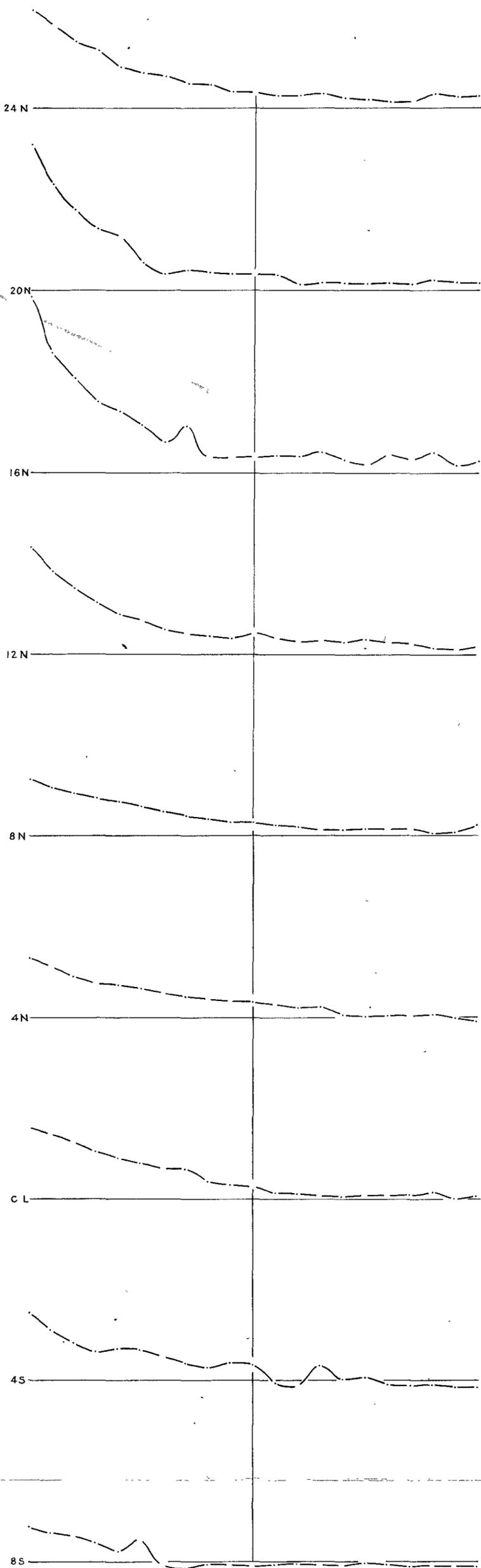
N W TASMANIA

SCALE: 200 FT TO 1 INCH

VERT 1" = 200 Millivolts

CONTOUR INTERVAL = 50 Millivolts

T651



RIO TINTO AUSTRALIAN EXPLORATION PTY LIMITED

PATTERSON HILL MAGNETIC PROFILES & CONTOURS

SCALE: 200 FT TO 1 INCH
VERT 1" = 500 ft
CONTOUR INTERVAL = 100 ft

T652

REPORT ON GEOCHEMICAL INVESTIGATION - PATTERSON HILL

by

E. Muceniekas

The Patterson Hill prospect is located approximately three miles from Rosebery (see location plan T.650) in a W.N.W. direction and became of interest in 1956 when a number of airborne E.M. anomalies were recorded. The area of interest is covered by yellow brown clays, but an outcrop of black graphitic slate was observed in a creek 5S/BL and outcrops of serpentine occur on 24N/4-5W.

A previous geochemical reconnaissance of the area was undertaken by A.B. Clark (1957) without revealing any positive results.

Survey

(1) The field geochemical testing was carried out on the grid 3,200 feet in length with traverses at 400 feet intervals and stations spaced at 100 feet.

(2) Soil samples were taken at each station and tested at the Zeehan Office for Zn, Pb, Cu using hot HNO₃ extraction. Zinc and lead were determined by dithizone in carbon tetrachloride and copper - 2-2 diquinelyl.

Results

The field dithizone tests have not revealed any significant mineralization. The silt in two creeks (5S/BL. and 20N/2W) contains some zinc which is precipitated in the manganese dioxide.

The analysis of the HNO₃ extract has revealed nothing of importance. The zinc content in the soil is from 10 to 100 ppm which is regarded as a background. Lead was recorded to 30 ppm and copper to 15 ppm. The silt at 5S/BL contains 300 ppm in zinc and at 20N/2W - 100 ppm zinc.

For orientation and check purposes soil samples from lines CL and 12W (the lines of greatest S.P. response) will be forwarded to the S.A. Mines Department for spectro analysis. Tests for tin and nickel will be included in this work.

Conclusion

The area has been sufficiently tested, and pending spectro analysis results, no further work is recommended.

13th April, 1960.E. Muceniekas,
Geochemist.

