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T A S M I N E X N. L.

EXPLORATION LICENCE 9/72

Dial Range Area.

PROSPECTING REPORT

OCTOBER, 1972.

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Fig (i) Dial Range area showing location of old workings.

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1. ABSTRACT

On the 22nd August, 1972, an exploration licence, E.L. 9/72, of 40 square miles and covering the Dial Range area in North-Western Tasmania was issued to Tasminex N.L.

During the months of August, September and October the licence has been actively prospected with a view to outlining an area, or areas, for closer investigation. This work consisted of an examination and the systematic sampling of old workings in the area. Other areas within the licence were also examined.

Prospecting equipment used during the survey included an MF-2 Fluxgate magnetometer, a Scintrex B.G.S. - 1S scintillometer and a Neda - 926 shortwave ultra-violet lamp. Where possible shafts and addits were entered.

2. INTRODUCTION

The Dial Ranges form a prominent physiographic feature inland from the town of Penguin. Mt. Montgomery (1547'), Mt. Dial, Mt. Gnomon (1300') and Mt. Duncan (2000') are the highest mountains in the Ranges and are visible from many points along the north-west coast of Tasmania.

Apart from a few scattered farms the area is largely undeveloped. The steep slopes are heavily timbered, however, numerous logging tracks have made the area quite accessible. These tracks link up with roads leading in from Penguin, Riana and North Motton.

Mining has been carried out in the area in the past and silver-lead, the first deposit to be worked in Tasmania, was mined on the foreshore east of Penguin in 1870. The company, The Penguin Silver-Lead Mining Company, ceased operations, however, in 1872. Between about 1870 and 1910 prospecting was carried out in the area behind Penguin and numerous exploratory shafts and addits were put in. More recently the Fernedene-Iron Cliffs area has produced small tonnages of iron ore following their initial discovery in 1884. Other iron outcrops in the Dial Range area have produced small tonnages, mainly for testing purposes. Some manganese was mined at a prospect known as 'Blacks manganese', however production was small and the prospect was never a going concern.

3. GENERAL GEOLOGY OF THE DIAL RANGE AREA

The area consists mainly of Lower Paleozoic sedimentary and volcanic rocks unconformably overlying Precambrian sedimentary rocks of the Rocky Cape Group. To the east are the older Ulverstone Metamorphics and to the west rocks of the Burnie Series.

The Cambrian and Ordovician volcanic and sedimentary rocks were deposited in a trough, the Dial trough, and the sequence typifies this type of environment. Thick mudstone units are interbedded with conglomerates, cherts, breccias, spilites and other volcanic rocks. In the core of the trough is the oldest unit in the Dial Ranges, the Lobster Creek Volcanics, while the prominent peaks of the ranges are commonly the more resistant and younger, Ordovician, Duncan Conglomerate.

The rock units in the Dial Ranges have their lateral equivalents in other areas of Tasmania. The Cambrian rocks of the area have been equated with rocks of the same age in the Dundas area of Tasmania while the Ordovician rocks also have their lateral equivalents. The Duncan conglomerate for instance, has been

DIAL RANGE AREAGEOLOGICAL LEGEND

Quaternary	[	Qa	Aluviam and beach deposits
		 Qt	Chert and conglomerate talus
Cainozoic	[	Czs	Sand, gravel and clay
Tertiary	[	Ts	Sand, gravel and sub-basaltic quartzite
		 Tb	Igneous Basalt
Devonian	[	Dd	Dolerite
Ordovician	[	Odm	Moina Sandstone
		 Odd	Duncan Conglomerate
		 Odg	Gnomon Mudstone
Cambrian	[	Er	Radfords Creek Mudstone
		 es	Motton Spilite
		 eb	Barringtons Chert
		 e	Kerrison Volcanics
		 e	Cateena Mudstone
		 ecb	Isandula Road Conglomerate
		 e1	Lobster Creek Volcanics
		 e	Undifferentiated
Precambrian	[ e	Sandstone and Mudstone

FIGURE 1

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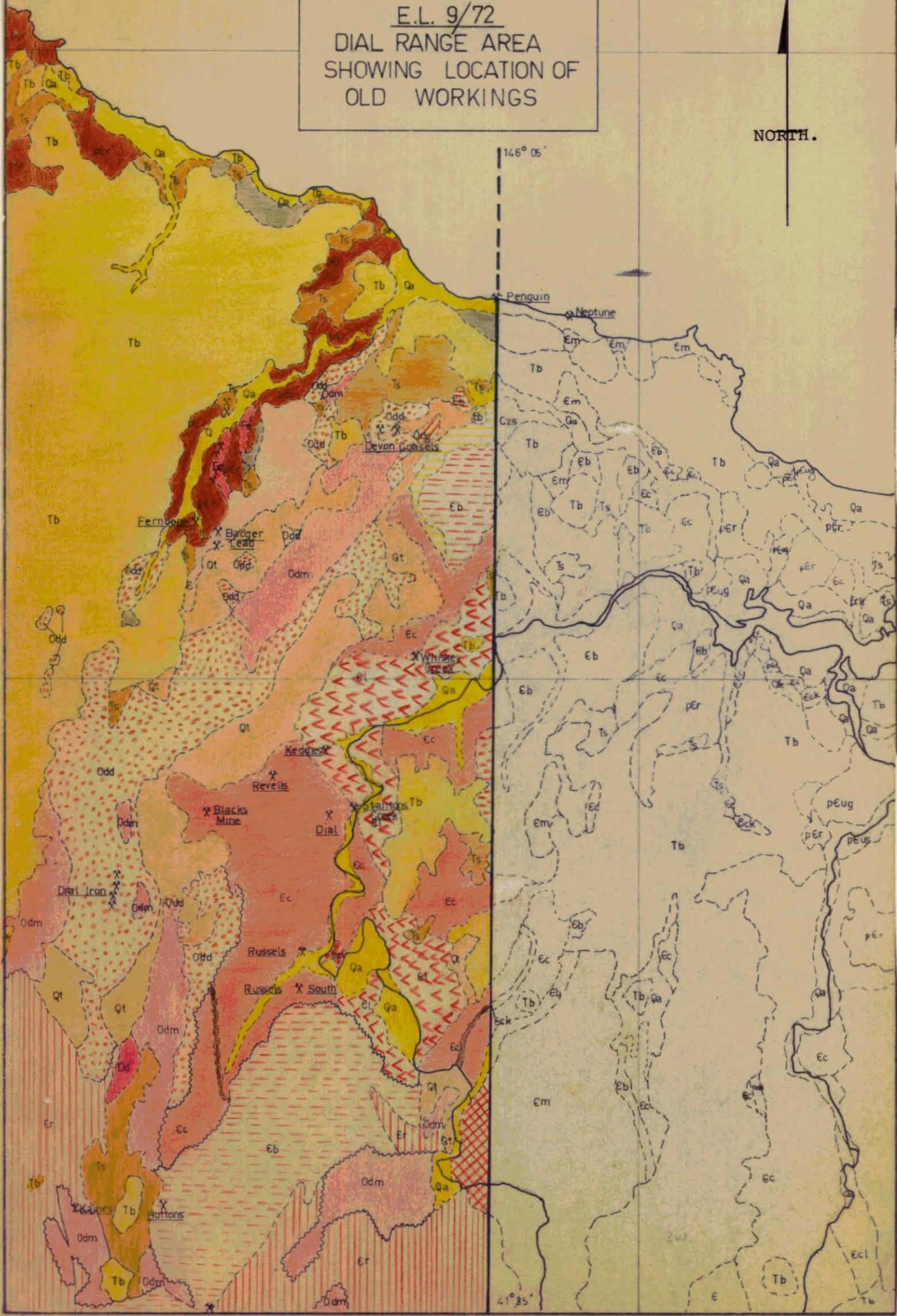
SCALE: 1 mile to 1 inch

TASMINEX N.L.

E.L. 9/72
DIAL RANGE AREA
SHOWING LOCATION OF
OLD WORKINGS

5 cm

NORTH.



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equated to the Owen conglomerate which outcrops extensively in other areas.

4. THE OLD WORKINGS AND OTHER LOCALITIES PROSPECTED IN THE DIAL RANGE AREA

The following is a list of the old workings and localities investigated during the current programme.

(a) Penguin foreshore:

An area east of Penguin in the vicinity of the old Neptune and Penguin mines was prospected. This area has been the subject of numerous investigations and reports and the geology is well detailed in the Tasmanian Department of Mines, Geological Survey, Explanatory Report for the Devonport 1ml. : 1" sheet.*1 A brief history of the area is also outlined in this publication.

On inspection three gossans or zones of mineralization could be identified, one near the old Penguin mine and the other two near the old Neptune mine. Assays from these localities are recorded in Appendix (1)

The gossans were narrow (less than 1.0') and discontinuous. In two specimens, RNe 8 and 9, galena could be identified along with pyrite.

(b) Ferndena - Badger Lead

An inspection of this area revealed a number of tunnels and addits driven into rocks of Cambrian age. Copper, lead and zinc sulphides have been reported from the locality and approximately three tons of galena has been mined at the Badger prospect.

The area is heavily timbered and overgrown and the productive addit could not be found. Some detailed work, including diamond drilling, was carried out at this locality by the Tasmanian Department of Mines. Their investigations are summarized in the Technical Reports for 1960.*2

Assay results for samples taken from this locality are listed in the Appendix.

(c) Devon Consuls

A single addit has been driven along a quartz vein showing traces of copper mineralization at this locality. The addit extends for about 100 feet along a fault zone and is close to the Cambrian mudstone/Ordovician conglomerate contact.

(d) Whiskey Creek

An outcrop of dark mudstone at this locality contained both narrow vein and disseminated pyrite. The assay results are included in the Appendix.

(e) Keddies

At this locality an addit had been driven for 200 feet along a zone of massive pyrite. Traces of copper and tin had been reported from this area. The host rock appeared to be a tuffaceous rock associated with the top of the Lobster Creek Volcanics.

(f) Stantons Creek

A gossan rich in pyrite outcropped in Stantons Creek. The host rock again was tuffaceous and associated with the Lobster

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Creek volcanic succession of intermediate to acid rocks.

(g) Dial Mine-

A number of tunnels, shafts and addits were developed at this locality to work a zone of semi-massive to massive pyrite containing minor chalcopyrite.

(h) Revells

A single addit at this locality exposed a zone of semi-massive to massive pyrite. The host rock is tuffaceous and is thought to be associated with the Lobster Creek Volcanics. It is similar to other deposits in the general area.

(i) Blacks Mine

A manganese hematite outcrop occurred on the northern slopes of Mt. Duncan. The host rock is conglomerate. The area has been investigated in the past as a source of manganese, however there is little likelihood of this mineral being present in economic proportions. The outcrop is approximately 250' x 100' in area.

(j) Dial Iron

Conglomerate is again the host rock for a discontinuous series of hematite pods. The outcrops are small.

(k) Russells

A single addit at this locality had been driven for some 200 feet into Cambrian mudstone. A narrow vein of disseminated sulphides containing major pyrite and minor chalcopyrite was observed. The mineralized zone was approximately 1.0' wide.

(l) Russells South

A shaft at this locality had been sunk on an outcrop of hematite. The iron had a spongy appearance compared to other outcrops of iron in the area, however, mineralization associated with the outcrop could not be observed. Again the host rock was conglomerate.

(m) Huttons

A single addit had been driven into a very dark mudstone at this locality. Narrow quartz veins carrying galena had been reported, however, only minor disseminated pyrite could be observed in the host rock.

(n) Kaines

Several trenches at this locality had exposed a narrow vein of barite. The outcrop had a strike length of approximately 136.0' and an average width of 1.0'. Its strike was approximately north-south with a dip of 65 - 70 degrees to the east. Chalcopyrite had been reported at this locality but could not be observed.

5. CONCLUSIONS AND RECOMMENDATIONS

Prospecting within E.L. 9/72 provided some mixed results. The assays obtained during the current survey of the old workings didn't always support the assay results obtained or the type of mineralization observed during earlier investigations.

Mineralization appears to be associated with some of the

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volcanic units, and in particular the Lobster Creek Volcanics, that are interbedded with rocks of Cambrian age. The extensive pyrite mineralization at the Dial mine, Keddies and Revells is thought to be associated with the upper contact of the Lobster Creek Volcanics. At each of these localities the host rock appeared to be tuffaceous yet intimately associated with the overlying unit the Cateana mudstone. The Lobster Creek Volcanics of intermediate to acid composition were therefore probably emplaced during Cambrian times as a submarine volcanic pile. Such an environment is favourable for base metal deposition and a closer investigation of the Dial-Revell-Keddies area is warranted.

Copper mineralization had been reported at each of these localities, however the current survey confirmed the presence of copper mineralization in the Dial Mine only. A dark tuffaceous rock contained abundant pyrite and accessory, but widely disseminated, copper sulphides. The same rock type, but with pyrite only, was observed in the Keddies and Revells addits. The Lobster Creek Volcanics and its associated tuff units could therefore be the host rock for a base metal deposit. Acid volcanic environments are generally regarded as favourable environments for base metal deposition of the porphyry copper type.

The Ordovician rocks in the Dial Range area, the Duncan Conglomerate and Moina Sandstone appear to hold little potential as host rocks to a mineral occurrence of economic significance. The hematite bodies, for which they are the host rocks, are too small to warrant investigation as a source of iron ore and similarly the manganiferous hematite bodies are too small to warrant investigation as a source of manganese.

As scheelite mineralization is associated with hematite-magnetite bodies and associated skarn type rocks in areas further to the south-west of the Dial Ranges, its potential was also investigated in E.L. 9/72. However, the absence of granite/limestone contacts and therefore the absence of skarn type rocks that may have been associated with such a contact, ruled out the possibility that E.L. 9/72 may hold a scheelite occurrence of economic importance. It seems that limestone, to provide the Ca++, and skarn, to act as the host, are essential rock types for major scheelite mineralization. Primary magnetite, associated with the Devonian granites, seems to be a third essential rock type in North-Western Tasmania, as it appears to have provided the "W" in the known occurrences. Within E.L. 9/72 outcrops of limestone, granite or skarn could not be observed.

The Cambrian and Ordovician sedimentary rocks have not, in the current survey, indicated they maybe potential host rocks for uranium mineralization. The scintillometer used during the survey did not outline anomalous rock types or zones of mineralization.

In summary therefore, the Exploration licence 9/72 covering the Dial Range area in North-Western Tasmania has good potential for a major base metal deposit, but little potential for major scheelite, iron or manganese deposits. It is considered the area contains favourable rock types for uranium mineralization.

To further investigate the area it is recommended that a road be constructed to the old workings surrounding the Dial copper mine and a number of costeans be outlined to determine the extent of the copper mineralization known to occur at this locality. In an area where rock outcrops are limited and the undergrowth very thick, a road approximately 3/4 to 1 mile long leading from the main Dial Road along the spur to the old workings would be useful in exposing the underlying rock types and making the area of immediate interest within E.L. 9/72 more accessible.

TASMINEX N.L.

D. P. Grace.,
Geologist

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6. REFERENCES:

* 1 Burns, K. L., 1964, Tasmanian Department of Mines
Geological Survey Explanatory
Report,
Devonport
One mile Geological Map Series.

* 2 Burns, K. L., 1960 Tasmanian Department of Mines
Tech. Reports for 1960, pp 117
- 136.

A P P E N D I X

DIAL RANGE AREA

Assay results for samples
collected during the prospecting
programme.

Listed below are the assay results for rock and gossan samples collected during the prospecting programme.

Sample preparation and assaying was carried out by the Australian Mineral Development Laboratories (AMDEL) of South Australia.

LOCALITY	SAMPLE No.	ASSAY ppm.							
		Cu	Pb	Zn	Ag	Ni	Au	Mo	W
Neptune	RNe 8	45	3.0%	250	12				
	- 9	10	1.5%	1400	5				
	- 10	75	130	210	1				
	- 11	25	170	5	1				
Penguin	RPe 12	240	95	55	<1				
	- 13	1300	100	210	<1				
Ferndene	RFd 22	65	15	35					
	- 23	95	140	130					
	- 24	100	110	100					
Whiskey Creek	RWc 25	110	10	20	<1	40	<0.3		
Keddies	RKe 16	130	220	10	2	20	<0.3		
	- 17	50	10	10	2	30	<0.3		
	- 18	50	20	20	<1	20	<0.3		
Stanton Creek	RSc 19	2600	370	55					
Dial Iron	RDa 20	10	5	5					<20
	- 21	110	60	5					<20
Russells	RRu 1	55	5	110					
	- 14	25	25	100					
	- 15	15	85	10					
Russells South	RRs 2	20	5	60					<20
	- 3	55	5	90					
	- 4	25	5	85					
Huttons	RHu 13	20	45	10	<1	10			<3
	- 14	230	30	15	1	15			<3
Kaines	RKn 15	40	15	5	1	<5			<3
Walloa Creek	RWa 50	65	45	100					
	- 51	80	30	470					
	- 52	5	5	25					
	- 53	280	<5	160					
Revells	RRe 43	110	5	40	<1		<0.3		
Devon Consuls	RDe 44	380	<5	160	15		<0.3		

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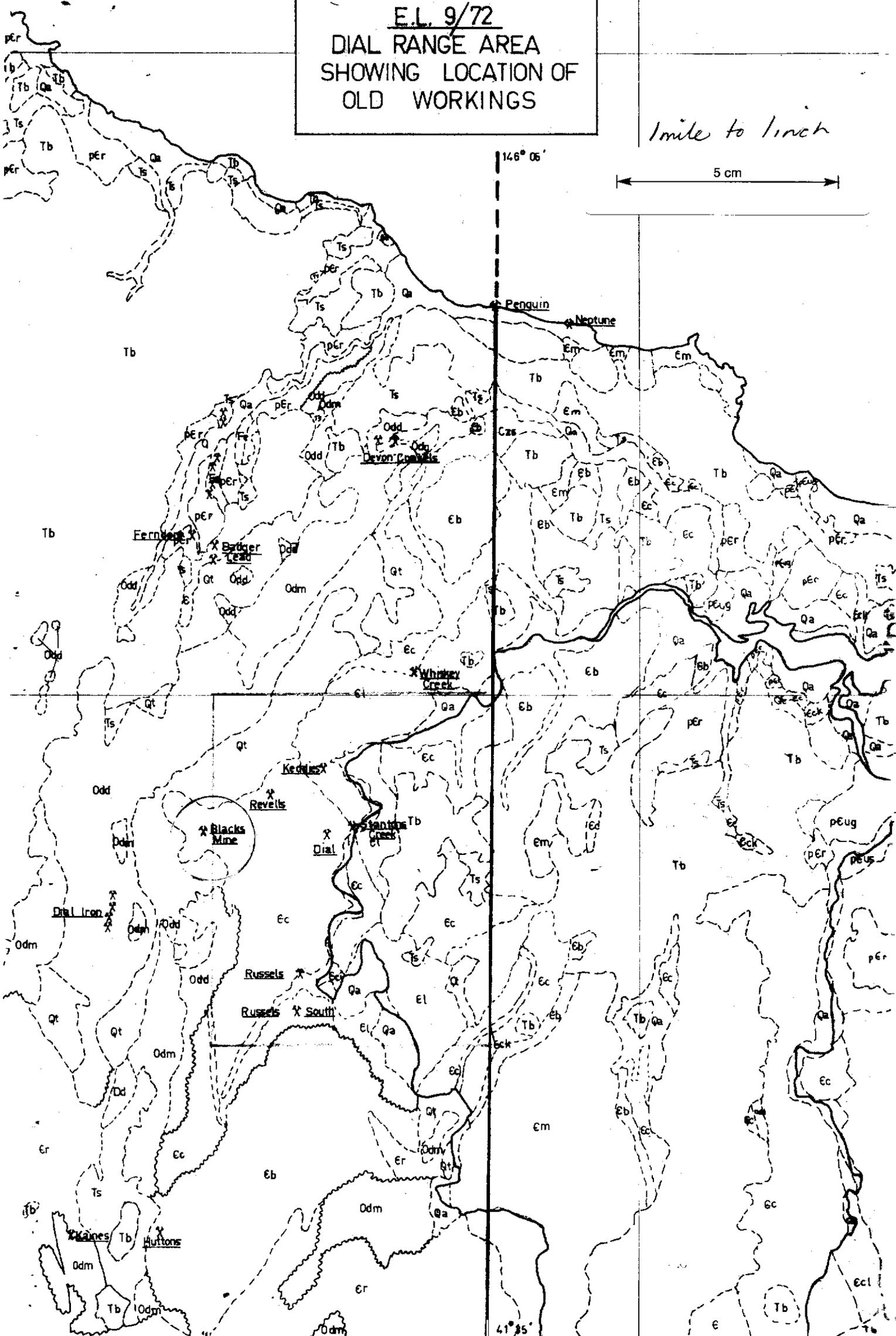
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E.L. 9/72
DIAL RANGE AREA
SHOWING LOCATION OF
OLD WORKINGS

1 mile to 1 inch

5 cm



146° 05'

41° 35'

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Blacks' Manganese Deposits

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Trench No 2 : As Reported - Mines

731013

Department Technical Report
No. 7.

10 Samples of 2' from West to East -

