

LYELL E.Z. EXPLORATIONS

Queenstown

REPORT ON THE EXAMINATION OF

MOUNT WEDGE AREA -

EL 1 /59 ARTHUR AREA

by

C J R Kingsbury

27 June 1961

61-333

Report on the Examination of
Mt Wedge Area - EL1/59
Arthur Area

MEMORANDUM TO :

THE CHAIRMAN,
CONTROL COMMITTEE
LYELL-E.Z. EXPLORATIONS.

Bound herewith is a geological report by C.J.R. Kingsbury on the Mt. Wedge Area south of Adamsfield.

The area was investigated for mineralisation because it contains a strongly faulted boundary between the Owen Conglomerate and the underlying rocks of Cambrian age. However, the underlying rocks in this area are relatively unmetamorphosed mica sandstones, shales and quartzites rather than the low grade schists which are often found in the same stratigraphic position on the West Coast.

The area shows very little sign of mineralisation and it is considered that no further work is necessary .

This completes the investigation planned for the Arthur Area and it is recommended that the Exploration Licence (EL 1/59) be allowed to expire on 11th August, 1961.



V.M. COTTLE

CHIEF GEOLOGIST

ELECTROLYTIC ZINC CO. OF ASIA LIMITED

ROSEBERY, 27th June, 1961.

E.Z. Co. 3. ✓
Mt. Lyell 2.
L.S.S. House 1.
Geol. 1.
Govt. E.D. 1.

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REPORT ON THE EXAMINATION OF THE MT. WEDGE

AREA - EL 1/59 ARTHUR

AREA

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REPORT ON THE EXAMINATION OF THE MT. WEDGE AREA EL 1/59

ARTHUR AREA

1. Dates of Examination 9th January to 30th March, 1961.

2. Man Days in the Field 156

Personnel : Considerable assistance was given by Mr. Ray Martin in the reconnaissance stages of the investigation.	Student Geologist - I. Naqvi Bushmen - A. Searle W. Doe M. Piper H. Muller A. Brennemo A. Stirling
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3. Location and Access

The investigation covered an area of approximately 25 square miles south of Adamsfield based on 4 camps - one west of the Ragged Range at Anomaly A5/1 and 3 in the southern area (see Plate 1). The whole operation was serviced by helicopter from Maydena, situated 15 miles to the east. The anomaly A5/1 area is accessible by muskeg tractor from Adamsfield and by Landrover from Maydena to Adamsfield. Local access within the southern area was entirely on foot - in most parts extensive track cutting being necessary.

4. Previous Work

Acknowledgement is made of general geological information derived from the writings of Twelvetrees, Nye, Carey and Banks. Scott and other L.E.E. Personnel had previously completed photo-interpretation maps of the whole area examined and carried out some local mapping close to Adamsfield and in the Anomaly A5/1 area. The southern section of the area mapped is thought not to have been investigated by previous authors.

5. Topography

This reflects the underlying rocks. The soluble Gordon Limestone and the soft Cambrian shale form broad swampy button grass valleys (Florentine, Boyd and Adam) approximately 1000 feet above sea level. The resistant Owen Conglomerate, the Cambrian and Precambrian quartzites and the dolerite form sharp craggy ranges from 1000 to 2500 feet above the valley floors (Sawback, Ragged, Needles, Mueller, Wedge, "Low Rocky Hill", "Conglomerate Hill"). The sandstones and shales of the Cambrian and the dolomite rocks of the Precambrian form steeply dissected, heavily timbered foothills and ridges. The serpentinite gives rise to infertile patchy soil which in general supports only a characteristic stunted open banksia scrub with mainly bare fresh rock underfoot in "corridor" valleys.

No glaciation was evident.

6. Geology

(a) Regional Geology - Regional mapping was recorded in the field on aerial photographs (scale 60 chains = 1 inch) and transferred to the accompanying maps which were made up from mosaics of 30 chains to the inch scale. The regional geology was then recorded on 1" = 1 mile on Plate 3 herewith.

1. Stratigraphy - The stratigraphic column for the whole Arthur area is shown on Plate 2. Rocks ranging in age from Precambrian to Devonian were noted in this investigation with the major interest being directed to these of the Cambrian sequence.

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Precambrian rocks were mapped in the extreme south-eastern portion of the area. On the Port Davey track near Marsden's but-site they are dolomitic, and further north along the outer rim of the Florentine Valley they occur as Quartzites resembling those of the Cambrian.

The Cambrian sequence is predominantly interbedded quartzites, mica sandstones and shales with one conglomerate horizon and one greywacke. It has been assigned the name Boyd Formation in this area. The rocks trend uniformly north-north-west with an average dip of 50°E. Some variations are due to faulting and minor folding. Their relationship to the Precambrian was not determined.

The Lower Boyd Formation was mapped on the south-western margin of the southern area and comprises (in ascending order) a quartzite of indeterminate thickness, Mica sandstones and grits (3000' thick) and grey yellow shales (2000' thick).

The Middle Boyd Formation forms the axis of the area mapped and comprises a basal conglomerate about 200' thick overlain by quartzites, mica sandstones, yellow and purple shales interbedded and repeated up to five times and aggregating about 5000 ft. in thickness. Minor cherts, jaspers, grits and black shale also occur in the sequence. These rocks have been correlated with those at A 5/1. The intervening gap along the western slopes of the Ragged Range has been scrutinised from the helicopter and is believed to be a straight sedimentary sequence as mapped on the southern end of the Ragged Range.

The Upper Boyd Formation is a greywacke (approximately 2500 ft. thick) which occurs in the Florentine Gorge and in the ridge south of Conical Hill. There appears to be a 20° unconformity between the member and the basal ordovician in these areas but to the northward (at the southern end of the Ragged Range) where the Upper Boyd greywacke is absent, the Ordovician appears to lie conformably on the Cambrian and a similar relationship probably exists to the east of A 5/1.

The ordovician sequence provided the upper limit for mapping. The basal rocks are red brown jaspery quartzites - weakly bedded and correlated with the red rocks and pyritic breccia at A5/1. The main occurrences of this basal quartzite are at the southern end of the Ragged Range. Overlying these rocks are the Owen Conglomerates and quartzites and the Gordon River limestone.

Intruding the Owen, and the Cambrian rocks along the plane of the Picton Fault is a large body of serpentinite. This shows little or no evidence of movement since intrusion and it is suggested that the serpentinite is related to the Tabberabberan Orogeny (of late Devonian Age).

2. Structure

(a) Folding - the Ordovician rocks are folded into the broad asymmetric syncline of the Florentine Valley. Part of the expected anticline to the west is indicated by the flatter dips of the Ragged Range. South of Ragged Range the Cambrian rocks tend to reflect the syncline with minor local folding but it was not established that they fold round the nose of the syncline onto its eastern limb.

No axial plane cleavage related to folding was observed.

(b) Faulting - The Picton Fault is the major structure in the area, its location being given by Scott et al. by photo interpretation. The present mapping has moved its position little. Flow structures in the southern body of serpentinite indicate a dip of 60°W for the fault. Movement on the Picton Fault

was west block north, about one mile, and down (see Plate 3). For the most part, the fault is intruded by Serpentinite except near Conical Hill where an en echelon break is suggested. West of the Picton Fault and in the Cambrian rocks, an extensive fault, named the Ragged Fault, was observed in outcrop as barren gossan and iron stain, and inferred from displacement of beds. It is doubtfully correlated with an east dipping fault photo interpreted by Scott along the eastern foothills of Ragged Range (See Plate 3). Movement is of the order of several hundred feet - west block downward.

Following observation of faulting on the southern Ragged Range it was inferred that repeated small faults (with movements of a few hundred feet) were responsible for irregularities (including local overturning) in the bedding pattern of the Cambrian rocks south of Ragged Range. Gaps in the quartzite ridge, occasional iron staining, and occurrences of gossan away from the Ragged Fault are attributed to these minor faults. Local cleavage indicates a dip of 70°W for these faults.

(b) Mineralisation - Alluvial chromite derived from the serpentinite was observed throughout the area. No pyrite or valuable mineralisation was found in situ (except at A 5/4 - see appendix) and panning of the streams draining the area gave only traces of pyrite much chromite and ironstone and no gold or osmiridium whatever. Cassiterite was not positively identified but may be present in traces. A few quartz stockworks and rare calcite veinlets indicate the general lack of fracturing in the area.

7. Conclusion and Recommendations

Although Cambrian rocks occupy a large portion of this area those well known in Western Tasmania as host for orebodies are not well developed. Their contact with the Ordovician, the most favourable horizon, is deformed by regional folding and intersected by numerous faults including a major structure. However, the folding and faulting have not produced any cleavage or shearing of consequence and the major fault is occupied by a serpentinite intrusive, known to be unfavourable for metallic minerals other than osmiridium and chromite which are present in small quantities.

Nothing suggestive of economic mineralisation was evident and there are no especially favourable rock types - certainly no volcanics of the types seen on the West Coast as host rocks for ore in the Upper Cambrian. There is no reason to suspect any improvement of conditions in depth. The area can definitely be stated to be unfavourable for orebodies. No non-metallic minerals or rocks of commercial value were observed.

It is recommended that no further exploration of the area is warranted.

C. J. R. Kingsbury

C.J.R. KINGSBURY,
(GEOLOGIST)

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

APPENDIX

Specimen Collection - This will be found in the E.2. Company's collection numbered T508 - T596. Most are indicated on the plans, and a reference specimen is listed for most of the rock types in the Stratigraphic Column - see Legend Sheet.

Geophysics - There are gaps in the airborne coverage, particularly over some of the best areas. Anomalies were followed up by Scott (See report No. G97) the only uncompleted one being A 5/4 which was completed during the present investigation. A moderate to poor conductor was indicated by R.E.W. but this was negated by a subsequent I.P. traverse. Dr. Hallof's Report attributes the anomaly to an overburden effect with no anomalous I.P. This area was regarded as a test case, and following its failure no further geophysical work is recommended.

Pyrite at A 5/4 - Pyrite was observed in a fresh exposure on the Muskeg track southwest of Clarke dam at the (conformable) Ordovician/Cambrian contact. The pyrite appears to be confined to a narrow bed of breccia correlated with the Jukes Breccia and as it is in unfavourable surroundings (quartzite) no significance is attached to the occurrence - refer specimen T 519.

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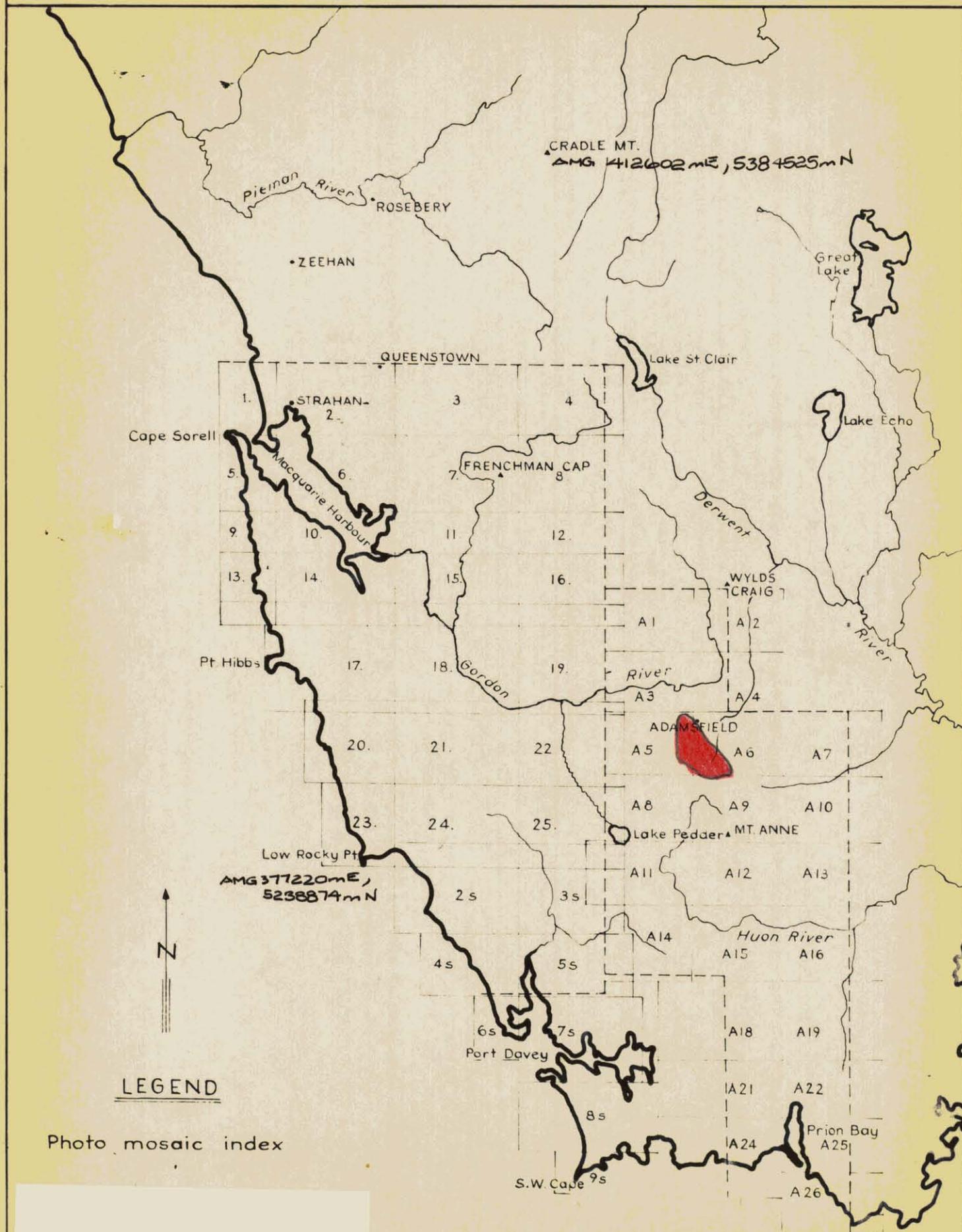
SOUTH - WEST TASMANIA

SP 25

SCALE

16 miles to 1 inch

5 cm



LEGEND

Photo mosaic index

AMG REFERENCE POINTS ADDED

LYELL - E. Z. EXPLORATIONS

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MT. WEDGE (ARTHUR) AREA
STRATIGRAPHIC COLUMN - LEGEND

Period	Formation	Rock Type	Thick-ness	Form. Symb.	Draw. Symb.	Colour	Colour No.	Ref. Spec.	
Quaternary		Alluvium			~		Derwent 19-4		
Tertiary		Basalt		T	V V		64		
Jurassic	(Intrusive)	Dolerite		Jdl			51		
Permian (and Triassic)		Sediments		P;R			39		
Devonian	(Intrusive)	Basic Volcanics			-V-V-		43	T516	
		Serpentinite			"="="		43	T514	
Silurian	Crotty Quartzite	Qte, Sst		Sc			32		
Ordovician	Gordon Limestone	Limestone, Shales		Og			10		
	Caroline Ck. Sst.			Occ			61	(Substitut colour)	
	Owen Conglomerate	Cong. Sst. Qte		Oo	••••		8		
	Jukes Breccia	Silic. Breccia		Oj	▲▲▲		8	T519	
		Qte., Jasper		O	••••		8	T534	
Cambrian	Boyd Formation	(upper)	Greywacke	2500'	Eub	••••		20	T513
		Quartzite	50'	Eb	••••		"	T533	
		Khaki Shale	3-300'	"	-----		"	T532	
		Repeated, total 5000'	Mica Sandstones	1500'	"	••••		"	T524
			Quartzites	50-100'	"	••••		"	T531
			Nodular Shales	500'	"	-----		"	T550
			Purple Shales	100'	"	-----		"	T538
		Conglomerate	200'	"	••••		"	T594	
		(lower)	Grey/yellow shale	2000'	Eb(2)	-----		"	T543
		Mica Sandstone	3000'	"	••••		"	T562	
Quartzite	-	"	••••		"				
Precambrian		Quartzite	2000?	pE	••••		61		
		Dolomitic Tuff	2000?	"	-V-V-		"	T509	
		Dolomite	3000?	"	TTT		"	T508	

- Specimen • T508
- Photo Centre O 67
- Gossan [cross-hatch symbol]
- Iron Stain • Fe
- Manganese Oxides • Mn [cross-hatch symbol]
- Bog Iron [cross-hatch symbol] Fe
- Alluvial Diggings ✕

61-333

