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MICROFILMED

REPORT ON E.L. 34/70
TASMANIA.

PREPARED BY A-Z GEOLOGICAL CONSULTANTS
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FOR BAY EXPLORATIONS PTY.LTD.

AMG REFERENCE POINTS ADDED

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N.B. 5/61 is Industrial & Mining
Coal & Limestone Licence.

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INTRODUCTION

The following report has been prepared to indicate possible exploration targets in the area contained within the Exploration Licence 5/61. No field examination was undertaken and the report is based entirely on literature examined. A geological map on a scale of 2 miles to one inch accompanies this report and is based on various maps published.

NO
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RECOMMENDATIONS

Exploration Licence E.L. 5/61 forms the southern part of the Scamander Mineral District as outlined by Twilvetrees (1911). The Pyramid, Oricco and Beulah Mines which occur less than two miles to the north of the northern limit of the lease were worked for tin, copper and silver in the early part of this century. Consideration of the geology suggests three possible targets:

- A. Tin and wolfram lode deposits in the area between Avenue River and Cato Creek. (Area marked A on the accompanying map).
- B. Alluvial tin in the wide floodplain of the Scamander River approximately 2 miles west of Scamander.
- C. Base metal deposits in the Mathinna Group sediments.

It is considered that examination of target C, that is of the Mathinna Group sediments for base metals would be the most promising target at this stage. Igneous intrusions have given rise to mineralisation in the north, and the possibility of mineralisation within these sediments appears good in the area under licence.

GENERAL GEOLOGY OF THE UPPER SCAMANDER-ST. MARYS-CHAIN OF LAGOONS AREA. (See accompanying map on scale 1" = 1 mile)

Basement rocks are of the Mathinna Group - Lower Devonian sandstones, medium grained siltstones and mudstones which have undergone low grade metamorphism (Dm). These beds were moderately folded during the Tabberabberan Orogeny along axes that trend NNW in the southern section of the lease and NW or NNE in the northern part. The folds are slightly overturned to the east in the Scamander Sheet - Walker, 1957, and appear to form a dome over the Piccaninny Point adamellite in the southern section of the lease (McNeil, 1965). Fracture cleavage in the more competent quartzite beds is well developed.

Exposures of this unit are not good except in road cuttings and an extensive veneer of angular rock fragments commonly blankets the lower hill slopes.

Three important Devonian igneous masses intrude the Mathinna Group. (1) The St. Mary's Porphyry is a biotite-hypersthene adamellite porphyry. This shallow dipping

intrusion underlies an area of at least 33 square miles (McNeil, 1965) much of which outcrops in the lease area. The most probable thickness is 4000 feet. Contact effects on the Mathinna Group are minimal. The St. Mary's Porphyry and the Mathinna Group are intruded by (2) the Piccaninny Point Adamellite (M. Devonian). No muscovite-bearing varieties occur so this mass is different from the extensive tin-bearing granites north of the upper reaches of the Scamander River. Walker (1957) has mapped a similar monzonitic rock (Coast Range Monzonite) in the Scamander-St. Helens area. Silver-bearing arsenopyrite-quartz veins (Beulah and South Beulah mines) occur in the Coast Range Monzonite near Scamander. A tongue of greisenised granite (3) projects into the northern part of the lease area from the large tin-bearing complex to the north.

Overlying the Palaeozoic rocks are flat-lying Permian and Triassic sediments, intruded by Jurassic dolerite sills. Tertiary sands and gravels are widespread near the coast and alluvial flats mark the present and probable earlier courses of the Scamander River.

McNeil (1965) has described the geology south of St. Marys and Walker (1957) the Falmouth and Scamander sheets. Since Twelvetrees' (1911) bulletin on the Scamander Mineral District, only minor published work is available, notably Jennings' (1966) report on the alluvial tin prospects of the lower Scamander valley and a report by Jack (1963) on

the Great Pyramid tin mine, Upper Scamander. However, no sizeable metallic mineral workings have been recorded within the lease boundaries as far as is known to the writer.

ECONOMIC GEOLOGY

Target "A"

Twelvetrees (1911, p.27) remarks that although wolframite and cassiterite veins "have hitherto been found only on the north side of the Scamander River, (but) there is no reason why they should not also be met with on the south side". He continues "... between Cato's Rivulet (Creek) and the Avenue River are exposures of very likely-looking granitic rock, the incipient greisenisation of which is a favourable indication". The cassiterite-bearing veins north of the Scamander River and adjacent to this granite tongue carry tourmaline and a little molybdenite.

A recent assessment of the Great Pyramid Mine, Upper Scamander by Jack (1963) shows that the best tin values are associated with fractures in the hard quartzite beds of the Mathinna Group. Total production from this mine was 331 tons of ore, from which 2.9 tons of tin were extracted during the period 1928-1936.

Although the distribution of wolframite and tin is stated to be exceptionally irregular (Twelvetrees, 1911, p.28), this part of the lease warrants further work.

Target "B"

Some attempts at alluvial tin mining in the Scamander River valley were made early in the century (Waller, 1901). There was little further interest until Rattigan (1957) in an unpublished company report examined shafts in the gravel on the north side of the Scamander River for Rio Tinto Aust. Exploration. The hills north of the lease area are composed of Mathinna Group rocks which are the host rocks for tin mineralization (Jack, 1963 - Great Pyramid tin mine, Upper Scamander).

Jennings (1966) recommended a site immediately west of Henderson's Lagoon (1 mile east of the east boundary of E.L. 5.61) for testing. However, as the Scamander River runs through relatively thin and patchy Tertiary and Recent river gravels for at least 5 miles from the present mouth, it is possible that rock bars of the resistant Mathinna Group rocks may produce small, local deposits in areas such as "B". It is likely that readily dredgeable ground is only found in the coastal plain and any alluvial deposits in the river valley would be subeconomic.

Target "C"

Copper mineralization occurs on the northern slope of the Scamander River valley, about 1/2 mile east of the Great Pyramid tin mines. The mineralization at the Oricco mine consists of a group of arsenopyritic quartz-chalcopyrite lodes

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which strike NW. A lode of galena and sphalerite occurs within a few hundred yards of the northern boundary of lease E.L.5/61, north of Target "B" on the accompanying map. Twelvetees comments on this lode system - "the southern extension has not been sufficiently explored to say whether additional shoots exist in that direction, but the outcrop is strong and the outlook is hopeful".

The similarity of the Coast Range quartz monzonite and the Piccaninny Creek Adamellite led McNeil to suggest that the two masses were probably equivalent and part of the same batholith which plunges beneath the St. Mary's Porphyry from the north and south. In this event, the general area marked "C" is prospective. Particular attention should be paid to a breccia zone (described by Walker, 1957, p.26) in the Mathinna Group metasediments adjacent to the St. Mary's Porphyry contact. Although well developed, the breccia is unpredictable and consists of isolated pockets of recemented angular quartzite fragments. There is no record of mineralization in this zone and its origin is disputed. As a general rule, the contact effects of the St. Mary's Porphyry and Piccaninny Point Adamellite on the Mathinna Group rocks are not extensive.

With the exception of a small area of Mathinna Group rocks east of St. Mary's, the remainder of the area is not

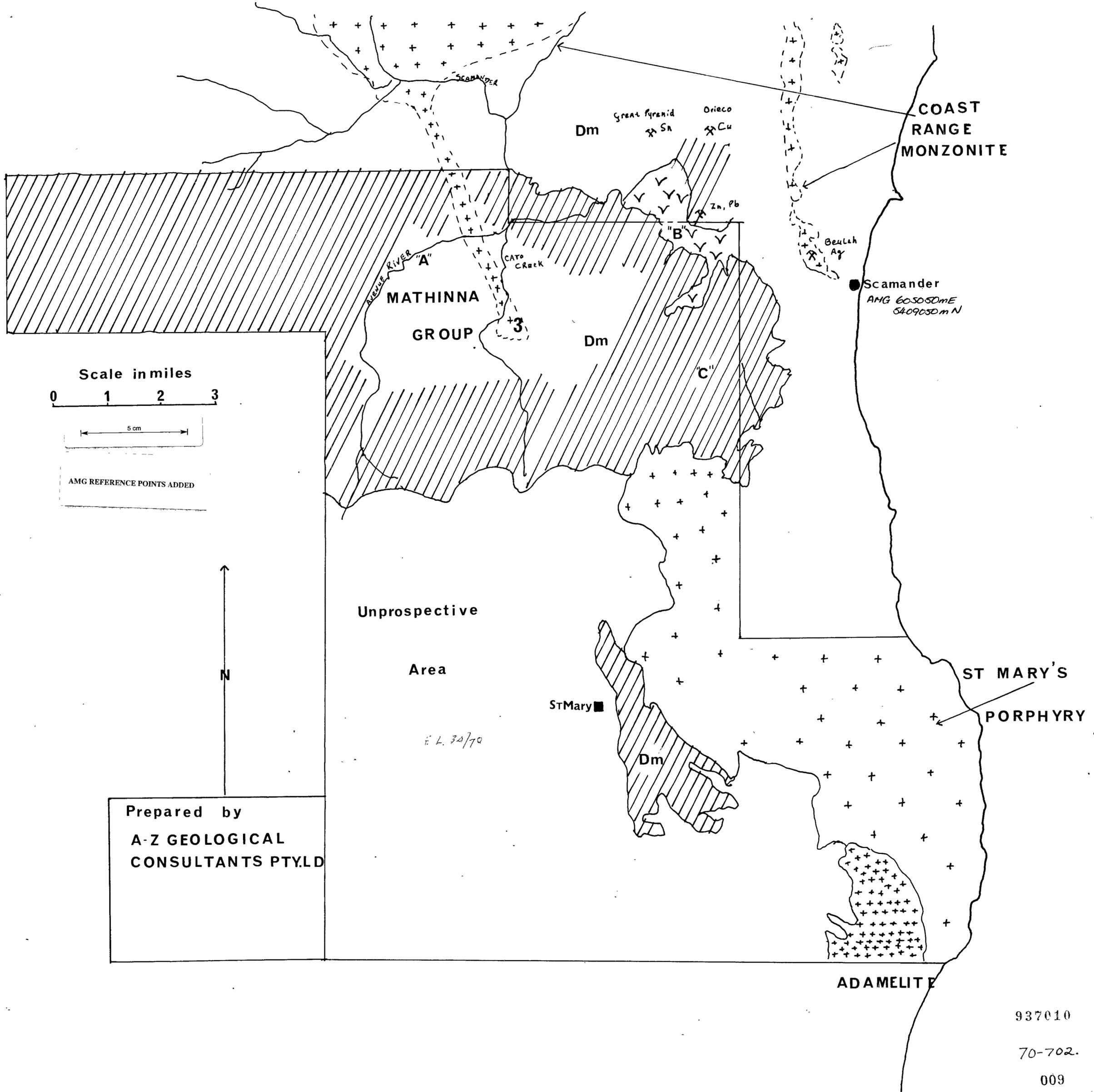
prospective for metallic minerals because it is overlain by up to 1000 feet of Permian and Triassic sediments and associated dolerite sills.

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