

REPORT ON AREAS EXAMINED ON REQUEST OF ABERFOYLE TIN N.L..ROSSARDEN, TASMANIA.

Following a request from Mr. A. E. Dainton, Manager, of Aberfoyle Tin N.L. certain field areas close to the Aberfoyle mine were examined. These areas are shown on the locality map. As a result of this field work, it was found that there is not sufficient mineralisation in any of the areas to warrant any further work or diamond drilling.

This work started with a preliminary examination from 15th. to 18th. of April, 1957. As a result of this two bulldozed costeans in the Johnson's Prospect area and the opening of two Adits were requested from Aberfoyle Tin N.L. This was done before the 20th. May when the field work was recommenced.

Of the areas examined sites 1 - 3 constitute a unit in themselves, the chief centre being site 1. (Johnson's Prospect) where the two costeans were cut.

Throughout this work the names Lutwyche and Kookaburra are used to mean the two principal directions of mineralisation encountered. The Lutwyche direction is north westerly while the Kookaburra direction is east-north-east to north-east. The Kookaburra veining was first noted in the Johnson's area while the Lutwyche direction was first noted in the Lutwyche Prospect of which site 3 is part.

Differentiation is made in this report between lode quartz (or "live" quartz) and the secretion, blow or gash vein quartz (known also as "country" quartz). Secretion veins are common in a regional metamorphic province where the predominant rock-type is quartzite. No neat set of criteria are available to differentiate the two types of quartz, "live" and "country", the distinction being accomplished only by experience with the two varieties.

Site 1. Johnson's Prospect. Other work has been done here in earlier times, consisting of many trenches, excavations and one 300 ft. long adit. Aberfoyle Tin N.L. have also drilled a diamond drill hole (known as S.14) as shown on the map of area I. The diamond drill hole cut only minor mineralisation.

Both the Lutwyche and Kookaburra trends of mineralisation are present in the Johnson's area and both carry cassiterite. In this the type area for the Kookaburra veining, the Kookaburra vein predominate.

In the two costeans cut by Aberfoyle Tin N.L. the Mathinna shales and quartzites have been highly weathered in an irregular manner. Though there was an average 3 feet to bed-rock, the thickness of clayey weathering products in at least one place extends to about 6 feet. This is definitely residual in-situ products from the weathering of the Mathinna rocks. This in-situ origin is readily shown by the extension into the weathered zone (without disturbance or displacement) of quartz veins as small as  $\frac{1}{8}$  inch thick. This peculiar clayey weathering material exists also in the Egan's area. This seems to be an after-effect of the Permian peneplanation and deposition which would create conditions wherein the ground-water would soak in vertically with little normal run-off. This accelerates weathering of this type which is akin to laterite development.

In both costeans it is considered that all veins present, were visible and seen. Though some veins larger than one inch and tin-bearing were found in the costeans the number was appallingly few. In the vicinity of the costeans the Mathinna rocks are highly sheared (with shears striking  $320^{\circ}$ - $340^{\circ}$  and dipping vertically or steeply east or west). The Lutwyche

direction of mineralisation follows this direction of shearing yet despite this favourable circumstance, the number of tin veins coursing with the shearing is probably less than ten with none larger than two inches and an average of one inch.

In the Johnson's area the Kookaburra direction is the most persistent in strike and in quantity, yet the mineralisation is insufficient (in both width and number of veins) to warrant any further work.

The 300' long adit intersected less than ten veins with an average width of one inch. Though some metalisation is present, it is confined to only half of the veins present.

A small quarry like excavation near the northern costean reveals six quartz veins with an average width of 1 1/2". Of these six veins only one is in the Lutwyche direction and this vein is but 3/4" wide. Lutwyche direction shearing is present in this excavation, and this dislocates at least one of the Kookaburra veins. This would indicate post "Kookaburra" movement.

A small adit (only 10' deep) on the slope to the Aberfoyle Rivulet showed three Kookaburra veins, of average width one inch. Metalisation is present in these veins to a limited degree, (grade of tin in the quartz would be less than 0.5% visual estimate).

Due east of the southern costean, on the fall to Aberfoyle Rivulet, a wide Lutwyche direction shear-zone exists. At least three veins of about 2" width are present. These veins do not seem to have been dislocated by the shearing, and they seem to infill shears. This would mean that here the Lutwyche mineralisation is post-shearing. These veins carry only slight cassiterite with some pyrite and galena.

In view of the lack of vein mineralisation, five crude channel samples were taken in the northern costean to check for any disseminated tin mineralisation. The results of these samples are shown below:-

Zero for sampling measurements was 57' south-west of peg 1 (beside the costean). All measurements made going north-east.

Registered Number	Constituents	Per Cent	
603	(1. Footage 0 - 13')	Tin	Trace
		Tungstic Oxide	Nil
604	(2. Footage 13' - 21')	Tin	Nil
		Tungstic Oxide	Nil
605	(3. Footage 21' - 35')	Tin	Nil
		Tungstic Oxide	Nil
606	(4. Footage 35' - 57')	Tin	Nil
		Tungstic Oxide	Nil
607	(5. Footage 57' - 81')	Tin	Trace
		Tungstic Oxide	Nil

This check for disseminated mineralisation thus proved fruitless, though this was expected. The only time when disseminated mineralisation would be anticipated is in a greisen, or other derivative of a granite (eg. Royal George tin mine).

Thus the Johnson's area is definitely not worthy of any further prospecting.

Site 2. The "Battery" Adit. This adit is on a slope falling to Aberfoyle Rivulet, about 100' up-slope from an old stamp battery. It is about 40' long. Only one vein of note was recorded in this and was about 10" to 12" wide. This was a Kookaburra type vein. It is opened on the surface above the adit. In the adit, a winze was sunk 7' on it. The grade of mineralisation in it must have been very poor for no cassiterite was seen in any of the exposures. Several secretion veins (or blows) occur in this adit and these trend in the Lutwyche direction. These secretion veins are barren.

In the close vicinity of the "Battery" Adit, many quartz blows are seen, all having a Lutwyche trend. Several small pits have been cut on these barren quartz veins. Prospecting on these barren quartz blows is not warranted.

Site 3. The "Pumphouse" Adit. This adit is up slope from the Aberfoyle Tin Mine pumphouse on Aberfoyle Rivulet. The adit was driven on a bearing of  $212^{\circ}$  magnetic from  $170^{\circ}$ . It cut only barren quartz blows. Reid and Hendersen (1929) comment that this adit was stopped short of the target. The target was several quartz veins (all less than 1") seen on the level ground about 100' above the adit. These target veins have a Lutwyche trend, and on examination appear to be barren. It is not unlikely that these, too, are small quartz blows and not "live" quartz veins.

Site 4. Egan's Area. This is a paddock of Tertiary gravels about one third of the way to Storey's Creek from the Aberfoyle Mine.

This area has been the site of sluicing operations in the past. Reid and Hendersen (1929) state that the tin content of the gravels was low and the sluicing difficult. This area is underlain by highly folded Mathinna rocks. The northern extension of the Burns Marsh fault crosses through this paddock. Several small "live" or mineralisation type quartz veins are present in the underlying rocks. The width of these veins is generally less than  $3/4$ ". No cassiterite was seen in these veins.

The presence of the tin in the gravels is suggestive of economic lodes beneath the gravels. However, these gravels and several others to the west of Storey's Creek are really fault scarp detritus. The fault scarp (that of the Burns Marsh fault) is still noticeable. In general these gravels are tin bearing by virtue of the abrupt change in sedimentation velocity on reaching the bottom of the fault scarp. Thus the tin in these gravels represents a slight concentration of the weathering products of the many small tin veins that occur on the high ground to the west.

Aberfoyle Tin have drilled two drill-holes (S.11 & 12) in the Egan's area, both of which showed only minor - uneconomic mineralisation. In the light of this and the paucity of mineralisation present in the underlying rocks beneath the gravels, no further prospecting here is advised.

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**Conclusions:-** No economic mineralisation is thought present in any of the four (4) areas examined and it is advised that no further prospecting be carried out on these areas.

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- References. 1929 Reid A.M. & Hendersen, Q.J. The Avoca Mineral District Bulletin 40 Tasmanian Geological Survey.
- 1938 Hendersen, Q.J. Geology of the Tin-Tungsten Deposit of the Aberfoyle Area Ben Lomond Quarangle (unpublished report Tas. Dept. of Mines.)
- 1953 Connolly, H.J. The Aberfoyle Tin-Wolfram Mine, in the Geology of Australian Ore Deposits, Fifth Empire Mining and Metallurgical Congress. Vol.1 pp 1200-3.

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