

ABERFOYLE TIN N. L.

Progress Report on Exploration

of the

LUTWYCHE - KOOKABURRA PROSPECTCONTENTS

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STRUCTURE.

Rocks in the prospect are greywackes, quartzites and shales of the Mathinna Group. There is no Permian except a thin cover in the extreme northwest of the prospect. Overburden generally is rubble and soil only. There is no evidence of granite.

LUTWYCHE LINE : A zone of discontinuous quartz veinlets and patchy quartz on the bedding, strike northwest, dip 50° to 87° southwest. Exposed length 2000 feet.

KOOKABURRA LINE: Similar to the Lutwyche line but only 700 feet long.

KOOKABURRA FAULT: Not seen in outcrop but inferred along a gully between the Lutwyche and Kookaburra Lines and parallel with them. Drilling indicated a steep northeast dip, that is, opposite to the bedding. Displacement is not known but may be 200 feet. It is apparently post-ore.

Folding is insignificant. All the bedding dips 65° to 82° southwest with the exception of a few local reversals. Weak bedding faults are exposed in the Kookaburra adit.

Weak faulting is present, striking northeast, with steep dips. Displacements do not exceed 50 feet, and although this is aligned with Aberfoyle No.2 Fault, it is tight and unlike the faulting exposed in Aberfoyle Mine.

MINERALISATION

A. LUTWYCHE LINE AND PROSPECT GENERALLY.

The majority of the quartz veins strike northwest parallel with the bedding. They are very numerous. In D.D.S.-20 there were 290 veins and veinlets; in D.D.S-17, 114; and in D.D.S-19, 145. Most of these are less than an inch wide. In D.D.S-20 three groups of these veinlets (apart from the "Pay Vein") were estimated to be payable or near payable over a stoping width.

The best of these veinlets occur in a zone extending through the collars of D.D.S-17 and 19 and in another zone to the southwest of these. They are possibly related to several promising veins (12 to 15 inches) intersected in the early part of D.D.S-14.

The Lutwyche line is weakly mineralised with tin and wolfram. This is stronger at the southeast end which is exposed down to 300 feet lower in altitude than the main outcrop line. This fact lends weight to the concept of an increase in strength of the veining with depth, as has long been recognised in the operating mines. It is possible that this stronger mineralisation at the southeast end is related to the northeast-striking faults. (This was the chief reason behind the original selection of the site for D.D.S-17).

Drilling has shown a general improvement in width and value of the veining with depth, except that the Lutwyche Line itself has not improved in grade. The Old Battery D.D. Hole failed to indicate any increase in strength of the Old Battery Vein with depth (Blisset, Geological Survey Bulletin 46, p.71)

The Old Battery Vein and the Kookaburra Vein strike northeast, that is parallel to the weak faulting mentioned. These had been the main target for early prospectors (for details, see Blisset, p.p. 63-72). If these are one and the same vein, a displacement of 200 feet has occurred on the Kookaburra Fault.

DRILLING RESULTS

(Lutwyche Line only).

D.D.S-14.

1004'. 9" quartz showing a little tin, pyrite and pinite.

Nothing further in the original log but Conolly logged as follows:-

1005'. 12" quartz.

1215'. 24" quartz vein.

1245'. 12" vein.

D.D.S-17.

663'7" to 667'. Numerous quartz impregnations, small veins and stockworks with wolfram and sulphides.

D.D.S-19.

777' to 782¼'. Poor looking boney quartz with much included country rock.

784½' to 785¼'. Boney quartz with carbonates and fault material.

D.D.S-20.

Did not reach the Lutwyche Line.

There has been no drilling on the Kookaburra, and D.D.S-21 will cover this, before going on to test the "Pay Vein" at depth.

Other drilling results (other than on the "Pay Vein") are too voluminous to report in detail and have been summarised above.

B. THE "PAY VEIN."

A small area of outcrop in the bed at Aberfoyle Riv^erlet (new Aberfoyle coords. 7750N, 3550E) shows a group of veins in the hanging-wall of the Lutwyche Line. There are about nine of these veins up to 5 inches wide over a width of 50 feet, well mineralised with tin and sulphides. In parts, these cross the bedding at angles up to 15° and dip at 54° to 65°. D.D.S-17 and 19 showed that these veins are 20° flatter than the bedding but the same strike. They also showed them to be wider than at outcrop and of payable grade. D.D.S-14 to the northwest, showed more width but lower grade. D.D.S-20 intersected what is probably not the same vein but one closely associated with it

and suggests a swing of 15 to 20 degrees in strike and a 10 degree flattening of dip in a southeasterly direction. This is comparable with the curvature of the Aberfoyle Mine veins going south.

DRILLING RESULTS.

D.D.S-14.

773'6". 12" quartz vein with sulphides.

777' 6" live quartz.

Conolly logged these as 15 inches and 12 inches.

D.D.S-17.

324'10" to 328'6 $\frac{3}{8}$ ". Veins 1", 2 $\frac{1}{4}$ ". Average assay 1.81% tin,
0.02 ~~0.2~~% wolfram.

Total 1.83% over 33 inches stoping width.

324'10" to 334'10 $\frac{3}{4}$ ". Veins 1", 2 $\frac{1}{4}$ ". 9". Average assay 0.73% tin,
0.02% wolfram.

Total 0.75% over 90 inches stoping width.

D.D.S-19.

364'6" to 365'2 $\frac{1}{2}$ ". Vein 5". Assay averaged over a stoping
width: 0.03% tin, 1.07% wolfram. Total
1.10% over 48 inches stoping width.

D.D.S-20.

478' to 481 $\frac{1}{2}$ '. Veins 5", 10". A large crystal and smaller
grains of tin. Average Assay 0.34% tin
over 48 inches, stoping width.

SIZE OF THE PROSPECT.

It has often been suggested that if Aberfoyle Mine had been deeper below surface, it would not have been payable at the outcrop. On this basis it is interesting to compare the mine with the Lutwyche "Pay Vein". The first assumption is that the Lutwyche "Pay Vein" outcrop resembles what the Aberfoyle veins might have looked like 100 feet above the present surface. The second assumption is that the change in strike and dip of the "Pay Vein" going southeast resembles the curvature of the Aberfoyle veins going south.

On Figs. 8 and 9, the assumed general shape of the "Pay Vein" has been rotated about 50° in strike and fitted over level plans of Aberfoyle Mine so that the curves match.

Figs. 7 and 10 have been derived by the same process.

The widths of quartz in the "Pay Vein" average a half to two thirds of those in the "matching" places in Aberfoyle Mine, and there were of course more veins in Aberfoyle.

It is reasonable to suppose that the length of the "Pay Vein" will be similar to Aberfoyle, and it has been so marked on the comparison plans. The drilling has proved it over a length of 850 feet. The Lutwyche Line itself is much longer than this.

Fig. 10 and Fig. 6 show the target for D.D.S-21, which if the comparison holds, will intersect the curving and flattening vein in depth at the "centre of the mine".

Taking the comparison further, aplite might be expected in depth and Fig. 6 shows the outline of the Aberfoyle aplite "transferred" to the Lutwyche. (There is no real information on the aplite outside the two mines - see Blisset p.p. 29, 30, 71).

MINING ASPECTS.

GRADE : On present indications the vein will become payable 100 to 200 feet below outcrop and should then average about 1% combined metals over a stoping width of 4 feet without sorting. It is likely that there would be an improvement in width, but not necessarily in grade, with greater depth.

GROUND CONDITIONS: The vein is not close to any other vein and is almost parallel with the bedding in solid unshered country which should make it suitable for shrink stoping.

*except along and
Hawthorn fields*

WATER : A flow of 5,000 gallons per hour of artesian water was met in D.D.S-17 and 19 in the Kookaburra Fault. It should be possible to pipe this off without pumping. This flow is believed to have tapped off some of the water which formerly entered Aberfoyle Mine, indicating that the Kookaburra Fault is a major structure extending under the Burns Marsh.

RECOMMENDATIONS.

Results suggest that a deeper test on the "Pay Vein" is desirable. It is proposed to site D.D.S-21 to test the veining in the Kookaburra before going on to test the Lutwyche. The result of this hole will not affect the following :-

The chief objective now is to decide whether the "Pay Vein" is a continuous mineable group of veins. A bench should be cut north-west of the outcrop to expose the veining and opened out until sufficient height is obtained to drive an adit. Another adit could also be driven southeast on the other side of the creek.

It is not expected that this will be in payable ore, the only objective being to determine the continuity of the veining. As the work progresses, a site should be chosen for a deep winze. If at this stage drainage becomes a problem, a by-pass tunnel could be driven from coords. 7500N, 3500E, cutting the "Pay Vein" en route and breaking through at coords. 7650N, 3750E, a distance of 300 feet.

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