

REPORT ON S. A. AND W. A. BETTS' LEASE 30M/42, TINSTONE  
CREEK, NEAR WARATAH

INTRODUCTION:

As instructed by the Director of Mines, an examination was made of Lease No. 30M/42 of 16 acres held by S.A. and W.A. Betts of Waratah. This was originally taken up along the creek as a dredging claim. A survey contained within this lease, and this is indicated on the accompanying plan.

LOCATION AND ACCESS:

The lease is situated on Tinstone Creek, a tributary of the Arthur River, about  $1\frac{1}{2}$  miles north west of the township of Waratah, from which it can be reached by a steep track. On the flat west of the old Bischoff Extended Mill there is an old tram formation which is used as a track as far as the Arthur River.

ECONOMIC GEOLOGY:

The distribution of the wash, as shown on the plan, has an area of 9.5 acres within the lease boundaries, and a width varying from one chain to two chains. The depth is not constant as the wash rests on a very uneven bedrock with sudden changes in grade due to hard sandstone bars. The flat itself has an average grade of approximately 1 in 20, but this is no criterion of the grade of the bedrock, as the runs of the richer portions of the alluvial wash are very tortuous and have comparatively long flat stretches separated by sudden drops.

The maximum depth of the wash does nowhere, as far as observed, exceed ten feet, but as there are rapid fluctuations in the depth of the wash, the average depth would be much less than the figure quoted above. A cross section of the wash would show in general that it thins out rapidly on the edge of the flat.

The wash consists to a large extent of boulders, many of which average about a foot in diameter, while the percentage over six inches in diameter is very high. At least 50 per cent. of the wash consists of pebbles and boulders.

The tin ore is not evenly distributed throughout, but is concentrated near the bottom portion of the wash. It is coarse and contains an appreciable amount of specimen tin. Some is well rounded and this probably represents a re-concentration of alluvial tin from the Don Hill Deep Lead, at the head of Tinstone Creek, the source also of much of the well rounded wash, in the creek. The specimens are most likely derived from the West Bischoff or Giblin Lode, and Thompson's Lode, which outcrop within the watershed.

No attempt has been made to assess the average tin content of the wash except by actual mining. Evidence of previous mining of the alluvial is shown by the stone stacks along parts of the valley, but tailings from the West Bischoff battery and later work by tributers, have covered much of the older workings. It is thus impossible to determine with any degree of accuracy how much maiden ground is available for working.

The actual area of the alluvial deposit in the lease is  $9\frac{1}{2}$  acres, and assuming an average depth of 3 feet, the yardage available would be 46,000 cubic yards. Of this 50 per cent. is composed of boulders, reducing the amount available for treatment to 23,000 cubic yards. Of this an indeterminate percentage has been worked previously, and of the remainder, the workings available for inspection indicate that the tin content is concentrated in narrow gutters, which occupy only a portion of the total width of the flat. From richer portions of the gutters, Mr. Betts states that he has obtained 10 to 12 pounds per cubic yard.

In assessing the potentialities of this claim, two factors are of prime importance :-

1. The average grade and width of the gutters;
2. The total amount of ground that has not been worked previously.

These cannot be satisfactorily determined but would reduce appreciably the amount of wash available for treatment.

In some cases the gutters were from 10-20 feet wide, that is, only a small fraction of the total width of the flat. Owing to the stone stacks, precise figures of the widths cannot be given.

Apart from the difficulty of determining the extent of the previously worked ground, due to the covering of mill and sluicing tailings, there is an added complication due to the fact that the wash has not always been worked to bottom, in the vicinity of the terrace wash.

Up to the present the ground has been worked by manhandling stacking the stones, and forking and boxing. There is normally sufficient water for this, as the underground water from the main tunnel at Mount Bischoff has been diverted to Tinstone Creek.

Water at a good hydraulic head could be made available for the eastern end of the lease by reconditioning the old Bischoff Extended water race from Ritchie Creek. It would require minimum length of column of about 1,000 feet.

Even if the total amount of available wash was sufficient to justify such expenditure, the heavy nature of the wash would prevent the use of ordinary hydraulicking methods. The supply of water from Ritchie's Creek would have seasonal fluctuations.

#### CONCLUSIONS AND RECOMMENDATIONS:

This mining property is an attractive one for small operators, but there is no justification for installing a scheme for hydraulicking, as the quantity of wash available is too small and the chief item of cost of recovery would be in manhandling and stacking of the bouldery wash.

The application of mechanical means of handling the stone does not appear feasible, and any appreciable capital expenditure is not justified by the prospects of this claim.

D.E. Thomas,  
GOVERNMENT GEOLOGIST

Q.J. Henderson,  
FIELD GEOLOGIST.

Department of Mines,  
HOBART.

13th September, 1943.