

PRELIMINARY REPORT OF BLUE TIER WELD
TIN MINING COMPANY.

Introduction

This report is the result of a short visit of inspection on 13th October, 1927. A few hours only was available, but during that time sufficient information was obtained for the purpose in view, namely; to determine the course of the sub-basaltic valley and to ascertain whether deeper ground lay to the south-east of the present cut.

Area, Situation etc.

The Company holds under lease a 5-acre lot (111 P/M) situated about 2 miles south-eastward of Weldborough and about $\frac{1}{4}$ miles on the south side of the main road to St. Helens.

In addition the Company holds under lease 2567W a dam site of 20 acres in the valley of Rio Grande River.

The Deposits and their Origin

The sub-basaltic alluvial beds lie at an elevation of 100 feet above Weld River and 1400 feet above sea-level. They occupy a terrace on the south side of the Weld and apparently mark the position of that river at the middle of the Tertiary Period. The eruption of basalt at that time, and the resultant filling of the channel, brought about the diversion of the stream to its present course and the gradual corrodng of its bed to a depth of 100 feet below its old level. The original stream came from the north-east where its position is marked by a band of lignite in the road cutting - a band corresponding to that exposed in the mine workings - but its source was not far distant in the Blue Tier Range.

The history of the formation and their preservation of the beds may be gleaned from an inspection of the open-cut.

The following is a section of the formation exposed in the workings.

	Surface	
Basalt		
Boulders and soil	15 feet	barren
Coarse-grained granite waste stained and cemented by brick red iron oxide	7 feet	contains a little tin ore.
band of lignite	2 inches	
Indurated granitic sand fine in grain	4 feet	barren
Coarse river wash cemented highly and consisting of granite pebbles and boulders with also much volcanic ejectamenta	5 feet	contains the bulk of tin ore.
Soft granite bottom with veinlets of quartz and tin ore		Some of these veinlet are extraordinarily rich, but they are only $\frac{1}{4}$ to $\frac{1}{2}$ inch wide.

The bedrock of soft granite porphyry is veined with streaks of quartz-cassiterite, and it was the working of this deposit that led to the discovery of the sub-basaltic gravels. An examination of the tin ore in these gravels shows that it is similar to the ore found in the bedrock. Moreover, it is sharply angular and coarse in texture. In some parts the bedrock consists of porphyritic salmon pink felspar, a little quartz and white kaolinised felspar and greyish green interstitial matter. The greyish green talcose material may represent the substance of biotite.

The river gravels, containing the bulk of the tin ore in the formation is made up largely of granitic rocks in boulders up to a ton in weight and of volcanic ejectamenta, the whole firmly cemented with fine interstitial sands and clays. All compounds of the gravels are well rounded and all are in the last stage of decomposition. The richest streaks of ore are found close to the bottom, generally cemented to the encasing stones and bedrock with oxide of iron, which evidently was derived from the overlying basalts by infiltration. The size of the individual components of the gravels their rounded condition, and their structural arrangement show that they formed the bed of a torrential stream of considerable magnitude. An interesting feature of these gravels is the volcanic component which consists of bleached white basaltic material flecked with waxy green zeolite.

The 7-foot bed overlying the "wash" is in striking contrast. It consists of compacted and cemented granitic sands, fine in grains, and barren of tin ore. The texture and composition of these sands clearly shows that a barrier to erosion had been formed downstream probably as the result of a basalt lava flow. Moreover, the appearance of a thin band of grey clay and a persistent band of lignite at the top of the indurated sands is suggestive of lacustrine conditions. The next succeeding bed of coarser-grained waste of granite is cemented with a deep brick-red decomposition product of volcanic ash and lava. The coarser grain of the sands shows that the rate of flow of the water had increased when the eruption of the basalt and the filling of the valley with lava brought to an end the life of the stream, or more correctly, the division of the waters to the present channel of the Weld.

General Remarks

In an examination of the old stream bed it will be seen that the floor is dipping into the hill and that the depth of gravel increases gradually as the cut is extended in that direction. From this it will be gathered that the gutter is further ahead and that the floor of the valley is wide. The most convenient way of proving the width extent, and value of the deposit is by drilling. If the results of drilling are satisfactory it is advised that the deposit be opened on the gutter further westward, and that the present opening be used as a dumping ground for the basalt overburden the removal of which under existing working conditions is costly and slow.

The deposit is not a very extensive one - in fact it is but a remnant of the old stream bed. Further exploration, however, is justifiable according to the evidence obtained in this investigation.

A. M. C. L. REID
DIRECTOR OF MINES.

Mines Dept., Hobart.
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