REPORT ON THE ARTHUR RIVER ALLUVIAL FLATS NORTH OF ITS JUNCTION WITH THE WARATAH RIVER.

LOCATION & ACCESS -

The alluvial flats described in this report occur along certain portions of the Arthur River north of its junction with the Waratah River. This junction is situated some three miles north-north-west of the township of Waratah.

Access is gained from Waratah- the railhead of the Emu Bay branch line from Guildford. From Waratah a metalled road four miles in length connects with the North Valley workings of the Mt. Bischoff Co. From the end of the road a pack track runs along the valley of the Waratah River for a distance of one mile to the junction with the Arthur River. The pack track then continues down the eastern bank of the Arthur along the route of T.Jones' track as far as the Belmont River. Jones' track continues downstream but has not been cleared out in recent years.

MINING TENEMENTS -

From a short distance north of the junction of the Waratah and Arthur Rivers, the land on both sides of the latter stream is held under a number of extended prospecting claims. These claims are each of 640 acres and from south to north are charted in the names of E. Smith, R.E. Smith, E.M. Smith, C.E. Brown, W.Gleeson, W.A. Carruthers and E. Pennefather.

TOPOGRAPHY -

The Waratah district consists of a deeply dissected plateau. The surface of the plateau has an altitude of 2000 to 2200 feet above sea level with residual mountains such as Mt. Bischoff (2598 feet) rising to greater heights. The Arthur and Waratah Rivers and their tributaries have cut deep gorges into the plateau. The junction of the Arthur and Waratah Rivers is 1000 feet below the surface of the plateau, while the junction of the Arthur and Belmont Rivers is 1100 feet below the surface.

GEOLOGY.-

The plateau is covered by extensive sheets of Tertiary basalt with a thickness of 100 feet. The basalt overlies 100 feet of Lower Tertiary sands, clays, gravels, etc. representing deposits in a former lake.. These thin layers covered the surface of a peneplain and produced the level surface of the plateau. The peneplain surface was occupied by Lower Palaeozoic rocks comprising the Dundas series, Bischoff series and Devonian igneous rocks. The Dundas series consists of slates (red and yellow), breccias, charts, etc. with possibly tuffs and lavas. The Bischoff series comprises black slates and sandstones. Of the Devonian igneous rocks the most prominent in the Waratah district are the porphyries of Mt. Bischoff and the basic and ultrabasic rocks which are present in small amounts.

Along the road from Waratah to the Arthur River (North Valley road) the following formations are passed over. From Waratah basalt is passed over as far as the Don Hill where the Bischoff slates and sandstones with intrusive porphyries occur. These continue as far as the alluvial workings of the Mt. Bischoff Co. The junction of the Bischoff and Dundas series exists in the vicinity of these workings and the Dundas series extends down the Waratah River.

Alluvial deposits occur along the bed of the Waratah River both upstream and downstream from the Mt. Bischoff workings.

At the junction of the Arthur and Waratah Rivers the bedrock is a basic igneous rock which represents either rocks associated with the Dundas series or else one of the dykes which acted as feeders for the Tertiary basalt flows. This basic rock is exposed on the eastern bank of the Arthur River for 25 chains downstream from the junction.

Between 25 and 50 chains two small alluvial flats occur on the eastern side. The hills which come down to the river at 40 and 60 chains are composed of cherts of the Dundas series. A narrow flat occurs on this bank between 60 and 95 chains and then widens and continues until it occupies the angle between the Arthur and Belmont Rivers. It also extends some distance up the southern side of the Belmont River. A higher bank extends along the south-western side of the Belmont River near its junction with the Arthur River and apparently represents the remnants of a former terrace. The alluvial flat is occupied by heavy river gravels.

ECONOMIC GEOLOGY -

The valley of the Arthur River was taken up on account of the possibility of the ulluvial deposits containing tin ore (cassiterite). It was assumed that the cassiterite was transported by the Waratah and Arthur Rivers from the vicinity of Mt. Bischoff where extensive primary tin-ore deposits occurred.

The valley of the Waratah River has been proved to contain tin-bearing alluvial deposits (the cassiterite in which was derived from portion of Mt. Bischoff) as far as the junction of the Arthur and Waratah Rivers. The payable portion of the deposits, judging by the locality where the Mt. Bischoff plant started to work, does not extend closer than 60 chains of the junction. It does not follow, however, that there are not small payable areas as far as the junction.

The question then arises as to whether tin ore has been carried further down the Arthur River and whether there are likely to be payable concentrations. The first part of the question is easily enough answered as it is highly probable that some cassiterite has been carried downstream as far as the Belmont River.

The query as to how much cannot be so readily answered. From the geological view point one would say that there are not likely to be payable concentrations because -

1. The payable ground does not appear to extend even to the junction of the Arthur and Waratah Rivers.

2. The Arthur and Waratah Rivers are younger than the basalt covered plateau and thus there has not been sufficient time for cassiterite to be carried and concentrated at great distances from its source.

The only procedure to test whether the flat contains payable tin-deposits is by shaft sinking. Only one shaft has so far been sunk. It is situated close to the Arthur River and some 12 chains upstream from the junction of the Belmont River. It was full of water at the time of the writer's visit, but it appeared to be eight feet deep. On the dump there occurred boulders up to 12 inches diameter. They were sub-angular and consisted of quartzite, basalt, chert, basic igneous rocks and porphyry. The presence of the porphyry proves the derivation of some material from the Mt. Bischoff region.

It was stated that the shaft did not reveal payable ground, but it was not clearly described as to whether the deposits were or were not tin-bearing.

The abandoning of the prospecting after one shaft had been sunk rather suggests extremely low values.

CONCLUSIONS & RECOMMENDATIONS -

It is obvious from the above descriptions that it is impossible to state where payable tin-deposits are likely to occur along the Arthur River near Belmont River. The only way of determining this is by a campaign of prospecting by shaft sinking. Only one shaft has been sunk and has not proved payable ground.

(Sgd.) P.B. Nye.
GOVERNMENT GEOLOGIST.

Mines Department,
HOBART.

17/4/29.