

### Introduction:

Primarily this investigation was undertaken for the purpose of determining the economic possibilities of the tin prospects in the vicinity of the Bluff River and secondarily to examine the country east of Mount Farrell area in which the writer has been engaged in detailed geological mapping for some time. The lack of complete field maps, the rugged nature of the country and the comparative inaccessibility made it impracticable to undertake a detailed geological survey of an area of any extent, attention was directed to the area in the immediate vicinity of the tin prospects. As the governing factor was the amount of supplies it was possible to pack in, only six days were spent on the trip from March 18th to the 25th inclusive.

Although there have been many sporadic attempts to work certain sections of these deposits by ordinary sluicing methods there is no official record of any of the mining operations nor of actual production figures.

### Location and Access:

The Bluff River tin prospects are approximately 13 miles east of Tullah and was reached only after an arduous journey of nearly 30 miles, most of which is over the Tullah-Cradle Mount track which has been constructed in defiance of the topography and consequently has become simply a mountain path which has little or no ultimate value as a route for future roads.

The track, at the present time, is in a very bad condition particularly through the forest areas, where the scrub has been brought down by the exceptionally heavy falls of snow last winter and were it not for stakes marking the route across the open country would be most difficult to follow. It is almost impossible, except in very dry weather, to take a horse on this track owing to the rotten condition of the culverts, bridges and cording across the button grass plains, particularly on the Sophia flats. The track was followed a distance of approximately 25 miles from Tullah on to the plains between Granite Tor and Mount Inglis where the staked trail was left and the journey continued across pathless plains in a general south easterly direction around the head waters of Russell Creek until the edge of the Bluff River gorge was reached. By following down a leading spur, the sidling track from the tin prospects to the edge of the plains can be located. Steep grades are a feature of this track.

### History:

The discovery of tin in this area was, in the first place, due to the fortuitous preservation of a temporary or local base-level which permitted an accumulation of some detrital tin ore on the side of the steep gorge. W. Aylett made the actual discovery in 1910, when a reward section of 80 acres was granted for a period of three years from May 25th of that year.

No official records of production exist but it is known that several spasmodic attempts were made at mining, although it is apparent from the amount of actual work done that the total production of tin concentrates would

not be great, probably not exceeding a few bags at each attempt.

After the reward lease lapsed, mainland interests acquired the sections in the name of Danby in 1914. A. G. Black made application for the leases in 1917 and held them until 1920 when they were transferred to the Bluff River Tin Mining Syndicate No Liability.

I understand that Messrs. Betts and Atkinson worked a small area after the company ceased operations. In 1928, two men were granted sustenance to prospect in the area.

#### Physiography:

The area is one of high relief consisting as it does of a deeply dissected plateau. The gorge of the Bluff River is probably 1500-2000 feet deep, with the tin prospects perched about two thirds of the way down, on a flat which is a remnant of a local or temporary base-level.

Undoubtedly, block faulting has played the major part in determining the present topography, although subsequent modification by glaciation is apparent.

Many residual destructional forms, benches which almost certainly represent temporary or local base-level conditions which seem to have been a dominant factor in the development of the button grass plains so characteristically a topographical feature of the West Coast of Tasmania.

#### Geology:

The predominant rocks in the area are the granites which occupy most of the surface of the area examined with the exception of a narrow east west belt of quartz schists extending from the tin prospects to the edge of the plain to the north and the pebbly mudstones of Mt. Inglis which overlie the granite farther north.

The belt of quartz schists referred to the Algonkian Age represent a roof pendant or a remnant of the cover rocks intruded by the granite while the Permo-Carboniferous pebbly mudstones, overlie the granite.

The quartz schists are fine-grained, white, opaque rocks in which the mica component lends a silvery shining lustre. The granite exhibits many features in common with all the tin-bearing granites of Tasmania and although there is no definite age relationship observable within the area it is regarded as being of Devonian Age in keeping with the generally accepted practice of the Geological Survey. The true relationship of the granite-quartz schist junctions could be established only in the immediate vicinity of the mine workings where the granite is definitely intrusive and the western limit of the quartz schists near Granite Tor where the junction is a faulted one.

#### Economic Geology:

Mining operations have been directed to the sluicing of a very limited area of shallow detrital, derived from a series of narrow quartz greisen veins. The total area in the three areas tried is about two thirds of an acre and in addition approximately 15 chains of creek have been ground sluiced within very narrow

limits not exceeding ten feet wide. The veins have a maximum width of four inches and appear to be persistent over a considerable distance.

The general direction of the strike of the veins is from north 10 degrees west to north 20 degrees east with another set of veins striking south 50 degrees west. The dip could not be determined with any degree of accuracy in the limited exposures but did appear to be to the west at a high angle.

The quality of the tin appears to be good as the only associated mineral observed was wolfram in one place.

To the north the greisen veins can be traced into the quartz-schists but no attempt has been made to follow them any distance because all the previous operators were concerned only with sluicing.

The topographic relief is generally of decided advantage for mining and facilities are excellent both for mining by adits or open-cut.

No attempt was made to sample the veins because of the limited exposures and the lack of proper sampling equipment. It is realized that the individual value of each vein is not high but the collective value of each group of veins may prove to be of commercial importance.

Therefore, it is desirable that exploratory work should be so designed as to embrace such groups. Furthermore the evidence indicates definite trends in vein distribution which can best be prospected by a series of east-west trenches.

#### Conclusion:

There is no possibility of the existence of any extensive areas of alluvial or detrital deposits and the future development of the area depends entirely on the location of areas where the greisen veins are sufficiently abundant to constitute an economic ore when mined collectively.

The heavy cover of horizontal scrub has been and will be a real deterrent to prospecting.

From the foregoing incomplete account, it will be apparent that a great amount of exploratory work is necessary before an attempt can be made to form a true estimate of the tin content of these prospects but the indications are such as to warrant some expenditure in determining the nature and extent of the deposits.

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