

REPORT.
on the
CREAM CREEK TIN MINE

LOCATION AND ACCESS:

This mine is situated along Cream Creek a tributary of the Frome River, about three miles to the N.N.E. of Weldborough and four and a half miles to the E.S.E. of Moorina.

There were two means of access by means of cart roads from Weldborough and Moorina. The road from the latter would be five to six miles in length and would be the more natural route to follow, but it is now overgrown at its eastern end and would require opening up and repairing.

The road from Weldborough would be about four miles long but would have steeper grades. About three miles of it are in use at present but the remainder would need clearing etc.

MINING TENEMENT

The mine is included in an Extended Prospecting Claim of 640 acres in the name of the West Blue Tier Tin N.L. granted until 31/12/28.

GEOLOGY

The whole of the Cream Creek district is occupied by granite of Devonian age which forms part of the large granite batholith of north-eastern Tasmania. The granite is intrusive into the Cambro-Ordovician slates and sandstones which however, have been denuded from the district under review.

Narrow Basic dykes probably associated with the Tertiary intrusions of basaltic lava traverse the granite.

Alluvial deposits of recent age occur along the courses of the streams.

ECONOMIC GEOLOGY

The Cream Creek district possesses similar features to that of the Blue Tier (Poimena and Lottah). The tin deposits consist of granite altered in various ways and to different degrees. The alteration appears to be restricted to an even-medium grained granite which is quite distinct from the coarse porphyritic granite of the north-eastern district.

The even medium granite has been altered by mineralising solutions or vapours to various degrees and in various ways. The most common alteration at Cream Creek has resulted in a rock consisting of quartz, muscovite, altered feldspar and pinite (a yellowish grey, waxy, compact variety of muscovite) with the metallic minerals cassiterite (tin oxide) and chalcopyrite. This alteration apparently represents the extreme stage of this type of attack of mineralisers on the granite and there are numerous intermediate stages between it and the unaltered granite. The feldspar was the first mineral attacked and in some cases the alteration did not proceed further with the result that types representing merely softened granite and other with altered feldspars only, are present. As a general rule it would appear that the types containing pinite are tin-bearing and these probably represent the most extreme alteration.

This method of alteration has affected the granite as a whole and to have occurred under a cap of unaltered granite. The altered granite therefore appears to have a considerable lateral extent and different layers appear to have been altered to different degrees. With the variation of the tin ore in the different layers the ore-deposits appear therefore to occur in flat "floors" a factor which is supported by the nature of the mining works.

Another type of alteration results in the production of greisen veins with the numerous intermediate stages of indurated granite etc. between the greisen and the unaltered granite. The greisen may be either of the quartz or quartz-mica type with sometimes reef quartz associated with them in small quantities.

The greisen is arranged in veins on irregular bodies along a general line and appear to have resulted from alteration proceeding from vertical or highly inclined fissures. Greisen veins are not prominent at Cream Creek.

Tin deposits as described above are more or less irregular in outline and extent while the content of tin ore is also irregularly distributed throughout them.

HISTORY AND PREVIOUS LITERATURE.

The Cream Creek district was opened up as an alluvial field apparently in the early eighties. It was visited by G. Thureau in 1886, and his report is included in the "Report on the Blue Tier Mining District and its Tin Deposits" dated February, 1886. In this report Mr. Thureau states that "the gravels on the gullies have yielded in a short period over 200 tons of ore." The primary deposits (described as lodges and dykes) had also been discovered and a certain amount of work performed on them, although "no systematic opening of the permanent formations has been attempted."

The Cream Creek Tin Mining Company N.L. was formed in 1888 and machinery and treatment plant was erected in 1889.

The Mine was idle in 1892 when visited by Mr. A. Montgomery in that year his report being included in the "Report on the Tin Mines at the Blue Tier County of Dorset" dated 19/1/1893. The report includes a statement that the mine manager reported that "4375 tons of stone were crushed for a return of 21 tons of tin ore, worth, on the Mine £50 a ton, or £1050. The stone yielded 0.48% of black tin and had a value of 4/9½d. per ton."

Little work appears to have been carried out during subsequent years until the period 1917-1924 when a small plant was installed at the upper workings and the mine was worked during some portion of the above period.

MINE WORKINGS

The working of the Cream Creek Company consists of four open cuts (counting the upper workings as one). In addition a shaft was sunk to a depth stated to be 90 feet, and numerous shallow excavations have been made as the result of sluicing along the gullies and in portions of the soft granite.

Practically all of the open cuts were excavated by the Cream Creek Company in the late eighties. A small amount of work (stoping) was carried out during a considerably later period (1917-1924).

A very extensive sampling campaign was carried out by the Mt. Lyell Mining & Railway Company in 1906 and 1907.

This comprised 3 bore-holes, 4 trenches, and the sampling of four open cuts (counting the upper workings as one.)

EXTENT OF THE DEPOSITS

The mine workings have exposed the tin deposits at numerous places along a length of 1400 feet, the workings being arranged along a line with a general trend from north-east to south-west. The above rather suggests a lineal deposit with a bearing of 45° , but this is not necessarily the case. If as suggested in the upper workings, the deposits occur beneath a cover of unaltered granite, the form of the summit of the deposit and the topography of the area. As far as the visible evidence extends the dip is fairly flat and the deposits will have to be sought therefore in the portions of the area at altitudes below that of the upper workings. These portions include the valleys of Cream Creek and its tributaries and as the workings are situated along Cream Creek they confirm in a general way the above interpretation of the geological structure.

The extent of the deposits could only be determined therefore by prospecting and geological survey in the valleys of Cream Creek and its tributaries.

VALUE OF THE ORE

The value of the ore has been partly determined by past workings and sampling campaign.

Past Workings.

It is evident from Montgomery's report of 1893 that the mining was selective, 10 tons of rock being discarded for every ton treated.

The ore treated gave a recovery of 0.48% cassiterite so that the value of the ore mined was much less. Just what proportion of this discarded ore was barren and how much contained cassiterite cannot be determined. The tin ore in the discarded ore would have considerably increased the value of the total ore mined.

The results and the more recent workings would give a good idea of the grade of the ore, as all the ore mined appears to have been treated, but unfortunately the statistics are not available.

Mt. Lyell Sampling.

The sampling campaign included the putting down of three bore-holes, the excavation and sampling of four trenches and the sampling of the four open cuts.

Each bore-hole was inclined a 45° to test the ground beneath the open cuts and were 100 feet in length. Except for 6 feet yielding 10% tin, the results were "nil" ores.

The total length of the four trenches was 540 feet, the average content being 0.0478% tin. The best results over short lengths were 25 feet for 0.34%, 25 feet for 0.19%, 36 feet for 0.15% and 25 feet for 0.16% tin.

The sides of the open cuts and stopes were sampled by taking small pieces at short intervals along horizontal lines round the sides of the workings. Altogether 2467 were sampled and gave an average of 0.0482% tin. The best results over short lengths were upper workings 0.12 for 18 feet.

	0.30	for 21 feet
	0.36	" 48 "
	0.15	" 37 "
	0.12	" 25 "
Intermediate workings	0.30	" 30 "
Lower "	0.53	" 10 "
	0.26	" 28 "

It must be pointed out that this method of sampling horizontally tests only the particular layer from which the samples are taken, if, as appears to be the case, the ore occurs in flat "floors"

The above sampling campaign proves that the whole of the deposit as tested is low-grade, but that small portions contain ore of payable grade. It serves to prove the erratic distribution of the cassiterite throughout the ore deposit and to emphasize the necessity for thoroughly testing the deposit before attempting to mine and treat it.

The quickest and most economical method of testing the deposit would be by drilling. This is recommended in spite of the fact that drilling has its greatest uses and advantages in testing regular deposits. The only alternative to drilling would be the much more expensive one of shaft sinking.

RECOMMENDATIONS AND CONCLUSIONS

The types of primary tin deposit occurring at Cream Creek are generally similar to those at the Blue Tier (Poimena and Lottah). They are generally irregular in outline and extent and the tin values are also irregularly distributed throughout the deposit.

In all mining operations, the ideal procedure is to prove the presence of a sufficient amount of payable ore to justify the installation of mining and machinery and treatment plant and to enable operations to be carried out over any required period of time.

This procedure should especially be followed in cases of irregular deposits such as those described above. This involves preliminary prospecting and testing by boring or shaft sinking etc.

The essential procedure for the testing of the deposits is:-

- (1) Clearing of the area concerned which is now thickly overgrown with secondary growth.
- (2) Definition of the body or bodies of the tin-bearing deposits by survey prospecting and geological survey.
- (3) Testing by boring if, at first, selected parts of the ore deposits e.g. in the vicinity of the upper workings, which have been proved by past workings etc. to contain the richest ore and thus offer the most favourable places for mining operations.
- (4) Future operations to depend upon the result of the above tests.

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