MT. REX MINE

The ore-body at the Mt. Rex, or Rex Hill, mine was discovered prior to 1890 and was considered to be a silver-lead one, the Rex Hill S.M. Co., N.L. being formed to work it in 1890. By 1892, a small open-cut had been made, a shaft sunk from it and an adit driven to a point below the bottom of shaft. The importance of the tin content of the ore-body had now been recognised and the Rex Hill T.M. Co. Ltd. was formed in 1895 to be superceded by a company of the same name in 1899 which was voluntarily wound up within a short time. The Rex Hill Tribute Assn. N.L. was formed in the latter year and the Mt. Rex T. M. Co. N.L. was formed in 1900 and continued operations until 1909. The latter company began active developmental and mining operations as indicated below:

1900 New shaft sunk to No.1 level and level started.
1901 Completed No.1 level and mining therefrom.
1902 Shaft sunk to No. 2 level and level started.
1903 Shaft sunk to No.3 level and level started. and an intermediate between Nos. 2 and 3 driven.

At a later date Nos.2 and 3 levels were extended to their present positions.

After the company ceased active operations in 1909, tributors continued mining until 1913, since when underground minings have ceased.

Recently Mr. H.G.Gray became interested in the mine and has had the shaft repaired and the mine unwatered. At present systematic sampling of the ore-bodies is being carried out.

Geology.

The vicinity of the Mt. Rex mine is occupied by granite consisting almost entirely of quartz and large white felspar phenocrysts.

The ore-bodies are greisenised granite, the granite having been altered to a finer grained mixture of quartz, altered felspars, pinite etc. Flourite occurs on the joints in the open-cut ore-body.

The most important metallic mineral present is cassiterite (tin oxide), but others present include chalcopyrite, pyrite, arsenopyrite, galena and sphalerite. The ore-body was, in fact, first opened up for galena, a portion of the Main ore-body in opencut being rich in this mineral. A zone of white reef quartz occurs in the centre of the opencut, and narrow quartz veins are visible at places in the other ore-bodies.

As a general rule in N.E. Tasmania, these greisen ore-bodies occur as tabular-bodies with rapidly changing widths. At Mt. Rex, the conditions are similar but the Main ore-body is more like a pipe, and the North-South ore body is a continuation of same.

The Ore-Bodies.

Main Ore-Body. This ore-body was exposed and mined from the open-cut; was intersected in the adit and mined above and below it. was intersected at No. 1 level and mined above and below; was intersected and mined above No. 2 level; and was proved by a winze from No.2 to No. 3 level but not mined between them. The ore-body was generally circular in shape but had a more or less N. and S. trend along its greatest length as shown by the following:

	Length	Width	Trend
Open-cut	70	55	N. & S.
No. 1 level	90	70	N. & S.
No.2 level	110	56	N. & S.
No.3 level	Not known		

These figures are taken from the workings shown on the plans and may not of course represent the total measurements of the ore-body particularly at the open cut and adit levels.

The workings prove that it has a dip of about 81° to the east and a pitch of 74° to the north.

White Ore-body.

This ore-body occurs in the west cross-cut off the No.2 level where a chamber 20' by 25' has been opened up on it. It is 15 feet west-south-west of the southern end of the Main ore-body. Inaccessibility has prevented an examination of its extension to the north where it may have been cut in the No. 2 level north of the crosscut. No information is available as to its extension in a southern direction. While this ore body is referred to as a separate one, its position close to the Main ore-body makes it very probable that it is an extension of irregular bulge from the latter. It may even be that it is connected with the Main ore-body at some places and not at others where a band of granite might separate the two.

North and South ore-body.

This name has been applied to the linear extension from the Main ore-body north from the open cut. It has been cut in the No.2 shaft, 75 feet north of the open-cut and has been trenched along to the north for 25 feet. It is 3 to 4 feet wide and apparently vertical.

Further north it was probably cut in the No3 shaft, on the dump of which ore can be seen. Still further north, it was assumed to have been cut in No.4 shaft, but this is off the line of the ore-body and unless its strike swings to the west, it cannot have been cut in No.4 shaft. It seems however that it was cut in the small opencut in the trench about 110 feet north of No.3 shaft although this would indicate a slight bend to the west.

This ore-body does not appear to have been developed underground except at Nos.1 and 2 levels where it continued from the Main ore-body. However the extension of No.2 level could not be examined and it may have been followed in that drive. If not, the eastern

crosscuts were probably driven in order to intersect. If it has a similar dip to the Main ore-body it is possible that only the longer crosscut intersected it.

Stephenson Ore-body.

This has been cut in No.4 shaft, a considerable stack of ore being visible on the dump therefrom. It has been assumed that this was the northern continuation of the North and South ore-body but as pointed out above the latter would have to bend to the west.

This ore-body has not been cut in the underground workings, except in so far as the North-South one may represent its continuation.

Open-cut Ore-body.

This ore-body has been exposed in an open-cut 350 feet north-west from the main shaft. It has been assumed that this ore-body is connected with that cut at the north end of No.3 level. In plan it is 300 feet to east of the end of No.3 level and 390 feet above it. In the open-cut, it has a general east-west strike and is apparently dipping vertically.

The ore-body at the end of No.3 level is generally on the line of strike of the open cut one but in order to be one and the same, the latter would have to pitch westerly at an angle of 52°, and dip southerly at 80°.

Except in so far as it may be a continuation of the ore-body to be described below, the Opencut ore-body has not been exposed in the underground workings.

It will be noted from the plans that No.3 shaft is on the line of any western extension of the Opencut ore-body. Ore has been extracted from this shaft but it has not been cleaned out and it has been assumed that the ore is part of the north-south ore-body which appears most likely.

No.3 level Ore-body.

Ore has been cut in a chamber 16' x 24' at the northern end of No.3 level. It appears to have a general east and west strike and the dip is not definite but is nearly vertical. At its eastern end it appears to be bounded by a wall striking N. & S. and dipping west at 70° to 80°.

This ore-body has not been cut at a higher level unless in the inaccessible part of No.2 level. The face of No.2 level is not nearly as far north as that of No.3, and it could not have cut the ore-body unless it dipped northwards at an angle less than 75°. From statements made by tributors miners who worked in the mine it would appear that the ore was not cut at No.2 level.

As stated above, it has been assumed that this ore-body represents the downward extension of a Opencut ore-body, and as pointed out the latter would need to have a high dip (about 80) to the south and a westerly pitch of 52° to connect with the No.3 level ore-body. There is certainly a wall at the eastern end of the latter, but it dips west at 70° to 80° and would need to become much flatter in order to conform with the 52° pitch.

For the present it would be safer to assume that the two ore bodies are quite distinct.

Production

The following figures of production have been obtained from various departmental sources including annual reports, quarterly statistics and commissioner's reports. It is possible that they are not quite complete and different figures are often given for the same period:

Year	Tonnage treated. Tons	Yield (oxide) Tons	Remarks
1899	3000	170	Old company.
1900	1180	81	Tributors.
1900	4000	310	Reported production to Sept. 1900
1901	4000	251	Reported production to March 1901
1902	From Aug. 1902 till June, 1903	78	Estimated from weekly production of 6 tons
1903	4700 tons were mined	165.3	
1904		178.3	(46 tons of this were produced from 3000 tons of ore)
1905		95.35	(31.75 tons of this were produced from 2452 of ore).
1906		10.5	Probably mainly from alluvial
1907		7.0	
1908		4.9	
1909		3.9	
1910		19.3	
1911		5.65	
1912		3.35	
1913		3.75	
	From 1902	575	575.3
	Grand total	251	251
			826.3

In his book published in 1913, Mark Ireland who was manager of the Mt. Rex Company stated that "the average cost of crushing and mining from its inception until closing down was 10/9½ - a cheap record. This mine, although the ore was of a refractory nature, almost paid its way, only a call being made now and again". He also states in another place, "The Rex Hill Tin Company paid £20 per share", but whether this is intended to refer to the company operating between 1895 and 1899 is not known, although it appears likely.

Value of the Ore.

Only a few figures are available as to grade of ore treated.

The old company (probably Rex Hill T.M. Co.) are reported to have treated 3000 tons for 170 tons of concentrates which equals 5.6% of concentrates.

The tributors (probably in 1899 and 1900) are reported to have treated 1180 (or 1160) tons for 81 tons of concentrates which equals 7.0% of concentrates.

Only two quarterly figures are available for the Mt. Rex T.M. Co. For quarter ending 31st March, 1904, 3300 tons yielded 46 tons of concentrates which is equivalent to 1.4% of concentrates. For quarter ending 31st September, 1905, 2452 tons gave 31.75 tons of concentrates or 1.3% of concentrates.

It would appear therefore that the average grade in the underground workingduring 1904 and 1905 was 1.3 to 1.4% of tin concentrates or say 0.9 to 1.0% metallic tin.

Mr. Gray is at present sampling the ore-bodies but only a few results are available at present. The samples from the No. 3 level ore-body give an average irrespective of width of 1.39% metallic tin for 8 samples, the values ranging from 0.76 to 3.10%, all except two being over 1%.

When the sampling is complete, very definite information will be available as to the value of the ore.

Conclusions.

The Rex Hill or Mt. Rex mine was first opened as a silver-lead mine, but it was soon found that cassiterite was the predominant mineral. Between 1895 and 1899 the Rex Hill T.M.Co. apparently treated 3000 tons of ore for 170 tons of concentrates (= 5.67%) and may have made the working profitable. About 1899 or 1900, tributors treated 1160 tons of ore for 81 tons of concentrates (=7%). The Mt. Rex T.M.Co. between 1901 and 1913 (but chiefly between 1901 and 1905 recovered approximately 555.3 tons of concentrates.

The bulk of the ore came from a pipe-like ore body of greisen. This has been almost entirely extracted

down to No.2 level, but is apparently intact between Nos. 2 and 3 level. The grade of ore treated by the Mt. Rex Company was apparently 1.3 to 1.4% tin oxide or concentrates. The reason the Company stopped mining is not definite but it would appear that, with an ore yielding 1.3 to 1.4% tin oxide concentrates, the market value of which were £52 per ton, operations were not profitable.

At present, the market price of tin is much higher and the concentrates would return nearly three times the former price, so that the possibility of reopening the mine is being considered.

The position as regards ore is as follows:

Main Ore-body. This ore-body has been almost entirely removed above No.2 level. It requires sampling below No.2 level and opening up by development at No.3 level.

White Ore-body. As stated above, this is to be regarded probably as an extension of the Main ore-body. It has only been cut at No. 2 level and requires developing and sampling.

No.3 Level Ore-body. This has only been cut at No.3 level and has been assumed to be a downward continuation of the Open-cut ore-body, but this is not considered likely. It requires developing at No.3 level and rising on up to No.2 level. Also, if it has not been cut in No.2 level, then it requires cross-cutting and driving on it in accordance with the results obtained by rising.

Open-cut Ore-body. This has only been exposed in the open-cut, north-east of the shaft. It is being sampled at present. It required developing by a shaft or adit and later from the underground workings.

North & South ore-body. This is a narrow extension of the Main ore-body. It has been cut in two trenches and shafts and probably partly worked in Nos.1 and 2 levels. No.2 level requires re-opening to ascertain to what extent it has been developed, its width, values etc.

Stephenson Ore-body. This has been cut in No.4 shaft and has been assumed to be a continuation of the North-South ore-body, and may possibly be although the strike of the latter would require to alter considerably. It will of course require further developing to prove its extent and value.

It is therefore seen that there are several ore-bodies in the mine and vicinity which between them will provide ore to establish a mine of small to moderate output.

The systematic sampling campaign now being conducted will give most important data as to the value of the ore-bodies. In addition to that arranged, it is recommended that the Main ore-body be sampled underfoot

at No.2 level.

Following the sampling, further development work would be necessary including in order of relative importance:

(1) Development of Main ore-body at No.3 level and between Nos.2 and 3 levels.

(2) Development of No.3 level ore-body at No.3 level and rising to No.2 level.

(3) Development of No.3 level ore-body at No.2 level.

(4) Development of open-cut ore-body at shallow depths by shaft and or adits, and later, of course from underground workings.

(5) Development of North-south ore-body at Nos.2 and 3 levels.

(6) Development of Stephenson ore-body at shallow depths.

It is not intended that all of these be carried out at once. As the development work proceeded, sufficient payable ore might be proved to warrant erection of a treatment plant. The remaining development work would then be carried out concurrently with mining and treatment of ore.

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