

*REPORT on the Silver-Lead Deposits near Mount Zeehan, Montagu County,
West Coast of Tasmania.*

Inspector of Mines Office, Launceston, 20th April, 1885.

THESE Silver-Lead ore deposits are situate at a distance of about five miles N. 5 deg. E. from Mount Zeehan, and at present they have been made accessible by means of a pack track, distant seven miles and three quarters from the Mount Heemskirk Tin Mining Company's mine, at the base of Mount Agnew, which latter is five miles from Trial Harbour, the nearest shipping port. Owing to the bad state of this track, the high rates ruling for freight along such a short distance previous to shipment would almost prove prohibitory to the success of these mines, were it not that Mr. Harman had discovered a much shorter and easier line of communication, so that this obstruction can only be regarded as temporary.

On inspection of these ore deposits, it may be premised, that I found but very little work done in order to expose their character for critical examination, the greatest depth of any of the workings being less than ten feet from the surface; and that, owing to their occurring chiefly in the beds of creeks, or in the adjacent rocky banks of same, a reliable opinion could be formed only with considerable difficulty.

With regard to the location of these ore deposits on the several sections, I found that such were as delineated on the Geological Sketch Plan accompanying this Report. The various outcrops of these ores were kindly shown me by Mr. Harman, and of these about twelve were seen, including the "Pyrites Lode."

Generally speaking, the presence of these argentiferous lead deposits was indicated by "caps" of iron gossan, which had penetrated through and formed a ferruginous conglomerate with the overlying alluvial gravels. In several instances a considerable width of such mineral matter was exhibited, which was held by some as demonstrating as proportionately great a width for the lodes or veins beneath, which, however, is an erroneous view to take under the circumstances. In no instance, so far as I could ascertain, would the width of any of these lodes and veins exceed (including the whole gangue and vein matter) five feet, and in that measurement the really valuable or metalliferous portion, consisting of silver-bearing galenites and sulphides of silver, may be put down at about a third of the whole. This applies, however, to two or three instances only, the remainder of the outcropping veins or lodes being less in size, the smallest only six inches in width,—constituting, however, the richest of any seen on those sections.

The general appearance of these lodes is of a very promising character, all the usual minerals associated generally with similar deposits elsewhere being present, and in several instances that laminated character peculiar to "true" lodes was clearly perceptible. The ores range from the rich argentiferous, steel-like-fractured with a bluish-gray hue, and sulphides of silver, to the rarer coarse-bright cubical galena, with a high percentage of lead. There is also, besides iron pyrites, zinc-blende and carbonates of iron, calcites, and probably a little carbonate of lead to be seen with these lodes.

On the whole, I may state that in my opinion these ores, properly dressed, will be found, after their preliminary calcination for desulphurisation, to be of a very free smelting character, if proper fluxes are used, and that their reduction into "alloys," and the cupellation of the latter for the contained silver, present no difficulty whatever.

As to the permanency of these deposits to a depth, the greatest extent to which any of these veins and lodes had been traced in its outcrop did not exceed three chains; but the work hitherto

done thereabouts appears to have been chiefly confined to the *flading* of ores in the creeks or in the rocky banks adjacent, thus leading to the discovery of lodes at, comparatively speaking, inconsiderable distances from each other; and therefore, it is submitted, no apprehension need be entertained of these lodes not continuing both laterally and vertically, if properly and systematically exploited. So far as practicable, the bearings of these various outcropping veins and lodes were ascertained by means of a prismatic compass, and, as will be seen from the plan, they vary, with the exception of No. 1 and No. 7, very considerably,—in fact, so much so as to render it quite possible of these outcrops either indicating *one* very irregularly formed fissure-lode, or of these various veins and lodes joining or crossing each other at such points as their respective “strike” through their adjacent wallrocks will permit. In either of these cases it does not appear to me of being of much consequence, or as materially interfering with the present and the prospective value of these valuable ore deposits.

These veins and lodes occur principally in soft or “kind” country rocks, *i.e.*, metamorphic schists, by means of which the mining operations are considerably facilitated.

Inasmuch as the preliminary expenses for opening these mineral deposits promise to be heavy in proportion to the system adopted for their development, and owing to the swampy nature of the ground, and also in consequence of the high rates for packing, until a proper tramway can be constructed I would suggest that the purer ores and what can be inexpensively dressed on the spot should be exported until such a time when these mines shall have been opened up by means of shafts and levels, &c., &c.

There is an ample supply of suitable timber standing on these leases and in their immediate vicinity which can at once be utilised for mining and smelting purposes, or at least so soon as the owners have decided upon a certain course of action regarding the working of these mines.

As a preliminary, I would strongly recommend the amalgamation upon any equitable basis of the leases referred to in this Report, because, judging from the general character of these veins and lodes, those situate to the west are most likely to be found at a greater depth of underlay by their northern neighbours, *viz.*, the Despatch Company. Much expenditure will likewise be saved by these respective owners by their taking preconcerted action, instead of separately frittering away money in unnecessary work and machinery, which has been unfortunately the case in so many instances in Tasmania. That amalgamation having been achieved, I would, as requested so to do, recommend that—(see Geological Sketch Plan):—

First. A new and sufficiently capacious flood-channel be cut from point *a* to *b* for the Silver-Lead Creek on Sections 562M and 559M, and also from point *c* to *d* on Sections 559M and 560M, in order to drain the ground from and about the outcrops of ore, and secure the future permanent workings from freshets and floods;

Secondly. To sink two new main shafts in such places as would command at a depth of, say, seventy feet, the whole of the adjacent ore deposits being thus freed from surface percolation of water.

Whilst the sinking of these shafts is proceeded with the principal lodes can be wrought for the production of ore simultaneously with the former, so far as circumstances will permit, and in order to reduce the current working expenses by the disposal of the ores raised and shipped.

Thirdly. As the heavy character of the ores after dressing or concentration will form a serious item according to the rates of freight from the mines, it is necessary, in my opinion, to consider the great saving which would accrue from the use, after construction, of smelting and refining furnaces for the final manipulation of these ores as raised from and dressed at the mines, as thereby their bulk will be much reduced for transporting the alloys resultant to the shipping port.

The “Pacific” smelting furnace has been reported of so notable a success at “Sunny Corner,” in New South Wales, and elsewhere, that its introduction here should not be lost sight of, as by its means the ores are deprived of all their dross, and it would enable the owners to export the alloys, *i.e.*, Silver-Lead “metal,” at considerable advantage to themselves.

The probable distance of a direct line of tramway from the mines to Trial Harbour would be about fourteen miles, using Mr. Harman’s new line of track. As to the cost per mile of such a tramway I cannot speak positively, as it will pass most of the distance to Mount Agnew through a forest, and afterwards over open and undulating country, but I think a narrow gauge line of tramway would not be very expensive.

(3)

From what I have seen of these Mount Zeehan Silver-Lead deposits, and after mature and careful consideration of the whole subject, I am of opinion that these deposits, if systematically opened, and when they are placed under good management, both for mining and ore-dressing at first, and ore smelting in future, capital could be safely invested for their development, and that they present a good opportunity for realising substantial profits in proportion to the amount of capital so invested.

G. THUREAU, F.G.S.

The Hon. the Minister of Lands and Works.

MEMO.—The results of assays made by the Government Analyst from *undressed* ore collected from all the outcrops indiscriminately by myself were telegraphed by B. Shaw, Esq., Secretary for Mines, Hobart, as follows:—

"Per ton of ore: Metallic Lead, 43 per cent; Silver, 37 ozs. 4 dwts. 19 grs.; Gold, 2 dwts. 15 grs."

G. THUREAU, F.G.S.

Launceston, 23rd April, 1885.

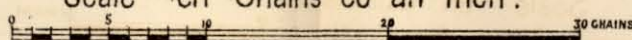
GEOLOGICAL SKETCH PLAN

of

MOUNT ZEEHAN

SILVER LEAD DEPOSITS

Scale Ten Chains to an Inch.



Levit G. Thureau F.G.S.
Launceston April 1885.

Bath and high ridges
Buttress
Plains

REFERENCE

ab and cd Deviations proposed for draining workings

1 Lode bearing $N 5^{\circ} W$

2 and 3 Lode formations in Creek; Two shafts 6 feet deep each

4 Lode formation in Creek

5 Continuation of N^o 1 Lode; ferruginous outcrop in the Creek

6 Gross Lode $S 54^{\circ} E$ ferruginous vein with Galena

7 Three outcrops of argentiferous lead lode $N 5^{\circ} W$

8 N^o 6 Lode Galenite in a drive from Creek

9 Cap of N^o 1 Lode $S 42^{\circ} E$ 4 feet wide

10 N^o 2 Lode; rich argentiferous vein 6 inch wide

11 N^o 3 Lode $S 5^{\circ} W$; spathic iron with Galena

12 Pure Pyrites ($Fe S_2$) 1 foot wide

Office of Mines

May 1885. T.G.

5 cm

