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MINERAL LEASE NO. 17m/45 - ZEEHAN

R. S. LAFFER

On the 29th April and 11th July I made an examination of the above Mineral Lease in accordance with instructions from the Director of Mines. The Lease, of 80 acres lies two miles N.E. of Zeehan township and three quarters of a mile SSW of the present workings of the Montana Silver Lead Company No Liability. The abandoned workings of the "Big Ben" occur a little N.W. of the lease. Access is from Zeehan and is by a good track which leaves the Zeehan-Corinna Road at a point two and a half miles from Zeehan, the distance from the road to the workings being one mile. The track is in good repair and, while not suitable for ordinary wheeled traffic, can be negotiated by four-wheel drive, Army type vehicles in good weather.

The terrain is of low to moderate relief and consists of a peneplain which has been uplifted in recent times and is now in the process of being dissected. The greater part of the area is covered with buttongrass and patches of gum occur along the courses of the streams. Barnett's Creek flows in a northerly direction inside the lease boundary and almost parallel to the eastern side.

The rocktypes represented throughout the area consist of fine grained grey sandstones intercalated with very fine grained black slates. The general strike of the rocks is a little east of north and they dip at high angles to the west. On the flat areas between the stream courses, these rocks are capped with several feet of coarse angular quartz detritus. Glacial tillite occurs in patches around this area but none was seen to occur on the portion of the lease which was examined.

Developmental work on the lease consists of the following:-

No 1 Drive: The Drive was put in prior to 1910 as an account of it appears in Bulletin 8 of the Department of Mines. The drive is approximately 200 feet long and was driven along the lode in a Southwesterly direction. Several small stopes occur and one goes through to the surface.

Opencut: This cut occurs at the top of the stope mentioned above. From the southwest angle of the cut a small drive goes south for fifteen feet.

No 1 Shaft: This is close to the N.E. corner peg of the lease. At present it is water filled and cannot be inspected. I am informed by Mr. G.W. Clark, however, that the depth is fifty feet and that a crosscut from the bottom intersects the lode within about ten feet.

No. 2 Shaft: This is situated on the top of the hill and is the most westerly of the workings. The shaft is dry, has a depth of thirty feet and was sunk in lode formation.

No. 2 Drive: This is a crosscut two hundred feet long. At thirty feet from the entrance, a small drive south occurs along a lode and some stoping has been carried out. At 176 feet from the entrance two drives occur north and south along a lode formation.

The developmental work carried out by the present party consists of the following:-

(a) The northerly drive at the end of No. 2 Drive has been extended along the lode for a distance of thirty six feet.

(b) Two diamond drill holes, Nos. 2 and 3 have been sunk to 31 and 58 feet respectively. A third hole, No. 1, is at present being drilled and, at the time of my last visit has reached 96 feet at an angle of 60°. It is the intention of the party to sink this hole to at least 150 feet at which point it is expected to intersect the lode channel. If this channel is not intersected, the hole will probably be drilled to 200 feet.

In the No.2 Drive two main lodes occur both of which have been driven along. The lode nearest the entrance is only two feet in width and shows very little galena now. Apparently it was just a small patch of ore. The lode which is now being worked is twenty five feet wide but consists mostly of quartz stringers and matrix. Along the hanging (western) wall there occurs a vein of galena varying from a fraction of an inch to three inches in width. Between these two lodes, three lode channels were cut in the main drive but each is only a few inches in width and none shows galena. In the hanging wall of the small drive at the opencut, several small stringers of galena may be found. In each case, pyrite and quartz are associated with the galena and the lodes are thus intermediate in type. Some blebs of siderite also occur throughout the lode matrix. Sphalerite is a very minor constituent of the lodes. On the dump heap near No. 1 shaft may be found some quite large lumps of almost pure "cubical" galena and Mr. Clark informs me that one or two feet of clean metal was cut in this area. However, there was not sufficient work done to show whether this was just a patch or whether it was a sizeable oreshoot. The No. 2 Shaft has been sunk on the lode but here again the lode channel consisted mainly of matrix with mere stringers of galena.

The diamond drill holes have been disappointing. No. 2 hole was drilled to 31 feet at an angle of 33° passing under No. 1. Drive. This hole was in the oxidized zone and the ground proved most difficult to core. Some pyrite occurs but no apparent galena. However, some galena was panned from the sludge.

No. 3 hole attained a depth of 58 feet at an angle of 44°. The core shows fine grained sandstone all the way with some pyrite blebs at 20 to 23 feet. No galena was found and none appeared in the panning of the sludge. No. 1. hole at least shows the presence of zones of mineralisation. The complete log is as follows.

6' - 12'	Fine grey sandstones. Stringers of quartz at 12'
12' - 17'	Black slate.
17' - 25'	Fine grey sandstone with signs of pyrite at 18' and 22' -23'.
25' - 35'	Mineralised zone. Fine black to medium grey slate much slickensided. Patches of pyrite. At 34' galena is specks over a width of four inches.
35' - 37'	Fine grey sandstone.
37' - 46'	Fine black slate.
46' - 49'	Black slate with coarse intrusions of quartzite, blebs of siderite and a little pyrite.
49' - 51'	Similar to above cut with lenses of pyrite.
51' - 52'	Fine grey sandstone.
53' - 67'	Black fine grained slate much contorted. Trace of pyrite and thin veins of quartz. Stringers of pyrite at 66½ - 67'.
67' -69'	Fine grained sandstone.
69' - 83'	Similar to 53' - 67'. Galena showing in blebs at 69' and at 73' - 74'.
83' - 87'	Fine grained sandstone.
87' - 88'	Lode filling but no metal.
88' - 93'	Fine grey sandstone.
93' - 94'	Lode filling but no metal.
94' - 96'	Apparently solid pyrite. Material would not core but the sludge practically pure pyrite.

In considering the possibilities of the property, it is as well to bear in mind the descriptions of No. 1 Drive given by W.H. Twelvetrees (Bulletin 8) in 1910. He says:-

"The ore in the main drive disappeared the first day, but 20 feet further in the shott made up again for 4 feet in length only. A rise put up showed that the ore did not ascend, and a winze disclosed that it did not go down. A stope over the level proved the shott not to go up more than 2 feet. The form of the shott appears to be that of a lense 10 feet wide in the thickest diameter and not more than 30 feet in length altogether. South of this the lode in the drive closes up and only a track shows. In the end it is quite broken up and carried merely a little pyrite. For the last 60 feet both sides have been carried and care has been taken to be sure that nothing has gone off on either side.....In the level below the rise, to the opencut a shaft has been sunk to 37 feet, and at this depth the lode consisted of solid pyrite.....There is certainly nothing particularly encouraging in the proposition as opened up at present.

Those who have been working it take the practical point of view and look on it simply as an isolated patch of ore. This is a very natural conclusion and yet one may question whether it is the correct one. The patch was very solid while it lasted and nothingin nature warrants us in believing that such patches everdo occur absolutely isolated. It would be more reasonable to assume that they are disconnected parts of an ore occurrence. To prove this, however, would involve outlay and risk of some amount of capital....."

The subsequent opening up of the No. 2 Drive has shown that Twelvetrees' assumption of an ore occurrence has been strengthened. In fact no few than five lodes have been cut in this latter drive. However, the ore in each is still extremely patchy and it can not yet be stated with certainty that workable deposits of galena have been proved. Twelvetrees' statement that the proving would involve outlay and risk of some capital is still, therefore, true.

It is the opinion of the present writer that there are several mineralised zones proved to exist but that the content of galena and associated minerals of economic importance is extremely small. It is known that the material in the bottom of the winze in No. 1. Drive is solid pyrite and the recent No. 1 Diamond Drill hole indicated that the lodes turn to pyrite in depth. It is felt, therefore, that galena etc. will only be found quite near the surface. It is considered that the present method of prospecting by diamond drill is the only satisfactory method. It is uneconomic at present to continue the No. 2 Drive as a prospect. This drive has already served its purpose in revealing the presence of lodes at creek level. What remains to be done now is to show the vertical and lateral extent of these known occurrences. The drill is the quickest and most economical method of testing.

As to whether satisfactory makes of ore will be found, it is difficult to give an opinion. The present prospects are anything but encouraging and such patches as have been found have proved to be very limited in size. It is considered that any further makes of ore which may be found will be of the same general order of size. The possibility of a large shoot or shoots of ore being found seems to be very remote.

(Sgd.) B. L. TAYLOR

GEOLOGIST

21st July, 1950

The Director of Mines,
HOBART.