

Old Mines on Zeehan Lodes.

The Western.

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The Western.

① Location and Access.

The Western shaft is 87 chains north-west of Zeehan Post-office. It is accessible by road from the Zeehan Station being distant Merby from 2 miles.

② History.

Started in 1888 this mine had a prosperous career until 1901 when it closed down for lack of capital for sinking below the 600 ft level. Reopened in London in 1903 it sank its shaft to 800 feet but again was in financial difficulties. With Government aid, however, it went deeper by another 200 feet to a total depth of 1000 feet. The mine finally closed down in 1908.

③ Output and Profit.

In round figures the total output was:-

<u>Lead (Tons)</u>	<u>Silver (Ounces)</u>
37,000	5,000,000

Dividends paid:-

£102,000.

④ Geologic Environment

① Country Rocks

The Western mine workings are confined to the melaphyre - melaphyre tuffs - slates & sandstones phase of the Ordovician system.

② Position Relative to Regional Structural Pattern.

Ore deposition was wholly under the influence of the Montana Tear Fault.

③ The Fractures

Apart from the Tear Faults within the Montana

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Tear Fault system, the fractures are Tension Cracks.

⑤ The Lodes.

① Number and Spacing

— Eleven (11) lodes within a width of 1300 feet.

② Proved length and Width.

The Main (No 1) Lode:—

Length: 700 feet

Width: 2 to 12 feet.

③ Orientation

Anything from 305° to 60° in strike

All lodes dip to eastwards.

⑥ The Ore.

① Character of Lode Material.

Fundamentally siderite lodes.

② Constituent Minerals.

Galena with accessory sphalerite down to 300 ft level (R.L. 425 feet). Tetrahedrite with chalcopyrite from 360 ft level (R.L. 365 feet) downwards. Gangue is siderite.

③ Ore Shoots.

(i) General Characteristics.

In general the galena shoots were typical of the "ductum" ore makes under the slide. The parallel slides within the Montana Tear Fault zone combined in the case of the Main (No 1) lode in producing an ore-shoot 700 feet in length.

From now on in this report attention will be confined to the Main (No 1) lode.

Galena ceased in the Main lode at 300 feet below collar of shaft (R.L. 425 feet). Tetrahedrite and chalcopyrite began to appear at the No 6 or 360 ft level (R.L. 365 feet)

(ii) Tetrahedrite-Chalcopyrite Shoots.

It is the possible economic importance of this depth development that has given rise to the

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preparation of this report.

It is a remarkable thing that Twelvetrees and Ward in their report on the Teetom Field in 1910 ignore this development except for recording ^{the} finding of $1\frac{1}{2}$ cwt ^{of} solid tetraedrite at the 800 ft level (R.L. -75 feet) ¹

However, six years before, Waller although clearly mystified as to its genetic significance was definitely aware of its possible economic importance. Reporting on the early results obtained by the New London Company at the 500 ft level (R.L. 275 feet) on the Main lode he says: ²

"At the end of the drive north, when the old Western Company left it, the face was showing about 5 feet of good ^{seconds} records. This proved to be only a patch. It cut out going north to fall ore and copper pyrites. The former is rich in silver, assaying 270 ounces to the ton, but it is phoscht in such small quantities that the ore will only bulk 20 ounces. It has been found impossible to concentrate the ore in the ordinary way."

"The alteration in the character of the Western lode in depth is a very curious thing, and one on which it is impossible to venture an opinion at the present time. I would suggest that some of the ore might be sent to London to be tested by the Belmont process. This is the class of ore which would be eminently suited to this method of treatment. Twenty ounces of silver to the ton with a little copper would be a payable proposition if a process could be found for treating it, and if there were sufficient ore to make it worth while putting up a plant."

Waller in 1904 was just beginning to realize the possible

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importance of this development which he had seen two years before in its earliest manifestation which he thus described: - (2)

"The Main lode at 500 ft level was then driven on north, and very soon it widened out to a good-sized carbonate of iron lode, containing a little rich antimonial silver-copper ore, probably Freibergite. Galena then came in, and the lode gradually improved, and became a good lode of second-class ore, with bunches of firsts. This drive was continued for about 120 feet north of the crosscut before the mine closed down. & the face of the drive the lode is 6 feet wide, with from 3 to 5 feet of good seconds and nearly 6 inches of firsts.

This is the sum total of any written records so far located. Although forgotten or not even ever recognised in the technical world, it is still remembered by old miners still living. For additional information we depend upon these old miners, but the statements they make ^{has} to be carefully reviewed.

Mr William Payne is a good type of miner with a good memory. He was placed in charge of the Sunshine by the Mining Warden consequent upon quarrels between the brother owners in 1923. He worked in the Western under the Tordon Company, taking a tribute on the silver-copper ore in 1908.

Payne in his descriptions puts emphasis on the copper. He states that in mining it they judged its value by observing the amount of yellow copper ore (Chalcopyrite). He further states that a number of tributes were let, each party being given 100 feet length along the lode. The ore was sold to the Zedden Smelters as 'flux'. They were paid for the silver

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contents with (as usual) deductions. These operations came to a sudden end with Mr. Payne's decision to close down the mine.

Payne gives the width as varying from 4 to 5 feet up to 12 feet in places. He describes the Main lode as being copper-silver from the 360 ft level downwards to the 1000 ft level. Incidentally Twelvetrees and Ward give the width of the Main lode as averaging 4 feet for 1000 feet in depth at the 800 ft level, casually mentioning the Tetratedrite. ⁽⁴⁾ Payne's information as to values is confined to the simple statement that the smelter's returns on consignments varied from 18 to 30 ounces silver per ton.

It is possible to venture a tentative estimate of the value of the ore under present-day metallurgical efficiency, using as a basis:—

(i) Average Ag content 50 ozs; Tetratedrite averaging 270 ozs Ag per ton.

(ii) Payne's estimate of ore value by observing the chalcopyrite, which will thus be assumed to at least equal the Tetratedrite in amount.

This gives the mineralogic composition:—

Tetratedrite : 7.4 percent

Chalcopyrite : 7.4 percent

The Tetratedrite will contribute: Cu. 3.0% Sb. 1.6%

The chalcopyrite will contribute: Cu. 2.5%

The metal contents of the ore would thus be:—

Cu	Sb	Ag
%	%	ozs
5.5	1.6	20

(7) Mine workings
@ Shaft

Depth: 1000 feet (collar at 725 ft contour)

Dimensions: 16' x 5' ~~16'~~

Water: 27,000 gals per hour

George
Payne

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(7) Levels and Crosscuts

No 1 level: 45 feet
No 2 level: 110 feet
No 3 level: 170 feet
No 4 level: 230 feet
No 5 level: 290 feet
No 6 level: 360 feet
No 7 level: 430 feet
No 8 level: 500 feet
No 9 level: 600 feet
No 10 level: 700 feet
No 11 level: 800 feet
No 12 level: 900 feet
No 13 level: 1000 feet. (R.L. - 275 feet)

(c) Drives and Crosscuts.

Total: 12 miles.

(8) Discussion of Possibilities.

One assaying Cu 5.57, Sb 1.67%, Ag 20 ozs in a lode 4 to 12 feet wide is attractive. But precise information is lacking as to the actual average assay value, and in addition as to the following points:—

Length of ore-shoots at all levels from No 6 to No 13.
Width of lode at all levels from No 6 to No 13.

It is known that at No 11 (800 ft) level the average width is 4 feet over a length of 1000 feet. How much of this is ore-shoot? What of the other levels? According to Payne the ore-shoots extend over some hundreds of feet.

(9) Recommendations.

- (a) Peg the Western Mine area, as it is outside the special Prospector's licence. It is desirable to hold it pending further investigation.
- (b) Search the Zeehan & Dundas Herald for the period 1903-1908 for information for progress developments.
- (c) Search of records in Mines Department, Hobart

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for any information in reports by Inspectors of Mines and State Mining Engineers.

(a) Contact any old miners who worked in the Western mine during the period 1903-1908.

(c) All this must precede any attempt to unwater. Such a step would be justified by positive and favourable information from the above investigation.

(d) Valuable information as to the metal contents of the copper-silver ore from the Western Mine Tributaries must be contained in the records in possession of the Electrolytic Zinc Coy at the Zeehan Smelters. It is suggested that arrangements be made to have access to these old records of the Tasmanian Smelting Coy.

C. Loftus Hills

15th February 1947.