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SHEPHERD & MURPHY MINE
MOINA

Moina

Shepherd + Murphy Mine

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Phone 235 Tatana.

TATANA. West Tamar. Tas.

6th March, 1942.

W.H. Williams Esq.,
 Director of Mines,
 Department of Mines,
 HOBART.

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SHEPHERD AND MURPHY MINE, MOINA.

Dear Sir,

Following our conversation of 5th instant and your request for data relating to the above, I now submit the following :-

Period.	Mill Tons.	"Firsts" Tons.	"Seconds" Tons.	"Slimes" Tons.	Bismuth Tons.
(1) 1914-15	6454.5	59.05	49.40	5.95	3.50
(2) 15-16	9166.0	78.70	71.50	7.10	.95
(3) 16-17	8509.5	87.55	38.70	6.70	.75
(4) 17-18	5427.5	66.55	21.05	4.70	.55
(5) 18-19	6512.5	82.90	23.80	5.40	.90
(6) X 19-20	3219.5	39.30	11.55	2.65	---

X Six months, Mill destroyed by fire.

"Firsts" approx. contents = Sn. 36.20%	"Seconds" = Sn. 11.8%
WO ₃ . 32.16%	WO ₃ . 9.7%
Bi. 2.28%	Bi. 3.4%

"Slimes" similar to "Firsts"

Bismuth - About 65% Bi.

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|--|-----------------------|
| (1) Shaft sunk below No.3 Adit to 171 ft. - Shortage of Water. | |
| (2) Installed auxiliary steam plant and head gear. | Started on No.6 Lode. |
| (3) Development work. Crosscut to No.4 Lode. | Stoping " " " " |
| (4) " " " No.4 Lode | " " " " " |
| (5) " " " " and N.W. Branch | " " " " " |
| (6) " " " " and N.W. Branch. | " " " " " |

During 1916-20, acute shortage of labour and, 1919, shortage of water. Development footage during the above periods = 4,727 ft. S.D. and R.

New Mill erected 1921-22 by S. and M. Synd. Ltd. completed by New Shepherd and Murphy Mining Co. N.L. who milled approx. 2,000 tons, mainly from broken ore in stopes above No.3 Adit and from dump, for approx. 28 tons of "Firsts," and quantity of "Seconds." The figures are not available.

During the periods, No.6 Lode was practically all stoped out over No.5 level to No.3 Adit (150 ft. V.). Probably 2,000 tons of broken ore are there. Ore reserves consist of blocks on No.2 Lode, above Creek Adit and No.3 Adit, and blocks between No.5 level and No.3 Adit on No.4 and N.W. Branch Lodes. Probably 40,000 tons.

No.6 Lode carried higher contents in tin oxide and wolfram but low in bismuth.

The mine drainage, at the lowest level, amounted to approx. 2,500 gallons per hour.

The mine and works are described in "Notes" on the S. & M. Mine and on treatment of Bismuth, Tin and Wolfram Ores by Hitchcock and Pound, in Proceedings of Aust. Inst. of Mining and Metallurgy, New Series No. 35.1919.

The Flow Sheet, Fig. 1, on page 45, is that of the old mill. The new mill was substantially the same except that the circuit was closed at $\frac{3}{8}$ " with the addition of a second set of rolls and a third wilfley table. Probably the closure could be further reduced to $\frac{1}{4}$ " to suit the altering nature of the ore at depth.

In the treatment of "Seconds" it is probable that this could be done more effectively by flotation and that this process may be adopted for the separation of bismuth sulphide.

Briefly - The plant required, to restart the mine, would be -

- Mine - Head Gear at Shaft.
Hoisting Plant and Gear.
Air Compressor and Receiver.
Change House, Crib House.
Provision for tool sharpening.
Magazine.
- Mill - Gravity Concentration Plant.
Regrinding and Flotation Plant.
Magnetic Separation Plant.
Dryer for concentrates.
- Power - Re-construction of Water Race.
Approx. 1,700 ft. of Pipe Line, Penstock and Pelton Wheels.
Auxiliary Steam Plant or, alternatively, Hydro-Electric power, if available.
- General - Workshops and surface facilities.
Housing of staff and employees.

Condition of Workings - The timbering, of the main shaft and workings is at least 20 years' old. That used was of good quality being free from sap wood and split sawn from mature trees. It is probable that above No.3 Adit (above water level) it has suffered from dry rot except where constantly damp. Renewals are indicated. It is probable that the timbering of the main shaft, above No.3 Adit, would have to be renewed. Below No.3 Adit, the timber, being under water, will probably be all right provided deterioration does not set in after the water is removed.

The Country rocks stand well and there is no danger of collapse. Trouble may be experienced from runs of filling from stopes where the timber has perished in the drives below.

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tonnage to be expected - The vital point about this is the rate of development work on ore. This requires to be of the order of one foot for each seven tons milled. Other factors are labour and water supply. Briefly, about 200 tons weekly is about the capacity of the mine, given the above factors.

The above data is to be regarded as "Notes" only for your information and based largely on my memory of 14 years ago.

Yours faithfully,

(Sgd.) W.E. Hitchcock.