

PORLTAND, Oregon, July 27, 1905.
H. O. Thompson, Secretary,
Commercial Club, Cottage Grove, Ore.

Dear Sir—Your letter to me at Seaside of 18th inst., was forwarded here and duly received. I hope you will pardon my delay in answering for I really have not had an opportunity to do so until today. I am pleased to note the interest manifested in Bohemia Mining affairs by your club, and only success can result from your continued efforts, for the District has sufficient merit, and when once brought before the proper investor, and they become convinced of this merit, immediate development of this resource will result and a large enterprise will be added to your community.

I do not know that I can add much to the talk I had with you early this month but will set forth here, briefly my idea of the method of procedure for you, and hope that it may be of assistance in your endeavor.

THE BOHEMIA MINING DISTRICT.

This district is of considerable extent, to my knowledge three miles long by one mile wide, beyond these limits I did not investigate, but no apparent fault, break or radical change occurs in the country rock at these limits, so the mineral bearing veins may extend indefinitely in any direction. The veins are large and continuous. General trend N. W.-S. E., but many exceptions occur; cross veins also exist bearing considerable metal values; these are wide and with little variation in strike, usually also constant in dip.

The ore is highly siliceous, and owing to the more soluble country rock, often outcrops for a mile or more.

The walls are well defined and I found no sign of sliding or faulting. The ore chutes are continuous, rarely if ever the value consists of gold alone. Some of these veins are true fissures and filled from below, thus insuring the ore bodies will extend to indefinite depths, and assuring the camp permanency.

The metal values consist of copper, gold, zinc, lead and silver, the value proportioned as sulphides. The lead in part as carbonate; the gold free, except when wrapped in the sulphides; the silver as a rarer existing with the lead.

The contour of the District is rough and uneven, consisting of mountains and precipitous ridges, an ideal condition for tunnel development. Between these mountains streams of pure water flow and fall, insuring an abundance for all commercial and domestic requirements, as well as cheap and ample power. The entire district is thickly covered with timber that has no equal except in this Northwest country. This resource alone will insure a railroad into the district before many years.

ECONOMIC DEVELOPMENT.

The ore value generally consists of two or more of the aforementioned metals, often of all five. It is susceptible to cheap treatment, with slight loss of any metal value. The gold when in the quartz amalgamates readily; when in the sulphides is easily concentrated. The silver values are of little importance, being very small, but so far as I determined in my tests the conditions for treatment of the silver are parallel with those of gold. The copper

exists almost exclusively as chalcopyrite, and is easily saved by concentration. The zinc occurs as sphalerite and concentrates nicely. The lead as galena and cerusite is easily concentrated.

I succeeded in making a separation of these three base metals when mixed in the ore, without subsequent handling or extra expense, giving a marketable product of each. This is a very important feature in the development of this district, as the concentrates when in a mixed form would be valueless, but when separated the value of each metal is obtained. The smelters do not pay for more than one base metal in an ore. If copper-lead ore, they only pay for the metal that predominates in value, and if zinc is present they not only will not pay for it, but add an extra penalty to their treatment charge for each per cent of zinc above a fixed percentage.

The following example will serve to illustrate the severe hardships the district is at present laboring under, and what will result with favorable transportation and treatment facilities for the ore.

A concentrate I made in my tests ran after separation of the metal values \$8 per cent lead. Lead is worth 3½ cents per pound, giving a gross value of \$56 per ton to the ore, disregarding gold and silver values.

The smelter charge for treatment on this ore is \$6 per ton, to this they add 1 cent per pound on lead contained for refining, this equals \$16 per ton or a total treatment charge of \$22 per ton. Transportation charge \$12 per ton to Cottage Grove, and \$4.50 per ton from there on to the smelter, a total freight of \$16.50 per ton. Suppose this ore concentrates 10 to 1, and cost of mining and milling were each \$1.50 per ton of ore, we would have the following figures:

Mining 10 tons ore.....\$15.00
Milling 10 tons ore.....15.00
Freight 1 ton concentrates.....16.50
Treatment 1 ton concentrates.....22.00

Gross value, 1 ton of concentrates.....\$68.50

Loss per ton of concentrates.....\$12.50

Suppose you have the following facilities: Treatment with local smelter \$3 per ton. You have your own mine in the district to refine the lead with, and can reduce this expense to ½ cent per pound of lead; then the cost of refining lead at \$4 per ton with railroad facilities to the district and switches to the mines, the freight should be \$1.50 per ton, and net the following balance:

Mining 10 tons ore.....\$15.00
Milling 10 tons ore.....14.00
Freight 1 ton concentrates.....1.50
Treatment 1 ton concentrates.....10.00

Gross value, 1 ton of concentrates.....\$42.50

Loss per ton of concentrates.....\$14.50

In a copper ore, concentrating 20 to 1 and giving a concentrate 30 per cent of copper, disregarding precious metal values, and under last condition, we have the following balance, with copper at 14 cents per pound:

Mining 20 tons ore.....\$30.00
Milling 20 tons ore.....30.00
Freight 1 ton concentrates.....1.50

Gross value, 1 ton of concentrates.....\$56.00

Profit 1 ton of concentrates.....\$14.50

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Profit 1