

MINES AND MINING STOCKS.

Cheap New Process for Treating Low-Grade Copper-Gold Ores of British Columbia.

PROFITS IN MINING OF GOLD.

Toronto and Western Co.'s Stock Strong-Mining Exchange-Stock Exchanges and Sales.

Among mining stocks Toronto and Western has of late been a feature. It has recently advanced from \$12.25 to over \$2 a share, and is now held at \$2.10 asked.

Low-Grade Ores in B. C. Mr. John A. Wauchop, F.R.S.E., has an article in The London, Eng., Mining Journal entitled, "The low-grade ores of British Columbia, and how to make them profitable."

He starts out with the assertion that there are in British Columbia and other sections of the Dominion of Canada large bodies of low-grade ores which, owing to the cost of transportation and metallurgical treatment at present in vogue, have not been profitably treated.

Many of the deposits of Southern British Columbia are ores consisting of great masses of magnetite, with which are disseminated copper and iron pyrites. These vary a great deal in value and weight probably average about 21 of gold and 3 ounces of silver to the ton and about 5 per cent. of copper.

The process consists of reduction and thereafter by oxidation, the ore being treated in a muffle furnace. Gold and silver ores are prepared in such a way that 90 per cent. of the value can be extracted by amalgamation.

A complete plant, with a capacity of 25 tons per diem, can be constructed for \$1500. A 25-ton per diem furnace was erected at Florence, Colorado, in the beginning of February of this year, and has been in continuous work on Cripple Creek with most excellent results.

The operations of the "beam process" may be briefly stated as follows: 1. Pulverizing the ore not less than 40 mesh (dry crushing).

2. Converting the sulphides to sulphates in an air-tight muffle furnace, with converting chemicals.

3. The combination of a low heat and cheap and economical chemicals to produce the result sought after, with accuracy and a complete and distinct separation of the ore from the waste.

4. Also being completely under the control of the operator; the time for reducing being lessened, cost of the process being one-sixth of what is required under the old line, with much less time consumed, means a lower cost of treatment.

5. The ease with which the operator can balance the change of ore in the treatment, the percentage of loss being not more than 1 per cent.

6. The adaptability of this treatment to all high-grade ores, as well as low-grade. By the cyanide process high-grade ores could not be satisfactorily treated, and when this is the case, the process is used with great trouble owing to the slimes by "beam's process."

7. Its adaptability to all classes of ore. 8. It separates the gold completely, and a higher percentage is obtained from the ore, there being no loss by volatilization.

Comparison with smelter test: Returns by smelter, \$500 per ton of 2000 lbs. Returns by "beam" \$800 per ton of 2000 lbs.

The above difference is not due, of course, to the "beam" treatment, but simply to the fact that it prepares the ore so that the greater part of the gold can be reclaimed. Some ores either lose value by volatilization, or else it is in such a form that it is so easy to lose it. This conversion by the "beam process" prevents either condition.

It is a common occurrence in desulphurizing an ore to have quite a loss in value, the sulphur being lost, and the copper volatilized. Few ores, however, will sustain any loss or shrinkage when treated by the "beam process." It is the only process necessary to have over 400 degrees of heat, Fahrenheit, but while desulphurizing the ore is kept at a temperature of 1000 degrees F. and a great deal longer time.

In converting ore from the smelter to the "beam" process, the loss of the ore can be saved as a by-product, when it is desired to do so. This process has the advantage of recovering the ore from the smelter, and also the silver, copper, zinc, arsenic, and antimony, from the London Mine, Park, and other mines.

As an example of the results of this method of treating ores, the writer would refer to one test of a parcel of 11 tons of sulphide ore, containing copper, zinc, arsenic and antimony, from the London Mine, Park, and other mines.

Value as given by the public smelter, \$60.00 per ton. "Beam process," gold \$12.00 per ton.

To the skeptic, the fact of a process working quickly at the present moment and demonstrating its ability to recover so much more gold (33 per cent. to the ton) than has been indicated by the smelter is an anomaly, and directly inconsistent with all the rules of metallurgy.

But such is the case. It is well known amongst metallurgists that the present method of fire assaying is most unsatisfactory, especially for sulphide ores, the values being lost by volatilization. The "beam process" there is no loss. The full significance of this will be understood by the hard working prospector who plods away year in and year out in the fond, but too often delusive, hope of "striking it rich," as well as by the capitalist.

In one district of British Columbia—the Big Thompson—the writer knows of fully 3000 locations, the majority of which have indications of mineral richness in a varying degree, and not one of them in active operation, owing to the expense of the smelter and smelter treatment. From the writer's knowledge of this particular section of British Columbia, many of these ores could be converted into paying propositions in a very short time, provided the advantage of this process as herein described.

Profits in Mining. A great deal has been written of the colossal fortunes made in mining and the money that has been lost by the failure of the business. The percentage of loss where a business has been employed in the management and development of mines, is less than that of any other business. The Toronto Globe has lately published an article on this question, from which we make an extract which will show that the mining

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