

THE TREATMENT OF MOLYBDENITE ORES

From the results obtained in treating several tons of 2½ per cent. molybdenite ore from the Chisholm mine, Ontario, Mr. George C. Mackenzie, of the Mines Branch, Ottawa, outlines a process for treatment of molybdenite ore, containing other sulphides and mica, etc., as follows:—

Crush to 1 in. Dry in a cylindrical drier which does not allow the furnace gases to come in contact with the ore. Pass dried ore to ½-in. rolls and thence to a Newago screen making over ¼-in. to a picking belt, over ⅛-in. to another picking belt and under ⅛-in. to a Keedy sizer.

The picking belts should be at least 30 ft. long. Boys and girls were found better than men for picking. Men working on 2½ per cent. ore picked 2/3 lb., worth about \$1, per hour.

The picking belts carry the ore to ¼-in. rolls. It then passes over a single Newago screen. The material under ⅛-in. goes to a Keedy sizer and over ⅛-in. to ⅛-in. rolls. The product is screened again and the oversize returned to rolls.

The ore, finally all under ⅛-in. goes to a Keedy sizer, which is simply a large flour bolter made exceptionally strong for ore sizing. The sizer makes 10 sizes, each of which goes to its own water flotation machine. The dust goes to waste or oil flotation, depending on its content of MoS₂.

Tails from water flotation go to waste. They contain no molybdenite.

Heads, containing 20 to 30 per cent. molybdenite go to a Wilfley roaster, where they are subjected to a slightly oxidizing roast at about 1,000 deg. F. Careful roasting is necessary to obviate any partial oxidation of molybdenite.

The roasted concentrate, which now contains oxidized pyrite and pyrrhotite as well as some mica and gangue, is re-floated on another set of water flotation units. The oxidized sulphides and the major portion of the gangue sinks while the unaltered molybdenite floats. This product is about 80 per cent. molybdenite. A richer concentrate can be obtained by drying and re-floating it.

The tailings from the roasted ore contain some molybdenite. This can be recovered by grinding and oil floating or by drying and returning to the Keedy sizer.

In treating the Chisholm ore 50 per cent. of the molybdenite was recovered by crushing in steps and picking out the coarse flake. Over 50 per cent. of the total molybdenite is recovered from material coarser than 1/6-in.

To test the flotation machine patented by Mr. Henry Wood, of Denver, one of these machines is being installed in the Ottawa testing laboratory to run in competition with the Mines Branch process. Mr. Wood claims that his machine will separate molybdenite from gangue, without preliminary sizing, and yield a high grade product, recovering 80 to 90 per cent. of the molybdenite.

Mr. Mackenzie considers the preliminary sizing essential for the making of a high grade product. He thinks that the roasting operation may, however, be dispensed with.

The Market For Molybdenum.

According to Mr. Mackenzie the market for molybdenum is likely to be brisk for the duration of the war

owing to the scarcity of tungsten. Molybdenum can be used for many of the purposes for which tungsten has been used.

The British Government have appointed Messrs. H. A. Watson & Co., Liverpool, Eng., as brokers to requisition at a price of 105 shillings, on a basis of 90 per cent. MoS₂ content, all shipments of molybdenite arriving in the United Kingdom.

In molybdenite ores compounds of antimony, bismuth, arsenic and copper are very objectionable and must be removed.

Molybdenite is being used in large amounts in the United States in the manufacture of so-called tungsten lamps.

Molybdenite ore may be exported to the United States for treatment in reduction works provided a guarantee is given for the return of the product to Canada or for re-exportation to the United Kingdom.

THE PRICE OF COPPER

An authority on copper says:

"In spite of the large production which manifested itself for several years prior to the war, it was established that hardly more copper appeared on the market than was actually necessary to supply the needs of the world. In the year 1912 there was an increase in the world's production of 267,000,000 pounds over 1911, and still the average price of copper in 1912 was 16.3 cents per pound and in 1913, 15.2 cents per pound. The average price of copper for the past 30 years has been over 14 cents per pound. For the past 15 years the price of copper has been slightly in excess of 15 cents per pound. This is a good indication of the price at which the producer in the long run can afford to sell his product. For protracted periods it may be recalled that in the year 1906 copper averaged 19.7 cents per pound and that in the year 1907 the price of copper averaged 20.8 cents per pound.

"Even setting aside the abnormal amount of copper required for export on account of the war, which it should be pointed out is to a large extent actually destroyed, we have a condition calling for a high average price of copper, because all signs point to greater activity in industrial lines generally than existed during the period when the 15-cent and 16-cent averages obtained."

SWASTIKA

Swastika, Nov. 6.—Actual mining operations are now being carried on at the Swastika mine by Frank Culver and his associates, who purchased it recently. Drifting has been started on the main vein on the 200-ft. level, and the ore is being hoisted.

Although little information has been given out, it has been stated on good authority that extensive development work will be done and a thorough test made of the property.

The Swastika was the first mine in the Kirkland lake section. A small mill of five stamps was operated successfully for some time. When the mill capacity was increased there was not sufficient ore to keep it running, and the company at that time was not in a position to carry on development work.

A rich gold discovery is said to have been made on the claim of Joseph McDonough at Mindoka, about 48 miles north of Cobalt, on the T. & N. O. Railway in Pacaud township.