12 lbs. pressure. This compressor is operated by a rope drive, the fly-wheel being 18 ft. in diameter and power furnished by a 300-h. p. variable speed motor, operating at 2,000 volts.

For the transmission of electricity the B. C. Copper Company has built a pole line, with two independent three-phase circuits, to connect with the sub-station of the Cascade Water Power & Light Co. at Phoenix, a distance of four and eight-tenth miles. This line terminates in a brick sub-station (shown at the right of illustration No. 1) containing step-down transformers from 20,000 to 2,000 yolts of 1,000-h. p. capacity. From this sub-station the alternating current is transmitted at 2,000 volts to the power house (illustration No. 3) in which are located transformers with a further step-down to 550 volts.

A 75-k.w. motor generator furnishes the direct current required for travelling crane and the necessary power for trolly locomotives to be used in the immediate future; a 300-h. p. motor previously referred to, drives the Nordberg compressor: there are two 100 a. p. motors for the two blast furnace rotary blowers and one for the sample mill; a 40-h. p. motor drives the converter lining machinery: a 20-h.p. motor operates the hydraulic accumulator for tilting the converters; a 15-h. p. motor runs elevators connecting the blast furnace tapping and charging floors, and a 5-h. p. motor the sample grinding machinery. The lighting on the plant and premises is provided for by a series of transformers, each having a capacity of 150 lamps.

A briquetting plant, of a capacity of 100 tons per day, is to be at once installed to handle flue dust and concentrates. This will consist of a mould briquetting press with lime slackers, mixers and conveyor belt, the flue dust being automically fed from a bucket elevator. This plant will be operated by a 40-h. p. induction motor.

Prior to the installation of the above described Bessemerizing plant the copper matte produced at this smelter had to be sent elsewhere to be converted into blister copper. Now this work is done on the spot, and in making provision for it the B. C. Copper Company has advanced another stage in the progressive policy it is steadily pursuing. The total tonnage of ore treated at this smelter during the three years and a half it has been in operation is in excess of 500,000 tons. Mr. McAllister has been in charge since the early part of last year, after having been for some time assistant superintendent at the Tennessee Copper Company's smelter at Copperhill, Tennessee, U. S. A., and his modern and economical metallurgical practice has been the chief factor in making the smelting works a commercial success.

The British Columbia Copper Company, Ltd., is a New York organization. It was incorporated in 1898 to acquire the Mother Lode mine, situated in Deadwood camp, which property the organizers of the company purchased in 1896 and developed from a mere prospect. Mr. Frederic Keffer, of Greenwood. the company's general manager, has been in charge of the company's interests ever since its inception.

NOTES ON THE BRITISH COLUMBIAN ZINC PROBLEM. *

(By Alfred C. Garde.)

FTER wrestling with the zine problem for more A than a year, the Payne Mining Company under my management decided to erect a special zinc dressing plant, and are now in a position to produce from 200 to 300 tons of desirable zinc concentrates per month. Markets for the various products have also successfully been established both in Europe and the United States, and steady shipments are now being Since then the other companies have folmade. lowed suit and there are a number of zinc shipping mines on the list now. Besides, several of the old mills are now being reconstructed with the view of treating their zinc ores on a commercial scale which points favourably towards an increased production of this useful mineral,

Both the Ainsworth and Slocan districts came into prominence approximately twelve years ago on account of their remarkably high grade ledges of silverlead ores. Zinc-blende was also found in ledges and in association with galena, but for ten years not the least regard was paid to the economic features of zinc. Only in one instance a certain Mr. Brown, of Manchester, in 1899, undertook to send an experimental shipment of 1800 tons of zinc-blende from the Lucky Jim mines near Sandon to one of the zinc smelters in England. The assays of this shipment average 50 per cent. zinc. 3 per cent lead and 6 ozs. in silver, per short ton. Unfortunately, Mr. Brown died in England before the shipment reached its destination. and his well intended project came to grief with him. Since then the Lucky Jim mine fell back into obscurity; however, it is well worth noting that this property has recently been secured for a large cash consideration, and now promises to become one of the largest producers of zinc-blende in the Slocan.

It may possibly be argued that in the upper ore zones extending towards the crest and along the surface of the mountains, only a small percentage of zinc was found to be associated with the galena. This feature, however, can readily be explained as caused through corrosive action of surface water and exposure to the elements whereby the sulphides of zinc (and to quite an extent the sulphides of lead) were changed into carbonate ores. The carbonates with average contents of So ounces of silver, 40 per cent. lead and low in zinc. furnished an excellent smelting product on which the smelters did not impose any zinc penalty.

In several of the mines familiar to me the carbonates and galena ores free from zine extended to a depth of 400 to 500 feet below the apex of the moun-

^{*}Extract from a paper presented at the Sixth Annual Meeting of the Canadian Mining Institute, March, 1904.