

the surface, is proving of substantial value. About the 1st of September the tunnel of the 1,700 ft. level reached the ore shoot of this strike and has continued in ore a distance of 150 feet, the ore varying in width from 4 to 10 ft. The ore at present in face of tunnel shows a width of five feet and is of a quality that will yield one ton of concentrates to every two tons of ore. So far there are no signs of weakening of the ore as the drift progresses easterly.

In running the east drift on the 1,900, or shaft level, the development work there has been going on very satisfactory. Since the 1st of May this drift has been extended 380 ft., and in all this distance only about 20 ft. of the drift showed the vein that was of an unprofitable quality. At present the vein in the face of the drift shows seven feet of good concentrating ore.

Before the development of the new ore strike could be economically continued it was necessary to advance the tunnel of the 1,700 ft. level 400 feet, for the purpose of securing ventilation, by connecting it with the raise which was made following the ore in the new strike. The last 100 feet of the above work was in the ore shoot; therefore, only the development of September can be credited to adding to the ore in sight in this portion of the mine. However, the ore now opened in this region and in the East drift of the 1,900 ft. level, and also in the intermediate level of the Moyie, very nearly makes up for the ore that has been extracted since May 1st.

Ore in Sight.—My last annual report, made when the mine was operating, stated that 46,000 tons of concentrates were practically in sight; without giving the details here, I find that there are now about 43,000 tons in sight.

Future Prospects.—When the mine was shut down two years ago the continuity of the ore in depth was not proven to any great satisfaction. However, it seemed of sufficient promise to justify the buying and erecting of the present fine hoisting plant. It is now fairly well proved that the indications were not misleading, as all our work, since resuming operations in May, following the vein easterly in the 1,900 ft. level, has shown up good ore where it was not expected, as the vein in the level above for the same distance, although well defined, was practically barren.

It was also feared that other ore shoots did not exist in the vein east of those which followed on the slope of the hill and cropped out on the surface. This fear is also removed by the June strike of the ore body referred to, which has now been under development work on the 1,700 ft level. This ore body occurs about 700 feet east of the surface ore bodies which are being mined along the slope of the hill.

The aim of our development work since resuming has been to prove the doubtful points relative to the continuity of the ore. I am pleased to state that the present outlook in this direction promises better than at any time since the vein was explored to a depth of 300 feet.

Ore Production and Cost.—From stopes and development work during the five months of milling operations the ore broken amounted to 58,456 tons, at a cost for breaking of \$1.69 per ton. 8,000 tons of this ore is in the stopes, the balance, 50,456 tons, has been milled, and produced 10,739 tons, 865 lbs. of concentrates, thus concentrating about 4.7 tons of crude ore into one of concentrates.

The total amount of money received and estimated due for the ore sold is as follows:

Sold to Trail and Nelson—
12,786,860 lbs. concentrates, net value from smelter, \$130,053.24
Government bounty on 8,269,357 lbs. lead, 62,127.94

Total net value \$192,181.18

Or, about \$30.00 per ton.

Sold in Europe—

To L. Vogelstein 8,032,601 lbs.

" Beer, Sonderheimer & Co. 659,404 "

8,692,005 lbs.

Net value from purchasers \$127,410.71
Government bounty 29,533.20

Total net value \$156,943.91

Or, about \$36.00 per ton.

From this \$36.00 there is to be deducted \$1.25 per ton, costs of sacks and sacking, also the difference in the amount of lead contained in the tons of ores sold at home and in Europe, the home tonnage averaging 1,293 lbs. lead to the ton, while the ore exported averaged 1,408 lbs. of lead to the ton. When this excess is figured out it shows that the advantage in selling in Europe has averaged a little less than \$2.00 a ton in our favor.

The milling capacity being reduced one-half during the months of August and September and to less than one-half during October, caused by the want of water and the breaking down of the mill engine, and not being sure of the pump being installed before the end of November, which will hold the November output at a low figure unless relieved in the meantime by rain, places us in a very serious condition about filling our contracts in due time. The total of the contracts calls for 33,000 tons, and we have until July 1st, 1905, to complete the total. The October production of 872 tons brings the total to date up to 11,611 tons. Adding 1,500 tons for November make 13,111 tons, leaving 18,889 tons to be made in the following seven months, or an average of about 2,700 tons per month. I am of the opinion that we will be able to produce the required amount unless some other unforeseen trouble occurs.

THE CENTRE STAR MINE.

Mr. E. B. Kirby, the manager, reports as follows on the year's operations:

Explanatory Note.—The values given are based upon the price of 12 cents for copper instead of 16.25 cents, as in previous reports.

It is the usual practice of mines in pricing and recording ore to use the "Full Assay Value" instead of the "Smelters' Gross Assay Value," which is less. While this plan is often preferable, it has so far been more convenient for the Centre Star Mine to use the latter value, which, as shown by the table opposite, has on shipping grades ranged from \$1.72 to \$3.93 less than the Full Assay Value.

In the last annual report attention was called to the fact that the Centre Star Mine had experienced the same general change in the character of its ore deposits which had occurred in all other productive mines of the Rossland district, and which is the general rule throughout the mining districts of the world. This is the transition from the occurrence of high-grade bonanza ore bodies, capable of profit under the process of smelting, to masses of low grade requiring a cheaper treatment by milling.

The reserves of smelting ore at this date were not large and were of such shape that their dimensions could not be accurately estimated. The future, therefore, depended upon the establishment of milling operations, together with what fortune might bring in the way of new bodies of smelting grade.

During the year the Canadian Smelting Works have assisted by further voluntary reduction in the smelting rate, while development work has exposed considerable quantities of smelting ore, although of lower grade. Sale of this ore amounted to 77,892 tons, averaging \$7.75 smelter gross assay value. The average assay contents were: Gold, 0.36 oz.; silver, 0.35 oz.; copper, 0.72 per cent. The reserves of smelting ore exposed are estimated at 50,000 tons, averaging about \$8.50 smelter gross assay value.

The main feature of the development work has been the encouragement afforded by the East ore shoot, which is now well defined and proves to be more productive than was expected. This shoot has a dimension of 150 to 200 feet along the vein, and has so far yielded pay bodies on the second, fourth, sixth and seventh levels. Where it is