

been extended under the portal of No. 3 tunnel and Wolf Creek, towards the "Yellowstone" claim; here another important chute of ore fully 150 feet long, and from 11 feet to 26 feet wide, is being mined, and the present output of the mine is being obtained. It would be difficult to overstate the strength and regularity, at this place, of the vein with its well defined vertical walls and showing its greatest width at the greatest depth stoping has been done in the mine, with ore and values still in the face of the drift. There is great chance of this vein being developed into the Yellowstone property and an important mine being opened out there.

## VEIN

The strike of the vein is S 36° W (Magnetic). Its width has varied from 2 to 26 feet wide. These minimum and maximum widths have been for short distances only, the most of the vein showing ore from 7 to 16 feet wide and averaging, I estimate, about 9 or 10 feet. The ore is a coarse grained quartz. The mineralization consists of free gold, iron sulphides carrying gold, galena and some little tungstite, the mineralization averaging about 7%. The hanging and foot walls are strong, hard quartzite, the formation slaty schist. The largest amount of mineral is found in proximity to igneous dyke rock that cuts into the quartz. Above No. 5 level (see Map No. 3) the most of the ore has been stoped out, while under the same level there is much unstoped ground requiring further exploration. The shaft at No. 7 level (lowest point reached) is in quartz and should be opened up in an east and west direction. *The Queen vein would appear to be a most important one because of its width and continuity, and the values in gold, produced to date, from \$9 to \$12 per ton, fully one million dollars gross.*

The tonnage mined and milled by present owners during the past five years is 61,427 tons, and recovered \$511,761.04 in gold, average recovery \$8.33 per ton. From the best estimate I can form from all the information I can gather, the loss in tailings has been 20% to 30%, or \$2.00 to \$4.00, which would give average gold values in the ore milled of \$10.80 to \$16.00 per ton. In another mine in the immediate vicinity, equipped with stamps, tube mill and cyanide plant, and a skilled experienced manager, the ores treated are, I am told on excellent authority, showing a gold recovery most of the time about 98%, or a loss of only 20 to 30 cents per ton.

There is no geological reason why, if this vein were explored further, both laterally and in depth, the Queen Mine should not become one of the great mines in the North-west. Hitherto, the management has for some reason been contented to work this mine in a very small way. No doubt this was partly due to the lack of milling capacity; and it must not be forgotten that the mines have been operated for the past twelve years under first one ownership and then another, by an owner or co-owner who never had had any previous knowledge of mining whatever, and it is a remarkable fact that in spite of want of technical knowledge and previous experience they have obtained such successful results, and these, too, with a milling plant not in a high state of efficiency and without tube mill and cyanide plant. No assayer is kept to prevent ore here and there too low in grade from being broken down and milled, thereby lowering the average value of ore treated, and mine map of the workings has not been added to for four years.

During the past history of the mine, mining costs, I believe, averaged \$4.11 per ton, milling \$1.90 per ton. There is no doubt with a larger output, new additions of latest designed plant, and highly skilled superintendence, these could be materially reduced.