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PRESENT CONDITION OF COBALT MINES

Cobalt has made a remarkable record since its discovery, and promises to be an important producer of silver for many years to come. In the years 1904 to 1912, inclusive, the district produced 155,832,615 ounces of silver valued at over \$80,000,000, and made a profit to the mine owners of over one-half of the value of the silver. The output is not only large, but the cost per ounce has been remarkably low, and the industry consequently an unusually profitable one.

The great profit has been made possible by the richness of the ore. To treat low grade ore several mills were built and are proving of great value. The profit being made is still largely from high grade ore; but the concentrators have each year contributed a larger percentage of the output. During the last two years a further advance has been made in treating the high grade ore at Cobalt, instead of shipping it to smelters. This process, worked out and now in operation at the Nipissing mine, gives a high recovery and yields a product of refined silver ready for the mint. A similar process is now in use at the Buffalo mine.

In mining the low grade ore to supply the mills it has been found that the number of high grade veins is more numerous than was expected. It is a common occurrence to break into narrow veins of rich ore a few feet from the openings which were made in following another vein. It has been found that in places where the high grade veins split up into stringers or apparently pinched out, the silver is distributed over a much greater width. Usually a large tonnage of milling ore occurs in such places.

The present condition of the mines indicates clearly that there is still a large quantity of high grade ore to be mined from veins already opened up, and that the mining of low grade ore must be expected to uncover many more small but rich veins. There is, as yet, no satisfactory evidence that the mines will prove profitable at great depth; but there is no doubt whatever that the tonnage of low grade ore to be mined within a few hundred feet of the surface is enormously large. As high grade ore fails, the profits will necessarily fall off. A comparatively small, but still handsome profit per ounce, will be made from the much larger tonnage of low grade ore, if the cost per ton can be kept at a reasonable figure. At present, owing to the nature, of the deposits, the costs are high and there is some ground to fear that the cost next year will be higher instead of lower.

Nearly all the mines which have ever been worked profitably are still making money, and there are a few