

GARDNER-MACKINAW MINES.

The work of re-opening the Gardner-Mackinaw Mines was started in the fall of 1916. By the end of 1917 the Mackinaw shaft had been sunk to a depth of 947 feet and the Gardner to a depth of 625 feet. Drifting was under way on the 4th level of the Mackinaw to the Gardner shaft, from which it was planned to raise and connect with the shaft which was being sunk. On Dec. 31st, 1917, this connecting drift on the 4th level had reached a point 143 feet from the line of the Gardner shaft, while the bottom of the shaft was 235 feet above the level. A drift was also being driven on the 4th level on Gardner property towards the ore body near the boundary line between the Gardner-Mackinaw properties. Sinking was in progress at the Gardner shaft; sinking at the Mackinaw had been temporarily stopped while the drift to the Gardner was being driven on the 4th level. At this time the work of excavating the sump for the permanent pumping plant was also in progress.

In 1918 the Gardner shaft was sunk 301 feet to the point which previously had been decided on as the required depth for mining the ore on this property. The drift from the Mackinaw was continued to the line of the Gardner shaft and a raise put up which holed to the shaft a short distance below the third level, there being about 80 feet of raising. From this point down the shaft was stripped to the 4th level and sinking continued 65 feet below the 4th level to provide for skip pit pocket and sump.

On completion of this work preparations were made for sinking the Mackinaw shaft to its ultimate depth of 1340 feet. Sinking was started on August 5th but abandoned after it had been sunk 13 feet, due to the discovery that the ore was very high in sulphur. The elevation of the bottom of the shaft when sinking was abandoned was 959 feet below the collar. It had practically reached the elevation of the 5th level at the time work was stopped.

The discovery that the ore body on both the Mackinaw and Gardner properties contained a large amount of sulphur was entirely unexpected and

completely altered the plans which had been decided on in regard to these properties. An analysis of drill cores from surface diamond drill holes showed an increasing content of sulphur at greater depth, and, until more definite information was available concerning the sulphur content of the ore, it was decided advisable to stop sinking operations at the Mackinaw shaft. When the shaft was being sunk in 1913, the lean ore encountered about 400 feet below surface in the Mackinaw shaft, was found to carry considerable more than the usual amount of sulphur found in the other ores in the Gwinn district. This matter was reported in a letter by Mr. Jackson, the superintendent, but these results did not indicate that the sulphur would later be found so high in the main ore body. Since the discovery of sulphur, the general plan of operation at the properties may be briefly stated as follows;

To develop the ore body as rapidly as possible on the 4th level, also to raise and develop the ore on its upward extension to the 3rd level; to repeat this operation again on the 3rd level and also on the 2nd, in order that the entire ore body above the 4th level could be opened and definite information obtained as to the sulphur content. At the close of the year this program had been carried out to the point that drifting was in progress in the ore on the 3rd level and drifts were also being driven from both shafts towards the ore body on this level. It is now planned to open the second level as soon as additional miners are available for this work.

The work in detail for the year was as follows: