

This shows an increase of approximately 10,000 tons over the product obtained from this mine in 1919. The total product to date from this lease is 135,851 tons. It is estimated that there is approximately 76,000 tons of ore which can be robbed from the pillars left on the Mackinaw property above the 4th level, which makes a total of approximately 211,000 tons of available ore developed on Mackinaw property above the 4th level. This figure is much less than indicated by the original estimate from diamond drill holes.

The ore statement for 1920 is as follows:

	<u>ON HAND</u> <u>JAN. 1, 1920</u>	<u>SHIPMENTS</u>	<u>BALANCE OF</u> <u>ORE IN STOCK</u>
Mackinaw Ore,	2,289	37,809	5,567
Mackinaw High Sulphur,	<u>17,910</u>	<u>11,242</u>	<u>38,481</u>
TOTAL,	20,199	49,051	44,048

The following is an estimate of the ore above 4th level, as also the prospective ore below the 4th:

Non-Bessemer Ore:

1. Mackinaw	10,000
2. Mackinaw High Sulphur,	60,285

Prospective:

1. Mackinaw	92,198
2. Mackinaw High Sulphur,	<u>276,594</u>

TOTAL, 439,077 tons.

It will be noted that there is an increase in the amount of ore shown as developed above the 4th level, as compared with the previous year. This is due to the fact that the available ore in pillars is included this year, on the assumption that approximately 70% of this ore can later be mined. The prospective ore below the 4th level is increased over that of the previous year for the same reason.

The work in detail on this lease for the year was as follows:

SECOND LEVEL

The main level drift on this property was driven in 1919 to the end of the ore body. In 1920 it was continued a distance of 60 feet across the formation towards the footwall, but as no ore was encountered, or any decided change in the formation, which might indicate ore, work was discontinued at this point. There has been a decided over-turn of the foot in this territory, which has been

closely outlined by the work done above the 2nd level. Two raises were put up on the Mackinaw property in preparation for opening stopes here; rock was encountered in the first raise at an elevation of 60 feet and in the second raise at an elevation of 30 feet. The ore was followed from the second raise over to the first. After making the connection, a drift was driven back to the East following the ore towards the footwall, which soon carried the drift over on to the Gardner property. Another sub-level was opened at an elevation of 55 feet above the 2nd level, and a drift driven back to the East following the ore across the Mackinaw property over on the Gardner. From the work done here it is evident that on the North side of the over-turn the ore rises again towards the 1st level. The actual displacement of the ore, due to the over-turn, has not as yet been determined. It is planned to develop the upward extension of this ore by drifting into this territory on the 1st level; this work was under-way at the end of the year. The drift, however, was still 60 feet from the Mackinaw boundary line when the mine closed down. There is a possibility that from 5,000 to 10,000 tons of ore may be developed on the Mackinaw property in this territory. The above comprises all the work done on and above the 2nd level on this lease during 1920.

#### THIRD LEVEL.

The main haulage drift on the 3rd level was extended a distance of 75 feet early in 1920 on the Mackinaw property to the end of the ore body. At the close of the year 1919 four stopes were being operated above the 3rd level on this lease; five more were opened in the early part of 1920, and mining entirely completed between the 3rd and 2nd levels about the middle of the year. The stopes near the North-west end of the ore body - four in number, did not yield over 50% of the normal amount of ore ordinarily obtained from a stope. In this territory the horse of rock which occurs in the ore body is apparently a continuation of the over-turn in the foot above the 2nd level. One stope was put through from the 3rd to the 2nd on the North side of this rock, while two stopes were stopped entirely by the rock and one stope on the South side was carried through to the 2nd level, but it was small in size. The pillars left in this territory are small, as most of the ore was mined near the rock, which acts as a support for the hanging.

FOURTH LEVEL.

The greater part of the ore on the 4th level was mined out during 1919. Work, however, was under-way in two stopes at the end of 1919, and work preliminary to opening four stopes further to the North was under-way. During 1920 mining was completed in these stopes in the summer, and all the broken ore drawn out and hoisted. Considerable trouble was experienced in keeping the grade of the ore up in two of these stopes, due to the fact that there were several seams of rock running through the ore. Part of this ore was a banded limonite and hematite, with an occasional seam of jasper, which ran from 53.00 to 56.00% in Iron. Mining was stopped as soon as the lean material was encountered, but in some cases it was necessary to bar down considerable of this material to make the back secure, resulting in a lowering of the grade of the ore in the stopes.

The main part of the available ore left on the Mackinaw, which later can be recovered from pillars, lies between the 4th and 3rd levels, where practically the entire ore body is on Mackinaw property.

A drift was driven a short distance to the North-west of the ore body on the 4th level in an endeavor to find a continuation of the ore; it was then decided to do some diamond drilling here in an endeavor to encounter the ore and determine the best direction in which to continue the drift. Three holes were drilled, a report on which will be found elsewhere, after which the drift was driven a distance of 90 feet. It was constantly expected that ore will be encountered in the breast, but aside from the enriched formation no ore was found, and it was decided to abandon work at this point. As a result of the work done here in 1920 it appears certain that the ore body has pinched out.

Late in the year it was decided to drive a drift into the hanging on the 4th level a distance of 300 feet, in order that holes might be drilled to determine the Sulphur content of the ore below the 4th level. This drift was completed and three drill stations cut, drilling being started in October and continued until the middle of December.

The above two paragraphs cover the rock work for the year on the Mackinaw. It is very unfortunate that the condition of the ore market made it necessary to close down this property before more information was gained of the

ore below the 4th level, so that definite plans could be made in regard to opening levels at greater depth. When the mine reopens, the first work will be a continuation of the diamond drilling program until sufficient information is available for a decision to be made as to whether to open levels at greater depth. As stated elsewhere in this report, it will only require about eighteen months to complete mining on the Gardner property, so that if operations are to be continued here without interruption, it will be necessary to sink and develop new levels as rapidly as possible, provided the future diamond drill work shows the ore below the 4th level to be saleable.