

MACKINAW MINE.

The product for 1918 was as follows;

Mackinaw Ore	2,363 tons
Rock	<u>19,731 "</u>
Total Ore and Rock	22,094 "

The following is an estimate of the ore above the 4th level, made in September, from cross sections based on diamond drill holes:

	<u>Tons</u>	<u>2/3 Available</u>
Ore Above 1st Level	25,200	16,800
" " 2nd "	61,440	40,960
" " 3rd "	106,000	70,670
" " 4th "	<u>148,750</u>	<u>99,160</u>
Total	341,390	227,590

FOURTH LEVEL.

Owing to the fact that the two shafts were to be connected on the 4th level it was decided to drive one drift near the Mackinaw property line to the ore body, which drift would be used for the haulage of ore to either the Gardner or Mackinaw shafts, depending on which property it came from. This drift started on the Mackinaw property but was driven the greater part of the distance on the Gardner, being located close to the Mackinaw line. The drifts was started early in the year and reached the line of the Mackinaw property near the ore body the last of June, ore being encountered in July. A crosscut was driven which proved the ore to be about 15 feet wide at this point, after which a drift was started to the north-west along the footwall, following the ore. By the end of the year the ore had been developed on the Mackinaw property for a distance of 250 feet. Drifting will be continued until the end of the ore body is reached. It developed that south-east of the crosscut there was practically no ore, in other words, the crosscut happened to be located at the south-east end of the ore body.

It has been decided to try mining the ore by the shrinkage stope method to see if it is suitable for adoption for the mining of the ore on these two properties. It is planned to carry stopes up on the footwall, these stopes being approximately 25 feet in width, with 15' pillars between. Owing to the extreme hardness of the jasper capping it is expected that it will be possible to make stopes of this width without timber and by leaving a 15' pillar there will be no danger of the hanging breaking. This will permit of mining from 2/3 to 3/4 of the ore. The preparatory work of opening a stope between the 4th and 3rd levels on the Mackinaw property has been started. This work has been started at a point where the

MACKINAW MINE.

ore ran below .500 in sulphur. Raises have been put up near the Mackinaw line on the Gardner property from the 4th to the elevation of the 3rd level and drifting is now in progress from the top of these raises towards the Mackinaw property, from which the drifts are now distant less than 100 feet. This will permit of the ore body on the 3rd level being developed very rapidly.

Electric haulage was installed on the 4th level in the summer and has been in operation since. Owing to the shortage of trammers it permitted better progress to be made with the work of opening this level.

#### SUMP.

A sump level was opened in 1917, 12 feet below the 4th level, from the shaft and up to the close of the year there had been 428 feet of drifting on the sump level. In 1918 drifting was continued and the work on the sump completed. There was a total of 432 feet of drifting in 1918, the total for the two years being 860 feet. This drift was small in size, as it was thought that it would stand without timbering if made small. It stood very well for the first three or four months, then the rock started to slab off due to action of the air and it was considered advisable to timber it. Connections were made from the sump drift to the permanent pump-house for the suction of the two permanent pumps. A raise was also put up back of the skip road to the sump, holing near the point that the water entered the sump so that the mud which settled here could be drawn off through this raise. When all work was completed a concrete dam was put in at the shaft and also concrete dams near the two suction, so that it would be possible to shut off either suction in case of accident.

#### PUMP HOUSE.

Early in the year a temporary pump-house was cut near the shaft on the 4th level and a 250 gallon 1000' head electric centrifugal pump installed here. A portion of the main sump was sealed off with a temporary dam and all the mine water was handled by this pump during the balance of the year. The pump-houses for the two permanent pumps were located about 100 feet directly back of the shaft. These pump-houses were cut in arkose,

which made it necessary to support the ground. In order to make them fire-proof it was decided to install steel sets to support the ground and lag up these sets with plank and put concrete plaster over the plank. Owing to the nature of the ground the two pump-houses were separated by a rock pillar 15 feet in thickness. The pump-house for the 1000 gallon 1000' head centrifugal pump is 12' x 30' in size and it has been entirely completed. The pump had been taken underground, set up on the foundations, and was ready for connection to the discharge column, when it was taken out of the mine and sent to the Holmes Mine on account of water trouble, which made it necessary for them to obtain a pump as soon as possible. The pump-house for the plunger pump is 20' x 40' in size. This pump-house has been excavated, the steel sets installed, and it is now ready for concrete plaster on the plank, which is used for lagging between the sets. The type of plunger pump purchased rendered it necessary to make a much larger pump-house than has ordinarily been required for pumps of the same capacity. The pump which will be installed here is a belt driven Aldrich pump of 1000 gallon 1000' head capacity. The last of the year the concrete foundations for this pump were installed and it is now planned to take this pump underground and get it into commission as soon as possible. The drift to the pump-house and the cutting of the pump-houses was equivalent to a length of 338 feet of an ordinary drift. A summary of the work done on the 4th level shows that there has been 432 feet of rock drifting on the sump level; work equivalent to 338 feet of drifting in the permanent pump-house and 60 feet in the temporary pump-house; also 65 feet of rock drifting on the main level and 360 feet of ore drifting, a grand total of 1245 feet of drifting during 1918.

#### THIRD LEVEL.

The work of opening the 3rd level was started in September. At the time the shaft was sunk a drift had been driven in 10 feet from the cage compartment. At the end of the year there had been an equivalent of 222 feet of drifting done on the 3rd level, the pocket installed at the shaft and the plat cut. This drift is now in 80 feet from the shaft or

within a distance of 450 feet of the ore body on this level.

SUB-LEVEL 50 FEET ABOVE THE 4TH LEVEL.

One raise was put up on the Mackinaw property from the 4th level to the 3rd level. Ore was encountered about 40 feet above the level in this raise and at an elevation of 50 feet a sub-level was opened and about 35 feet of drifting done in the ore. The raise was then continued up to the elevation of the 3rd level, where drifting was started. The drift soon passed from the Mackinaw property on the Gardner, on which drifting was being continued at the close of the year.

There has been a serious shortage of labor at this property all through the year and development work has progressed very slowly. The development work has not advanced far enough to give any basis for an estimate of the ore on this property so that no new estimate has been made.