

filled the 5th Level crosscut and drift nearly out to the safety doors, and was so violent that the mine timber in the 5th Level drift was moved out with the ore and rock. The ore being softer, was first encountered inside the door, further back there was a mixture of rock, ore and timber. At the end of the year about 75 feet of drift had been cleaned.

More than 300 motor cars of material has been removed since the first cave. This should have opened a large hole above the 5th Level ample in size to let the water down to the 5th Level. Unfortunately, the caves come with high pressure and the material is packed so tightly that the water cannot penetrate it. It is hoped that the next cave will bring in coarser rock that will let the water through.

The Southeast ore body is over 300 feet in length and varies from 10 to 50 feet in width. The water comes in on the 2nd sub below the 4th Level, in about the center of the ore body. It spreads out over this old sub-level and comes to the 5th Level through the old raises. It is not concentrated in one area and, therefore, has prevented the mining of this ore body. The work done during 1925 on the 5th Level and on subs above the 5th Level, has had, as its object, the concentration of the water to a relatively small area, also providing for this concentration to have free access to the 5th Level. This plan, if successful, will make it possible to mine 50% or more of the ore above the 5th Level with no interference from water. About one-third of the ore body had been freed from water as a result of the work done this year, and this area will now be mined. It is probable that the mining of this area will cave the hanging and bring all the water to this point. This would free the balance, or two-thirds of this ore body, from water, so that it can be mined. This work, unfortunately, takes time and as the life of the mine is limited, it is probable that only a part of this ore body can be mined.

1ST SUB BELOW 5TH LEVEL:

On January 1st, 1925, there was a small amount of ore available on this sub-level at the Southeast end of the main Stephenson ore body. The estimate of December 31st, 1924, showed 1,600 tons. This ore was mined during the first five months of 1925; the ore body was found to extend further to the South than had been anticipated and nearly twice the estimated tonnage was mined. This comprised the only work done on this sub-level in 1925.

There is a small pillar at the Southwest end of the Stephenson ore body that has been left on this sub-level since the mine was drowned out in 1917. It is estimated that this pillar contains 13,679 tons; it will be available for mining as soon as the ore in the pillar on the 5th Level is mined. Mining of this pillar on subs above the 5th Level was started in the fall of 1924, following the change in location of incoming mine water that occurred in September, 1924.

The Southeast ore body on the Stephenson Lease, on this sub-level, is approximately 325 feet long and 30 feet wide. It has not been developed on this sub-level, and from present indications not over 40% of the ore can be mined on account of water.

Reference to annual report maps of the Stephenson Mine will show all ore on this sub-level mined except the pillar at the Southwest end of the main Stephenson ore body and the Southeast ore body referred to in preceding paragraphs.

2ND SUB BELOW 5TH LEVEL:

The mining of ore on the Southwest side of this sub-level up to the "Limit of Mining", set after the mine reopened in 1920, was completed early in 1925. The pillar behind the "Limit of Mining" became available after the cave of September, 1924, when the location of incoming mine water changed from above the 5th Level to a point several hundred feet further to the East. It will be mined when mining is completed on the sub-levels above. It is estimated

that it contains 10,852 tons, all of which is available for mining, unless there is another change in the location of the incoming mine water that will involve this area.

Mining of the Southeast end of the main Stephenson ore body was started in March, and completed at the end of the year. This ore body practically joins the Southeast ore body on this sub-level. The Southward pitch of the main Stephenson ore body has carried it under the jasper hanging so that on this sub-level there is only a few feet of rock separating the two ore bodies. More ore was mined here than had been anticipated due to the flattening of the footwall.

The Southeast ore body has not yet been developed on this sub-level. It is approximately 325 feet in length by 30 feet in width. It is estimated that only 40% of the ore can be mined on account of water.

Mining on this sub-level has been completed except the pillar at the Southwest end of the main Stephenson ore body and the Southeast ore body.

3RD SUB BELOW 5TH LEVEL:

The East side of the main Stephenson ore body on this sub-level was mined in 1923 and 1924; the West side was mined on this sub-level in 1925, except a pillar at the Southwest end, that it is estimated, contains 11,659 tons. An average of four gangs of miners worked here during the year. All the ore in this pillar is considered available; it may develop, however, that some of it cannot be mined on account of water. About one-half of the pillar can be mined now; the balance will not be available until mining has been completed on the 5th Level and two subs below.

The main Stephenson ore body at the Southeast end splits on this sub-level. The Easterly part joins the Southeast ore body; the balance, on the regular dip to the Southwest is separated from the East end by over 100 feet of rock. The entire East side of the main Stephenson ore body was mined in 1924. Mining of the Northwest end of the Southeast ore body was started in June, 1925. A section, 100 feet in length was opened by a drift along the

hanging. On account of the limited life of the mine, it was decided to start mining under the hanging on this sub-level and continue mining a section under the hanging down to the 6th Level. A rock drift was driven in the footwall on the 6th Level and at the end of the year, four raises had been put up to the elevation of this sub-level. In addition to the section opened for 100 feet along the hanging, a crosscut was being driven from another raise 200 feet further to the Southeast in December, 1925, preparatory to drifting under the hanging. The hanging starts to flatten on this sub-level and the Eastern half of the ore body is nearly 50 feet in width. Development work is practically completed here, and if no trouble develops with water, considerable ore will be mined in 1926. All of this ore body above the 6th Level runs low in Phosphorus, and it is expected will yield some Bessemer ore.

Just West of the part of this ore body developed by a drift along the hanging, is the section that comes to this sub-level as part of the main Stephenson ore body. Mining was started here as soon as work was completed on the sub-level above and at the end of the year about two-fifths of the ore had been mined. This section is 200 feet long North and South; it is 100 feet wide at the North end and 30 feet at the South end. The North end has now been mined; the balance will be mined in 1926.

At the end of 1925, all but 11,659 tons of ore in the main Stephenson ore body had been mined. Mining has recently been started in the Southeast ore body where it is estimated 40% of the ore is available.

4TH SUB BELOW 5TH LEVEL:

The area of the main Stephenson ore body is much decreased on this sub-level. Mining was started under the hanging in 1923 and on January 1st, 1925 it was estimated that 50% of the ore had been mined and that there was 34,000 tons remaining. There has been an average of two gangs mining here during the year, and it is now estimated that there are 25,672 tons remaining to be mined on this sub-level. At the end of the year five contracts were working here. The East part of the sub-level has been mined, the remaining ore is on the West

side, probably 10,000 tons is now available for mining; the balance will become available as soon as the ore is removed on the sub-levels above. It is possible that some of this ore may never be mined on account of water due to the uncertainty connected with the location of the incoming water.

The Southeast ore body on this sub-level has not yet been developed.

5TH SUB BELOW 5TH LEVEL:

This sub-level was opened under the hanging in 1924 and 25% of the ore mined. At the end of 1924 it was estimated that there was 56,000 tons of ore on this sub-level. During 1925, 50% of this ore was mined, leaving 28,554 tons on December 31st, 1925. Quite an area was too wet for mining in the latter part of 1924, conditions improved in 1925 and mining was resumed. An average of eight contracts worked here during the year. A few small areas are still quite wet, but it is hoped to cut the water off so that they can be mined in 1926. The number of gangs working here decreased to six in December. Nearly all of the ore can be mined now, as it is under the hanging and will not interfere with mining on the sub-levels above.

The Southeast ore body on this sub was developed by a drift along the foot several years ago. No further work was done on this sub-level in 1925.

6TH SUB BELOW 5TH LEVEL:

This sub-level was opened in November, 1925, with one contract. In December, another started drifting. It is located at the bottom of the Stephenson deposit and all the ore will probably be "Stephenwood" grade. The exact boundaries of the sub-level are unknown as the ore has not been outlined. It is estimated that there is 20,505 tons of ore here. Work will not be pushed here on account of the stocking capacity being limited for "Stephenwood" ore. It is hoped that water will not interfere with mining work.

SIXTH LEVEL

In January, 1925, a new haulage drift, located in the footwall, about 70 feet from the ore, was started at the Southeast end of the mine. The ore

to come from the Southeast ore body, between the 6th and the 5th Levels, will be handled through this drift. It was started in January and completed in September. It was driven a distance of 396 feet. Work was not carried on continuously, due to the shortage of miners.

During the year, three raises were put up from this drift to the elevation of the 3rd sub below the 5th and one raise to the 5th Level. It is estimated that there is a total of 158,606 tons of ore above the 6th Level, in the Southeast ore body, of which 40% or 63,442 tons are available and 60%, or 95,164 tons are unavailable. These figures represent merely a guess as there is no way to determine what the outcome will be with respect to mine water. About 700 gallons per minute comes in at the top of this ore body, a sufficient quantity to make mining impossible. As stated elsewhere in this report, efforts are being made to concentrate this water in a small area so that the balance can be mined. This may be successful for a time and then, owing to caving of the hanging in mined areas, the water may spread out again and possibly increase. The water constitutes a hazard that must be taken if any of this ore is to be mined. It is not expected, however, that water will come in sufficient quantity to endanger the mine.

During the year, two raises were put up from No. 3 crosscut to the elevation of the 4th sub below the 5th Level.

The work referred to in the two preceding paragraphs covers all work done on the 6th Level on the Stephenson Lease, Section 20.

E-4: GENERAL REMARKS:

During 1925, ore has been mined on ten sub-levels and two main levels. The remaining ore on the Stephenson Lease, with respect to ore bodies, is as follows: Main Stephenson ore body, 192,913 tons; Southeast ore body, 244,839 tons. In the main Stephenson ore body, 25,774 tons are considered unavailable; in the South-east ore body, 136,237 tons; this leaves a total available tonnage of 275,741 tons on the Stephenson Lease. Judging from the average yearly decrease in available ore, of the past several years, it is probable that the actual tonnage is more nearly 350,000 tons. As the ore on C. & N. W. Ry. Co., Lease, Section 29, is mined in conjunction with the ore on the Stephenson Lease, it, therefore, figures in the total ore to be mined. At the present time it is estimated that there are 67,207 tons available ore on this lease. Adding this to the 350,000 tons, brings the total to 427,207. This figure may eventually be increased to 450,000 or even 500,000 tons.

The opening of the 7th Level "Auxiliary Shaft" will open new territory on both the Stephenson and C. & N. W. Ry. Co., Lease. Unfortunately, developments adjacent to the 7th Level have not been favorable, and it is within the range of probabilities that very little ore will be found below the 7th. There is also the water problem to consider. It is, therefore, not considered advisable, at this time, based on the present production, to predict a life of more than two years for the Stephenson Mine.

WATER RAISE

In August, 1924, a 100-gal. 1000-ft. head plunger pump was installed on the 6th Level, near the foot of this raise, for the purpose of building up a water pressure behind the concrete dams on the sub-levels just below ledge. The cave of September, 1924, which changed the location of incoming mine water near the South-west end of the main Stephenson ore body, entailed so much extra labor for replacing air lines, etc., that no further work was done at the water raise until in January, 1925. This high pressure pump was operated in the early part of January for three days, and a pressure of 180-lbs. obtained. Measurements taken in No. 66 drill hole from surface showed that the water had risen 5 feet in the drill hole; this proved that, under pressure, the water was being forced upward from the top sub-level into the sand overlying the ledge. The valves on the pipes through the dams on the sub-levels were all opened and the water allowed to drain out. Practically no sand came with the water and there was no increase in the water after the pressure was relieved.

This operation was repeated again later in the month, water being forced in on the top sub-level for four days. The pressure was again brought up to 180-lbs., beyond which point it was impossible to raise it. The valves on the pipes through the concrete dams on the sub-levels were opened on January 27th, and some sand came out on the 2nd and 3rd subs. There was no change in the amount of incoming water after this test was concluded, measurements taken before and after the test showing 120 gallons per minute.

One explanation of the conditions shown by these two tests is that the water was forced upward through the sand under the pressure exerted by the pump, but did not come down through the sand and gravel due to pressure on account of depth below surface, which caused the sand and gravel to pack so tightly as to prevent water flowing through it. It is also probable that the 120 gallons entering the mine at this point comes along the ledge from some distant point and does not come in through the sand. Another explanation of conditions

would be that there may be a clay seam a short distance above ledge which has not been broken. No. 66 drill hole, which is cased and extends down to the ledge, would have passed through the clay seam, and water pumped in behind the dams on the sub-levels would, therefore, have a chance to find an outlet in this pipe. The second explanation does not have much to support it, as there is a cave on surface near No. 66 drill hole due to drawing out sand and gravel through the sub-level below the ledge that would, in all probability, have broken a clay seam.

Two additional tests were made in February, but there was no change in conditions. The pressure was built up to 180-lbs., valves opened and the water drained off, with no increase in the incoming water, and practically no sand washed out with the water.

Another test was made early in March, pumping being continued for several days, but again there was no change.

It was then decided to definitely abandon work near No. 66 diamond drill hole, as it seemed impossible to get water to enter the mine at this point. Work had been carried on here since 1921 and a number of plans tried out, all of which proved unsuccessful. The Stephenson Mine has a limited life, due to depletion of the ore reserves, and it did not seem that any further expense was warranted. Consideration was also given the fact that further work would probably be unsuccessful, in the light of previous experience.

The pump, pipes and all other equipment on the 6th Level and on the sub-level near ledge were removed before the end of the year. A dam was installed in the 6th Level by-pass drift near the foot of the water raise to seal off this raise from the rest of the mine. The valves on the dam have not been closed, so that there is still 120 gallons of water per minute entering the mine here, but it is now possible to shut off this water, if conditions underground make it advisable.

F - COST COMPARISON - STEPHENSON MINE

<u>1 - Days & Shifts:</u>	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Shifts per day,	1 - 8 Hr.	1 - 8 Hr.		
" " week,	6	1-1 to 7-28		
" " "	4	7-29 " 11-30		
" " "	5	1-1 to 12-31 11-30 " 12-31		
No. of days mine operated,	258	261		3

2 - Wages: There was no change in the wage schedule during the year.

3 - Comparison of Production:

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Total Product,	253,193 (1)	249,428	3,765	
Days Mine Operated,	258	261		3
Average Daily Product,	982	956	26	

4 - Comparison of Number of Men & Wages:

Average No. Men, Surface,	42	48		6
" " " Underground,	170	164	6	
" " " Total,	212	212		
Days Worked, Surface,	10754 $\frac{1}{4}$	12444 $\frac{3}{4}$		1690 $\frac{1}{2}$
" " " Underground,	43843 $\frac{1}{2}$	42770 $\frac{1}{4}$	1073	
" " " Total,	54597 $\frac{3}{4}$	55215		617 $\frac{1}{2}$
Amount, Surface,	46980.61	55097.13		8116.52
" " " Underground,	220409.80	214718.67	5691.13	
" " " Total,	267390.41	269815.80		2425.39
Rate per Day, Surface,	4.37	4.43		.06
" " " Underground,	5.03	5.02	.01	
" " " Total,	4.90	4.89	.01	

(1) Product for 1924 includes 5,002 tons stockpile over-run:

5 - Tons Per Man Per Day:

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Total Product,	253,193	(1) 249,428		
<u>Tons Per Man Per Day:</u>				
Surface,	23.54	20.04	3.50	
Underground,	5.77	5.83		.06
Total,	4.64	4.52	.12	
Stoping,	14.41	14.05	.36	

(1) Product for 1924 includes 5,002 tons stockpile over-run:

6 - Cost of Production:

Cost per Ton for Labor:

Surface,	.186	.221		.035
Underground,	.870	.861	.009	
Total,	1.056	1.082		.026

	<u>1 9 2 5</u>		<u>1 9 2 4</u>		<u>Increase</u>		<u>Decrease</u>	
	<u>Amount</u>	<u>Per Ton</u>	<u>Amount</u>	<u>Per Ton</u>	<u>Amount</u>	<u>Per Ton</u>	<u>Amount</u>	<u>Per Ton</u>
<u>LABOR:</u>								
Underground Costs,	223183.87	.921	221308.38	.927	1875.49			.006
Surface,	25540.96	.101	28190.93	.113			2649.97	.012
Gen.Mine Accts.	22555.94	.089	21409.81	.086	1146.13	.003		
<u>SUPPLIES:</u>								
Underground Costs,	137944.57	.545	120826.35	.485	17118.22	.060		
Surface Costs,	23291.90	.092	27689.43	.111			4397.53	.019
Gen.Mine Accts.	20732.16	.082	22706.78	.091			1974.62	.009
<u>COST OF PRODUCTION:</u>								
Labor,	281280.77	1.111	280909.12	1.126	371.65			.015
Supplies,	181968.63	.719	171222.56	.687	10746.07	.032		
TOTAL,	463249.40	1.830	452131.68	1.813	11117.72	.017		

7 - Detail of Accounts:

UNDERGROUND COSTS:

<u>Shaft Sinking,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	0	0
	1924,	11,131.47	.045
	DECREASE,	11,131.47	.045
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u> <u>DECREASE</u>
Number Feet,	0	107	107
Cost per Foot,	0	104.03	104.03

There was no shaft sinking in 1925. The expenditures in 1924 were incurred on account of sinking the Auxiliary Shaft on 6th Level, C. & N. W. Ry. Co., Lease, Sec. 29. It included cost of cutting plats and pockets on 7th and 8th Levels, the skip-pit pocket at bottom of shaft and installation of skip guides and casing plank in the shaft.

<u>Development in Rock,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	20,069.99	.079
	1924,	12,525.62	.050
	INCREASE,	7,544.37	.029
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u> <u>DECREASE</u>
Number of Feet Drifted,	2252	1584	668
Cost per foot,	8.91	7.91	1.00

The increase is due to more rock drifting and raising in 1925, and the cost per foot increased because more large drifts for motor haulage were driven.

<u>Development in Ore,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	866.93	.003
	1924,	2,253.44	.009
	DECREASE,	1,386.51	.006
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u> <u>DECREASE</u>
Number of Feet,	171	446	275
Cost per foot,	5.01	5.05	.04

The decrease is due to less ore raising in 1925.

<u>Stoping,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	124,161.81	.491
	1924,	113,416.37	.455
	INCREASE,	10,745.44	.036

The increase in expenditures in 1925 is shown in detail in the following table:-

<u>Stoping, (continued)</u>	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Explosives,	15,096.22	13,489.68	1606.54	
Scraper Hoists,	6,593.47	- -	6593.47	
Wire Rope & Elec. Cable,	544.44	73.85	470.59	
Scrapers and Appliances,	499.28	9.42	489.86	
Drill repair parts,			500.00	
Labor on Scrapers and accessories, also miscellaneous charges,			<u>1085.04</u>	
			10745.50	

Cost of explosives increased due to more mining on the Southwest side of the ore body on both Stephenson Lease, Sec. 20 and C. & N. W. Ry. Co., Lease, Sec. 29, where the ore is harder. 50% and 60% Red Cross and Gelatin powder was used in this territory. There was also more drifting in ore in 1925 than in 1924.

A comparison of the explosive statements for 1925 and 1924 indicate that the use of 40% Red Cross powder may not be economical. In 1924, 50% Red Cross and 60% Gelatin was used; in 1925 a lower grade Red Cross and Gelatin was used, with the result that the amount of powder used increased and also the cost per ton. This increase is, however, explained in the preceding paragraph.

The following table gives comparative data on stoping for 1925 and 1924:

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Days Stoping,	17,566	17,751		185
Total Tons Stoping,	252,417	241,318	11,099	
Tons per man per day,	14.36	13.59	.77	
Cost per Car,	1.93	1.96		.03
Wages, (includes rock work)	5.24	5.17	.07	
Cost per ton Stoping,	.379	.394		.015

The cost per car for the month of December, 1925, was .17¢ lower than the cost for December, 1924; this decrease was due to the use of scrapers. There are now fifteen scraper outfits underground and the purchase of several others is contemplated.

<u>Timbering,</u>		<u>Amount</u>	<u>Per Ton</u>	
1925,		80,607.20	.318	
1924,		<u>73,620.16</u>	<u>.295</u>	
	<u>INCREASE,</u>	6,987.04	.023	
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Mine Timber, Lagging, etc.	27,496.26	22,889.38	4,606.88	
Other Supplies,	3,857.70	4,973.41		1,115.71
Labor,	<u>49,253.24</u>	<u>45,757.37</u>	<u>3,495.87</u>	
	80,607.20	73,620.16	6,987.04	

More retrimbering of main level drifts (5th Level) account for greater part of increase in labor charges. Balance due to timbering of 734 feet of rock haulage drift and also more labor expense for distribution of timber underground account working on many different sub-levels. The cost for timber

increased \$.0098 per foot in 1925, or \$2103.39; for lagging \$.0148 per 100 feet, or \$194.38; for poles \$.081 per 100 feet, or \$80.07, a total of \$2378.34. The cost of maple covering boards decreased \$.27 per 100 feet, or \$140.67, making net increase in cost of timber, etc., account higher price, \$2237.67. The cost for timber used in 1925, as compared with 1924, increased \$2009.44; for lagging, \$2210.90; for poles \$72.46, and for covering boards, \$314.08, or a total of \$4606.88.

<u>Tramming,</u>			<u>Amount</u>	<u>Per Ton</u>
	1925,		33,122.19	.131
	1924,		<u>32,331.99</u>	<u>.130</u>
	INCREASE,		790.20	.001
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Electric Haulage,	23,513.08	21,888.15	1,624.93	
Other Charges,	<u>9,609.11</u>	<u>10,443.84</u>		834.73
	33,122.19	32,331.99	790.20	

Slight increase account of mining being scattered over greater area and longer trams.

<u>Pumping,</u>			<u>Amount</u>	<u>Per Ton</u>
	1925,		50,049.41	.198
	1924,		<u>44,879.11</u>	<u>.180</u>
	INCREASE,		5,170.30	.018
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Labor,	8,421.07	9,199.76		778.69
Electric Power,	38,919.30	34,918.50	4,000.80	
Prop. Boiler House,	1,025.58		1,025.58	
Other Supplies,	1,083.46	760.85	322.61	
Compressors,	<u>600.00</u>		<u>600.00</u>	
	50,049.41	44,879.11	5,170.30	
Gallons Water Pumped,	1,189,390,579	1,131,055,767	58,334,812	

The increased expenditure in 1925 is due to more water pumped from 6th Level; also more expense for pumping water from 8th Level. Prior to September, 1924, nearly all the mine water came in on the 5th Level, since that time, it has come in on the 6th Level. The amount of incoming water increased in September, 1924; this accounts for the increase in the total gallons pumped in 1925.

Labor costs decreased in 1925 due to use of automatic pumps on 6th Level, since which time one pumpman inspects the pumps daily; from September 1st, to end of year 1924, three pumpmen were employed on the 6th Level. The steam pumps on the 4th Level were operated during October, November and part of December on account of shortage of electric power. The extra expense over cost of pumping by electricity was charged to "Steam Electric". The "Proportion Boiler House" expense shown on statement is really part of the electric power account, as this amount would have been part of the charge for electric power if all the electric pumps had continued to operate. During 1925 a charge of \$50.00 per month has been made for air used by the air pumps in the skip-pits at bottom of the main and auxiliary shafts.

<u>Compressors and Air Pipes,</u>		<u>Amount</u>	<u>Per Ton</u>
1925,		22,088.97	.087
1924,		<u>22,611.82</u>	<u>.091</u>
	DECREASE,	522.85	.004

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Compressors,	18,524.20	18,594.42		70.22
Air Pipes,	<u>3,564.77</u>	<u>4,017.40</u>		<u>452.63</u>
	22,088.97	22,611.82		522.85
Total Cu.Ft. of Air,	483,751,660	479,936,700	3,814,900	
Cu.Ft. Air Per Ton Ore,	1,916	1,924		

The decrease is due to less extensions of air lines on levels and sub-levels, and to mine operating three days less in 1925. The decrease in cost per ton is due to less expenditures and larger product.

<u>Underground Superintendence,</u>		<u>Amount</u>	<u>Per Ton</u>
1925,		13,392.01	.053
1924,		<u>13,322.08</u>	<u>.053</u>
	INCREASE,	69.93	.000

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
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The increase is due to more extra time by shift bosses account re-timbering.

<u>Cave-In,</u>		<u>Amount</u>	<u>Per Ton</u>
1925,		3.84	.000
1924,		<u>15.36</u>	<u>.000</u>
	DECREASE,	11.52	

The decrease is due to less expense in 1925 account of surface caves.

<u>Hand-Tramming Equipment,</u>		<u>Amount</u>	<u>Per Ton</u>
1925,		1,286.58	.005
1924,		<u>1,353.20</u>	<u>.005</u>
	DECREASE,	66.62	---

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Cars,	803.55	405.84	397.71	
Tracks,	<u>483.03</u>	<u>947.36</u>		<u>464.33</u>
	1,286.58	1,353.20		66.62

There was an increase in cost of repairing sub-level cars, due to re-building bodies worn out and rotted. Expense for sub-level rail and extensions of tracks decreased account of less new rail used for extensions.

<u>Electric Tram Equipment,</u>		<u>Amount</u>	<u>Per</u>
	1925,	11,618.05	.046
	1924,	<u>14,574.29</u>	<u>.058</u>
	DECREASE,	2,956.24	.012
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>
Generator and Motor,	44.77	570.59	525.82
Locomotives,	2,405.36	1,945.97	459.39
Wiring,	1,628.01	1,432.57	195.44
Main Line Tracks,	2,560.26	1,284.28	1,275.98
" " Cars,	4,977.38	9,249.21	4,271.83
Spotting Engines,	<u>2.27</u>	<u>91.67</u>	<u>89.40</u>
	11,618.05	14,574.29	2,956.24

There were less repairs to generator and motor; to main line cars, account of charging out in 1924, twelve 2-ton rocker-dump cars, E. & A. No. 454, amount \$4127.73; and to spotting engines. Repairs to locomotives increased, also wiring and main line tracks, account of extensions to main haulage drifts on 6th and 7th Levels.

<u>Pumping Machinery,</u>		<u>Amount</u>	<u>Per</u>
	1925,	13,861.46	.055
	1924,	<u>10,099.82</u>	<u>.041</u>
	INCREASE,	3,761.64	.014

The detail of these accounts follow:-

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Steam Pumps,	360.85	397.85		37.00
Electric Pumps,				
Labor,	1883.16			
Supplies,	<u>4463.22</u>	3,926.36	2,420.02	
Dams,		831.95		831.95
Keystone Drill,	1,169.11	3,511.00		2,341.89
Pump House & Sump,	5,010.75	189.00	4,821.75	
Launders & Ditches,	<u>974.37</u>	<u>1,243.66</u>		269.29
	13,861.46	10,099.82	3,761.64	

The increase in account "Electric Pumps" is due to more repairs in 1925. Supplies for repair of Prescott Plunger pump on 5th Level amounted to \$1751.60 (main item, split gear and pinion); for the Allis-Chalmers Centrifugal, 5th Level, \$1340.29 (main item, rewinding motor); for the Aldrich Plunger pump on 5th Level, \$178.08; for the Aldrich Plunger pump on 8th Level, \$168.01 and for the two automatic Centrifugals on 6th Level, \$52.80.

There was no expense for building dams in 1925.

There was less expense in account "Keystone Drill", which covers cost of work done to get water to enter the mine near No. 66 diamond drill hole. The main item in 1925 was dismantling and removal of equipment used in this work.

The expense in account "Pump House and Sump" was due to cutting pump-house and sump on 8th Level, "Auxiliary Shaft".

There was a decrease in expense for launders and ditches. This expense was unusually high in 1924 due to change in location of incoming water from above the 5th Level to a point below the 5th.

TOTAL UNDERGROUND COSTS,

		<u>Amount</u>	<u>Per Ton</u>
	1925,	371,128.44	1.466
	1924,	<u>352,134.73</u>	<u>1.412</u>
	INCREASE,	18,993.71	.054
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u> <u>DECREASE</u>
Sinking,		11,131.47	11,131.47
Development in Rock,	20,069.99	12,525.62	7,544.37
Development in Ore,	866.93	2,253.44	1,386.51
Stopping,	124,161.81	113,416.37	10,745.44
Timbering,	80,607.20	73,620.16	6,987.04
Tramming,	33,122.19	32,331.99	790.20
Pumping,	50,049.41	44,879.11	5,170.30
Compr. & Air Pipes,	22,088.97	22,611.82	522.85
U.G. Superintendence,	13,392.01	13,322.08	69.93
Cave-In,	3.84	15.36	11.52
Hand-Tram. Equipment,	1,286.58	1,353.20	66.62
Electric Tram. "	11,618.05	14,574.29	2,956.24
Pumping Machinery,	<u>13,861.46</u>	<u>10,099.82</u>	<u>3,761.64</u>
TOTAL,	371,128.44	352,134.72	18,993.71

Seven accounts show increases in expenditures in 1925, while six show decreases. The net increase of \$18,993.71 is due to large increases in accounts "Development in Rock", "Stopping", "Timbering", "Pumping" and "Pumping Machinery". More rock drifting in 1925, purchase of scraper hoists, etc., higher price for timber, lagging and poles, and more repairs to main level drifts, more water pumped from greater depth and more expense for repairs to electric pumps, explain these increases.

SURFACE COSTS.

<u>Hoisting,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	13,129.35	.052
	1924,	<u>13,602.15</u>	<u>.055</u>
	DECREASE,	472.80	.003
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u> <u>DECREASE</u>
Labor,	6,745.23	7,436.24	691.01
Electric Power,	5,086.88	4,926.13	160.75
Other Costs,	<u>1,297.24</u>	<u>1,239.78</u>	57.46
	13,129.35	13,602.15	472.80

The decrease in labor cost was due to only one man employed during 1925 for operating auxiliary hoist; in 1924, this hoist was operated on double shift most of the year, on account of sinking the shaft.

Electric power cost increased in 1925 account of more ore hoisted and part of ore hoisted from greater depth (via auxiliary hoist from 7th Level).

<u>Stocking Ore,</u>			<u>Amount</u>	<u>Per Ton</u>
	1925,		11,069.36	.044
	1924,		<u>9,549.56</u>	<u>.038</u>
	INCREASE,		1,519.80	.006
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Erecting Portable Trestles,	2,427.17	1,095.35	1,331.82	
Operating Tram System,	8,244.66	7,924.06	320.60	
Picking & Trimming Rock,	<u>397.53</u>	<u>530.15</u>		132.62
	11,069.36	9,549.56	1,519.80	
Electric Power,	578.05	528.30	49.75	
Feet of Stocking Trestle Erected,	775	1200		425

The expense for erecting portable or stocking trestles was higher in 1925 account of using more new material in construction, also more expense for raising trestles on blocking to increase stocking capacity. Small increase in labor cost operating tram system due to side-dumping on stockpiles.

<u>Dry House,</u>			<u>Amount</u>	<u>Per Ton</u>
	1925,		10,785.87	.043
	1924,		<u>14,200.70</u>	<u>.057</u>
	DECREASE,		3,414.83	.014
	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Heating,	6,248.31	8,944.00		2,695.69
Water,	3,126.23	3,933.33		807.10
Labor,	1,084.19	1,087.61		3.42
Other Costs,	<u>327.14</u>	<u>235.76</u>	91.38	
	10,785.87	14,200.70		3,414.83

The decrease in heating cost was due to Dry House having been charged with 53% of the Heating Plant expense in 1925 as compared with 77% in 1924. This decrease of 24% was due to operating steam pumps underground in October, November and part of December.

A detail of certain items of the Heating Plant expense, is as follows:-

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Tons Coal,	1372	1483		111
Amount for Coal,	8,011.54	8,625.22		613.68
Per Ton,	5.89	6.23		0.34
Labor Operating Plant,	1,995.78	1,283.34	712.44	
Total Optg. Heating Plant,	11,714.79	11,615.44	99.35	
Dry House Proportion,	53.00%	77.00%		14%

In 1924, a shortage of over 400 tons of coal was made up by increasing the amount charged each month. This made the total coal charged out in 1924 greater than in 1925; the price per ton was also higher in 1924. The labor cost of operating the heating plant increased on account of more firemen and coal handlers during the period that the steam pumps were in operation.

The charge for water decreased due to a lower rate per 1,000 gallons, because of large increase in consumption during last six months of the year when the Central Power Plant was operated.

<u>General Surface Expense,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	3,292.38	.013
1924,	<u>3,259.21</u>	<u>.013</u>
INCREASE,	33.17	---

The small increase is due to more expense for cleaning surface.

Maintenance Accounts.

<u>Hoisting Equipment,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	3,651.07	.014
1924,	<u>3,813.60</u>	<u>.015</u>
DECREASE,	162.53	.001

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Steam Hoist,		2.52		2.52
Electric Hoist,	1,350.93	915.13	435.80	
Wire Rope,	215.42	124.59	90.83	
Skips, Cages & Skip Roads,	<u>2,084.72</u>	<u>2,771.36</u>		<u>686.64</u>
	3,651.07	3,813.60		162.53

There was more expense for repairs to electric hoists in 1925, the main item was a new brake rim for cage hoist, \$485.00, and new brake bands. Cost of repairs to skips were lower in 1925.

<u>Shaft,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	614.24	.002
1924,	<u>400.00</u>	<u>.002</u>
INCREASE,	214.24	---

The increase was due to cost of rebuilding the skip-pit pocket at the bottom of the shaft, after the skip dropped from the 5th Level due to breaking of clevis on September 1st, 1925; cost, \$291.34. Aside from this item, cost of repairs were slightly lower in 1925.

<u>Top Tram Equipment,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	2,683.60	.011
1924,	<u>2,382.51</u>	<u>.009</u>
INCREASE,	301.09	.002

The detail of charges for the two years is as follows:

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Engines and Motors,	135.24	124.29	10.95	
Tracks and Cars,	1,722.02	1,120.01	602.01	
Wire Rope,	649.01	757.34		108.33
Sheaves, Rollers, etc.	<u>177.33</u>	<u>380.87</u>		<u>203.54</u>
	2,683.60	2,382.51	301.09	

Top Tram Equipment, (continued).

The increase in expense in account "Tracks and Cars" was due to cost of repairing several cars that fell from the trestle due to breaking of stringers and to more expense for raising tracks on Stephenwood and Stephenson stockpiles, account of side-dumping.

<u>Docks, Trestles and Pockets,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	1,668.03	.006
1924,	<u>7,498.11</u>	<u>.030</u>
DECREASE,	5,830.08	.024

The detail of accounts for the two years is as follows:

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Grading and Planking,	1,423.86	2,214.55		790.69
Permanent Trestles,	119.97	1,529.43		1,409.46
Portable "	7.67	3,704.16		3,696.49
Pockets, Chutes, etc.,	<u>116.53</u>	<u>49.97</u>	66.56	
	1,668.03	7,498.11		5,830.08

The expense for grading and planking additional stocking grounds decreased in 1925, also expense for repairing permanent trestles. The main decrease occurred in account "Portable Trestles", and was due to expense in 1924 for erecting trestle in pit North of rock pile for stocking Stephenwood ore. In 1924, ore was stocked here with end dump car on gravity tram, without trestle.

<u>Mine Buildings,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	1,938.96	.008
1924,	<u>1,174.52</u>	<u>.005</u>
INCREASE,	764.44	.003

The detail of expenditures for the two years is as follows:

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Office,	410.58	156.81	273.77	
Warehouse,	224.02	8.36	215.66	
Stables,	251.67	77.30	174.37	
Shaft House,	16.98	414.38		397.40
Engine House,	38.27	160.62		122.35
Boiler House,	44.29	17.07	27.22	
Dry House,	337.43	231.42	106.01	
Fire Protection,	44.65	107.06		62.41
Water Tank,		21.50		21.50
Oil House,	2.35	--	2.35	
Timber Tunnel,	<u>568.72</u>	<u>--</u>	<u>568.72</u>	
	1,938.96	1,174.52	764.44	

The main items causing increase were as follows:- New steam lines replacing rusted out lines to Mine Office, Warehouse and Captain's Office; painting interior of mine office, repairing foundations of warehouse, new roof on carriage shed and lining interior of stables, new water heater in Dry House, and retimbering of timber tunnel to shaft.

<u>TOTAL SURFACE COSTS,</u>		<u>Amount</u>	<u>Per Ton</u>
1925,		48,832.86	.193
1924,		<u>55,880.36</u>	<u>.224</u>
	DECREASE,	7,047.50	.031

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Hoisting,	13,129.35	13,602.15		472.80
Stocking Ore,	11,069.36	9,549.56	1,519.80	
Dry House,	10,785.87	14,200.70		3,414.83
General Surface Expense,	3,292.38	3,259.21	33.17	
Hoisting Equipment,	3,651.07	3,813.60		162.53
Shaft,	614.24	400.00	214.24	
Top Tram Equipment,	2,683.60	2,382.51	301.09	
Docks, Trestles & Pockets,	1,668.03	7,498.11		5,830.08
Mine Buildings,	<u>1,938.96</u>	<u>1,174.52</u>	764.44	
	48,832.86	55,880.36		<u>7,047.50</u>

Five accounts show small increases, while four show decreases. The main cause of decrease in expenditures in 1925, was due to less expense for operating Dry House, and less expense for trestles. There were six less men employed on surface in 1925.

GENERAL MINE ACCOUNTS.

<u>Insurance,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	217.00	.001
	1924,	<u>204.98</u>	<u>.001</u>
	INCREASE,	12.02	---

The small increase is due to more insurance carried during 1925.

<u>Engineering,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	4,688.34	.018
	1924,	<u>4,392.46</u>	<u>.018</u>
	INCREASE,	295.88	---

The increase is due to more time of engineers charged to the Stephenson Mine, due to less outside work. As the Stephenson is the only active mine in the district it has to absorb all charges not taken up by outside work.

<u>Analysis,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	11,715.85	.046
	1924,	<u>10,290.49</u>	<u>.041</u>
	INCREASE	1,425.36	.005

The detail of this account for the two years is as follows:-

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Laboratory Costs,	8,754.84	7,807.50	947.34	
Sampling "	<u>2,961.01</u>	<u>2,482.99</u>	<u>478.02</u>	
	11,715.85	10,290.49	1,425.36	
Number Determinations,	31,376	27,310	4,066	
Cost per Determination,	.2790	.2859		.0069

The laboratory costs for 1925 increased mainly on account of extra chemist employed on night shift during shipping season to make Sulphur determinations for Stephenson ore going into the Cliffs Group Mixture. Part of the increase was due to more supplies used on account of more determinations, as shipments for year increased 30,996 tons. Sampling expense for Gwinn District Crusher increased account of more ore shipped in 1925.

<u>Personal Injury Expense,</u>		<u>Amount</u>	<u>Per Ton</u>
	1925,	7,234.73	.029
	1924,	<u>10,246.20</u>	<u>.041</u>
	DECREASE,	3,011.47	.012

The detail of this account for the two years was as follows:-

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Gratuities,		77.70		77.50
Legal and Other Expense,		61.34		61.34
Medical & Hospital Attendance,	368.53	713.01		344.48
Compensation Payments, Current Year,	798.66	2,264.51		1,465.85
Compensation Payments account accidents of previous years,	4,874.14	5,949.64		1,075.50
Payments to Doctor, 40¢ per month,	<u>1,193.40</u>	<u>1,180.20</u>	13.20	
	7,234.73	10,246.20		3,011.47
No. of Compensable Accidents,	22	29		7
Days lost on account of accidents,	505½	1191½		686

The above detail explains the reasons for decrease in expenditures in 1925.

<u>Safety Department Expense,</u>		<u>Amount</u>	<u>Per Ton</u>
1925,		213.10	.001
1924,		<u>270.54</u>	<u>.001</u>
	DECREASE,	57.44	----

The detail of this account for the two years is as follows:-

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Salaries of Committees,	166.82	162.79	4.03	
Traveling Expenses,	--	3.70		3.70
First-Aid Supplies,	<u>46.28</u>	<u>104.05</u>		<u>57.77</u>
	213.10	270.54		57.44

The decrease is due to less first-aid supplies used at Stephenson Mine in 1925, on account of fewer accidents.

<u>Telephones and Safety Devices,</u>		<u>Amount</u>	<u>Per Ton</u>
1925,		894.84	.003
1924,		<u>1,031.73</u>	<u>.004</u>
	DECREASE,	136.89	.001

The detail of charges in this account for the two years is as follows:-

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Lighting for Shaft & Levels,	498.55	482.78	15.77	
Mine Telephones,	64.98	52.72	12.26	
Safety Catches and Under- ground Improvements,	36.01	43.77		7.76
Sign Boards, Signals, etc.	31.60	157.57		125.97
Applications for care of injured persons,		9.24		9.24
Miscellaneous,		34.46		34.46
Fire Protection, Underground,	263.70	251.19	12.51	
	<u>894.84</u>	<u>1,031.73</u>		<u>136.89</u>

The decrease is due to less expense for sign-boards, signals, etc. In 1924, a large number of metal signs were bought for surface and underground use.

<u>Local & General Welfare,</u>		<u>Amount</u>	<u>Per Ton</u>
1925,		3,295.25	.013
1924,		<u>2,951.88</u>	<u>.012</u>
	INCREASE,	343.37	.001

The total charge to Gwinn District in this account decreased \$368.38 in 1925, but the proportion charged to Stephenson Mine increased from 34.02% in 1924 to 40.77% in 1925. This was due to the fact that the Francis operated four months in 1924 with a proportion of 6.55% for that year.

<u>Mine Office,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	4,205.62	.017
1924,	<u>5,517.41</u>	<u>.022</u>
DECREASE,	1,311.79	.005

This decrease is due to less clerks being employed during the last half of 1925, also office expense decreased \$37.83, stable expense \$37.24.

<u>District Office,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	10,823.37	.043
1924,	<u>9,210.90</u>	<u>.037</u>
INCREASE,	1,612.47	.006

The total District Office expense decreased \$568.74, but the percentage charged to the Stephenson Mine increased from 34.02% in 1924 to 40.77% in 1925. This is due to the fact that the Francis operated four months in 1924, and the percent charged Francis for that year was 6.55%.

<u>TOTAL GENERAL MINE ACCOUNTS,</u>	<u>Amount</u>	<u>Per Ton</u>
1925,	43,288.10	.171
1924,	<u>44,116.59</u>	<u>.177</u>
DECREASE,	828.49	.006

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Insurance,	217.00	204.98	12.02	
Engineering,	4,688.34	4,392.46	295.88	
Analysis,	11,715.85	10,290.49	1,425.36	
Personal Injury Expense,	7,234.73	10,246.20		3,011.47
Safety Dept. Expense,	213.10	270.54		57.44
Telephones & Safety Devices,	894.84	1,031.73		136.89
Local & General Welfare,	3,295.25	2,951.88	343.37	
Mine Office,	4,205.62	5,517.41		1,311.79
District Office,	<u>10,823.37</u>	<u>9,210.90</u>	1,612.47	
	43,288.10	44,116.59		828.49

Five accounts show decreases and five show increases. The net decrease of \$828.49 is due to decrease in expense for personal injuries. The decrease in cost per ton is divided almost exactly between decrease in expenditures and increase in product.

COST OF PRODUCTION:

	<u>Amount</u>	<u>Per Ton</u>
1925,	463,249.40	1.830
1924,	<u>452,131.68</u>	<u>1.813</u>
INCREASE,	11,117.72	.017

R E C A P I T U L A T I O N .

	<u>1 9 2 5</u>	<u>1 9 2 4</u>	<u>INCREASE</u>	<u>DECREASE</u>
Total Underground Costs,	371,128.44	352,134.73	18,993.71	
Total Surface Costs,	48,832.86	55,880.36		7,047.50
Total Gen'l. Mine Accts.	43,288.10	44,116.59		828.49
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
TOTAL,	463,249.40	452,131.68	11,117.72	

The total expenditures increased \$11,117.72 for the year; the product increased 3,765 tons and the cost per ton increased \$.017. This was due to more rock drifting, to purchase of nine scraper outfits and accessories, to higher prices paid for timber, lagging and poles, to more water pumped and more expense for repairs to pumping equipment. As shown on the second sheet, of this report, (C-6) the labor cost for the year was \$.015 lower and the supply cost \$.032 higher, making net increase \$.017. This increase occurred in Underground Costs, both Surface and General Mine Accounts showed decreases.

G. & N. W. RY. CO. LEASE, SECTION 29.

A-1. PRODUCTION BY GRADES.

The product from this lease for the years 1925 and 1924, was as follows:-

	<u>1925</u> <u>TONS</u>	<u>1924</u> <u>TONS</u>	<u>INCREASE</u> <u>TONS</u>	<u>DECREASE</u> <u>TONS</u>
Northdale,	20,258	4,569	15,689	
Northwood,	<u>1,788</u>	<u>2,833</u>		1,045
Total,	22,046	7,402		
INCREASE, 1925,			14,644	

The product from this lease in 1925 was 8.6% of the total product; in 1924 it was 3%.

A-2. SHIPMENTS.

The shipments for the years 1925 and 1924 were as follows:

	<u>1925</u> <u>TONS</u>	<u>1924</u> <u>TONS</u>	<u>INCREASE</u> <u>TONS</u>	<u>DECREASE</u> <u>TONS</u>
Northdale,	5,122	2,909	2,213	
Northwood,	<u>5,122</u>	<u>2,365</u>		2,365
Total,	5,122	5,274		
DECREASE, 1925,				152

The shipments from this lease in 1925 were 2.5% of the total shipments from the Stephenson Mine.

A-3. STOCKPILE BALANCES.

The ore in stock on December 31st, 1925 and 1924 was as follows:

	<u>1925</u> <u>TONS</u>	<u>1924</u> <u>TONS</u>	<u>INCREASE</u> <u>TONS</u>
Northdale,	24,208	9,072	15,136
Northwood,	<u>2,256</u>	<u>468</u>	1,788
Total,	26,464	9,540	
INCREASE, 1925,			16,924

A-5. PRODUCTION BY MONTHS

The product by months from this lease for the years 1925 and 1924,
was as follows:

	<u>TONS</u> <u>1925</u>	<u>TONS</u> <u>1924</u>
January,	1,304	0
February,	1,396	0
March,	1,708	0
April,	2,116	104
May,	1,927	1,059
June,	1,774	976
July,	1,472	1,387
August,	1,780	1,052
September,	1,747	1,157
October,	2,426	799
November,	2,244	868
December,	<u>2,152</u>	<u>0</u>
Total,	22,046	7,402
INCREASE, 1925,		14,644 tons.

A-7. ESTIMATE OF ORE RESERVES.

The estimate of ore in sight on December 31st, 1925, was as follows:

	<u>NORTHDALÉ</u>	<u>NORTHWOOD</u>	<u>TOTAL</u>
Developed ore above 5th Level,	4,455		4,455
" " " 6th "	<u>24,817</u>	<u>8,270</u>	<u>33,087</u>
Total Developed Ore,	29,272	8,270	37,542
Prospective Ore Below 6th Level,	<u>60,623</u>	<u>40,415</u>	<u>101,038</u>
Grand Total Ore,	89,895	48,685	138,580

On December 31st, 1924, the estimate of ore in sight was 201,522 tons. The decrease in 1925 was, therefore, 62,942 tons. As the product in 1925 was 22,046 tons, the reserves show a decrease of 40,896 tons. This is accounted for by the development work below the 6th Level which indicates a roll in the footwall that eliminates this tonnage from the estimate. The ore below the 6th Level is not yet developed enough to permit of making an accurate estimate, and it is considered as prospective ore.

The estimate of prospective ore below the 6th Level is made from cross-sections from drill holes, that, up to this year, gave the only information that

was available. Only a small area at the West end of the ore body was developed this year; the work done here indicated a roll in the footwall which decreased the ore area on the cross-sections.

The estimated tonnage, divided into available and unavailable, is as follows:

	<u>AVAILABLE</u>	<u>UNAVAILABLE</u>	<u>TOTAL</u>
Developed ore above 5th Level,	4,455		4,455
" " " 6th "	<u>12,234</u>	<u>20,853</u>	<u>33,087</u>
Total Developed Ore,	16,689	20,853	37,542
Prospective Ore,	<u>50,518</u>	<u>50,520</u>	<u>101,038</u>
Grand Total,	67,207	71,373	138,580

The 20,853 tons of developed ore, considered unavailable, is the ore near the Stephenson boundary that cannot be mined now on account of water. A change in location of the incoming water would render part of this ore available, it may be that work now underway near this area will concentrate the water to a smaller area and make part of the ore available.

At this time it is considered probable that one half of the prospective ore below the 6th Level will be available for mining. It is impossible to make an accurate estimate, for practically nothing is known of the size or grade of this ore body. There is also the question of water. It may develop that some areas will be too wet to mine; perhaps mining operations may bring the water down from above the 5th Level in the Southeast ore body on Stephenson Lease and stop mining at the East end on the Northwestern lease.

The estimated tonnage in the mine, sub-divided as required by the State Tax Commission, is as follows:

Non-Bessemer Ore:

Developed:	1. Northdale,	13,631 tons
	2. Northwood,	<u>3,058 "</u>
	Total Developed Ore,	16,689 tons.

Total Developed Ore, brought forward, 16,689 tons.

Non-Bessemer Ore:

Prospective:	1. Northdale,	30,311 tons	
	2. Northwood,	<u>20,207</u>	"
	Total Prospective Ore,		<u>50,518</u> "
	Grand Total,		67,207 "

The decrease from the estimate of 1924, is 48,874 tons. The production in 1925 was 22,046 tons; the decrease in ore reserves is 26,828 tons. This is due to revision of estimate of prospective ore below the 6th Level, on account of development work at the West end of the ore body, in the territory between the 7th and 6th Levels.

E--UNDERGROUND:

E-1. DEVELOPMENT:

Development work in rock on this lease is covered under the heading "Stephenson Mine". It is not practical to separate the work on the two leases. Some comments on development, due to the result of the years work, will be made under description of work done on the various levels and sub-levels.

E-2 & E-3. STOPING, CONTRACTS, ETC:

During the year work has been done on the following sub-levels and main levels on this Lease:

2nd, 3rd and 4th Subs below 4th Level
5th Level
4th, 5th and 6th Subs below 5th Level
6th Level
5th Sub below 6th Level
7th Level
8th Level
Pump-House and Sump, 8th Level.

2ND SUB BELOW 4TH LEVEL:

When the mine was flooded in 1917, mining had been completed on this sub-level, except for a few small pillars near the raises from the 5th Level.

Mining was resumed here in September, 1924, after the cave that changed the location of incoming mine water further to the East. All the pillars, except one, were mined in 1924; the last one was mined in April and May, 1925. This completed the mining of all ore on this sub-level.

3RD SUB BELOW 4TH LEVEL:

A small amount of ore had been left on this sub-level since the mine was flooded in 1917. This ore became available after the change in location of water occurred in September, 1924. Mining was started here in January, 1925, and completed in August. An average of two gangs worked here for eight months of the year. There may be a little ore left along the Stephenson boundary; this will be determined by an exploratory drift now being driven on the Stephenson Lease. If any ore is found here it will be mined in 1926.

4TH SUB BELOW 4TH LEVEL:

There was a small amount of ore on this sub-level, just South of the Stephenson boundary, that was unavailable until September, 1924, when the location of incoming mine water moved several hundred feet to the East. Mining of this area was started in August, 1925, and about 70% had been mined at the end of the year. It is estimated that there was 1,874 tons remaining to be mined on this sub-level on December 31st, 1925.

FIFTH LEVEL

The ore body on the 5th Level on this Lease was developed in 1916 and 1917. A few small pillars outside the limit of mining were removed in 1920, no further work was done here until in June, 1924, when, after repairing the haulage drifts, several of the large pillars were sub-divided. The cave of September, 1924, involved this territory and all the drifts here crushed. Prior to this cave, the greater part of the mine water, approximately 1,600 gallons per minute, came in 300 feet to the West of this area. After the cave, the water came in about 100 feet East of this area. A new haulage way was

opened to this area by extending a cross-cut on the Stephenson Lease about 100 feet to the East, which new cross-cut was completed in January, 1925. Mining of the pillars here was started in February and two contracts worked here for the balance of the year. Parts of two pillars remained to be mined at the end of the year, estimated to contain 2,581 tons of ore. Due to crushing and settlement of the hanging, caused by the cave in September, 1924, it was not possible to mine some of the ore under the hanging on this sub-level. This ore may later be mined on the 1st sub below the 5th Level, if water conditions permit. Some difficulty in mining was experienced here throughout the year due to water that came in the back through the broken capping. The miners used sheet iron to cut off the water when working near the hanging.

1ST, 2ND AND 3RD SUBS BELOW 5TH LEVEL:

No work could be done on these subs in 1925 on account of water. Approximately 1,600 gallons per minute enters the mine through the hanging of the small ore body on these sub-levels, just South of the Stephenson boundary. It is estimated that the pillars remaining on the 1st sub contains 5,739 tons of ore; on the 2nd sub, 3,849 tons and on the 3rd sub, 8,864 tons, a total of 18,542 tons, all of which is considered unavailable at this time.

4TH SUB BELOW 5TH LEVEL:

This sub-level was opened in August, 1925, at the East end of the ore body under the hanging. A small area is being mined that is not effected by water to any extent. The 3rd sub below the 5th, the one directly over this sub-level, was developed and the ore outlined by drifts and cross-cuts several years ago; the greater part of the Stephenson Mine water comes out to the raises through these drifts and cross-cuts. It is hoped that the mining now being done on the 4th sub-level will bring this water in further to the East and release for mining some of the ore on the 1st, 2nd and 3rd sub-levels.

It is estimated that 7,194 tons of ore on this sub-level are unavailable at this time on account of water, which prevents mining the pillar on the

subs above. A small amount of ore, not exceeding 1,000 tons, may be mined under the hanging at the East end of the ore body just South of the Stephenson boundary.

5TH SUB BELOW 5TH LEVEL:

The main Stephenson ore body on this sub-level barely extends over on C. & N. W. Ry. Co., Lease, Section 29. About 50% of this small ore body was mined in 1925; only 1,164 tons remained to be mined on December 31st, 1925. It can be mined as soon as the ore on the sub above is mined.

Two hundred feet East of this ore body, near No. 32 diamond drill hole from surface, a small ore body, 90 feet long and 20 feet wide, was developed and mined in 1925. The South 35 feet of this small body is on this lease. The ore produced here was "Northwood" grade.

The ore formation is barren for a distance of 150 feet to the East, where the top of the Southeast ore body on Stephenson Lease crosses the boundary unto this lease. This ore body on this sub-level was mined in 1924. For about 150 feet South of this point, the formation is again barren, then ore was encountered that was very limited in area. This ore was mined in 1922.

6TH SUB BELOW 5TH LEVEL:

This sub-level was opened in June, 1924, above No. 5 crosscut. The two sub-levels immediately above were mined in 1921 and 1922; they had been opened at the top of this ore body where the concentration was irregular. The ore on the 6th sub-level was developed by crosscuts from two raises, 70 feet apart, in 1924. The only ore remaining here in 1925, comprised the pillar between these two crosscuts, roughly 50' x 60' in size, with a narrow extension 15' x 50' to the North. This ore was mined in the first five months of 1925. Most of it was "Northwood" grade, running about 58% in Iron; near the hanging, some high grade "Northdale" ore was found.

The extent and quality of the ore on this sub-level proved quite disappointing. It was actually smaller than on the sub-level above. It does not look as though this part of the Section 29 ore body would yield much ore,

especially since this same section has been developed by one crosscut near the 7th Level and no merchantable ore found.

About 150 feet to the North of this ore body, a rock drift was driven in the fall, to strike the downward extension of the small isolated body of ore found in 1925 near No. 32 diamond drill hole from surface. This ore was reached after drifting 50 feet in rock, but it was cut off by the foot and was only from 3 to 6 feet in thickness. It is being scrambled off the foot, mining being practically completed at the end of the year.

All of the ore on this lease has been mined on this sub-level.

SIXTH LEVEL

The drift from the Auxiliary Shaft to the engine house was gunited early in the year to make it fire-proof.

The raise for timber road and other supplies, also for permanent traveling road, between the 7th and 6th Levels, holed to the side of No. 5 crosscut early in the year. A switch was put in the main haulage track in No. 5 crosscut to connect with the track extending through the raise to the 7th Level. Ground was excavated on the opposite side of the 5th Level haulage drift for a station for small air hoist that was installed. It is used in lowering truck loads of supplies from the 6th to the 7th Level.

No. 1 raise from the 7th Level was completed in September, and in October, development of the ore body on the 6th Level, near this raise, was started. The area of merchantable ore developed here was very small, as chert was encountered to the Northeast of the raise. Some good ore was found near the hanging, but it was only drift-wide, the balance of ore developed here ran low in Iron and over 0.600 in Phosphorus. The developments here were in line with results indicated by mining on the sub-levels above. It is possible that the territory adjacent to this raise is too far West and just misses the main ore body. Definite information will be available early in 1926 as several other raises are now being put up from the 7th Level and this part of the ore body will be fully developed within a few months.

5TH SUB BELOW 6TH LEVEL:

This sub-level was opened in October just above the 7th Level for the purpose of locating the ore body and determining its grade and physical character; also whether it was wet or dry. A total of 150 feet of drifting was done here. The ore formation was crossed from foot to hanging, after drifting through the footwall. The foot was flat and extended for some distance after lean ore was encountered in the back. The ore was lean, averaging from 40% to 53% in Iron. It was light in weight and can best be described by saying it had a "sandy" appearance. It was crossed by seams of jasper, indicating that the concentration had been incomplete.

The results of work done on the 6th sub below the 5th Level, the 6th Level and this sub-level, all of which are near the Southwest end of the ore body, lead to the revision of cross-sections used in estimating tonnages and a decided reduction in the estimate of ore in this territory. Additional exploratory drifts will be driven in 1926, at intervals of 200 feet, on this sub-level; the information thus gained will determine whether it will pay to open the 8th Level. It will also permit of an accurate estimate of ore between the 7th and 6th Levels on both this lease and the Stephenson Lease.

SEVENTH LEVEL.

The extension of the 7th Level haulage drift was resumed in May, 1925, Work had been stopped here in the fall of 1924, when ground water was encountered, (over 50 gallons per minute came out of the drill holes in the breast). The drift advanced 396 feet up to the end of the year. The layout of the drift was changed due to soft ground, and a turn made so that it would be further back in the footwall in harder ground. The contract driving the drift has cut out for four raises and started the raises so that chutes could be built by the timber gang. Owing to discouraging results, following development work on the 6th Level, and on the 5th sub below the 6th Level, it has become imperative to make more rapid progress in this drift. Plans are underway for making an incline for loading rock into cars with electric-operated scraper, which will per-

mit rock to be cleaned out on night shift, a cut blasted every day and timber installed on day shift. It would not pay to run the large 4,000 cu. ft. compressor in the Central Power Plant to get air for drilling and operating the "Armstrong" loader. To load rock in cars with electric scraper hoist, and hoist to the 6th Level, will only require two men on the 7th Level and a hoisting engineer at the "Auxiliary Shaft". This should increase the advance at least 75%, or from 50 feet per month to from 75 to 100 feet. There is about 650 feet of drifting to be done on this level, and from twelve to fifteen raises to be put up. Every effort will be made to complete this work as soon as possible, as the limited life of the mine makes it necessary to start mining below the 6th Level to provide places for contracts, if the present hoist of 20,000 tons or more per month is to be maintained.

The raise from the 7th to the 6th Level for timber and supplies, and traveling road for men, was completed early in the year.

EIGHT LEVEL

Preliminary work necessary for excavation of pump-house and sump on the 8th Level, was started in December, 1924, and continued until completed in July, 1925. A pump-house, 30' x 30' in size, was excavated in solid granite near the shaft. A sump drift was driven on an incline from the side of the haulage drift to a point 12 feet below the 8th Level, and a sump of 150,000 gallons capacity was cut in solid granite. The ground in both the pump-house and sump was quite hard, the size of the sump was decreased owing to the expense and slow progress made on five days per week, single shift.

Early in the year the raise for supplies and traveling road to the 7th Level, that was started in 1924, was completed. This raise holes to the 7th Level near the foot of a similar raise from 7th to 6th Level; they are connected by a track so that a truck loaded with supplies can be lowered from the 6th to the 8th Level.

The main 8th Level haulage drift advanced 29 feet during the year.

It was driven ahead on account of cutting the sump. It is now in 155 feet from the shaft. Drifting will be resumed, if developments on the 7th Level indicate that the ore body is of sufficient size and grade to warrant development of the 8th Level. This information will be available within six months.

PUMP-HOUSE:

A 1000-gal. plunger pump from the 6th Level pump-house was installed in July and started operating the middle of August. A tee was installed on the discharge line for a second pump that will be installed later. This pump is a centrifugal of 2,000 gallons capacity that is in use at North Lake; it will be released on completion of the ditch for draining the lake. The outlet for discharge line from pump-house to shaft has been sealed off. The sump has also been sealed off from the pump-house with concrete dam in which are pipes for letting water in to the suction of the pumps. The drift from the pump-house to 8th Level haulage drift has been sealed off with a boiler head, set in concrete. A raise has been put up from the pump-house to the elevation of the back of the 7th Level haulage drift, and a connection made at a height of 8 feet above the floor of the 7th Level.

All of the above work has been done to safe-guard the pump-house from being flooded in case of a sudden increase in the mine water.

As a further safe-guard, a section of the 6th Level haulage drift will be concreted and prepared for installation of stop logs. This will be used to hold back water on the 6th Level from the Auxiliary Shaft.

SUMP:

An incline drift was driven from the side of the 8th Level haulage drift until a depth of 12 feet was made. The sump was then excavated; it was equivalent to 313 feet of drifting. It is in hard granite and no timber was needed. Two connections have been made to the 8th Level drift, the sump is divided by a concrete dam, so that either part can be cleaned. It has a capacity of 150,000 gallons.

STEPHENSON MINE

AVERAGE MINE ANALYSIS ON OUTPUT FOR YEAR 1925.

GRADE	IRON	PHOS.	SILICA	MANG.
Stephenson Bessemer,	(No Production)			
Stephenson,	60.87	.244	4.07	.832
Stephenwood,	59.24	.714	3.25	.893
Northdale,	60.57	.214	5.05	.867
Northwood,	57.35	.803	5.73	.762

AVERAGE ANALYSIS ON STRAIGHT CARGOES FOR YEAR 1925.

GRADE	IRON	Mine			Lake Erie	
		PHOS.	SILICA	MANG.	IRON	MOIST.
Stephenson Bessemer,	(All Mixed)					
Stephenson,	(All Mixed)					
Stephenwood,	(All Mixed)					
Northdale,	(All Mixed)					
Northwood,	(All Mixed)					

ORE STATEMENT - DECEMBER 31st, 1925.

	STEPHEN- SON BESSEMER	STEPHEN- SON ORE	STEPHEN- WOOD ORE	NORTH- DALE	NORTH- WOOD	TOTAL	TOTAL LAST YEAR
On hand Jan. 1, 1925,	-	456,702	9,496	9,072	468	475,738	413,209
Output for Year,	-	154,643	76,504	20,258	1,788	253,193	244,426
Stockpile Overrun,	-	-	-	-	-	-	5,002
Total,	-	611,345	86,000	29,330	2,256	728,931	662,637
Shipments,	-	205,167	5,800	5,122	-	216,089	186,899
Balance on Hand,	-	406,178	80,200	24,208	2,256	512,842	475,738
Increase in Output,						3,765	
Increase in Ore on Hand,						37,104	

1925 -- 1-8 Hour Shift, 5 days per week, Jan. 1st to Dec. 31st, 1925.

1924 -- 1-8 Hour Shift, 6 days per week, Jan. 1st to July 26th, 1924.
 1-8 Hour Shift, 4 days per week, July 26th to Nov. 30th, 1924.
 1-8 Hour Shift, 5 days per week, Dec. 1st to Dec. 31st, 1924.

STEPHENSON MINE
SHIPMENTS FOR YEAR-1925

GRADE	POCKET	STOCKPILE	TOTAL	TOTAL LAST YEAR
Stephenson Bessemer,	-	-	-	-
Stephenson No. 1,	-	-	-	-
Stephenson,	73,799	131,368	205,167	116,633
Stephenwood,	2,348	3,452	5,800	64,992
Northdale,	5,122	-	5,122	2,909
Northwood,	-	-	-	2,365
Total,	81,269	134,820	216,089	186,899
Total Last Year,			186,899	
Increase,			29,190	

STEPHENSON MINE

COMPARITIVE MINING COST FOR YEAR

	1925	1924	INCREASE	DECREASE
PRODUCT	253,193	249,428	3,765	
Underground Costs	1.466	1.412	.054	
Surface Costs	.193	.224		.031
General Mine Accounts	.171	.177		.006
Cost of Production	1.830	1.813	.017	
Plant Account	.017	.017		
Uncompleted Construction	.005	.002	.003	
Taxes	.081	.077	.004	
Central Office	.099	.095	.004	
Contingent Expense	.020	.012	.008	
Cost Adjustment	.034	.036		.002
Cost on Stockpile	2.086	2.052	.034	
Loading & Shipping	.069	.098		.029
Total Cost on Cars	2.155	2.150	.005	
No. Days Operating	258	261		3
No. Shifts & Hours	1-8	1-8		
Avg. Daily Product	981	956	25	
<u>COST OF PRODUCTION</u>				
Labor	1.111	1.126		.015
Supplies	.719	.687	.032	
Total	1.830	1.813	.017	

STEPHENSON MINE

COMPARATIVE WAGES AND PRODUCT

	1 9 2 5	1 9 2 4	INCREASE	DECREASE
PRODUCT	253,193	249,428	3,765	
No.Shifts & Hours	1-8	1-8		
AVG.NO.MEN WORKING				
Surface	38	41		3
Underground	165	162	3	
Total	203	203		
AVG.WAGES PER DAY				
Surface	4.37	4.43		.06
Underground	5.03	5.02	.01	
Total	4.90	4.89	.01	
WAGES PER MO. OF 25 DAYS				
Surface	109.25	110.75	.	1.50
Underground	109.25	110.75		1.50
Underground	125.75	125.50	.25	
Total	122.25	122.25	-	-
PRODUCT PER MAN PER DAY				
Surface	23.54	20.05	3.49	
Underground	5.77	5.83		.06
Total	4.64	4.52	.12	
LABOR COST PER TON				
Surface	.186	.221		.035
Underground	.870	.861	.009	
Total	1.056	1.082		.026
AVG.PRODUCT BRK'G & TRM'G	9.38	9.27	.11	
" WAGES CONTRACT MINERS	5.26	5.23	.03	
" " " LABOR	5.26	5.23	.03	
TOTAL NO. OF DAYS				
Surface	10754 $\frac{1}{4}$	12444 $\frac{3}{4}$		1690 $\frac{1}{2}$
Underground	45843 $\frac{1}{4}$	42770 $\frac{1}{4}$	1073	
Total	54597 $\frac{1}{2}$	55215		617 $\frac{1}{2}$
AMOUNT FOR LABOR				
Surface	46980.61	55097.13		8116.52
Underground	220409.80	214718.67	5691.13	
Total	267390.41	269815.80		2425.39

Proportion Surface to Underground Men:

1925 - 1 to 4.34

1924 - 1 to 3.95

1923 - 1 to 3.67

1922 - 1 to 3.62

1921 - 1 to 4.14

1924 - 1-8hr 4 days per wk. from July 30th to Dec. 1st;
 1-8hr 5 " " " Dec. 1st.

STEPHENSON MINE

TIMBER STATEMENT FOR THE YEAR ENDING DECEMBER 31, 1925.

KIND	LINEAL FEET	AVG. PRICE PER FOOT	AMOUNT 1925	AMOUNT 1924
4" to 6" Timber	4,648	.0262	121.93	145.34
6" to 8" "	40,504	.0394	1,597.65	2,298.30
8" to 10" "	96,560	.0670	6,473.21	7,053.01
10" to 12" "	61,648	.1024	6,316.12	2,905.74
12" to 14" "	11,272	.1124	1,267.38	1,364.46
Total - 1925	214,632	.0735	15,776.29	13,766.85
Total - 1924	216,121	.0637	13,766.85	13,766.85
	LINEAL FEET	PER 100'		
5' Lagging	717,400	.768	514.11	3,518.04
7' "	265,838	.687	1,828.81	3,732.32
8' "	333,524	.687	2,291.62	173.28
Total Lagging	1,316,762	.731	9,634.54	7,423.64
Poles	99,965	1.11	1,115.72	1,043.26
Total Lagging & Poles-1925	1,416,722	.759	10,750.26	8,466.90
Total " " 1924	1,137,777	.7442	8,466.90	
5/8" Covering Boards	52,100	1.862	969.71	655.63
Product			253,193	249,428
Feet of timber per ton of ore			.847	.866
" lagging "			5.20	4.155
" lagging per foot of timber			6.13	4.796
Cost per ton for timber			.062309	.05519
" lagging			.03815	.02976
" poles			.00440	.00418
" covering boards			.00382	.00263
" still timber, lagging poles and boards			.10868	.09177
Equivalent of still timber to bd. measure			429,015	355,417
Feet of board measure per ton of ore			1.691	1.425
Cost of timber, lagging and poles 1925				26526.55
1924				22233.75
1923				21898.23
1922				17626.10
Cost of covering boards used in place of lagging				
1925				969.71
1924				655.63
1923				492.31
1922				488.39

Mine operated five days per week for year 1925.

STEPHENSON MINE

STATEMENT OF EXPLOSIVES USED FOR BREAKING ORE

KIND	QUANTITY	AVERAGE PRICE	AMOUNT 1925	AMOUNT 1924
40% R.C.Powder	30,800	.1350	4,148.00	40.50
40% Gelatin	9,900	.1425	1,410.75	
50% R.C.Powder	28,200	.1450	4,089.00	6,713.50
50% Gelatin	10,050	.1550	1,557.77	
60% "	7,600	.1675	1,273.00	4,288.00
Total Powder	86,550	.1442	12,478.52	11,042.00
Fuse	280,900	.692	1,943.83	1,808.88
Caps	58,800	1.065	626.22	584.78
Cap Crimpers	33	.50	16.50	25.00
Tamping Bags	9,000	2.35	21.15	29.02
Total Fuse, Etc.			2,607.70	2,447.68
Total Explosives			15,096.22	13,489.68
Product			253,193	249,428
Pounds Powder per ton of ore			.341	.289
Cost per ton for powder			.0493	.0443
" fuse			.00767	.0098
" all explosives			.0569	.0541
Average price per pound for powder			.1442	.1529

Mine operated five days per week for year 1925.

FRANCIS MINE

The Francis Mine was abandoned on April 30th, 1924, and nearly all of the equipment and supplies were removed by the end of the year. At the end of 1924, the following equipment, buildings, etc., remained at the mine:

The enclosed steel head-frame, steel pulley stands, coal dock, the skip and cage hoists, heating plant boiler, air receiver, water tank, eleven underground motor haulage cars, two hand-tram cars, 1,000 feet 10" water column pipe, together with the mine buildings which are as follows:-

Office and Warehouse, Shops, Engine and Boiler
Houses, Dry House and Storage Sheds.

During 1925, the office and warehouse, dry, shops and boiler house buildings were sold, dismantled and removed. Six motor cars were sold to the Morris-Lloyd Mine and one sent to the Stephenson Mine. The heating plant boiler was sold to The Nelson Machinery Company, Green Bay, Wisconsin; 563'-8" of 10" water column pipe was sold to The Champion Copper Company. The coal dock was dismantled and usable timber salvaged. At the end of 1925, equipment and buildings left on the property were as follows:-

Engine House, in which are skip and cage hoists,
enclosed steel shaft house and steel pulley stands,
storage sheds, water tank, air receiver;
692'-10" of 10" water column pipe, four motor cars,
two hand tram cars.

Ore in stock, 403,035 tons.

FRANCIS MINE

AVERAGE MINE ANALYSIS ON OUTPUT FOR YEAR 1925.

GRADE	IRON	PHOS.	SILICA	MANG.
Franport,		(No Production)		
Franwood,		(No Production)		

AVERAGE ANALYSIS ON STRAIGHT CARGOES FOR YEAR 1925.

GRADE	IRON	Mine PHOS.	SILICA	MANG.
Franport,		(No Shipments)		
Franwood,		(No Shipments)		

ORE STATEMENT - DECEMBER 31ST, 1925.

	FRANPORT	FRANWOOD	TOTAL	TOTAL LAST YEAR
On hand January 1, 1925,	403,035	-	403,035	364,004
Output for Year,	-	-	-	59,031
Total, Shipments,	403,035	-	403,035	403,035
Balance on Hand,	403,035	-	403,035	403,035

1925 -- Mine Idle during Year.

1924 -- Mine Idle during Year.

FRANCIS MINE
COMPARATIVE MINING COST FOR YEAR

	1925	1924	INCREASE	DECREASE
PRODUCT	0	39,031		
Underground Costs		1.490		
Surface Costs		.243		
General Mine Accounts		.254		
Cost of Production		1.987		
Plant Account		.600		
Taxes		.344		
Central Office		.139		
Contingent Expense		.015		
Cost Adjustment		.195		
Cost of Stockpile		3.280		
Loading & Shipping		-		
Total Cost on Cars		3.280		
No. Days Operating		95		
No. Shifts & Hours		1-8-4 2-8-91		
Avg. Daily Product		411		
COST OF PRODUCTION				
Labor		1.367		
Supplies		.620		
Total		1.987		

Mine abandoned April 30, 1924.
No production for year 1925.

GWINN MINE

The Gwinn Mine has been idle since May 31st, 1921. Since it closed down, retimbering work has been carried on so that the main levels, most of the raises and the sub-levels have been kept open so that work could be resumed on short notice. The mine pumps have been kept operating, so that the mine is free of water. On account of the limited tonnage in the mine, the total reserve, amounting to approximately only 700,000 tons, of which it is probable not over 400,000 or 500,000 tons can be mined, would make it advisable to resume work and finish mining operations as soon as possible. The yearly idle expense, including taxes, District and Central Office charges, etc., amount to approximately \$55,000.00 per year. If this expense is to be continued many more years there will be no profit in operating the property. It is hoped that operations will be resumed at least when the Austin Mine is exhausted in 1927.

The Shipments for the year and balance of ore in stock December 31st, 1925, are as follows :-

	<u>SHIPMENTS</u>	<u>IN STOCK DEC. 31-1925</u>
Gwinnport,	0	1,745 tons
Gwinn Silica,	980 tons	0

The estimated tonnage in the mine, sub-divided as required by the State Tax Commission, is as follows:-

Non-Bessemer Ore:

Developed,	1. Gwinnport,	585,571 tons
Prospective,	1. Gwinnport,	80,159 "
	2. Gwinnwood,	<u>40,079</u> "
	Total Reserve,	705,809 "

UNDERGROUND:

The 40,000 cu. ft., ventilating fan was installed in its permanent location on the 11th Level early in 1925, together with the necessary ventilating doors. Several ventilating doors were installed on some of the upper levels to make a more permanent seal. The air in the mine has been good throughout the year. The mine timber, however, was in bad condition, due to poor air prior to the installation of the fan and two crews of timbermen have been employed during the year repairing the main level drifts, the raises and the drifts on sub-levels.

The concrete dam or bulkhead in the drift from the Gwinn to the Francis, developed some leaks early in 1925 and preparations were made for sealing them with concrete, under pressure. A number of holes were drilled in the top and sides of the concrete dam, also in the rock walls of the drift near the dam, and concrete forced in under pressure. The water pressure back of the dam was first released by opening a valve on the pipe through the dam. About fifty sacks of cement were used in this work, which was finally successful, all leaks being stopped. This reduced the amount of water to be pumped from the 11th Level sufficiently to permit of laying off one pumpman. The regular pumpman at the pumping plant on the 7th Level now does the pumping on both the 7th and 11th Levels.

The following is a record of the timber installed during the year:

5TH LEVEL

On the main 5th Level there were 159 sets of new timber installed, four sets on the 5th Level plat and the balance in the main haulage drift along the foot. There was also one raise repaired between the 5th and 6th Levels.

6TH LEVEL

There were 74 new sets of timber installed in the main haulage drift along the foot. New cribbing was put in three raises and also a ventilating door installed in the 6th Level haulage drift at a point about 95 feet Northwest of the shaft.

7TH LEVEL

On the main 7th Level there was a ventilating door installed in the haulage drift 75 feet Northwest of the shaft, and 14 sets of timber installed in the haulage drift near the shaft.

3RD SUB ABOVE 8TH LEVEL

There were 88 new sets of timber installed in an ore drift on this sub-level.

9TH LEVEL

There were 23 new sets of timber, three new legs and eight props installed on the 9th Level Plat. In the crosscut Southeast of the shaft, there were 28 sets of timber put in and 44 sets of timber were installed in the main haulage drift near No. 2 winze. In other parts of the main haulage drifts and crosscuts there were 39 new sets of timber installed, making a total of 130 sets on the main 9th Level. At the end of the year work had just been started repairing the first raise in No. 1 crosscut, Northwest of the shaft. This raise extends from the 9th to the 7th Level, and is used for a traveling road between these levels, in place of the shaft ladder road, which is wet.

2ND SUB BELOW 9TH LEVEL.

There were 13 new sets of timber installed on this sub-level, in the crosscut from No. 12 raise.

3RD SUB BELOW 9TH LEVEL.

There were 29 new sets of timber installed on this sub-level, 13 of which were in the crosscut from No. 4 raise and 16 in the crosscut from No. 3 raise.

4TH SUB BELOW 9TH LEVEL.

There were 8 sets of timber installed on this sub-level in the crosscut from No. 10 raise.

10TH LEVEL.

There were 161 new sets of timber installed in the main drifts on the 10th Level during the year.

4TH SUB BELOW 10TH LEVEL.

There were 18 sets of timber installed on this sub-level in the cross-cut to the ore body from No. 6 raise.

11TH LEVEL

There were 25 sets of timber installed in the main haulage drift Southwest of No. 4 raise.

A rock drift was driven on the Northwest side of the crosscut to the shaft; this drift was started at a point 120 feet Southwest of the shaft and extended a distance of 80 feet, at which point it holed again to the main crosscut. The 40,000 cu. ft. ventilating fan was installed in this drift. This provided a permanent installation for this equipment. A ventilating door was constructed in the main crosscut about 10 feet Southwest of the entrance to the fan drift. This is one of the two doors that will have to be installed as an air lock when the motor trains travel past the fan.

A concrete dam, 3 feet high, was constructed in the main crosscut near the entrance to the sump, and a 6" pipe, with valve, grouted to the hole leading to the sump. The 11th Level sump is of small capacity and this temporary dam was necessary in order to hold back the water so that all pumping could be done on the day shift.

SURFACE:

On account of handling rock and ore from retimbering work, it has been necessary to employ two men on surface. These two men frame mine timber and cribbing, unload cars and also care for water mains, service pipes, sewers, etc., in Gwinn Townsite.

The interior of the head-frame above surface was covered with metal lath and gunited. The metal lath and cement were on hand for this work, left

over as excess material from the job of guniting the shaft; the gunite machine, which is owned by the Negaunee District mines, was also on hand at the mine, so that it was decided to do this work which would make the shaft house fire-proof.

The permanent trestle on both sides of the shaft was repaired during the summer. The plank on these trestles had rotted so it was no longer safe. New stringers were installed where needed and a complete new floor laid. A new floor was also laid on the landing in the shaft house. The haulage tracks on the trestle had to be removed and laid again. Two carloads of plank was used on this job.

GWINN MINE

AVERAGE MINE ANALYSIS ON OUTPUT FOR YEAR 1925.

GRADE	IRON	PHOS.	SILICA	MANG.
Gwinport,	(No Production)			
Gwinn Silica,	56.40	.118	7.16	.500

AVERAGE ANALYSIS ON STRAIGHT CARGOES FOR YEAR 1925.

GRADE	IRON	PHOS.	SILICA	MANG.
Gwinport,	(No Shipments)			
Gwinn Silica,	(All Mixed)			

ORE STATEMENT - DECEMBER 31ST, 1925.

	GWINNPORT	GWINN SILICA	TOTAL	TOTAL LAST YEAR
On hand January 1, 1925,	1,745	774	2,519	7,454
Output for Year,	-	-	-	-
Stockpile Overrun,	-	206	206	-
Total,	1,745	980	2,725	7,454
Shipments,	-	980	980	4,935
Balance on Hand,	1,745	-	1,745	2,519
Increase in Output,			206	
Decrease in Ore on Hand,			774	

1925 -- Mine Idle during Year.

1924 -- Mine Idle during Year.

GWINN MINE
SHIPMENTS FOR YEAR-1925

GRADE	POCKET	STOCKPILE	TOTAL	TOTAL LAST YEAR
Gwinport,	-	-	-	-
Gwin Silica,	111	869	980	4,935
Total,	111	869	980	4,935
Total Last Year,			4,935	
Decrease,			3,955	

GWINN MINE
COMPARATIVE WAGES AND PRODUCT

	1 9 2 5	1 9 2 4	INCREASE	DECREASE
PRODUCT	206	-	206	
No.Shifts & Hours				
AVG.NO.MEN WORKING				
Surface	5	5		
Underground	8	8		
Total	13	13		
AVG.WAGES PER DAY				
Surface	4.49	4.60		.11
Underground	5.18	5.12	.06	
Total	4.88	4.92		
WAGES PER MO. OF 25 DAYS				
Surface	112.25	115.00		2.75
Underground	129.50	128.00	1.50	
Total	122.00	123.00		1.00
PRODUCT PER MAN PER DAY				
Surface				
Underground				
Total				
LABOR COST PER TON				
Surface				
Underground				
Total				
AVG.PRODUCT BRK'G & TRM'G " WAGES CONTRACT MINERS				
TOTAL NO. OF DAYS				
Surface	1511-1/4	1446-1/2	63-3/4	
Underground	2012-3/4	2360-1/4		347-1/2
Total	3524	3806-3/4		282-3/4
AMOUNT FOR LABOR				
Surface	6780.26	6646.65	133.61	
Underground	10425.24	12085.18		1659.94
Total	17205.50	18731.83		1526.33

Proportion Surface to Underground Men:

1925 - 1 to 1.6
 1924 - 1 to 1.6
 1923 - 1 to 1.75
 1922 - 1 to 1.6
 1921 - 1 to 2.61

1924 - Not operating.
 1925 - " "

PRINCETON MINE.

The Princeton Mine has been closed since August 27th, 1921. The mine pumps have been operated and the main haulage levels kept in repair. Operations can be resumed on short notice. The present wooden shaft house should be replaced with the steel shaft house now at the Francis Mine. This would equip this property so that two skips could be operated in balance and permit ore to be produced at a lower cost than would be possible with the present headframe.

The shipments for the year and balance of ore in stock are as follows:-

	<u>SHIPMENTS</u>	<u>IN STOCK</u> <u>DEC. 31-1925.</u>
Princeport,	0	9,160 tons
Cambridge,	13,213 tons	140,629 "
Sec. 19 Princeport,	0	1,313 "
" " Cambridge,	<u>0</u>	<u>19,979 "</u>
Total,	13,213 tons	171,081 "

Shipments were 7,453 tons of Cambridge ore in 1924, the gain in 1925 was 5,760 tons. Practically all of this ore was shipped by all rail to Springfield and East St. Louis, Illinois. It was loaded with scraper and double-drum puffer over grizzly and all chunks broken by hand. The loading expense was no greater than the average cost of loading by steam shovel.

The estimated tonnage in the mine, sub-divided as required by the State Tax Commission, is as follows: (This includes ore on Sections 18 and 19, Princeton Mine property, and on C. & N. W. Ry. Co. Lease, Section 19):-

Non-Bessemer Ore:

Developed,	1. Sec. 20 Princeport,	72,552 tons
	2. " " Cambridge,	562,161 "
	1. Sec. 18 Princeport,	10,318 "
	1. C&NW Lease Sec.19 Princeport,	9,000 "
	2. " " " Cambridge,	<u>57,128 "</u>
Total Developed,		711,159 tons.

Total Developed Ore, brought forward, 711,159 tons.

Non-Bessemer Ore:

Prospective:	1. Sec. 20 Princeport,	20,000 tons
	2. " " Cambridge,	418,815 "
	1. C&NW Lease Sec. 19 Princeport,	5,000 "
	2. C&NW Lease Sec. 19 Cambridge,	<u>46,921</u> "

Total Prospective, 490,736 "

Grand Total, 1,201,895 "

During the past year No. 2 Shaft has been retimbered from the surface to the 5th Level. At the time this work was started it was thought that only an occasional set would have to be replaced, it developed, however, that nearly every old set had to be replaced with a new one. New back lath, new casing plank and many new runners, ladder sollars and ladders were also installed. No. 2 Shaft was sunk by the Tod-Stambaugh Co., in 1902 and 1903, so that the shaft timber was about 22 years old. It is not wet and the timber had to be replaced on account of dry rot. This work was started in April and was practically completed on December 31st, 1925. There were six men employed on this work.

An abandoned steam line and 4" discharge line was removed from the shaft. Part of these pipes were in condition to be used again; the balance were rusted through and only good for scrap.

Retimbering was started on the 1st Level, where new bearers were installed. All the old sets from the 1st Level to surface were replaced. Near surface, the shaft was close-timbered. When this work was completed, new bearers were installed at the 2nd Level and the section from the 2nd to 1st Level was retimbered. The sections from the 3rd to 2nd, 4th to 3rd and 5th to 4th, were then repaired, nearly all old sets being replaced with new ones. A total of sixty sets of shaft timber was installed, new ladder sollars from surface to 5th Level, some new ladders, new casing plank from surface to 5th Level, new back-lath and thirty-two new shaft runners. The 5th Level Plat

was bulk-headed, the old shaft timber being used for this purpose. This level will not be used again as all the ore has been mined above it. The bulk-heads provide a support for the shaft timber near the plat.

Due to repair work at No. 2 Shaft, comparatively little repair work was done on the main levels during the latter part of the year. Frequent inspections were made and the bad places have been kept open with props. Two gangs of timbermen will be kept busy for the most of 1926 getting the levels in good condition. The following is a detail of the repair work done on the main levels during 1925:-

5TH LEVEL:

Twelve props were put in on the 5th Level plat in the early part of the year.

6TH LEVEL:

On the 6th Level, twenty-nine sets of timber and twenty-five props were installed.

7TH LEVEL:

On the 7th Level, thirty-two sets of timber and twelve props were installed.

The props on the 6th and 7th Levels were installed during the time the shaft was being repaired, to hold up the sets until repair work could again be started on the main levels.

PRINCETON MINE

AVERAGE MINE ANALYSIS ON OUTPUT FOR YEAR 1925

GRADE	IRON	PHOS.	SILICA	MANG.
Princeport,		(No Production)		
Cambridge,		(No Production)		

AVERAGE ANALYSIS ON STRAIGHT CARGOES FOR YEAR 1925.

GRADE	IRON	PHOS.	Mine SILICA	MANG.
Princeport,		(No Shipments)		
Cambridge,		(All Mixed)		

ORE STATEMENT - DECEMBER 31ST, 1925.

	PRINCE- PORT	SEC. 19 PRINCE- PORT	CAMBRIDGE	SEC. 19 CAMBRIDGE	TOTAL	TOTAL LAST YEAR
On Hand Jan. 1, 1925,	9,160	1,313	153,842	19,979	184,294	191,747
Output for Year,	-	-	-	-	-	-
Transferred,	-	-	1,519	1,519	-	-
Total,	9,160	1,313	155,361	18,460	184,294	191,747
Shipments,	-	-	13,213	-	13,213	7,453
Balance on Hand,	9,160	1,313	142,148	18,460	171,081	187,294
Decrease in Ore on Hand,					16,213	

1925 -- Mine Idle during Year.

1924 -- Mine Idle during Year.

PRINCETON MINE
SHIPMENTS FOR YEAR-1925

GRADE	POCKET	STOCKPILE	TOTAL	TOTAL LAST YEAR
Princeport,	-	-	-	-
Sec. 19 Princeport,	-	-	-	-
Cambridge,	-	13,213	13,213	7,453
Sec. 19 Cambridge,	-	-	-	-
Total,	-	13,213	13,213	7,453
Total Last Year,			7,453	
Increase,			5,760	

PRINCETON MINE

COMPARATIVE WAGES AND PRODUCT

	1 9 2 5	1 9 2 4	INCREASE	DECREASE
PRODUCT	-	-		
No.Shifts & Hours				
AVG. NO.MEN WORKING				
Surface	4	3	1	
Underground	6	6	0	
Total	10	9	1	
AVG.WAGES PER DAY				
Surface	4.54	4.81		.27
Underground	4.69	4.98		.38
Total	4.85	4.91		.06
WAGES PER MO. OF 25 DAYS				
Surface	113.30	120.25		6.95
Underground	115.00	124.50		9.50
Total	121.25	122.75		1.50
PRODUCT PER MAN PER DAY				
Surface				
Underground				
Total				
LABOR COST PER TON				
Surface				
Underground				
Total				
AVG.PRODUCT BRK'G & TRM'G " WAGES CONTRACT MINERS				
TOTAL NO.DAYS				
Surface	975	1095		120
Underground	1767	1667½	99½	
Total	2742	2762½		20½
AMOUNT FOR LABOR				
Surface	4433.88	5272.89		839.01
Underground	8858.79	8307.04	551.75	
Total	13292.67	13579.93		287.26

Proportion Surface to Underground Men:

- 1925 - 1 to 1.5
- 1924 - 1 to 2
- 1923 - 1 to 1.33
- 1922 - 1 to 2
- 1921 - 1 to 2.81
- 1920 - 1 to 3.1
- 1919 - 1 to 4.69
- 1918 - 1 to 3.48

AUSTIN MINE

No work has been done at this property since November 19th, 1923, when it was closed down. Authority has been given to reopen the mine about May 1st, 1926, for the reason that the ore must be removed by the time the Stephenson Mine is depleted. This will probably occur late in 1927, so that with operations starting about May 1st, 1926, there is only a little over a year to remove the ore. On account of the limited working area it will probably be necessary to operate on double shift.

No ore was shipped during 1925, the statement of ore in stock is as follows:-

Austin Bessemer,	356 tons
Austinport,	40,205 "
Austinwood,	<u>2,672</u> "
Total,	43,233 "

The estimated tonnage in the mine, sub-divided as required by the State Tax Commission, is as follows:-

Bessemer Ore:

Developed,	1. Austin Bessemer,	42,012 tons
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Non-Bessemer Ore:

Developed,	1. Austin,	10,503 "
	2. Austinport,	<u>37,373</u> "
Total,		89,888 "

Regular inspections of the mine have been made to see that the sub-levels and levels were in good condition. No repairs have been necessary during the year.

The reopening of the mine next spring will make it necessary to do some work during the next several months. Another skip must be redesigned to fit No. 2 Shaft, top tram shanty must be moved, scraper outfits bought, assembled, etc.

AUSTIN MINE

AVERAGE MINE ANALYSIS ON OUTPUT FOR YEAR 1925.

GRADE	IRON	PHOS.	SILICA	MANG.
Austin Bessemer,		(No Production)		
Austin,		(No Production)		
Austinport,		(No Production)		
Austinwood,		(No Production)		

AVERAGE ANALYSIS ON STRAIGHT CARGOES FOR YEAR 1925.

GRADE	IRON	Mine PHOS.	SILICA	MANG.
Austin Bessemer,		(No Shipments)		
Austin,		(No Shipments)		
Austinport,		(No Shipments)		
Austinwood,		(No Shipments)		

ORE STATEMENT - DECEMBER 31ST, 1925.

	AUSTIN BESSEMER	AUSTIN	AUSTIN PORT	AUSTIN- WOOD	TOTAL	TOTAL LAST YEAR
On hand January 1, 1925,	356	-	40,205	2,672	43,233	43,233
Output for Year,	-	-	-	-	-	-
Total, Shipments,	356	-	40,205	2,672	43,233	43,233
Balance on Hand,	356	-	40,205	2,672	43,233	43,233

1925 -- Mine Idle during Year.

1924 -- Mine Idle during Year.

AUSTIN MINE

COMPARATIVE WAGES AND PRODUCT

	1 9 2 5	1 9 2 4	INCREASE	DECREASE
PRODUCT	0	0		
No.Shifts and Hours				
AVG. NO. MEN WORKING				
Surface	1	2		1
Underground(84 days)	0	0		
Total	1	2		1
AVG.WAGES PER DAY				
Surface	4.13	4.21		.08
Underground	7.19	7.23		.04
Total	4.67	4.63	.04	
WAGES PER MO. OF 25 DAYS				
Surface	103.25	105.25		2.00
Underground	179.75	180.75		1.00
Total	116.75	115.75	1.00	
PRODUCT PER MAN PER DAY				
Surface				
Underground				
Total				
LABOR COST PER TON				
Surface				
Underground				
Total				
AVG.PRODUCT BRK'G & TRM'G				
" WAGES CONTRACT MINERS				
" " TRAMMERS				
" " LABOR				
TOTAL NO.DAYS				
Surface	390 $\frac{1}{4}$	525 $\frac{1}{4}$		135
Underground	84	83 $\frac{1}{2}$	$\frac{1}{2}$	
Total	474 $\frac{1}{4}$	608-3/4		134 $\frac{1}{2}$
AMOUNT FOR LABOR				
Surface	1614.59	2213.33		598.74
Underground	603.90	603.90		
Total	2218.49	2817.23		598.74

Proportion Surface to Underground Men:

1925 - 1 to 0

1924 - 1 to 0

1923 - 1 to 2.52

1922 - 1 to 3.3

1921 - 1 to 2.1

1920 - 1 to 3.2

1924 - Not operating.

1925 - " "

GARDNER-MACKINAW MINE.

This mine was closed down on November 30th, 1920, and in November, 1923, the pumps were removed and the mine filled with water. A day and night watchman have been kept employed at the property; this has been the only actual expense outside of taxes.

The coal in stock, amounting to approximately 350 tons, was loaded and shipped to the Central Power Plant in November.

One carload of old trestle timber was loaded and shipped to the Princeton Mine where it was used as shaft sets.

The water tank at the mine was kept filled with water during the summer, and an electric pump was in commission, as a safe-guard against fire at the mine or location. A plowed strip 18 feet wide, extending entirely around the location, was kept free of weeds and grass, to provide protection from fire.

The following statement shows ore on hand:-

Gardner,	1,557 tons
" High Sulphur,	42,880 "
Mackinaw,	<u>6,125</u> "
Total,	50,562 "

The estimated tonnage in the mine, sub-divided as required by the State Tax Commission, is as follows:-

Non-Bessemer:

Developed,	1. Mackinaw,	10,000 tons
	2. " High Sulphur,	60,285 "
	3. Gardner,	80,000 "
	4. " High Sulphur,	<u>106,348</u> "
	Total Developed,	256,633 tons.

Prospective:

	1. Mackinaw,	92,198 "
	2. " High Sulphur,	<u>276,594</u> "
	Total Prospective,	<u>368,792</u> "
	Grand Total,	625,425 "

GARDNER-MACKINAW MINE

AVERAGE MINE ANALYSIS ON OUTPUT FOR YEAR 1925.

GRADE	IRON	PHOS.	SILICA	MANG.	SULPH.
Gardner,					(No Production)
Gardner High Sulphur,					(No Production)
Mackinaw,					(No Production)
Mackinaw High Sulphur,					(No Production)

AVERAGE ANALYSIS ON STRAIGHT CARGOES FOR YEAR 1925.

GRADE	IRON	PHOS.	Mine SILICA	MANG.	SULPH.
Gardner,					(No Shipments)
Gardner High Sulphur,					(No Shipments)
Mackinaw,					(No Shipments)
Mackinaw High Sulphur,					(No Shipments)

ORE STATEMENT - DECEMBER 31ST, 1925.

	GARDNER	GARDNER HIGH SULPHUR	MACKINAW	MACKINAW HIGH SULPHUR	TOTAL	TOTAL LAST YEAR
On hand Jan. 1, 1925,	1,557	42,880	-	6,125	50,562	50,562
Output for Year,	-	-	-	-	-	-
Total, Shipments,	1,557	42,880	-	6,125	50,562	50,562
Balance on Hand,	1,557	42,880	-	6,125	50,562	50,562

1925 -- Mine Idle during Year.

1924 -- Mine Idle during Year.

GARDNER-MACKINAW MINE

COMPARATIVE WAGES AND PRODUCT

	1 9 2 5	1 9 2 4	INCREASE	DECREASE
Product	-	-		
No.Shifts and Hours				
AVG.NO.MEN WORKING				
Surface	2	2		
Underground	0	0		
Total	2	2		
AVG.WAGES PER DAY				
Surface	4.14	4.13	.01	
Underground				
Total	4.14	4.13	.01	
WAGES PER MO. OF 25 DAYS				
Surface	103.50	103.25	.25	
Underground				
Total	103.50	103.25	.25	
PRODUCT PER MAN PER DAY				
Surface				
Underground				
Total				
LABOR COST PER TON				
Surface				
Underground				
Total				
AVG.PRODUCT BRK'G & TRM'G				
" WAGES CONTRACT MINERS				
" " " TRAMMERS				
TOTAL NO. OF DAYS				
Surface	730	733½	3½	
Underground	0			
Total	730	733½	3½	
AMOUNT FOR LABOR				
Surface	3022.44	3030.67	8.23	
Underground				
Total	3022.44	3030.67	8.23	

Proportion Surface to Underground Men:

- 1925 - 1 to 0
- 1924 - 1 to 0
- 1923 - 1 to .67
- 1922 - 1 to 1
- 1921 - 1 to 2
- 1920 - 1 to 3.3
- 1919 - 1 to 3

MINE IDLE SINCE Nov. 30, 1920.

GENERAL SURFACE

GWINN DISTRICT CRUSHING PLANT:

The following statement gives a summary of the crusher operations in 1925 and 1924:-

	1925		1924		INCREASE		DECREASE	
	AMOUNT	PER TON	AMOUNT	PER TON	AMOUNT	PER TON	AMOUNT	PER TON
General Expense,	1,195.84	.065	5,082.63	.027			3,886.79	.022
Maintenance,	1,187.69	.005	2,518.34	.013			1,330.65	.008
Operating,	<u>5,009.02</u>	<u>.023</u>	<u>5,054.84</u>	<u>.027</u>			<u>45.82</u>	<u>.004</u>
Total Operating Cost,	7,392.55	.033	12,655.81	.067			5,263.26	.034
Switching,	<u>2,203.00</u>	<u>.010</u>	<u>2,288.00</u>	<u>.012</u>			<u>85.00</u>	<u>.002</u>
GRAND TOTAL,	9,595.55	.043	14,943.81	.079			5,348.26	.036

<u>DISTRIBUTION</u>	<u>TONS</u>	<u>TONS</u>	<u>TONS</u>	<u>TONS</u>
Stephenson Mine,	215,939	182,159	33,780	
Gwinn "	980	4,935		3,955
Princeton "	<u>3,240</u>	<u>2,947</u>	<u>293</u>	
GRAND TOTAL,	220,159	190,041	30,118	

Avg. tons crushed per day,	1,726	1,418	308	
No. days operated,	127½	134		6½
Shifts, Number Hours,	1, 9-hr.	1, 9-hr.		
No. Days Idle,	237½	231	6½	
Rated capacity of Crusher per 10 hours,		1,000 tons.		

There was a decided decrease in the cost per ton for crushing ore in 1925. This was due to increase in the average tons crushed per day, in total tons crushed for the year and less days operated. The general conditions

surrounding the work were more favorable in 1925, than in 1924. Ore was loaded so as to keep the crusher operating at capacity most of the time. A better crew of men were available than in the previous year.

General Expense:

The decrease is due to "Personal Injury Expense" being extraordinarily high in 1924 account of final settlement of \$3,155.87 with Philip Nault, injured at the Crusher in 1920.

Maintenance:

The decrease is due to installing head shaft, key and sprocket, costing \$1,183.00 on the belt conveyor in 1924. The balance of repairs outside of this item about the same for each year. They consisted of new shafts and rollers under rubber belt conveyor, new plates in pockets and chutes. Some repairs were made to the steel belt conveyor in 1925, as connecting links are badly worn.

Operating:

The cost in 1925 was slightly lower than in 1924; the tons crushed increased 30,118 and the days operated decreased 6-1/2, which accounts for the decrease in the cost per ton.

Switching:

The cost was slightly lower due to all ore switched by L. S. & I. Railway in 1925, while in 1924, part of it was switched by the C. & N. W. Ry. Co., whose charge per car is \$1.00 as compared with 50¢ for the L. S. & I. Ry. Co.

Suggested Improvements at Plant:

The dumping pocket, the steel belt conveyor, grizzly and crusher should be covered so as to provide protection from rain and snow. The output of the plant is materially decreased in the fall on rainy days. In addition to the men being unable to work to advantage in wet clothing, trouble is caused by ore sticking to the wet surface of the belt conveyor, grizzlies, etc. More cleaning is now necessary than would be required if this part of the equipment was provided with a cover or roof.

Gwinn Townsite:

Owing to the light snowfall last winter, the ground froze to an unusual depth, especially in Gwinn Townsite, where the soil is sandy. A number of the service lines to vacant houses froze and burst near the main water lines, and in some cases the main line froze. The expense for repairs during January, February and March were unusually high. This extra expense was charged to the Stephenson dry, which has to absorb all charges to water system over and above the amount received from service charges. The conditions as regards snowfall in November and December, 1925, indicate that this winter may be a repetition of last winter.

The wood water line over the bridge near the Gwinn High School froze and burst in February, 1925. A temporary line was put in and in the summer a 4" galvanized line was put in under the bed of the river and the wood line on the bridge abandoned and removed.

The wood water mains are beginning to rot and many leaks have to be repaired. In some cases clamps will stop the leaks; occasionally a whole new pipe has to be installed. To put in a new pipe requires digging up 60 feet or more of the main to get room to spring in the new pipe. The water pressure has been reduced five pounds in an effort to reduce these repairs.

The planting of Norway pines in the parkway on Pine Street in 1924 and the spring of 1925, was only partially successful. All dead trees were replaced in the fall but, owing to the small rainfall, it is probable that a number will have to again be replaced in 1926.

District Office Grounds:

Some changes were made in the spring in planting in beds. The old beds were thinned, the extra material being used to plant new beds adjacent to the coal dock, laboratory and Central Power Plant. Other changes are under consideration to reduce the lawn area.

GWINN ASSOCIATION:

The following report, compiled by Mr. E. L. Miller, manager of the Association, gives a record of the activities during the past year.

In comparing the Annual Reports for the past five years, it is to be noted that the Association has been able to conduct many of the attractions as annual events, and that the people attending are as interested as in previous years. This is true in almost all departments, except the maintaining of the Band and the usual activities in Baseball.

ATTENDANCE:

As in other years, an effort was made to estimate the number of persons making use of the building and attending the different events. The high attendance month was December; the lowest, June.

Total estimated attendance at building, 60710
Average monthly attendance, 5059

Total estimated attendance for all outdoor recreations conducted by the Association, including Ice Skating, Playground and Tennis Court, Swimming Pool, Baseball and Bass Lake Camp, 12514

MEMBERSHIP:

The membership cards are checked monthly, and during the year showed the following:

Number members, January 1st, 1925, 264
Number members, January 1st, 1926, 299
Low membership for year, (February) 216
High membership for year, (December) 299
Average monthly membership, 248

The members are separated into three groups; those paying on the mine pay-roll represents about 60%; special members residing in Gwinn District, 35%, and the members outside of the Gwinn District, about 5%.

RECEIPTS AND EXPENDITURES.

Total receipts, including 1924 balance, \$5181.20
Total expenditures for year, 5046.16
Balance on hand, January, 1926, \$ 135.04

RECEIPTS AND EXPENDITURES, (Cont'd.)

THEATRE:

Receipts for year,	\$ 2940.75
Expenditures for year,	<u>2570.00</u>
Profit,	370.75
Deposited on future pictures,	40.00

BUFFET:

Receipts for year,	519.65
Expenditures for year,	<u>364.75</u>
Profit,	154.90
Inventory Jan. 1st., 1926.,	49.35

BOWLING AND BILLIARDS:

Receipts for year,	413.95
Expenditures for year,	<u>235.21</u>
Profit,	178.74

GENERAL ACTIVITIES AND ORGANIZATIONS
USING BUILDING.

- 25 - Meetings and rehearsals by Band and Orchestra.
- 10 - Rehearsals by Glee Club.
- 6 - Sales of Fancy Work Articles by Church Organizations.
- 24 - Meetings by Episcopal Guild.
- 5 - Meetings by St. Anthony's Guild.
- 6 - Meetings by Methodist Ladies Aid.
- 27 - Meetings - 6 by Board of Directors; 10 by Sportsmen's Association; 5 by Masonic Club; 6 by other organizations.
- 12 - Nights play in Men's Cribbage League.
- 2 - Card Parties.
- 3 - Dancing Classes under supervision High School.
- 2 - Suppers by Church Organizations.
- 3 - Parties by School Students (no Dancing).
- 19 - Dances held during year; including ordinary and those covering some special event.
- 69 @ Lunches served at different functions during the year by various organizations.
- 250 - Visitors shown through the building during the year.

EVENTS OF SPECIAL INTEREST.

Card Party	by	Local Council Girl Scouts.
Annual Banquet	by	Sportsmen's Association.
Chicken Supper	by	St. Anthony's Guild.
Silver Tea	by	Episcopal Guild.

EVENTS OF SPECIAL INTEREST, (Cont'd.)

Annual Easter Ball	by	Basketball Team.
Hallowe'en Masquerade	by	Orchestra.
Barn Dance	by	Glee Club.
Annual Parent-Teachers' Reception and Dance	by	School and Association.
Carnival	by	Scout Organization.
Demonstration of Life-Saving	by	Red Cross Representative.
Rummage Sale	by	Local Council Girl Scouts.
Hallowe'en Party	by	High School.
Annual Junior Prom	by	Junior Class High School.
Annual Ceremonial Awarding Merit Badges	by	Local Council Scouts.
Annual Ball - Proceeds for fund for Children's Christmas Treat.		
Community Christmas Tree and Treat for Children	by	Entire Community.
Annual New Years Ball	by	Firemen.

RADIO-RECEIVING SET:

The radio-receiving set presented to the Association in 1923 is still proving very interesting and results have been very satisfactory. The set remains in very good condition and proves to be one of the best in daylight reception. During the winter months a regular schedule was in effect. Hours were from 7:00 P.M., to 10:00 P.M. Children were permitted to listen in until their hour of leaving the building. Tuesday night was set aside for ladies night, and the usual attendance this night was about 30. During the World's Baseball Series very good results were obtained. Every game was received play by play, and the same was true during football season. Several dances were given Saturday night, but the attendance was not large and they were discontinued.

Number hours radio was used during the year,	352
Attendance,	1850

This is a decrease in the number over the previous year, but many that were fans then have secured their own machines.

MOVING PICTURE THEATRE.

121 - Different pictures shown.		
259 - Evening Shows held.		
114 - Matinees held.		
373 - Total number shows held during year.		
21885 - Total Paid Attendance,	Adults	13975
	Students	7910

Special Free Shows:

1 - Show for Sportsmen's Banquet, Attendance,	100
1 - Show under auspices of Hercules Powder Co.,	65
1 - Show for fund for children's Christmas candy,	140
4 - Shows for children's Christmas show,	620

Grand Total for Year, 22810

MOVING PICTURE THEATRE (Cont'd.)

Admission Prices Charged During Year:

11 - Shows at 10 cents	An admission charge of 5
52 - Shows at 15 cents	cents was made on all
53 - Shows at 20 cents	students over 7 years, ex-
5 - Shows at 25 cents.	cept on four occasions, when
	10 cents was the charge.

685 - Non-members paid an extra charge of ten cents.

LIBRARY AND READING ROOM

LIBRARY

During February the library was closed for two weeks and all books were re-checked and those that were in bad condition were taken out.

Number of books listed in library,	947
Number books purchased during year,	34
Number books donated during year,	2
Number books withdrawn (bad condition).....	137
Number books loaned on cards,	2328
Number books loaned per month,	194

READING ROOM:

The following number of magazines and newspapers are received and placed on the racks and tables in the reading room:

Weekly Magazines	8	Weekly Newspapers	3
Monthly Magazines	17	Daily Newspapers	3

INTER-CLUB CRIBBAGE LEAGUE.

The inter-club cribbage league completed it's third successful season. Four teams made up the league and all games were played at the Association Building.

All teams completed their twelve nights play, matches being held weekly. It makes a fine social event for those that enjoy card playing.

ASSOCIATION GLEE CLUB.

The Glee Club is still one of the most active organizations of the Association. Their plans for the coming season not only include the concert for which they are now rehearsing, but also several social events.

They have departed from having only male members, and the Club now consists of seventeen ladies and eleven men.

They also continue to sponsor the Entertainment Course and contract through the Redpath Bureau for four numbers for each year. Two have been given in the early fall, and the remaining numbers during the winter. The course last year was a decided success; all numbers were very high-class and they were well attended. The entertainment fund showed a balance of about \$80.00 before the start of the present year and it is expected that this year will be as successful.

Glee Club Activities for the Year:

- 4 - Entertainment numbers at the High School, attendance, 1450
- 1 - Barn Dance.
- 1 - Card Party.
- 10 - Rehearsals.

The first concert by the Club will be put on early in February.

BOWLING LEAGUE

MEN:

The seventh season of the bowling league proved that it is one of the best liked of the indoor recreations; not only for the members taking part, but for the spectators as well. Six teams of four men each completed the league schedule of 45 games. All games were interesting, and brought out a number of fans to cheer each team on. Team No. 4 were the champions; 36 men participated in the league games.

LADIES:

The ladies entered their third year of league games, and their bowling ability has greatly improved. Some very fine scores were made. They were able to use the alleys two evenings and two afternoons each week. Twenty-seven games completed the regular schedule and twenty-seven different members competed. The alleys, although used quite steadily the past few years, were in good condition. Two new balls of light weight were purchased during the year.

PHYSICAL AND ATHLETIC DEPARTMENT.

Including all work conducted in the gymnasium, swimming pool, and all outdoor recreations; such as Baseball, Track, Tennis and Playground courts, Ice Skating Rink and Outdoor Swimming Pool.

As in other years, the Association handled all the athletic work for the local high school, including use of gymnasium and locker rooms for boys and girls, lady director for girls and the coaching of the high school basketball squad.

The high school work from January first until the weather permitted, was held indoors, after which it was held at the high school athletic field.

Senior members, both men and women, used the gymnasium during the winter for basketball, handball, volley-ball, cage-ball and regular class work.

SUMMARY OF ACTIVITIES OF
THE PHYSICAL DEPARTMENT.

	Periods	Attendance
Boys - High School Physical Training Classes,	56	1103
Girls- " " " " " "	73	1694
Boys and Girls Basketball Practice,	55	652
Boy Scouts Recreation,	11	210
Young Ladies Classes,	7	98
Supervised Swimming (Girls)	19	278
Supervised Swimming (Boys)	26	530
Seniors using gymnasium for Basketball		
cage-ball, hand-ball, volley-ball, class		
work or other forms of recreation,	<u>52</u>	<u>358</u>
Total attendance of those taking part,		4933
Number baths taken (estimated)		4800
Basketball games during the year:- 14 games between local teams; 7 games at home with visiting teams, 8 games away from home.		
Total attendance at home games,		2850
The Gwinn High School team made a creditable showing at the district tournament and for the second time captured third place, defeating Newberry in the first game, losing to Michigamme in the second and defeating Normal High in the third. Eight teams were competing.		
The Ice Skating Rink, operating under a regular schedule so all would get a chance to use the rink, was in good condition 37 days during the season. A record run of 24 days was made in January. If the attendance continues to increase, the rink will be overcrowded and it will be necessary to enlarge it or plan on a rink elsewhere.		
Attendance (estimated).....		4010

TENNIS COURT:

The tennis court was opened for play June 15th, and it was in good playing condition 78 days during the season. The entire season was ideal for tennis. It was noted that very few of the older members participated, but more of the younger boys and girls made much use of the court. The season was not quite as long as other years, and play was stopped in September.

The playground in the rear of the club was very popular with the boys for a baseball field.

Attendance on tennis court and playground, 1784

OUTDOOR SWIMMING POOL:

The swimming pool, taken over by the Tourist Park in 1924, was very popular during the summer. The Association had an attendant at the pool to assist the caretaker of the park in looking after the smaller children while they were bathing. The pool was opened June 1st and good swimming was enjoyed 67 days.

Attendance (estimated) 3500

BASS LAKE CAMP

Camp opened June First:

Closed October First:

Owing to the demand for the use of the cottage it was necessary to limit the time to three days to each family.

Number families using cottage from 2 to 4 days,	17
Parties using camp overnight,	4
All day picnics,	8
Parties by Young Ladies,	4
Girl Scouts had use of camp (days)	8
Basket Picnics,	108

Receipts for Boat Hire for season, \$106.00

The use of the camp and grounds by local people continues to increase, and many make a practice of taking their evening meal there and then enjoy the boating and fishing afterwards.

The grounds about the camp were in very orderly condition, much of the underbrush having been cleared away and the ground leveled off the previous year.

The cottage, outside stoves and tables are all in good condition. All boats were painted and slide for children shellaced.

BASS LAKE CAMP (Cont'd.)

It is planned to erect two bath-houses during the coming summer, with lumber donated by The Cleveland-Cliffs Iron Co. This, no doubt, will increase the attendance at the beach.

The bass fishing during the early part of the summer was very good, but it did not hold up the entire season. The conduct of all persons making use of the camp, cottage and grounds was above reproach.

SCOUT ACTIVITIES.

GIRLS:

The Girl Scout organization is now in it's fifth year, and from reports, it ranks as one of the best trained and instructed in the upper-peninsula. Two troops are now registered with the National Council, and are under the direction of one of the Association employees who acts as supervisor for one and captain of the other. The local council, consisting of five women from the community, are to be congratulated on their work of raising funds and looking after the welfare of the girls.

The two troops meet weekly in the gymnasium of the Association. The following summary covers the work and play of both troops:

- Class meetings, 101 Attendance, 1792
- 12 - Socials and parties, including entertainments for mothers of the scouts.
 - 17 - Hikes, including supper, lunch or marshmallow roasts in the woods.
 - 1 - Merit badge ceremonial and exhibit.
 - 1 - Golden Eaglet Ceremonial.
 - 1 - Play given at local High School.
 - 1 - Meeting (both troops) with National Scout representative.
 - 3 - Addresses were given to the scouts by outside parties.
- Annual camp at Bass Lake was attended by 37 scouts.

As in other years, the scouts were active at Christmas time, when they visited the sick with flowers and donated four baskets of food to the needy. They also assisted at the community tree by singing carols.

Funds for their camping trip are raised annually by holding a Rummage Sale; this is under the direction of the local council.

BUILDING MAINTENANCE

The usual supply of material and equipment necessary to have all departments in good working order. This covers bowling, pool and billiard supplies, athletic equipment for Association and High School, paints and varnishes, janitor supplies, library supplies, including new books, newspaper and magazine subscriptions, office and theatre supplies.

CONSTRUCTION AND REPAIR WORK:

- Outdoor stove at Bass Lake remodeled,
- all boats repainted and oars purchased;
- tennis court and wire netting put in first-class condition;
- skating rink constructed and flooded 34 times;
- moving picture machines overhauled and new parts purchased to keep same in good condition;
- floors throughout building oiled;
- bowling alleys sandpapered and shellaced;
- new lights for office and new glass for counter added;
- entire lower floor, including, library, lobby, office and billiard room re-decorated;
- cement sidewalks leading from all gates were constructed;
- new tubes and batteries for radio purchased;
- gymnasium thoroughly cleaned and floor repaired.
- hot water tank thoroughly cleaned and new pipes connected;
- much care was given to the lawn and shrubbery and fence repaired.

REPUBLIC MINE.

PRODUCTION:-

The production for the year 1925 was 72,314 tons, of which 5,646 tons were produced during December, and compares with 75,511 tons for the year 1924. The year 1925 shows a decrease as compared with 1924, in spite of the fact that the mine was operated five days a week the entire year, while during 1924, we worked four days a week for a portion of the time. The small product was largely due to the unfavorable results secured from our development work, as no new stopes of any consequence were found during the year. Further than this, several of the stopes on the upper levels of the Pascoe Shaft were exhausted early in the year. By July the two stopes above the 1850' Level, were cleaned out, and the product fell off materially, as we were only pulling ore from the stopes above the 1710', 1950' and 2770' Levels.

In order to maintain a fair production, it has been the practice at the Republic Mine to pull the ore as fast as it is broken, and as a result, the miners at times work at a great disadvantage. On July 25th, all hoisting of ore was discontinued and not resumed until August 7th. During this period the miners worked continuously, including Saturdays and Sundays breaking ore, so as to fill the stopes above the 1950' and 2770' Levels and accumulate a tonnage in the other places. This helped to a small extent and we showed a slight increase for August and September, but on account of only having three stopes to draw from, it was impossible to bring our product up to what we would consider normal for this mine, namely: two tons per man per day.

The tonnage produced by grades for the year was as follows:-

<u>GRADE</u>	<u>TONS</u>
Basic, Run-of-Mine,	214
Basic Lump,	44,048
Basic Crushed,	27,049
Pascoe Crushed,	1,003
	72,314

SHIPMENTS.

Small shipments were made intermittently of both Lump and Crushed ore from January to May 4th. This ore was loaded from pocket and shipped all-rail. On May 4th, we started shipping our entire product of Lump and Crushed ore. The Crushed ore was used in a mixture of Lake Bessemer Special, but on account of the small lumps that passed through the screen, it did not mix well and its use had to be discontinued. The Crushed ore was stocked for the balance of the year starting June 17th.

The entire output of Lump ore was shipped from pocket until November 18th, when our season's requirements were filled and stockpiling started. The Lump ore stockpile was cleaned up by the latter part of October and showed an over-run of 980 tons, or 4.6%.

While some work was done early in the season on the pockets and tracks of the Screening Plant for handling the Lump ore stockpile, it was not used as the pile was comparatively free of a large amount of fines.

The following table shows the tonnages of the various grades forwarded during the year 1925:-

GRADE	TONS
Bessemer Lump,	210
Basic "	45,197
Bessemer Crushed,	8,352
Basic "	19,843
Pascoe "	507
Total	74,109

We only had trouble with the cargo analysis of the Steamer Dunham the latter part of the season. The Mine analysis showed an Iron content of 63.93 compared with 59.55 Iron as secured by the Lake Erie Chemist, a difference of 4.38 points.

The Steamer Dunham's cargo was made up of thirty-one cars, twelve of the cars being loaded from pocket and the other nineteen cars from stockpile. The mine analysis of 63.93 Iron was the average of twenty different samples, and on account of the samples varying from 60.30 to 68.10 Iron, we feel that the mine average was more representative.

The following table shows comparative Mine and Lower Lake analysis on the ore shipped to the Docks:-

GRADE	TONS	MINE ANALYSIS			LOWER LAKE ANALYSIS		
		IRON	PHOS.	SILICA	IRON	PHOS.	SILICA
Basic Lump,	41,541	64.22	.051	6.76	63.54	--	--
Basic Crushed,	18,480	60.83	.050	10.76	62.51	--	--
Lake Bessemer Special,	8,352	61.74	.042	--	62.01	--	--

The following shows a comparative analysis of the Lump ore stockpile in making and the cars as shipped:-

	IRON	PHOS.
Average analysis of ore as stocked,	65.40	.049
" " " " when shipped,	63.88	.048
Difference,	1.52	.001

The complete analysis of the season's shipments of Basic Lump and Basic Crushed ore is as follows:-

	BASIC LUMP	BASIC CRUSHED
Iron	64.34	61.11
Phosphorus	.050	.048
Silica	7.11	10.38
Manganese	.04	.05
Alumina	.94	1.57
Lime	.20	.25
Magnesia	.12	.14
Sulphur	.012	.011
Loss by ignition (Gain)	.70	.25

STOCKPILE BALANCES.

The following is the tonnage of the various grades in stock on December 31st, 1925:-

GRADE	TONS
Basic Run-of-Mine	869
Pascoe Lump	4,381
Basic Lump	3,926
Basic Crushed	87,733
Pascoe Crushed	4,673
Bessemer Crushed	12,150
Total tonnage in stock	113,732

DIVISION OF PRODUCT BY LEVELS.

The tonnage trammed from the various Levels during 1925 is as follows:-

LEVEL	TONNAGE	PERCENT OF PRODUCT
1335'	20	0.0%
1570'	6,860	9.5%
1710'	19,712	27.3%
1850'	9,455	13.1%
1950'	12,737	17.7%
2050'	520	.7%
2570'	70	.0%
2670'	2,601	3.6%
2770'	18,989	26.3%
2840'	1,350	1.8%
Total	72,314	100.0%

The bottom levels only produced 31.7% of the ore during the past year, compared with 45% in 1924; 57% in 1923 and 68% in 1922. The falling off from the bottom is due to the ore tied up in Shaft pillars, and was directly responsible for the small product and low tons per man per day.

The production by months, days operated, average daily product and tons per man per day are shown in the table below:-

MONTH	TONS ROCK	TONS ORE	DAYS OPERATED	AVERAGE DAILY PRODUCT	TONS PER MAN PER DAY
Jan.,	1,876	7,221	24	301	1.54
Feb.,	1,285	7,336	20	367	1.81
Mar.,	1,409	8,329	22	379	1.87
Apr.,	1,348	6,287	21	299	1.53
May,	1,632	6,780	22	308	1.67
Jun.,	1,723	7,385	22	335	1.75
Jul.,	1,633	5,563	18	309	1.37
Aug.,	1,415	5,729	17	337	1.60
Sep.,	2,516	6,054	22	275	1.56
Oct.,	1,409	2,816	11	256	1.02
Nov.,	1,251	2,187	16	137	.75
Dec.,	3,270	5,646	25	226	1.35
Total,	20,767	71,333	240	297	1.53
Stock-pile over-run		981			
Grand Total	20,767	72,314	240	301	1.55

There was a decided falling off in production from March on as no new stopes were opened and several old ones were cleaned of the broken one on the stulls. The exceptionally low tonnage for the months of October and November was due to the mine being shut down from October 16th, when the top

portion of the Pascoe Shaft caved in, until November 10th, when we started operating the levels below the motor tramway. As we were only hoisting ore from the 2770' Stope, our product was limited.

DELAYS.

Production was interrupted several times during the year, the most serious delay occurring on October 16th, when the top portion of the Pascoe Shaft caved in and hoisting had to be suspended to repair the wreck. The following table shows the various delays:-

DELAYS.

DATE	DURATION	CAUSE	TONNAGE LOST
Jan.13th,	2½ hr.	Trouble with cylinder that operates door of storage pocket,	50
Jan.14th,	7 hr.	Bottom of skip-pit collapsed,	150
Jan.19th,	2 shifts	Skip rope broke due to fire in rope slide,	300
Oct.16th,	16 days	Top portion of Pascoe Shaft caved in,	4,000

The first delay of the year occurred on January 13th when hoisting was delayed for a period of two and one-half hours, because of trouble with the cylinder that operates the door on the storage pocket. The pressure of the ore against the door in this chute frequently jams it so that it cannot be raised with air pressure. In order to prevent delays, the cylinder is provided with a water pipe that allows us to admit the water from the water column at considerable higher pressure than we get by using air.

On this particular occasion, the water valve was opened up and due to slack in chain, the cross-head was jerked off of the piston rod with so much force that the jar broke the water line leading to the cylinder. Before the water could be shut off, a considerable quantity went down No. 9 Shaft to the skip-pit.

The storage pocket then had to be unloaded by hand and the door raised with chain blocks, before hoisting could be resumed.

On the following day, January 14th, due to the weight of the wet material washed off the sets by the water from the broken pipe leading to the cylinder, mentioned above, the bottom of the skip-pit pocket collapsed, and as it is built adjoining the cage road, the last set of runners in the cage

compartment were torn out, so that it was necessary to shorten up the cage rope before hoisting could be resumed.

These two delays caused a loss of 200 tons in production.

On January 19th, we had one of the most unusual accidents in the history of Lake Superior mining that delayed operations for two shifts. At three o'clock in the morning, the hoisting engineer at our No. 9 Power House, while hoisting a skip of rock, noticed that the skip rope was actually on fire. He immediately shut down his hoist and ran outside of the building, where he noticed that the wooden frame in the rope opening was afire.

Back of the rope opening, we had a wooden slide which covers the opening itself to prevent the cold air and snow from blowing into the Engine House. The outside of this wooden slide was also found on fire. The hoisting engineer then immediately telephoned the top landers, and then secured a ladder to put up against the outside of the building, as this rope opening is fully ten feet above the ground. As the Engine House is located on top of the hill above the level of the reservoir containing the city water, we have no means of fighting fire except with the aid of Pyrene Extinguishers, and for that reason, we have always kept two or three barrels filled with water in the Engine House. The Engineer claims that he was just in the act of throwing a pail of water on the fire when the hoisting rope broke, permitting the skip to drop from the Fourth level to the bottom of the shaft, a distance of about 650 feet. Fortunately, no damage was done to the skip-road above the motor haulage level. There were, however, four sets of dividings together with about 50 feet of runners torn out of the shaft just above the skip-pit, 150 feet below the motor haulage level.

The broken end of the rope whipping through the pulley stands tore out all the sheaves and axles and partially demolished the wooden stands. We finished repairing these stands the following day and then put on a new skip rope, together with a spare skip, so that hoisting was resumed on January 21st, after having been delayed only the day and night shift of the 20th.

The skip, fortunately, was damaged but very little and the expense incident to repairing this wreck was not very large.

The question naturally arises: what caused the fire, and that is largely conjecture. The most reasonable explanation seems to be that in some way the slide through which the rope passes must have become jammed, and the friction of the rapidly moving rope against the blocks in the slide, must have set them afire. The fire was probably burning some time before it actually communicated itself to the rope, which was the first warning that the hoisting engineer had that there was something wrong. The drum on this hoist is 12 feet in diameter, and as the view of the rope opening is entirely obscured by the height of the drum, and as the fire was all on the outside of the building, the hoisting engineer naturally was not aware that anything unusual was going on until the oil in the crevices on the rope became afire.

The most serious accident, causing the longest suspension of operations and largest expense occurred at about seven o'clock of the morning of the 16th of October, when the top portion of the Pascoe Shaft, just below surface caved in. The timbers in this part of the shaft were badly decayed and suddenly gave way. The shaft is inspected weekly by a crew of timbermen, and nothing unusual was noticed when an inspection was made a few days previous to the accident. It has been known that the upper portion of this shaft was in poor condition, but we did not feel that an accident of this nature would occur. The top part of the Pascoe Shaft was originally mined out from an open pit. The incline shaft was started in the ore at the bottom of the old pit about 100 feet below surface. From this point the shaft was built to surface with close timber and then filled with waste material, mostly rock. It was the timber at the point where the shaft was started in the ore that gave way. Large pieces of ore slabbed off the back and threw sufficient weight upon them to cause them to collapse. These large chunks of ore rolled down the shaft tearing out the skip-roads, pipes and wiring for a distance of over 600 feet to a point where the shaft flattens to about 15 degrees. The timber above the point of breaking dropped away and allowed a large tonnage of broken rock to run into the shaft.

When the fall of ground occurred, the rope on the West skip was cut, but as the skip was at the bottom of the shaft, it only dropped a few feet,

the rope coiling on top of it. It was very fortunate that the accident happened just at the time it did, as the men were on the landing above the 2050' Level, ready to get into the skip to be hoisted to their working places on the upper levels of the Pascoe Shaft, when they heard the noise of the rope coming down the shaft. If it had occurred a few minutes later, these men would have been in the skip on their way up the shaft, and no doubt there would have been a number of serious, if not fatal, accidents.

Immediate steps were taken to retimber this portion of the shaft. In order to resume operations as soon as possible, repair crews consisting of eight men each, were worked on three eight-hour shifts, including Saturdays and Sundays.

We handled approximately 4,000 tons of dirt from the shaft, besides shoveling a large amount into the old stopes off the shaft.

There is considerable ore mixed with the material hoisted and we sorted and loaded into railroad cars 312 tons, when shipments were stopped. We will load out an additional tonnage from this pile next season. The cost of loading this ore was approximately 50¢ per ton.

It took thirty sets of close timber to connect from the brow of the rock to the close timber above, and about 50 feet below had to be timbered with stulls and cribbing. An occasional set of timber had to be put in as the shaft was cleaned down. As we were anxious to resume operations, only the West skip road was repaired. The East side is only used for the balance skip and the hoist can operate without it. This road will be put into shape on Saturdays and Sundays as the timbermen have time.

Work was completed so hoisting could be resumed from the upper levels of the Pascoe Shaft on December 8th.

The cost of repairs made to January 1st, 1926, amounted to \$8763.85. We estimate the total expense after completing the East skip-road will be \$13,000.00.

We suffered no serious delays from lack of current, as whenever there was trouble on the main line from Ishpeming, we started up our own Water Power Plant. As our product was small, we were able to make up for the interval of changing over.

ESTIMATE OF ORE IN SIGHT DECEMBER 31, 1925.				
NO. 9 SHAFT.				
LEVEL	DEVELOPED ORE		PROSPECTIVE ORE	TOTAL ORE
	AVAILABLE ORE	SHAFT PILLARS		
911				
1153		14,720		14,720
2170	25,040			25,040
2270	16,100			16,100
2370	6,780			6,780
TOTAL,	47,920	14,720		62,640
PASCOE SHAFT.				
1570	8,679			8,679
1640		7,700		2,700
1710	4,180	31,700		35,880
1780		42,940		42,940
1850	8,968	13,200		22,168
1950	5,000	58,570		63,570
2050	610	18,960		19,570
2570		9,660		9,660
2670	2,603	47,250		49,853
2770	4,000	51,257		55,257
2840	17,935			17,935
TOTAL,	51,975	276,237		328,212
GRAND TOTAL,	99,895	290,957		390,852

The ore reserves including shaft pillars subdivided into grades are as follows:-

GRADE	AVAILABLE	NOT AVAILABLE	TOTAL
Bessemer Ore Developed,	39,116	122,887	162,003
" " Prospective,			
Non-Bessemer Ore Developed,	12,859	168,070	180,929
" " Prospective,			
Siliceous or Pascoe Ore Developed,	47,920		47,920
" " " " Prospective,			
TOTAL,	99,895	290,957	390,852

The ore reserves exclusive of shaft pillars subdivided into grades follow:-

GRADE	DEVELOPED ORE	PROSPECTIVE ORE	TOTAL ORE
Bessemer,	39,116		39,116
Basic,	12,859		12,859
Siliceous or Pascoe,	47,920		47,920
Total,	99,895		99,895

The following table shows the ore in sight, product and ore developed during the past four years:-

	1922	1923	1924	1925
Ore in Sight January 1st,	398,608	391,073	485,650	395,380
Prospective Ore, " "	109,260	106,776	67,800	77,700
Total,	507,868	497,849	553,450	473,080
Product,	98,588	105,864	75,511	72,314
Balance,	409,280	391,985	477,939	400,766
Ore in Sight December 31st,	391,073	485,650	395,380	390,852
Prospective Ore, " "	106,776	67,800	77,700	
Total,	497,849	553,450	473,080	390,852
Developed during year,	88,569	161,465	4,859	9,914

This table shows conclusively the reason for our small product in 1925. You will note that not enough new ore was developed to off-set even the small production and that actually we had less ore in sight at the end of the year than we started with on January 1st. We have not estimated any prospective ore below the 2840' Level, as the area on this level is so small and the downward extension doubtful.

ESTIMATE OF PRODUCTION FOR 1926.

At the present time, it is impossible to estimate accurately what we will be able to produce in 1926. We have a very small tonnage of developed ore that is available for mining, approximately 100,000 tons, of which 48% is Pascoe grade. We will, however, do considerable development drifting and Diamond Drilling during the year and feel confident that we will prove up an additional tonnage.

Unless our campaign of exploration develops new ore bodies, we estimate our production at 66,000 tons. To secure this tonnage, we will exhaust the 52,000 tons of Bessemer and Basic grades and mine 14,000 tons from the shaft pillars, or Pascoe grade.

Although we show 291,000 tons of ore tied up in shaft pillars, we can not hope to mine but a very small percentage of this ore. Both No. 9 and the Pascoe Shafts are in poor condition and should be kept open as long as underground operations are being conducted, to provide two outlets.

The situation at the Republic Mine is very critical and unless we discover new ore bodies during the year, the mine will have to be abandoned.

GENERAL.

LABOR:-

There has been plenty of labor available during the entire year, including fillers. We have never employed more than four gangs of fillers on each shift and have had sufficient of this class of labor. Our miners are all old residents of Republic and there was little or no turn over during the year. In fact, there are few changes in names on our Pay-Rolls from month to month.

Upon resuming hoisting operations after the curtailment in July and August, we cut down our force about eighteen men. As the Republic Mine is the only place for them to secure employment, we laid off a different crew of eighteen men each week.

BOOSTER COMPRESSOR:-

The installation of the Booster Compressor started in 1924 was completed and put into operation the latter part of March, and was run for short periods only. We found several things that needed adjustment; some of the valves had to be re-ground and some difficulty was experienced getting the unloading device to function properly. These corrections were made and the machine was operating steadily early in April.

With the Booster Compressor we are able to reduce the in-coming pressure from the other machines as low as 45 lbs. and still increase the pressure to 100 lbs. without any difficulty. The blow-off valve is set at 100 lbs.

As a result of the increased air pressure, the miners in the stopes are able to drill from two to three more holes per shift and have shown an improvement in the footage made in the rock drifts.

EXPLORATION:-

The Diamond Drill was kept busy the entire year testing the foot and hanging walls for new ore bodies and trying to locate the downward extension of known ones. In September when drilling was started on the new level, (2840'), in order to hasten the programme, the drill was operated on two shifts and continued for the balance of the year. On November 30th, a second drill was put into operation, working two shifts.

The holes drilled for the year follow:-

NO. OF HOLE	LOCATION	DEPTH	FOOTAGE OF ORE
558	1950	81	No ore
559	2470	144	" "
560	2570	226	" "
561	2570	37	" "
562	2770	134	" "
563	2770	158	" "
564	1570	128	" "
565	1570	270	3 feet
566	1850	263	6 feet
567	1850	229	4 feet
568	2840	110	No ore
569	2840	78	" "
570	2840	139	29 feet
571	2840	49	No ore
572	1850	100	" "
573	1780	331	" "
574	2050	200	" "
575	1780	191	" "
576	1570	255	4-3 and 6 ft.
577	1780	61	No ore
578	1780	31	" "

Twenty-one holes were drilled during the year having a total footage of 3,215 feet, at a total cost of \$10,056.60 or \$3.103 per foot. Only one hole showed ore of any great amount and that was on the 2840' Level where the ore was known to exist, but was drilled to locate its position and extent.

YEAR	FEET DRILLED	COST PER FOOT
1920	3621	\$4.963
1921	2531	4.110
1922	2367	3.570
1923	4325	3.196
1924	2414	3.066
1925	3215	3.103

The cost per foot was slightly higher in 1925 than 1924, although we drilled a greater footage. The increased cost is due to a greater footage being drilled in harder material, causing a heavier carbon loss.

FATAL ACCIDENT:-

A fatal accident occurred at the Republic Mine sub-Station on Saturday morning, August 22nd, between 4:40 and 4:55 o'clock. Richard Hooper, Hoisting Engineer at the No. 9 Power House, was electrocuted on the tower of the Sub-Station. There were no witnesses of the accident, Hooper being found on top of the Sub-Station tower between the gaps of the open High Tension Line Switch, by Albert Peppin, Mine Electrician, and Dewey Thomas, Cage Rider.

Dewey Thomas, Cage Rider, had just brought up his first cage of men on the night shift at about 4:40 o'clock, and had signalled to Hooper to lower the cage for his second trip. Hooper repeated the signal but did not lower the cage. Thomas stated that he waited for about two minutes and as the cage did not move, he rang a "STOP" signal and got off of the cage and called the Engineer by telephone. Hooper told him that there was some trouble as he was not getting sufficient current through his hoist controller and to notify Albert Peppin, the mine Electrician. Thomas went to Peppin's house, which is only a short distance from our #9 Shaft. Peppin told Thomas that he would get dressed and go up to the Power House immediately and told him to ask Hooper to look and see if the fuses were O.K.

Peppin stated that a light which was burning in the Hall of his house went out while he was dressing and he knew that Hooper had pulled the air switch on the high-tension line. He said that he looked out of the window and saw Hooper climbing up the tower at the transformer station as though he was looking to see if the fuses were O.K. That Hooper only climbed up part way and then returned to the ground. Hooper had climbed on the safe side of the tower, i.e., on the West side toward the Power House. As the fuses can be seen from the ground, there was no reason for him to climb the tower.

Peppin hurried to #9 Shaft where he met Thomas who went along with him towards the Power House. While they were walking up, they heard a roaring sound, which Peppin thought was due to the closing of the high tension switch. As they got closer to the top of the hill in view of the tower at the Sub-Station, Thomas noticed something smoking and called it to Peppin's attention. Peppin immediately realized that it was Hooper and that it was his clothes that were burning.

Peppin rushed into the Power House and tried to call the North Lake Engine House to have them pull the switch, so that Hooper could be taken down from the top of the tower.

He was unable to get Ishpeming Central and it was necessary to send some one to awaken the Republic Central before we could reach North Lake to have the switch on the Republic line pulled. It was 5:15 when we reached North Lake and Hooper's body was taken down from the tower.

There is no doubt that Hooper's death was instantaneous and that the delay in reaching North Lake had nothing to do with his death.

We are at a loss to understand why Hooper climbed up on the tower a second time, as this was not part of his duty of Hoisting Engineer. The Hoisting Engineers have instructions to call the mine Electrician whenever there is trouble with the electrical end of the equipment. The Engineer on the opposite shift to Hooper stated that he had never done any work on the tower and never knew that Hooper had. We considered Hooper our best hoist man, and a man that would use the best of judgement in an emergency.

From the position in which Hooper's body was found, one would assume that he had climbed up on the North-east corner of the tower, High Tension side, and upon reaching the top of the tower, he lost his balance and fell between two of the openings of the air switch and was electrocuted.

Peppin found no local trouble at the No. 9 Power House. It was stated that there was trouble beyond North Lake and that at the time Hooper attempted to lower the cage, he was only getting current on two phases, and that if he had only waited until Peppin came up, the accident never would have occurred.

Richard Hooper was single and 49 years old, and according to our employment records had no dependents. He has been employed at the Republic Mine since 1894, practically the entire time as hoisting engineer.

SURFACE.

MINE:-

We cleaned up around the surface and mine buildings and repaired fences about the pits and old shafts during April and May, and then kept the property in a neat condition the entire summer. During July, two men were employed cutting thistles from the Republic Mine property, which covers an area about one mile square.

LOCATION:-

As our Steam Shovel was not operated but a few days each month during the shipping season, we employed the crew on other jobs. The water supply at Republic contains a quantity of vegetable matter that collects in the pipe and after a time completely blocks them. The connections to our location houses are small, three-quarter inch pipe and must be changed about every four or five years. This year we had to put in new water connections to nine of our location houses and the Central Power Plant. This work was done by the Shovel crew during the months of June, July and August.

The usual amount of Spring painting and kalsomining was done by the tenants of our houses, the material being furnished by the Company. It was necessary to renew the sills and foundation posts under one of the houses and several others were repaired temporarily, as we did not wish to do any more than necessary at this time.

BUILDINGS & STRUCTURES:-

New asbestos roofing was put on the Warehouse and the roofs of the No. 9 Power House and Water Power Plant repaired during the summer.

The guides near the dump of No. 9 Shaft House were strengthened at the point where the skip enters the dump. A horizontal pressure is exerted on the guides and in order to strengthen them, we riveted on triangular shaped plates and angles which fastened the channels carrying the guides securely to the main frame of the Shaft House.

The plates of the first and end sections of the revolving screen were renewed the latter part of September and first part of October. The center section, although showing some wear, did not need changing at that time.

In the past the cutting of the rivets was done by hand, but this time when the plates were changed, we had the acetylene cutting outfit from the General Shops, which saved considerable time and cut down the expense of the work.

Our coal dock at the Central Plant was condemned by the Railroad Company last year, and before we could dump our winter's supply of coal from it, extensive repairs were made. New caps and corbels were put on a number of bents, and decayed portions cut from the stringers and new pieces spliced in. About half of the ties and the entire plank run-way was renewed. This work was started in June but was not completed until August, as we had to wait until the tie timber was received.

The feed water heater for the boilers at the Central Plant did not work efficiently and the water was being supplied at a lower temperature, due to corrosion of the inner shell. We used the old regenerator to heat the feed water temporarily, and had a new shell made, which was put back into commission in August.

STEAM SHOVEL:-

Over-hauling of the Steam Shovel was started, in March and the engines and equipment gone over. The blacksmiths rebuilt the dipper, renewing the plates and re-riveting it. A new stack built by the Ishpeming Boiler Works was installed. The top sheave on the boom was replaced and a new pinion put on the boom engine. Repairs were made to the boiler and new tubes put in. When loading operations were started in May, a new chain was put on.

There were no delays due to break-downs while the Shovel was operating. We were able to do better work with the new dipper which showed up in the number of cars loaded per shift.

WATER POWER PLANT:-

Repairs were made to No. 2 Compressor at the Water Power Plant during February. The low pressure cylinder was equipped with a new piston and a new set of valves, which made the Compressor operate more efficiently.

The early break-up allowed us to operate both Compressors the entire month of April. In May after we started the Booster Compressor at the Central

Plant, we were able to make sufficient air by running one Compressor. We had enough water to operate both shifts until July, after which, we had to run the Steam Compressor, one shift; during this interval, the water would raise enough to run the water Compressor. By August, we were compelled to operate our Steam Compressor continuously, using the Water Plant for generating current. The rains and thaws we had in the fall helped out the water power situation and we were able to draw current from the McClure Plants and operate our plant for air during the month of December.

During the year we generated 139,000 K.W.Hours of current and compressed 597,851 thousandcubic feet of air.

STOCKPILES:-

The rock trestle leading from No. 9 Shaft to the West out over the Lake was extended several times during the year. There was a continual settlement of the pile and bents during the months of May, June and July, due to the dumping of rock on the ice during the winter. As the pile thawed out it would settle.

As very little ore was shipped from the Basic Crushed ore pile during 1924, it was necessary to add four bents early in the year. Two more bents were added to the West trestle in October, but were taken down as our largest tonnage of Crushed ore was shipped from stockpile in October. For our winter's stocking, four bents were added to the East trestle. As our production is small this will take care of the Crushed ore until early spring.

The Lump ore trestle was dismantled in May when stockpile shipments were started. A trestle of nine bents was erected after cleaning up the pile and was completed on November 18th.

FARM:-

The Company's farm near the Water Power Plant did not turn out as good a crop as normally, due to the unusually dry summer. We gathered 15 tons of hay and 182 bushels of oats.

SHAFT SINKING.

The Pascoe Shaft was down 110 feet (incline distance) below the 2770' Level on July 1st. As our production had started to fall off materially about this time, it was decided to cut out for a new level at 2840' or a vertical distance of 70 feet and develop a new stope. The sinking of the shaft to this depth had been very slow and treacherous. From a point 40 feet below the 2770' Level, the shaft passed into Sheared Quartzite or Soaprock. This rock broke off in large slabs, six or eight feet back of the hanging of the shaft, and it was necessary to put in timber sets very close together to hold it. As the timber sets were kept close to the bottom of the shaft, we had to be very careful with blasting to prevent damaging them, drilling short cuts and blasting light.

The plat of the 2840' Level was cut during August and the shaft completed to a depth of 125 feet to make room for the skips. Several cuts were taken in the ladder-way along side the pentice, so as to be ready to continue sinking as soon as the new level was started. In order to rush the opening of this level the putting in of the skip-ways, removing the pentice and connecting up to the shaft above, was done by working three eight-hour shifts. The men were given a bonus contract and had the new lift connected ready for hoisting by October 2nd, in less than two weeks.

Shaft sinking was resumed on November 10th and the shaft was down 40 feet on December 31st. We had sunk down in the ladder-way, leaving a rock pentice, but as the Soaprock began to slab off, it was decided that it would be more safe to remove this ground and build a timber bulkhead. The shaft is still in Soaprock and a great deal of time is spent in timbering, making headway slow and treacherous.

ROCK DRIFTING.

We did only a limited amount of rock drifting during the past year.

On the 2570' elevation, we continued to drift North along the main hanging to explore the ground towards No..9 Winze territory. This is a very likely place to develop new ore bodies. This main hanging has not been explored below the Motor Haulage Level.

The progress in this drift has been very slow at first, on account of the hardness of the Jasper, and secondly, the drift had to be stopped several times on account of the floor pillar of the stope in the vicinity of the shaft, starting to work and causing the sides and back of this drift to slab off. This portion of the drift has been timbered and we hope to be able to make better headway during the coming year.

In August a gang was started on the 1950' Level just East of the main stope, drifting South-east to mine the ore located by Diamond Drill Hole No. 536. The drift was driven 35 feet and from the end a 65° raise started. By the end of December, this raise was up approximately 60 feet and had not encountered the ore as yet.

On the 2840' Level, a rock drift was driven from the shaft to the South-west, following Diamond Drill Hole No. 570, a distance of 74 feet to the ore.

In line with Mr. Smyth's report on the Republic Mine, made in November, an extensive programme of Diamond Drilling and development drifting has been authorized.

A drift will be driven on the 2840' Level to the North-west about 200 feet into the hanging and a drill station cut, to explore the ore below. Another drift will be driven on the 1335' Level to the North-west a distance of 400 feet, from a point 675 feet South-west of the Pascoe Shaft. At the end of this drift, a Diamond Drill station will be cut and the ground in this territory explored.

STOPING.

The ore hoisted the past year has practically all been secured from four levels, the 1710', 1850' 1950' and 2770'. No ore was broken in the stope about the 1850' Level in 1925, and this stope was cleaned out early in April, leaving only three working stopes for the year. On account of the restricted conditions for mining, it has been difficult to keep up a uniform production. By the end of the year there was a very small tonnage left in the balance of the floor pillar of the 1570' Level, and mining in the stopes above the 1950' and 2770' Levels had been completed to the levels above.

For 1926, unless we open up some new ore bodies, our product will be even smaller than for the past year.

We have started a winze below the 1710' Level for mining this floor pillar as soon as the ore above has been exhausted. We hope we will be able to secure as good results here as we have above the 1710' Level. This level has furnished as much as 33-1/3% of our product some months, the average for the year being 27.3%.

We believe we will tram a like tonnage from the 1950' Level stope during 1926 as we did in 1925.

The stope on the 2770' Level was drawn on very heavily from November 10th to December 8th, when it was the only place from where ore was hoisted, and as a result, there is a very small tonnage left on the stull.

The stope on the 2840' Level is being developed and will furnish a part of the tonnage supplied from the 2770' Stope. From present indications, the ore body on this level is small and as the distance between levels is only 70 feet, this ore will be exhausted before the end of the coming year.

UNDERGROUND OPERATIONS.

1335' LEVEL:-

No work was done on this level until the last half of December when we started putting in air and water pipes and track, preparatory to drifting. When operations were discontinued here in 1924, the pipe and rail were all taken out. The drifting to be done on this level is part of our exploration programme. A rock drift 400 feet to the North-west will be driven into the hanging from a point 675 feet South-west of the Pascoe Shaft. At the end of this drift, a drill station will be cut for exploring this territory.

1570'-LEVEL:-

The stope South-west of the shaft reached the top of the ore in February and the miners were moved to the 2770' Level. The trammers were engaged here until the last of March, cleaning out the broken ore. The fine ore was low grade and dumped on the Pascoe Crushed pile.

1710' LEVEL:-

Early in January a winze put down in the floor pillar of the 1570' Level at a point 50 feet back from the extreme South end of the stope, holed