SOUTH JACKSON MINE

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6. SURFACE:

d. Crusher:(Cont.)

The product of the crusher by grades is as follows:

Morris	5,758	tons
Morrisville	1,105	"
Lloyd	2,470	"
Total	9,333	tons.

7. UNDERGROUND:

a. Shaft Sinking(or Stripping):

When operations at the crusher were about to start, the skip road in the shaft was repaired. The ore from the railroad dump pocket feeds into the skip and is hoisted to the top of the crusher building by this means.

d. Timbering:

In June two men were employed repairing the drainage tunnel beneath the County road.

10. TAXES:

DESCRIPTION	1926 VALUATION	1926 TAXES	1925 VALUATION	1925 TAXES
Realty as described, Sec. 1-47-27	500,000	15,875.00	500,000	13,048.00
Collection Fees		158.75		130.48
TOTAL SO. JACKSON MINE	500,000	16,033.75	500,000	13,178.48

13. EQUIPMENT AND PROPOSED EQUIPMENT:

In September, a new ring gear was installed to replace the old one where several teeth had broken out. The crusher motor and starter, which had been sent to the Holmes Mine several years ago at the time of a break-down, were re-installed, and new ropes were put on the skip hoist.

14. MAINTENANCE AND REPAIRS:

These have been mentioned under 6-a, "Buildings and Repairs", and under 13 - "Equipment and Proposed Equipment."

NORTH JACKSON MINE

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1. GENERAL:

There was no production or shipments at the North Jackson Mine in 1926.

6. SURFACE:

c. Tracks, Roads, and Fences:

Fences:

The fences around the open pits were repaired in May.

STEPHENSON MINE
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1. GENERAL: The Stephenson Mine finished the year with a lower product than in 1925, with mining contracts scattered over a larger territory, with a heavy program of rock work underway and with a probable life of one more year.

Water conditions have continued to be the most serious obstacle to lower costs, as they have effected the output by the miners and increased tramming and pumping costs. They have also made it necessary to abandon a considerable tonnage of ore and thereby shortened the life of the mine.

The efficiency of the miners has been increased by the use of more scraper outfits; at the end of the year, there were twenty-two outfits working as compared with thirteen at the beginning.

The ore body on the C. & N. W. Ry. Co., Lease, Section 29, below the 6th Level, has proven to be very irregular as regards size and grade. This has decreased the output from this lease and also shortened the life of the mine.

No progress has been made during the year in regard to gaining control of the incoming water, although repeated attempts have been made at the South-east end of the mine in the largest remaining ore reserve. In a few cases the water in a small area, has been diverted to a lower sub-level, thereby improving operating conditions on the sub-levels above, but, taken as a whole, the time and expense of this work has been lost.

Due to continued small sales of ore and to the large increase in the output of "Stephenwood" grade, the stocking situation has become quite complicated. Two grades of ore are produced on each lease, making four in all, and it has become increasingly difficult and expensive to provide separate stocking grounds. The length of the tram from the shaft has increased due to extension of the stockpiles so that it has become necessary to provide two places to stock each grade in order not to delay the hoist. This made it necessary to install a fourth tramming unit which has increased the congestion on the landing due to another car and to the necessary haulage ropes. The height of the stocking trestle has been increased by buying longer legs and splicing them, from 38 to 55 feet, on one stockpile; also by side-dumping and blocking to a height of 65 feet in the pit North of the rock pile. These high piles increase the loading expense, as blasting is required to break down the top one-third of the pile to avoid danger from slides. Due to the plastic character of the ore, the sides stand almost vertical, unless holes from 20 to 30 feet deep are blasted ahead of the shovel which shake the ore so that it will cave as it is loaded but by the shovel.

The costs for the year are practically the same as in the previous year. They were held at this figure by close supervision, as operating conditions were not as good as in the previous year.

It seems probable that the mine will operate during 1927. It must be operated for at least six or seven months until the ore is removed from the Austin Mine, for these mines are connected by underground workings and the Austin would soon fill with water if pumping were stopped at the Stephenson. The length of time the Stephenson Mine will operate beyond the life of the Austin will depend on the cost of production.

STEPHENSON MINE.
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2. PRODUCTION, SHIPMENTS & INVENTORIES:

a. Production by Grades:

Stephenson Ore,	91,146 tons
Stephenwood Ore,	107,720 "
C.& N.W.Ry.Co.Lease Sec.29 Northdale,	8,680 "
" " " Northwood,	20,030 "
Total Ore,	227,576 "
Rock,	24,332 "

The product for the year 1926 was 25,617 tons less than in 1925. This was due to the decrease in the number of miners following the opening of the Austin Mine in May, also to the decrease in available working places and to less ore shipped from pocket, hence less overrun. The mines operated five days per week in both 1926 and 1925, 260 days in 1926 as compared with 258 days in 1925.
The product of "Stephenwood" ore increased 31,216 tons in 1926, due to more mining near the footwall at the bottom of the main Stephenson ore body and to ore produced from the 7th Level, Auxiliary Shaft, running high in Phosphorus, due to flattening of the South-east ore body just above the 7th Level. Due to water conditions, only a small tonnage was mined in the South-east ore body above the 6th Level, where the footwall is steep and the ore is "Stephenson" grade.

b. Shipments:

Grade of Ore:	Pocket Tons	Stockpile Tons	Total Tons.
Stephenson Lease, Sec. 20:			
1. Stephenson,	38,758	135,117	173,875
2. Stephenwood,	10,952	27,726	38,678
Total Stephenson Lease,			212,553
C.& N.W.Ry.Co., Lease, Sec.29:			
1. Northdale,	0	0	0
2. Northwood,	874	0	874
Total C.& N.W.Ry.Co. Lease,			874
Grand Total,	50,584	162,843	213,427

The total shipments in 1926 were 2,662 tons less than in 1925. Shipments of "Stephenson" grade decreased 31,292 tons while "Stephenwood" grade increased 32,878 tons. There were no shipments of "Northdale" ore in 1926 as compared with 5,122 tons in 1925. "Northwood" shipments increased from 0 tons in 1925 to 874 tons in 1926.
The total shipments during the year were 14,149 tons less than the product from the mine. Owing to the decrease in output of "Stephenson" ore, most of the ore shipped was loaded from stockpile. The stockpile ore runs slightly lower in Moisture and handles better at the Gwinn District Crusher, provided there is no frost in the stockpile.

STEPHENSON MINE
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2. PRODUCTION, SHIPMENTS & INVENTORIES: (Continued)

c. Stockpile Inventories:

Stephenson Lease, Section 20:	
1. Stephenson Ore,	323,449 tons
2. Stephenwood,	149,242 "
Total Stephenson Lease,	472,691 "
C.& N.W.Ry.Co., Lease, Section 29:	
1. Northwood,	33,896 "
2. Northdale,	20,404 "
Total C. & N. W. Ry. Co., Lease,	54,300 "
Grand Total,	526,991 "
" " 1925,	512,842 "
Increase - 1926,	14,149 "

The amount of Stephenson ore in stock decreased 87,129 tons in 1926, while Stephenwood grade increased 69,042 tons as compared with an increase of 35,108 tons in 1925.
The amount of ore in stock is the largest in the history of the mine. In 1925, it was 512,846 tons; in 1924, 475,738 tons and in 1914 - 461,181 tons, these three years being the nearest to the figures of 1926.

d. Division of Product by Levels:

The ore hoisted from the various levels was as follows:

Fifth Level,	69,699 tons
Sixth Level,	122,419 "
Seventh Level,	35,458 "
Total,	227,576 "

The product from the 7th Level increased materially in 1926, due to increase of operations in this territory.

e. Production by Months:

Month	Stephenson Lease Sec. 20	C.& N.W.Ry.Co. Lease Sec. 29	Total	Rock
January,	17,396	1,892	19,288	2,776
February,	17,080	3,292	20,372	1,648
March,	18,992	4,300	23,292	2,156
April,	17,236	3,068	20,304	2,012
May,	17,587	2,502	20,089	1,840
June,	16,406	3,132	19,538	1,244
July,	16,429	2,012	18,441	2,168
August,	16,131	2,040	18,171	2,672
September,	15,250	1,992	17,242	2,260
October,	15,542	2,104	17,646	1,424
November,	14,821	1,368	16,189	1,624
December,	15,996	1,008	17,004	2,508
Total,	198,866	28,710	227,576	24,332

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2. PRODUCTION, SHIPMENTS & INVENTORIES: (Continued)

f. Ore Statement:

	Stephenson Lease		C.& N.W.Ry.Co. Lease, Sec.29			Total Last Year
	Stephenson	Stephenwood	Northdale	Northwood	Total	
On Hand Jan.1,1926	406,178	80,200	24,208	2,256	512,842	475,738
Output for Year	91,146	107,720	8,680	20,030	227,576	253,193
Transferred						
Total,	497,324	187,920	32,888	22,286	740,418	728,931
Shipments	173,875	38,678	0	874	213,427	216,089
Balance on Hand	323,449	149,242	32,888	21,412	526,991	512,842
Decrease in Output					25,617	
Increase in Ore on Hand					14,149	

1926-1925, 1, 8-hour Shift, 5 days per week, Jan.1st to Dec. 31st.

g. Delays:

There was only one delay to the hoist during the year. This occurred on July 22nd, when the signal system was out of order for an hour. The trouble occurred in the signal cable in the shaft between the 4th and 5th Level at a point where there was a splice. The loss of product was 60 tons.

h. Delays from Lack of Current:

There were no accidents to the main power line from Ishpeming during the year and, therefore, no delays due to lack of current.

3. ANALYSIS:

a. Average Mine Analysis on Ore Stocked:

Grade	Iron	Phos.	Silica	Mang.
Stephenson Bessemer		(No production)		
Stephenson,	60.85	.255	4.12	.821
Stephenwood,	58.61	.699	4.25	.854
Northdale,	59.19	.293	4.99	.979
Northwood,	58.49	.532	4.97	1.133

b. Average Analysis on Ore Shipped:

Grade	Iron	Phos.	Silica	Mang.
Stephenson Bessemer,		(No Shipments)		
Stephenson,		(All Mixed)		
Stephenwood,		"		
Northdale,		"		
Northwood,		"		

c. High Sulphur Ore:

One drift, on a sub-level just above the 6th Level at the Southeast end of the mine, encountered high sulphur ore near the hanging. The highest analysis was .300. Work at this point was stopped on account of the large amount of water that came in from the hanging before the analysis disclosed an unusual amount of Sulphur in the ore.

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4. ESTIMATE OF ORE RESERVES:

a. Developed Ore:

Assumption: 12 cu. ft. equals one ton.
10% Deduction for rock.
10% Deduction for Loss in Mining.
Percentage of Bessemer equals 0.

Estimate of available ore only:

	Stephenson Lease		C.&.N.W.Ry.Co. Lease Sec. 29		
	Stephen-son	Stephen-wood.	North-dale	North-wood	Total
5th Level & above	6,417	11,581			17,998
6th " "	25,308	54,241	1,500	1,369	82,418
7th " "		16,912		4,600	21,512
Total,	31,725	82,734	1,500	5,969	121,928

Total Stephenson Lease, 114,459
Total C.&.N.W.Ry.Co.Lease, Sec.29, 7,469

b. Prospective Ore:

Estimate of available ore only:

	Stephenson Lease Stephen-wood.	C.& N.W.Ry.Co. Lease, Sec.29 North-wood.	Total
Above 7th Level,	12,500	9,015	21,515
Below 7th "		22,464	22,464
Total,	12,500	31,479	43,979

Total Available Ore, 165,907

c. Estimated Analysis:

Stephenson	Iron.	Phos.	Sil.	Alum.	Mang.	Lime	Mag.	Sul.	Ign.	Moist.
Dried 212°	60.00	.275	4.68	1.400	.818	2.400	.746	.015	2.05	
Natural	51.00	.234	3.98	1.190	.695	2.04	.634	.012	1.75	15.00
Stephenwood										
Dried 212°	59.50	.700	4.55	1.530	.818	2.72	.797	.016	1.80	
Natural	50.58	.595	3.87	1.300	.695	2.312	.677	.014	1.53	15.00
Northdale:										
Dried 212°	60.00	.250	5.25	1.694	.978	1.400	.717	.015	1.73	
Natural	51.00	.212	4.46	1.444	.831	1.190	.609	.012	1.47	15.00
Northwood:										
Dried 212°	59.00	.700	5.44	1.772	1.131	1.940	.816	.016	1.60	
Natural	50.15	.595	4.62	1.506	.967	1.649	.694	.014	1.36	15.00

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4. ESTIMATE OF ORE RESERVES: (Continued)

d. Total Developed Ore in Mine, Available and Unavailable:

	Stephenson Lease		C.&.N.W.Ry.Co. Lease Sec. 29		
	Stephenson	Stephenwood	Northdale	Northwood	Total
1st Level & above,	4,858				4,858
4th " "	11,096				11,096
5th " "	31,272	13,771			45,043
6th " "	84,837	92,129	13,900	9,369	200,235
7th " "	10,027	63,452		4,600	78,079
Total,	142,088	169,352	13,900	13,969	339,311

e. Total Prospective Ore in Mine, Available and Unavailable:

Above 7th Level,	25,000	18,031	43,031
Below 7th Level,		44,928	44,928
Total all Ore,			427,270

f. Estimated Tonnage as required by Tax Commission:

Non-Bessemer Ore:				
Developed:	1. Stephenson,	31,725 tons		
	2. Stephenwood,	82,734 "		
	3. Northdale,	1,500 "		
	4. Northwood,	5,969 "	121,928 tons.	
Prospective:	1. Stephenwood,	12,500 "		
	2. Northwood,	31,479 "	43,979 "	
Grand Total,			165,907 "	

The total ore in the mine on December 31st, 1926, was 427,270 tons, in round numbers it can be assumed as 500,000 tons. Due to water conditions it is assumed that only 165,907 tons are available. A year ago it was estimated that out of a total of approximately 600,000 tons, 342,949 tons were available. The difference between the estimate of available ore on December 31st, 1925 and December 31st, 1926, is 177,042 tons. In order to show the ore developed during 1926, this difference should be taken from the tonnage mined in 1926, which leaves 50,534 tons as the new ore developed during the year. This figure, although correctly calculated, is only relative and does not truly represent the ore developed. This discrepancy is due to changes in figures of available and unavailable ore, changes made necessary by new conditions in regard to the incoming mine water. The new ore developed during the year was actually over 100,000 tons, but as part of it is unavailable, the figure of 50,534 tons, representing the available ore, is the important one from the standpoint of the life of the mine.
A conservative attitude has been taken in reference to the prospective ore below the 6th Level on account of lack of definite information. As stated in the estimate of production for next year, it seems safe to assume that 200,000 tons can be mined, provided the cost of production does not rise to a figure that will show a loss.

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4. ESTIMATE OF ORE RESERVES:

f. (Continued)

Last year it was assumed that 40% of the ore above the 6th Level in the South-east ore body could be mined. Some ore was mined here in 1926 but water conditions made it necessary to abandon mining in 75% of this ore body. The development of this ore body above the 7th Level made it necessary to leave a large ore pillar to hold back the water and to safe-guard this area from danger of a cave extending up to the quicksand. Due to the flattening of the footwall just above the 7th Level on the Stephenson Lease, considerable more ore was found here than had been previously estimated from the information available from the few diamond drill holes in this territory. Farther to the South on the C. & N. W. Ry. Co., Lease, Section 29, less ore was found than had been estimated, due to irregularities in the foot and hanging walls, caused, perhaps, by faulting.

5. LABOR AND WAGES:

a. Comments:

(1) Labor:

There has been no shortage of surface labor during the year. The quality has been poor, due to the company physician ordering several underground men to work on surface on account of poor health, to employment of men injured in the mine on surface until they regained their strength and to the necessity of giving work to certain old employees with large families. If a number of mines were working these men could have been distributed so as not to materially effect efficiency of the surface crews, but with them all concentrated at one mine, the efficiency of the crew is effected.

The number of miners decreased in April, when a number were transferred to the Austin. This decrease resulted in a lower product, although due to overrun from the pocket shipments, the decrease was not so apparent until in November and December, when shipments ceased. The number of available working places in ore have been gradually decreasing, so that a decrease in the number of miners would have been necessary some time last summer. Due to starting double shift in a few places to speed up development work, the number of men employed underground increased in December.

The efficiency of the miners has been maintained by the use of more scraper outfits, for many of them are old employees, past 50 years of age, whose efficiency with a hand shovel is much below average.

Average Number of Men:

Month:	Surface	Underground	Total
January,	40	167	207
February,	42	168	210
March,	38	170	208
April,	34	152	186
May,	34	145	179
June,	42	137	179
July,	38	139	177
August,	35	143	178
September,	38	144	182
October,	34	133	167
November,	38	135	173
December,	37	150	187
Average for year,	37	149	186

There was no change in the wage scale during the year.

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5. LABOR AND WAGES:

b. Comparative Statement of Wages and Product:

	1926	1925	INCREASE	DECREASE
PRODUCT	227,576	253,193		25,617
No.Shifts & Hours,	1,8-hr. 5 ds.	1,8-hr.5 ds.		
AVG.NO. MEN WORKING:				
Surface,	37	38		1
Underground,	149	165		16
Total,	186	203		17
AVG.WAGES PER DAY:				
Surface,	4.38	4.37	.01	
Underground,	5.06	5.03	.03	
Total,	4.91	4.90	.01	
* WAGES PER MO. OF 25 DAYS:				
Surface,	109.50	109.25	.25	
Underground,	126.50	125.75	.75	
Total,	122.75	122.50	.25	
PRODUCT PER MAN PER DAY:				
Surface,	20.86	23.54		2.68
Underground,	5.79	5.77	.02	
Total,	4.53	4.64		.11
LABOR COST PER TON:				
Surface,	.209	.186	.023	
Underground,	.874	.870	.004	
Total,	1.083	1.056	.027	
AVG.PRODUCT BREAKING AND/ TRAMMING:	14.36	9.38	4.98	
" WAGES CONTRACT MINERS:	5.38	5.26	.12	
" " " LABOR:	5.38	5.26	.12	
TOTAL NO. OF DAYS:				
Surface,	10,902	10,754½	147 3/4	
Underground,	39,252	43,843¼		4,591¼
Total,	50,154	54,597½		4,443½
AMOUNT FOR LABOR:				
Surface,	47,708.33	46,980.61	727.72	
Underground,	198,810.32	220,409.80		21,599.48
Total,	246,518.65	267,390.41		20,871.76

Mine operated 1, 8-hour shift, five days per week, during entire year.
Proportion Surface to Underground Men:
1926 - 1 to 4.03
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

* Mine operated twenty-two days per month during year.

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6. SURFACE:

a. Buildings, Repairs:

Engine and Boiler House:

In November, a number of repairs were made in the interior of the boiler house. This included new stairway to top of boilers, new runways over boilers and a number of other minor repairs.

Dry House:

In 1925, the work of putting strips over the joints of the composition roofing, was started. This work was completed in 1926, strips 6" wide were nailed over the joints of the old paper, a coat of tar applied to the old joints and also to the strips. Owing to drying out and rusting of nails, the old roofing has a tendency to tear loose from the building during high winds. No further trouble of this character is anticipated.
There were minor repairs to the steam and water lines every month of the year.

Stables:

The foundation under the stable where the mine teams are kept, rotted so that the floor of the barn settled 6" or more. The floor was jacked back into position and new sills and posts put in.

Fire Protection:

In order to provide adequate fire protection for the timber yard it was necessary to install a fire protection pump at the point where the mine water discharges into a weir about 250 feet from the shaft. Owing to the elevation of the timber yard there is not sufficient pressure in the water system mains for fire protection. A pump was installed near the weir, with a discharge line connecting to the lines running to the timber yard. This pump is operated by air and is of sufficient capacity to provide water under high pressure at all points in the timber yard. In addition to installing this pump, the pipe lines to the timber yard were thoroughly overhauled.

b. Stockpiles:

Owing to the shortage of available stocking room, due to the large amount of ore in stock, an unusual expenditure was necessary during 1926. In order to avoid delays to the hoist, it is necessary to have two stocking places for each grade of ore. This is due to the great length of the trams which made it impossible to complete a trip on surface in time to meet the next skip if it happens that two skips of the same grade of ore are hoisted in succession.
In June, eight bents were erected on the center trestle on the West stockpile and seven bents on the East trestle of the West stocking grounds. These two extensions provided room for stocking Northdale and Northwood ore. They are both on C. & N. W. Ry. Co., land, Section 29. These trestles extended the stocking ground beyond the former limit, and it was necessary to level the ground and lay sollar plank on the sand. Two inch hemlock plank were used for sollars as it is not expected that this ore will be in stock beyond the life of this plank.

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6. SURFACE:

d. Measurement of Water in Diamond Drill Holes: (Continued)

The readings on these standpipe holes in 1926 indicate that there will be no appreciable change in these measurements unless a new cave occurs over the ore body, which will cause more water to enter the mine. This may possibly occur, but it is hoped that there will be no change in conditions during the remaining life of the mine.

e. Water Discharge Line on Surface:

There are two wooden launders leading from the collar of the shaft for a distance of about 250 feet, where they discharge into a measuring weir from which point the mine water enters the main launder extending to the Escanaba River. One of these launders was put in when the mine opened many years ago; the other one was put in as a temporary launder to take the discharge from the Layne & Bowler pump used in unwatering the mine in 1919. Owing to the large volume pumped by the Layne & Bowler pump, the old launder was not of sufficient capacity to handle it. These launders started leaking, due to rotting of the plank, and as they were about 8 feet below the surface, rebuilding them would have proven quite expensive. It was decided to install two 10" discharge lines leading from the collar of the shaft to the weir; these lines were placed about 3 feet below surface as they had to cross under the railroad tracks, this also prevented freezing. Pipe was on hand for this work that had already been charged out, and it was installed early in the summer. The water which had leaked from the old launders entered the shaft above the 1st Level, making the shaft very wet from this point to the bottom, and also increased the amount of water to be pumped from the skip pit at the bottom of the shaft. These two new discharge lines from the collar of the shaft can be readily salvaged when the mine is abandoned.

f. Main Launder to Escanaba River:

The wooden launder leading from the measuring weir to the Escanaba River required considerable repairs during the year. This launder is nearly a mile in length, part of the way it is on blocking 6 to 8 feet above the ground; at other points is level with the ground. It is inspected weekly throughout the year, as it was found many years ago that the mine water would find its way back into the mine if it was discharged anywhere in the swampy ground lying between the mine and the river. It is, therefore, necessary to avoid leaks in the launder. A number of new props were installed and where necessary, new sections of launder were built.

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6. SURFACE:

b. Stockpiles: (Continued)

In the fall, twenty-two bents were erected on the West stocking trestle on the East stockpile grounds. These bents averaged 55 feet in height and provide stocking grounds for Stephenwood grade. The legs for this trestle were spliced, as it would be too expensive to purchase legs of this length. On account of their long length, they were too heavy to be raised into position by the mine team, and a tractor was used for this purpose. The tractor proved to be well adapted for this purpose, owing to its flexibility and ease of control.

The trestle extending into the pit North of the rock pile was raised on blocking several times during the year. The pile in this pit is now about 65 feet in height. Some Stephenwood ore is stocked here every day, but only when the car running to the main stockpile for this grade is unable to complete its trip in time to avoid delay to the skip. There is not much room left for stocking here, as there is already over 100,000 tons in stock which is nearly the full capacity of this ground. Considerable ore was stocked in the pit by side-dumping in the early part of the year. In order to avoid accidents to cars and delays to the hoist, it was necessary to keep a man stationed on this stockpile on both day and night shift. The track had to be kept level and free from ore.

c. Roads:

The road leading to the mine was given a coat of cinders during the summer, as it was in bad condition, due to the unusually heavy rainfall.

d. Measurement of Water in Diamond Drill Holes:

Measurements of the water level in several standpipe holes on Sections 20 and 29, adjacent to the mine, have been made during the year. The following table gives a record of these measurements:

	HOLE "W".	HOLE #54	HOLE #59	HOLE #61
Elevation of Ledge,	999	1066	959	949
Dec. 22nd, 1925,	1063.20	1067.40	1061.10	1054.30
May 10th, 1926,	1064.10	1067.80	1061.70	1054.30
June 8th, "	1064.30	1069.50	1062.20	1055.10
Sept.20th, "	1064.50	1069.70	1062.40	1055.40
Oct. 27th, "	1064.80	1068.90	1062.60	1055.60
Dec. 13th, "	1065.10	1069.00	1062.90	1056.00
	RAISED	RAISED	RAISED	RAISED
Net change, 1926,	1.9'	1.6'	1.8'	1.7'

There was an unusually heavy rainfall in 1926 which accounts for the increase or raising of the water level in these standpipe holes. This is practically the first year since the mine was flooded that the level of water in the standpipe holes has not been lowered. The number of gallons of water pumped from the mine in 1926 was less than in 1925; this fact, in conjunction with the rise of the water level in the standpipes, indicate that the water may be dammed back and not enter the mine, the same as in previous years. It is probable, however, that the rise in the standpipes is merely the result of increased rainfall.

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7. UNDERGROUND:

a. Shaft Sinking:

There was no shaft sinking at the Stephenson Mine during the year 1926.

b. Development:

Under this caption is given the development work of the year, and record of mining on various levels and sub-levels throughout the mine. Comments are made where they seem justified in the report of the work done in the various parts of the mine. Unless otherwise stated, paragraphs refer to work on Stephenson Lease.

During the year work was done on the following levels and sub-levels:

4th Level
1st, 2nd, 3rd, 4th and 5th Subs below 4th Level.
5th Level
1st, 2nd, 3rd, 4th, 5th, 6th & 7th Subs below 5th Level.
6th Level
1st, 2nd, 3rd and 4th Subs below 6th Level.
7th Level.
3rd Sub below the 7th Level.
8th Level

Some work was done during the year on four main levels and fourteen different sub-levels on the Stephenson Lease and on four main levels and nine sub-levels on the C. & N. W. Ry. Co., Lease, Section 29. This spreading out of the work on so many different elevations was due to three reasons: 1st: Water conditions - 2nd: Development of the ore body below the 6th Level - 3rd: To the mine nearing the end of its life. This scattering of operations has increased the cost of handling the product, but it could not be avoided. The high over-head costs at this property such as Pumping, etc., make it imperative to keep the product above 15,000 tons per month in order to maintain a cost of production under $2.00 per ton. In order to maintain this product it has been necessary to open a number of new sub-levels. Water conditions were responsible for abandoning operations on a number of sub-levels opened in the South-east ore body; also several in the South-west ore body. In some cases rock drifts were driven, raises put up, a sub-level opened and in a short time the entire area had to be abandoned due to water conditions.

4TH LEVEL:

The pillar left on this level to support the haulage drift to the shaft, was nearly all mined out in 1925. Mining was continued here during January and February, and completed early in March.

On the South-west side of the 4th Level it is estimated that there are 11,595 tons of ore in the pillars that have been left to support the capping. The mine launder and part of the stockpile ground are directly above. It will be impossible to mine any of this ore as the stockpiles will not be removed when the mine has to be abandoned due to decrease in production and high costs. This ore, therefore, is now considered unavailable.

1ST SUB BELOW 4TH LEVEL:

Mining of the pillar left to support the haulage drift to the shaft on the 4th Level was started in April, 1925, and finished in September, 1926. At the end of last year it was estimated that there were 13,948 tons remaining to be mined on this sub-level.

At the South-west end of the Stephenson ore body, near the C.& N.W.Ry. Co., boundary, there are two pillars estimated to contain 6,351 tons of ore that have been left to support the capping. The launder carrying the mine water on surface is directly above these pillars; they are, therefore, unavailable.

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7. UNDERGROUND:

b. Development: (Continued)

2ND SUB BELOW 4TH LEVEL:

Mining of the pillar left to support the 4th Level haulage drift was started in March and was two-thirds completed at the end of the year. During the last six months of the year it was necessary to keep one gang repairing drifts and raises on this sub-level, due to the heavy pressure in this territory. All ore mined here is handled by scraper outfits and this pillar has been one of the best producing areas in the mine. Working conditions here have been better than in other parts of the mine, due to no trouble from water.

This pillar, it is estimated, originally contained 17,221 tons. At the end of the year it was estimated that there were 6,230 tons remaining to be mined. It is estimated that there will be work for four gangs for about three months on this sub-level, single shift.

There is a small pillar of unavailable ore in the South-east ore body. This sub-level was being mined in 1921 when the water suddenly increased to 750 gallons per minute. On account of the large amount of water here, the ore remaining on this sub-level in the South-east ore body is considered unavailable.

3RD SUB BELOW 4TH LEVEL:

The pillar left on this sub-level to support the haulage drift to the shaft on the 4th Level is quite small, as it is cut off by the footwall. The hanging side of the pillar was mined many years ago and the part left consists of a small area on the footwall 200 feet in length by 30 feet in width. Mining will start here probably in March, 1927, and with four contracts working it will be mined out in three months, or about the first of June.

Early in the year a small pillar in the main part of the South-west ore body was mined, which completed mining all of the ore in this particular area. East of this point an area approximately 60 feet x 100 feet was mined out directly on the footwall. Still further to the East a drift was driven in rock to determine if there was a roll in the footwall which might have carried the ore down to this elevation from the sub above. The formation was nearly flat, but, after drifting 40 feet, ore was encountered in the back and after advancing a short distance, the drift was all in ore. Another contract was brought to work in this area, and for the last nine months of the year two contracts worked here. The ore is quite hard as compared with the rest of the Stephenson ore body, and, due to the fact that the formation is lying horizontal, it has required more than the ordinary amount of powder to break the ore. This, together with the fact that it has not been possible to use scraper outfits to advantage in this area, has increased the cost of the ore to a point considerably above the average cost for the mine. Development work showed that this ore body was approximately 100 feet by 100 feet in size, with a thickness of 8 feet. It extended over the boundary on the C. & N. W. Ry. Co., Lease, Section 29, where all the ore had been mined by the end of the year. It is estimated that there are 2,580 tons remaining to be mined here and that it will provide work for two contracts for approximately four months.

At the extreme East end of the South-east ore body a sub-level was opened and a small amount of ore mined. The footwall is flat in this particular area and as it lay about 130 feet to the East of the point where the water came in, no trouble from water was experienced while it was being mined. The footwall was encountered in the bottom of the entire area mined, with the exception of a small area in the extreme South end. The balance of ore in the South-east ore body on this sub-level is unavailable on account of water.

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7. UNDERGROUND:

b. Development: (Continued)

4TH SUB BELOW 4TH LEVEL:

In 1925, the mining of the pillar at the South-west end of the Stephenson ore body was started, following the change in location of the incoming water which flooded the mine in 1917. This water, amounting to about 1,600 gallons per minute, came in some 500 feet further to the East, in September, 1924. On January 1st, 1926, it was estimated that there were 6,774 tons remaining to be mined here on the Stephenson Lease; also a few small pillars over the boundary on the C. & N. W. Ry. Co., Lease, Section 29. Mining on both leases was completed in June.

Some work was done on this sub-level in the South-East ore body in 1925. This work, to a large extent, was done in the hopes that the water which came in on the 2nd sub could be brought down to this sub-level and thus release for mining the 3rd sub-level. As reported in last years Annual Report, this work was unsuccessful. In 1926, a small area was mined at the extreme East end of this ore body. This area was approximately 10 feet wide by 90 feet in length. The ore found here was due to a roll in the flat footwall which carried the ore down to the elevation of this sub-level.

In about the center of the South-east ore body a rock drift was driven from an old raise across the formation to the ore. This drift holed to an old hanging wall drift on this sub-level and was driven for the express purpose of taking the water from this hanging wall drift. The work was successful and it released for mining an area approximately 100 feet in length at the West end of the South-east ore body. Mining has been carried on since at the West end of the ore body on a number of sub-levels without any material interference with water.

There is no available ore in the South-east ore body on this sub-level.

5TH SUB BELOW 4TH LEVEL:

This sub-level was opened in 1926 at the West end of the South-east ore body, and an area, 75 feet in length by 20 feet in width, mined. This ore was handled through a raise from the 6th Level. Due to water conditions, there is no other available ore on this sub-level.

5TH LEVEL:

Mining was in progress at the South-west end of the mine the first of the year and was continued throughout the year. At the end of the year there was only one small pillar left to be mined on the Stephenson Lease. Mining of the pillar just over the boundary line on the C. & N. W. Ry. Co., Lease, was completed in July.

During the year there was considerable retimbering of the main 5th Level drifts at the South-west side of the mine, in order to keep this area open for tramming; also for taking in timber to the contracts working here and on sub-levels below the 5th. The keeping of the main 5th Level drifts open in this territory is also quite essential from the standpoint of ventilation, and even when mining is completed on the 5th Level in January, 1927, it will be advisable to keep these main drifts open for ventilation.

During 1926, no work was done in the South-east ore body on this level to bring the water in. Considerable work was done here during 1925, but it was unsuccessful and it was not considered worth while to do any further work of this character on or above the 5th Level. Only 100 gallons per minute comes in at the point where the effort was made to bring all of the water to the 5th Level in 1925, and 400 gallons comes through the footwall raises.

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7. UNDERGROUND:

b. Development: (Continued)

1ST SUB BELOW 5TH LEVEL:

The only ore produced on this sub-level in 1926 came from the pillar at the South-west end of the mine. This pillar had been left since the mine was drowned out in 1917, and, due to change in location of the incoming water, it became available this year on the completion of mining in this same pillar on the 5th Level. Work was carried on here throughout the year and at the end of the year it was estimated that there were 5,250 tons remaining on this lease, as compared with 13,679 tons a year ago. There are three contracts mining here and it is estimated that they will have work for about two more months; this will complete the mining of all available ore on this sub-level. There is a small amount of ore on this sub-level just over the boundary on the C. & N. W. Ry. Co., Lease, Section 29, but it is not considered available on account of water.

2ND SUB BELOW 5TH LEVEL:

At the South-west end of the Stephenson ore body there is a pillar that had been left behind the limit of mining which was set following the flood that drowned out the mine in 1917. Due to change in location of the incoming water this pillar is now available, but there was no work done here until in November, when one contract started mining in that part of the sub-level where mining had been completed on the sub above. A year ago this pillar was estimated to contain 10,852 tons; at the end of the year there were 9,820 tons remaining to be mined. It is estimated there will be work for four contracts here for a period of about five months. The South end of the pillar may present some difficulties in mining, due to water. This, however, cannot be determined until the sub-level is actually opened. Over the boundary line on the C. & N. W. Ry. Co., Lease, there is a small amount of ore on this sub-level, but it is not available on account of water conditions.

A small area at the West end of the South-east ore body was mined during the year on this sub-level. The area mined was approximately 90 feet in length by 30 feet average width. The ore in the back, on the 1st sub-level below the 5th, was caved after all the ore had been mined on this sub-level. Before caving was started the area mined was entirely dry; after caving the ore in the back some water came in but not in sufficient quantity to interfere with the use of a scraper.

At the end of the year the only available ore on this sub-level consisted of the small pillar at the South-west end of the main Stephenson ore body, near the C. & N. W. Ry. Co., Lease.

3RD SUB BELOW 5TH LEVEL:

The balance of ore remaining in the main Stephenson ore body was mined during the first six months of the year. The pillar at the South-west end of the main Stephenson ore body will not be available until mining has been completed on the sub-levels above. It is estimated that this area contains 9,460 tons of ore, of which approximately 80% can probably be mined; the balance is unavailable on account of water. This area will provide work for four contracts for approximately five months. Over the boundary on the C. & N. W. Ry. Co., Lease, there are a few ore pillars that are unavailable on account of water.

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7. UNDERGROUND:

b. Development: (Continued)

3RD SUB BELOW 5TH LEVEL: (Continued)

At the South-east end of the main Stephenson ore body, the South-east ore body joins with the main Stephenson ore body on this sub-level. The West end of the combined ore body was mined during the year. This area was approximately 200 feet in length East and West and approximately 200 feet North and South. It had an average width of about 50 feet. To the West of this area a dropper in the footwall, approximately 15 feet in width by 190 feet in length, was mined.

Further to the East in the South-east ore body a sub-level was opened from two raises in the South-east haulage drift. The ore body was developed here for a length of 320 feet by drifts along the footwall. Crosscuts were driven to the hanging at several points and some drifting done along the hanging. It was hoped that on opening this sub-level the water could be brought from above the 5th Level. All drifts along the hanging were very wet, which forced the abandonment of work of opening the entire sub-level along the hanging. At one point near the East end of the ore body an area 30 feet by 40 feet in size was mined for the express purpose of causing a cave to run up to the 5th Level in the hopes that it might bring all the water down to this point. When this area caved the water came down for a short time. The ore here is quite soft and under water pressure it came out on the sub-level and through the raise to the main level and filled the 6th Level haulage drift for a distance of nearly 300 feet. All work in this area had to be stopped and the drift bulk-headed to prevent the ore and water from interfering with tramming from other parts of the mine. In a short time the water blocked and started coming in again above the 5th Level. The ore in the 6th Level haulage drift was then cleaned up nearly to the raise, when the water changed its course again, bringing more ore to the 6th Level. This second run did not last nearly as long as the first as the water soon blocked. After waiting a few weeks the ore in the drift was cleaned up again, but on account of conditions it was not considered safe to resume work on this sub-level. There has been, however, no further runs of ore or water on this sub-level.

It is not considered that there is any available ore in the South-east ore body, so that the only ore that can be mined on this sub-level is approximately 8,000 tons at the South-west end of the main Stephenson ore body.

4TH SUB BELOW 5TH LEVEL:

The area of the main Stephenson ore body is very much smaller on this sub-level. At the end of 1925 it was estimated that there were 25,672 tons remaining to be mined in the main ore body. All available ore was mined out here during the year 1926, with the exception of the small pillar at the South-west end which cannot be mined until mining is completed on the sub-levels above. This area, it is estimated, contain 8,640 tons of ore, the greater part of which should be available for mining, if mining can be completed in time on the sub-levels above.

In addition to the area mined in the main Stephenson ore body, a few small pillars were mined near the C. & N. W. Ry. Co., boundary in the area where the main quantity of water enters the mine. Working conditions in these pillars were extremely bad as they were very wet.

7. UNDERGROUND:

b. Development: (Continued)

4TH SUB BELOW 5TH LEVEL: (Continued)

It is hoped, however, that on mining them the water could be diverted to a lower elevation. Some of the water was diverted but not in sufficient quantity to dry the sub-levels above. Of the 8,640 tons estimated to remain on this sub-level in the main Stephenson ore body, probably 6,000 tons can be mined without serious interference from water. Some work was done in this ore body on the C. & N. W. Ry. Co., Lease, Section 29, but water conditions soon forced it to be abandoned. There is 5,628 tons on this lease, all of which is considered unavailable.

At the West end of the South-east ore body one contract was mining a small pillar at the end of the year, working double shift. It is estimated that there is only 4,000 tons that can be mined in the South-east ore body, on this sub-level, due to water conditions.

There is approximately 10,000 tons of available ore on this sub-level, not all of which will be mined at the time the mine is closed.

5TH SUB BELOW 5TH LEVEL:

This sub-level was opened in 1924 and mining was continued during 1925 and 1926. The first of the year it was estimated that there were 28,554 tons remaining on this sub-level in the main Stephenson ore body. There were seven contracts working here during part of the year; at the end of the year only one. There are two small pillars remaining to be mined in the trough on the West side of the main Stephenson ore body. Further South, near the C. & N. W.Ry. Co., boundary, there were five pillars, all of which are unavailable on account of water conditions. It is estimated that there may be work here for one contract for a month; the balance of the ore, amounting to 5,500 tons, is unavailable.

Mining is in progress at the West end of the South-east ore body. Work started here in September and at the end of the year there were two contracts working. It is estimated that there is approximately 6,000 tons of ore on this sub-level at the West end of the South-east ore body, that can be mined. This will probably provide work for one or two contracts for the next six months.

There is, on this sub-level, a total of 12,402 tons of ore, of which about 7,000 tons is considered available. This is exclusive of the main part of the South-east ore body, which is not considered available.

6TH SUB BELOW 5TH LEVEL:

This sub-level was opened in November, 1925, and mining continued throughout 1926. It is located at practically the bottom of the Stephenson deposit and all the ore produced during the year has been "Stephenwood" grade. The boundaries of the sub-level were determined by the work of 1926. The ore body is approximately 240 feet by 200 feet in size. A year ago it was estimated that there were 20,505 tons of ore on this sub-level; it is now estimated that there are 14,680 tons, all of which should be available for mining. This will provide work for four contracts for about six months.

A small area near the boundary line between Section 20 and Section 29 was mined early in the year. This small ore body was opened on the C. & N. W. Ry. Co., Lease, Section 29 and was mined on both leases. Part of the ore on both leases was only 5 feet in thickness above a horizontal footwall.

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7. UNDERGROUND:

b. Development: (Continued)

6TH SUB BELOW 5TH LEVEL: (Continued)

In the South-east ore body a sub-level was opened several years ago and the West end of this ore body outlined by a drift along the footwall. The work on the 3rd sub below the 5th in this same territory had to be abandoned on account of water conditions. Later in the year this sub-level was opened from two raises near the East end of the South-east ore body, and a small amount of drifting done. The drift from the most Easterly raise passed through the footwall rock into the ore and crossed the old footwall drift on this sub-level. While the mine was idle on Saturday and Sunday, the breast of the drift caved and the ore ran in with the water, filling the sub-level and extending out on the main haulage drift on the 6th Level a distance of approximately 200 feet. The scraper outfit, drill machines and other miner's tools were buried in the ore. The place was left idle for a few weeks during which time the water stopped coming and the ore was then cleaned up on the main level; also cleaned up at the top of the raise and a bulk-head built on the sub-level. The scraper, drill machine, etc., belonging to the contract were then recovered. No further work was done from this raise as it was considered too dangerous. In the raise further to the West, drifting was resumed on the sub-level near the end of the year. The drift advanced to the hanging and a small area is now being sliced. There has been no cave to the 5th Level in this particular area so that it is thought there is no danger in mining a small tonnage here. The East 300 feet of the South-east ore body is not considered available on account of water conditions. The West end of this ore body beyond the limits of mining which have been set, is estimated to contain 4,185 tons of ore that can be mined. This will provide work for four contracts for about two months.

It is estimated that there is a total of 18,864 tons of ore on this sub-level, all of which it is expected can be mined.

7TH SUB BELOW 5TH LEVEL:

This sub-level was opened late in the year at the West end of the South-east deposit where one drift was driven for a distance of 150 feet under the hanging. This work was done in order to bring down the water from the subs above so as to improve mining conditions. It was quite successful, as it has eliminated most of the water from the sub-levels above in this particular area. It is estimated that if mining is completed on the subs above there will be about 6,000 tons of ore available in the South-east ore body on this sub-level. The main part of the South-east ore body on this sub-level cannot be mined on account of water.

In the center of the main Stephenson ore body it is estimated that there is about 4,000 tons of ore which extends down to the elevation of this sub-level. This ore was encountered in two raises in No. 3 crosscut. It is estimated all of this ore is available.

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7. UNDERGROUND:

b. Development: (Continued)

6TH LEVEL:

During the year a raise was put up in No. 2 and one in No. 4 crosscut to the elevation of the 1st sub below the 5th. This constituted the only work done during the year in the main Stephenson ore body. At the West end of the South-east ore body there was 270 feet of rock and ore drifting; this drift being an extension of No. 5 crosscut to connect with the main South-east haulage drift. One hundred and thirty-feet of this drift was in ore. Two raises were put up from this drift to the 7th sub below the 5th Level, where a small area was mined under the hanging to bring the water down from the subs above. Late in the year a rock drift was driven in the hanging for a distance of 30 feet to connect with a raise from the 7th Level.

The main haulage drift in the footwall beneath the South-east ore body was extended 50 feet to the East during the year and one raise put up to the elevation of the 6th sub below the 5th.

During the year this haulage drift from the South-east ore body was partially filled three times with runs of ore coming from the sub-levels above. After each run the ore was cleaned up, the total amount of ore obtained in this way was 250 motor cars, or approximately 1,000 tons. It came in with runs of water that occurred on sub-levels above the 6th, that had been opened in the hope that the water above the 5th could be brought down to these sub-levels. There has probably, however, been an increase of 200 gallons per minute in the amount of water coming to the 6th Level in this territory, as a result of the work done during the past year. It is not considered that any ore on the 6th Level in the South-east ore body is available for mining; this is due to the fact that in December it was decided to leave a pillar extending from the 7th sub below the 5th or approximately the back of the 6th Level, down to the limit of mining that has been set on the 7th Level. This pillar is being left to hold back the water and also to prevent a cave extending through to the capping, which might result in letting quick-sand and water into the mine. The depth of the quick-sand over this territory is deeper than in any other part of the mine that has been opened. Although the work done near No.66 diamond drill hole further to the South-east, which was located in the center of the deepest part of the basin where there was 285 feet of quick-sand, was not successful in getting the water to enter the mine, nevertheless, there is a possibility that at some other point around this deep basin a cave might let in water and quick-sand. For the above reasons it has been decided not to mine any ore in the South-east ore body on the 6th Level.

Mining of the top of the 7th Level ore body at the elevation of the 6th Level, on the C. & N. W. Ry. Co., Lease, Section 29, was underway the first of the year. The ore body was small, as part of it was only drift wide and an area 80 feet long was barren. The ore formation on this lease is 300 feet long, North and South, the South 100 feet was the only part that yielded enough ore to pay for opening. Results on this sub-level on this lease were quite disappointing. Mining was completed in September.

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7. UNDERGROUND:

b. Development: (Continued)

1ST SUB BELOW 6TH LEVEL:

The ore on this sub-level on the C. & N. W. Ry.Co., Lease, Section 29, was developed and mined during the year. The ore area was only 50% as large as on the 6th Level. The foot and hanging came together and cut off the ore for a distance of 170 feet out of a total length of 300 feet. The 130 feet of ore found on this sub-level varied in width from 40 feet at the South end to 10 feet at the North. Results here were quite disappointing in view of the expense that had been incurred for developing the 7th Level, putting up raises, etc. There is some evidence of faulting as the footwall is flat while the hanging is practically vertical.

There was no work done on the Stephenson Lease at the elevation of this sub-level. The ore in the South-east ore body at this elevation is unavailable on account of water and the pillar left to support the capping.

2ND SUB BELOW 6TH LEVEL:

At the end of the year the ore body at the elevation of this sub, on the C. & N. W. Ry. Co., Lease, had been opened at three raises. The indications are that this sub-level will be even smaller than the sub above, as the ore body is narrow at all three raises. From present indications, all the ore can be mined here in a few months by two contracts working single shift.

There is no available ore at the elevation of this sub-level on the Stephenson Lease.

3RD SUB BELOW 6TH LEVEL:

This sub-level has been opened on the Stephenson Lease from one raise from the 7th Level, and a drift driven in ore a distance of 175 feet from the raise. Slicing was started the latter part of December. One hundred and fifty feet of this drift falls in the area that will be mined on this sub-level. The balance of ore outside of this area will be left as a pillar on account of danger from water and quick-sand. This sub-level will be mined from only one raise in an area 150 feet by 25 feet, under the hanging. This will leave an ore pillar approximately 50 feet thick on the North and East sides, on the West side, the pillar will be 40 feet thick.

This sub-level has been opened from one raise on the C. & N. W. Ry. Co. Lease, Section 29, near the Stephenson boundary. The ore body was only drift wide here, and to the South of the raise it pinched out. Evidently it is no larger than on the sub-level above. It is expected that there are only three small areas of ore separated by barren areas on the C. & N. W. Ry. Co. Lease.

4TH SUB BELOW 6TH LEVEL:

This sub-level has been developed on the Stephenson Lease from three 7th Level raises, and mining started. The available area will average 140 feet in width by 100 feet in length. The balance of ore on this sub-level will be left as a pillar to support the capping. About three-fourths of the area being mined is directly under the hanging, which, fortunately, is fairly dry. The hanging is quite irregular and this has reduced the tonnage expected here.

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7. UNDERGROUND:

b. Development: (Continued)

4TH SUB BELOW 6TH LEVEL: (Continued)

The 7th Level haulage drift beneath this area is in ore and is crushing, so that constant repairs are necessary to keep it open. This has interferred with the output from this territory as the miners have to come down and help with this work. Scraper outfits are used by all the gangs working here, with good results. The ore body on this sub-level on the Stephenson Lease is quite large in area due to the flattening of the footwall at the elevation of the 7th Level. This flat ore body is cut off by the hanging before it crosses the boundary line over on to the C. & N. W. Ry. Co., Lease, Section 29. The ore formation on the North-western Lease is nearly 300 feet in length, but is quite narrow and in some areas is barren. A drift has been driven across the formation near the boundary line, the ore body was 40 feet wide at this point. One hundred and forty feet further to the South a crosscut showed 18 feet of ore. Another crosscut, 180 feet further South showed only lean ore. It is expected that considerably more ore will be found on this sub-level than on any of the sub-levels above on this lease. At the present time it is estimated that the ore body is approximately 240 feet long with an average width of 30 feet.

7TH LEVEL:

The 7th Level main haulage drift from the "Auxiliary Shaft" on C. & N. W. Ry. Co., Lease, Section 29, advanced 200 feet and crossed the boundary line on to Stephenson Lease in May, 1926. It was extended 260 feet on the Stephenson Lease. Eleven raises have been put up from this drift, seven extending through to the 6th Level, one to the 3rd sub below the 6th and three to the 4th sub below the 6th. Just before the 7th Level haulage drift reached the boundary line between the two leases it encountered ore. The ore did not extend down to the floor of the drift at any point. The footwall varied in height of one foot to five feet at different points in the drift; this was due to local rolls. The drift passed out of the ore and into the footwall after advancing 150 feet, on the Stephenson Lease. It was thought that, with the bottom of the legs resting on the footwall, there would be no serious trouble from crushing. There is apparently some lime in the arkose as also in the ore near the footwall which causes them to swell after being exposed to the air. This has resulted in the crushing of timber in the drift, and has made it necessary to do considerable repair work to keep the drift open. One gang has worked steadily the past several months, and in addition on Saturdays there has been, as a rule, four or five gangs retimbering this drift. There is not time to drive haulage drifts in the footwall, and even if such were the case this drift would be located so far from that part of the ore body which is being mined that it would materially decrease the amount of ore which could be recovered. This would be due to the long length of the drifts in ore that would crush before the limits of the ore body were reached. In addition to the work outlined above, a stub drift, 50 feet long, was driven in the footwall near the boundary, for use in storing timber, switching cars, etc. The main haulage drift on the North-western Lease near the "Auxiliary Shaft" was widened for a double track. The last of the year a crosscut was started from the main haulage drift, 90 feet South of the Stephenson Lease.

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7. UNDERGROUND:

b. Development: (Continued)

7TH LEVEL: (Continued)

This crosscut was in 80 feet at the end of the year, 48 feet in rock and 32 feet in ore. As planned, it should be near the hanging of the main ore body and besides proving up the ore will drain any water that may be on the contact of the ore and the hanging. It will supply needed information for intelligent planning of the development of the 8th Level. If conditions in this crosscut warrant, two or more raises will be put up to mine the ore on the 1st sub above the 7th Level on both leases. Raises from the 8th Level will later hole to the crosscut to provide timber ways and improve ventilation. The ore body on the Stephenson Lease passes over the boundary on the North-western Lease, approximately at the elevation of the 7th Level.

3RD SUB BELOW 7TH LEVEL:

This sub-level was opened late in December on the C. & N. W. Ry. Co., Lease, Section 29, to prove the ore shown up in No.42 diamond drill hole from surface. The drift, at top of the raise, is in high grade ore running 63% Iron - .200 Phosphorus. It is hoped that a good sized ore body will be developed on this sub-level, as it has an important bearing on the future of this level. This sub-level has been opened 300 feet almost due East of the "Auxiliary Shaft", and 425 feet South of the Stephenson boundary. No. 42 diamond drill hole is 75 feet South of the top of the raise, so that the North and South limits of the ore between this point and the 7th Level, measured on the dip, may be nearly 600 feet in length. The tonnage will depend on the width and thickness of the ore. It is regretted that this information is not available for the Annual Report.

8TH LEVEL:

Work was resumed on the 8th Level on the North-western Lease, in July, and continued throughout the balance of the year. The main haulage drift advanced 422 feet towards the Stephenson boundary. (A branch drift from the main haulage drift was driven 47 feet to the South-east towards No. 42 diamond drill hole from surface). When the 800-ft. compressor, borrowed from the South Jackson, went into commission the last of November, work in the main haulage drift was put on double shift. The speed of advance has been doubled and drifting on this level will be completed in a few months. Raises have to be put up to the 7th Level so that with all possible speed it will require several months to complete development work on this level.

The ore body does not extend down to the 8th Level as far as is known from diamond drill holes. It may come within 20 feet of the level near No. 42 diamond drill hole. The development of this level is awaited with much interest, as it has an important bearing on the life of the mine.

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7. UNDERGROUND:

c. Stoping:

The ore hoisted in 1926 came from a widely scattered territory, extending from the 4th Level to the 7th. The product from the 7th Level, representing 15% of the output, was handled twice. This covers loading, tramming, dumping and hoisting operations. It added materially to the cost of this part of the product. Working conditions throughout the year were unfavorable in many parts of the mine due to water, which effects handling of the ore from the time it is broken until it reaches the stockpile.

Throughout the entire year there has been a crew of men cleaning tracks and ditches, repairing cars and motors, retimbering, etc; all of this being extra work made necessary by water conditions in the mine. By the use of more scraper outfits the tons per man per day stoping have increased, while the cost per ton has shown a decrease. The decrease in stoping cost practically offset the increase in cost of handling the product; due to scattered working places and production from the 7th Level. It has kept the underground cost practically equal to that of the previous year, although production decreased and operating conditions were not so favorable.

The following table gives figures on stoping by months for the year:

MONTH:	NO. DAYS CONTRACT STOPING.	STOPING COST PER TON	TONS PER MAN PER DAY STOPING
January,	1299	.370	14.83
February,	1390 3/4	.373	14.65
March,	1552	.370	14.96
April,	1302 3/4	.352	15.56
May,	1143	.324	17.29
June,	1110	.321	17.51
July,	989	.317	18.50
August,	986½	.318	18.12
September,	935½	.315	17.88
October,	956½	.306	18.36
November,	922 3/4	.311	17.46
December,	1097	.351	15.47
Average per month, 1926-	1140 days	.338	16.52
" " " 1925-	1464 "	.379	14.36

d. Timbering:

From one to three gangs of timbermen have been employed during the year on repair work. The sub-levels in the pillar left to support the haulage drift to the shaft on the 4th, have required extra timber gangs to keep the raises in repair, also the timber roads. The ore around this pillar was mined many years ago and the ground caved through to surface. The rock pile is directly above so that the old cave and the extra pressure from the rock pile made a heavy pressure on the drifts and raises in this pillar.

The haulage drifts on the South-west side of the 5th Level have required a lot of retimbering to keep them open. This was due to rotting of the timbers, as these drifts have been open for many years, and to pressure as a result of mining operations in this territory. These drifts had to be kept open for tramming, for timber roads and for ventilation.

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7. UNDERGROUND:

d. Timbering: (Continued)

The extension of No. 5 crosscut on the 6th Level in ore to connect with the South-east haulage drift required constant retimbering for nearly two months while it was kept open so that an area might be mined under the hanging on the 7th sub below the 6th Level. This extra expense was justified as the work done here drained the water away from an area being mined on sub-levels above.

The 7th Level haulage drift in ore has required constant repairs for the past six months. Ore is being mined on sub-levels above this drift, so that it had to be kept open for haulage of ore and supplies.

The above four territories required the most repairs during the year. In addition, many raises had to be repaired due to crushing of the sides.

The retimbering work was done as far as possible during the time the mine operated but in many cases this work would have stopped tramming so that extra crews worked every Saturday during the year. These extra retimbering crews usually consisted of eight miners and the mine foreman.

The quality of timber used during the year has been above the average as only green timber was purchased in the winter of 1925-1926. More fore-poles, (4" to 6" timber) were used than formerly, due to change in character of ore that made forepoling necessary to keep the places open and to safe-guard the miners from falls of ground. The amount of covering boards used has decreased, as they do not hold up as well as round lagging. Due to more retimbering in 1926, and to more timber used in the areas mined, there was an increase in the feet of timber used per ton of ore from .847 feet in 1925 to 1,010 feet in 1926. More lagging was also used per ton of ore and per foot of timber. The cost per ton for timber decreased due to lower prices paid for timber and less 10" to 12" timber used than in the previous year. The ideal timber is 9" and 10" top size, but it is impossible to purchase only these sizes. Jobbers insist on being allowed to include some 10" to 14" timber that often has to be used in the mine when a smaller size would answer. The timber as it comes to the mine is not sorted by the shipper nor is it practical for the company to sort it. As a result, the timber does not always run the right sizes in the skid-ways to work in with the requirements of the mine. At times there is an excess of large sizes and they have to be used in the mine to keep the timber yard open.

Statement of Timber Used:

KIND:	LINEAR FEET	AVG. PRICE PER FT.	AMOUNT 1926	AMOUNT 1925
4" to 6" Timber,	45,069	.0223	1,002.29	121.93
6" to 8" "	49,588	.04096	2,031.28	1,597.65
8" to 10" "	84,108	.06562	5,519.50	6,473.21
10" to 12" "	42,698	.08381	3,588.79	6,316.12
12" to 14" "	8,544	.1247	1,006.83	1,267.38
Total 1926,	230,007	.05744	13,208.69	15,776.29
" 1925,	214,632	.0735		15,776.29
	LINEAR FEET	PER 100'		
5' Lagging (978 cds.850' pr.cd)	831,300	.7998	6,649.13	5,514.11
7' "	355,017	.6849	2,431.55	1,828.81
8' "	283,360	.7157	2,028.07	2,291.62
Total Lagging,	1,469,677	.7558	11,108.75	9,634.54
Poles,	69,250	1.106	765.94	1,115.72
Total Lagging & Poles 1926	1,538,927	.771	11,874.69	10,750.26
" " " 1925	1,416,722	.759		
5/8" Covering Boards,	43,486	1.693	736.31	969.71

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7. UNDERGROUND:

d. Timbering: (Continued)

Statement of Timber Used: (Continued)

	AMOUNT 1926	AMOUNT 1925
Product,	227,576	253,193
Feet of timber per ton of ore,	1.010	.847
" lagging " "	6.45	5.20
" " per foot of timber,	6.39	6.13
Cost per ton for timber,	.0580	.062309
" " " lagging,	.0488	.03815
" " " poles,	.00336	.00440
" " " covering boards,	.00323	.00382
" " " stull timber, lagging, Poles and boards,	.1134	.1085
Equivalent of stull timber to board measure,	405,770	429,015
Feet of board measure per ton of ore,	1.783	1.691

Cost of timber, lagging and poles,	1926	25,083.38
	1925	26,526.55
	1924	22,233.75
	1923	21,898.23
Cost of covering boards used in place of lagging,	1926	736.31
	1925	969.71
	1924	655.63
	1923	492.31

e. Drifting and Raising:

The amount of rock drifting increased in 1926, due to opening the 7th and 8th Levels, "Auxiliary Shaft". Ore raising increased for the same reason. There was considerable rock drifting in 1926 for timber roads on sub-levels below the 6th Level. These drifts are small and cost less per foot than the main level drifts. There was a total of 925 feet of main level haulage drift driven in rock on the 7th and 8th Levels during the year.

YEAR	ORE DRIFTING	ORE RAISING	ROCK DRIFTING	ROCK RAISING
1926	51 ft.	298 ft.	2362 ft.	517 ft.
1925	53 ft.	118 ft.	1539 ft.	713 ft.

f. Explosives, Drilling and Blasting:

Powder costs per ton and pounds of powder per ton of ore show decreases in 1926. A study of the explosive statement given below shows an increased consumption of 50% and 60% Gelatin powder and a large decrease in amount of 40% and 50% Red Cross powder. Actual results have apparently borne out the theory advanced a year ago, viz: that it would be more economical to use higher strength explosives in the Stephenson Mine.

The statement indicates also that Gelatin powder gives better results than Red Cross. It is also better from the standpoint of noxious fumes. It does not follow that Gelatin powder would give better results in all mines, but there is no question but that it has done so at the Stephenson Mine.

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7. UNDERGROUND:

f. Explosives, Drilling and Blasting: (Continued)

Statement of Explosives used:

	QUANTITY	AVERAGE PRICE	AMOUNT 1926	AMOUNT 1925
40% Red Cross,	15,050	.1317	1,983.74	4,158.00
40% Gelatin,	5,600	.1325	742.00	1,410.75
50% Red Cross,	16,050	.1433	2,291.38	4,089.00
50% Gelatin, Spl.	19,000	.1425	2,708.00	1,557.77
60% Gelatin,	17,250	.1571	2,711.06	1,273.00
Total Powder, 1926	72,950	.1430	10,436.18	
" " 1925,				12,488.52
Fuse,	24,100	.692 C.	1,667.74	1,943.83
Caps,	46,100	1.065 C.	491.03	626.22
Cap Crimpers,	23	5.00 doz.	9.66	16.50
Tamping Bags,	18,700	2.15 M.	40.27	21.15
Total Fuse, etc., 1926,			2,208.70	
" " " 1925,				2,607.70
Total all Explosives,			12,644.88	15,096.22
Product,			227,576	253,193
Pounds of Powder per ton of ore,			.3119	.341
Cost per ton for Powder,			.0446	.0493
" " " Fuse, etc.,			.00970	.00767
" " " All Explosives,			.0556	.0596
Average price per pound for Powder,			.1430	.1442

i. Ventilation:

Natural ventilation is provided at the Stephenson Mine through the Austin Shaft which is connected by drifts and raises with the Stephenson shaft. The air is good throughout the mine during the winter months; in the warm weather some areas are not supplied with enough fresh air. Additional air is provided by opening valves on the air lines until circulation is started. Considering the mine as a whole, ventilation is fairly good.

j. Faults:

There is some evidence of a fault in the ore body below the 6th Level on the North-western Lease. The footwall is nearly horizontal, while the hanging is vertical. As a result, the ore is cut off and practically disappears on several sub-levels. The formation then resumes a regular dip for both hanging and footwall and ore is again found. This apparent fault has been traced for nearly 400 feet, beyond this point there is some evidence but the ore does not entirely disappear, although it is quite narrow.

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8. COST OF OPERATING:

a. Comparative Mining Costs:

	1926	1925	INCREASE	DECREASE
PRODUCT	227,576	253,193		25,617
Underground Costs,	334,846.81	371,128.44		36,281.63
Surface Costs,	50,816.49	48,832.86	1,983.63	
General Mine Accounts,	37,394.85	43,288.10		5,893.25
Cost of Production,	423,058.15	463,249.40		40,191.25
Plant Account,	3,928.20	4,321.87		393.67
Equipment,		70.00		70.00
Uncompleted Construction,	1,399.95	1,102.30	297.65	
Taxes,	19,660.05	20,586.32		926.27
Central Office,	24,060.38	25,135.99		1,075.61
Contingent Expense,	4,343.78	5,170.61		826.83
Cost Adjustment,	9,680.11	8,572.46	1,107.65	
Cost on Stockpile,	486,130.62	528,208.95		42,078.33
Loading & Shipping,	18,993.45	17,500.77	1,492.68	
Total Cost on Cars,	505,124.07	545,709.72		40,585.65
No. Days Operated,	260	258	2	
No.Shifts & Hours,	2,8-hr. 5 dys.	2, 8-hr. 5 dys.		
Avg. Daily Product,	875	981		106

COST OF PRODUCTION:

	1926		1925		INCREASE		DECREASE	
LABOR	Amount	Per Ton	Amount	Per Ton	Amount	Per Ton	Amount	Per Ton
Undgr.Costs,	213,399.37	.938	233,183.87	.921		.017	19784.50	
Surface Costs,	25,282.69	.111	25,540.96	.101		.010	258.27	
Gen'l.Mine Accts.	19,569.92	.086	22,555.94	.089			2986.02	.003
SUPPLIES								
Undgr.Costs,	121,447.44	.534	137,944.57	.545			16497.13	.011
Surface Costs,	25,533.80	.112	23,291.90	.092	2241.90	.020		
Gen'l.Mine Accts.	17,824.93	.078	20,732.16	.082			2907.23	.004
COST OF PRODUCTION								
Labor,	258,251.98	1.135	281,280.77	1.111		.024	23028.79	
Supplies,	164,806.17	.724	181,968.63	.719		.005	17162.46	
Total,	423,058.15	1.859	463,249.40	1.830		.029	40191.25	

b. Detailed Cost Comparison:

Development in Rock:

	Amount	Per Ton
1926,	22,295.73	.098
1925,	20,069.99	.079
Increase,	2,225.74	.019

	1926	1925	Increase	Decrease
Number of Feet Drifted,	2879	2252	627	
Cost per Foot,	$7.74	$8.91		$1.17

Drifting increased 27.8% in 1926, while the cost per foot decreased 13%. The increased footage was due to development of the 7th and 8th Levels, the decrease in cost per foot, to use of "Armstrong" loaders in nearly every drift driven in 1926.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Development in Ore,

	Amount	Per Ton
1926,	1,929.68	.008
1925,	866.93	.003
Increase,	1,062.75	.005

	1926	1925	Increase	Decrease
Number of Feet,	349	171	178	
Cost per Foot,	$5.53	$5.01	.52	

Development in Ore increased 104% in 1926, while the cost per foot increased 10%. There was more raising in ore, due to development of the territory between the 7th and 6th Levels. The cost per foot increased due to the ground being more blocky, making raising more difficult and also more dangerous.

Stoping:

	Amount	Per Ton
1926,	105,826.19	.465
1925,	124,161.81	.491
Decrease,	18,335.62	.026

	1926	1925	Increase	Decrease
Labor,	79103.08	97387.07		18283.99
Explosives,	12644.88	15096.22		2451.34
Scraper Hoists,	7595.36	6593.47	1001.89	
Wire Rope & Elec.Cable,	826.36	544.44	281.92	
Scrapers & Appliances,	2682.57	499.28	2183.29	
Other Supplies,	2973.94	4041.33		1067.39
	105826.19	124161.81		18335.62

Production decreased 10% in 1926 and the cost per ton Stoping 5%. Labor costs decreased 18% while the cost of mechanical appliances increased 45%. These figures show the gain made by the use of scraper outfits, for operating conditions in 1926 were not as good as in 1925, due to water and small ore bodies mined.

Timbering,

	Amount	Per Ton
1926,	79,069.01	.348
1925,	80,607.20	.318
Decrease,	1,538.19	
Increase,		.030

	1926	1925	Increase	Decrease
Mine Timber, Lagging, etc.	25819.69	27496.26		1676.57
Other Supplies,	3969.10	3857.70	111.40	
Labor,	49280.22	49253.24	26.98	
	79069.01	80607.20		1538.19

The cost of timbering increased in 1926 due to more retimbering caused by pressure and wet ground. Water softens the ore and causes the legs to push downward, making frequent retimbering necessary. The product decreased 10%; mine timber, etc., only 6%, while the labor cost for the two years was practically equal.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Tramming:

	Amount	Per Ton
1926,	34,135.91	.150
1925,	33,122.19	.131
Increase,	1,013.72	.019

	1926	1925	Increase	Decrease
Electric Haulage,	22,863.79	23,513.08		649.29
Other Charges,	11,272.12	9,609.11	1,663.01	
	34,135.91	33,122.19	1,013.72	

Tramming costs increased 14% in 1926, due to handling 15% of the product twice (7th Level ore via "Auxiliary Shaft") and to wide spread of operations which increased the number of chutemen, motormen, etc. With a 10% reduction in product, the cost of electric haulage decreased less than 3%, while "Other Charges" increased 3%. This increase in "Other Charges" was due to keeping a greater mileage of tracks and ditches clean; also two skip-pits instead of one, as in former years and more car dumpers account of hoisting at two shafts.

Pumping:

	Amount	Per Ton
1926,	44,056.13	.194
1925,	50,049.41	.198
Decrease,	5,993.28	.004

	1926	1925	Increase	Decrease
Labor,	7,817.93	8,421.07		603.14
Electric Power,	35,038.50	38,919.30		3,880.80
Prop.Boiler House Exp.		1,025.58		1,025.58
Other Supplies,	899.70	1,083.46		183.76
Compressors,	300.00	600.00		300.00
	44,056.13	50,049.41		5,993.28
Gals. Pumped,	1,078,616,922	1,146,774,100		68,157,178
" Per Minute,	2,046	2,181		135

Pumping cost decreased 11% in 1926, while the amount of water pumped decreased 6%. Labor cost decreased in 1926 due to less time by pumpmen account automatic pumps on 6th Level operating twelve months in 1926 as compared with eight months in 1925. Electric power decreased due to less water pumped and to less hours operation of centrifugal pumps in main pump house on 5th Level. (The current cost for centrifugal pumps is higher than for plunger pumps due to lower efficiency).

Most of the mine water now comes in on the 6th Level; it is relayed to the main pump station on the 5th. The latter part of 1926 the water on the 7th and 8th Levels started to increase, reaching 200 gallons per minute at the end of the year as compared with about 50 gallons per minute on January 1st, 1926. The water on the 8th is relayed to the 6th, then to the 5th, and then to surface, in other words, it is pumped three times.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Pumping: (Continued)

The pumping of the water on the 8th Level has not yet had much effect on the costs, but if the present rate of increase continues for any length of time, more pumpmen must be employed, as the sump capacity on the 8th Level is limited.

The amount of water pumped to surface dropped below 2,100 gallons per minute in August, 1925; it averaged about 2,020 gallons per minute to October, 1926, in which month it increased to 2,106 gallons per minute and in December reached 2,159 gallons per minute. This increase is coincident with the increase of water on the 8th Level, which indicates that this is new water rather than a diversion of water from the 6th to the 8th Levels.

Compressors & Air Pipes:	Amount	Per Ton
1926,	19,679.01	.086
1925,	22,088.97	.087
Decrease,	2,409.96	.001

	1926	1925	Increase	Decrease
Compressors,	16,541.84	18,524.20		1,982.36
Air Pipes,	3,137.17	3,564.77		427.60
	19,679.01	22,088.97		2,409.96
Total Cu.Ft. of Air,	407,179,395	483,751,660		76,572,265
Cu.Ft. of Air Per Ton of Ore,	1,789	1,916		127

Compressor and air pipe expense decreased in 1926, due to less gangs working in the mine. The compressor expense decreased also due to division of charges between the Austin and Stephenson. The small compressor borrowed from the South Jackson operated every night that the mine worked in December and increased the compressor expense for this month as compared with other months of the year.

Underground Superintendence:	Amount	Per Ton
1926,	13,737.41	.061
1925,	13,392.01	.053
Increase,	345.40	.008

The increase in expenditures was due to more extra time by bosses and to the mine operating two more days in 1926. The increase in cost per ton is due mainly to the decrease in production. The average number of men employed underground in 1926 decreased 10%, but it was not possible to decrease the number of shift bosses due to the wide spread of operations necessary on account of the depletion of the ore.

Cave-In:	Amount	Per Ton
1926,	5.72	.000
1925,	3.84	.000
Increase,	1.88	---

Expenditures in this account were incurred on account of repairs to fences around caves.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Hand Tramming Equipment:

	Amount	Per Ton
1926,	523.72	.002
1925,	1,286.58	.005
Decrease,	762.86	..003

	1926	1925	Increase	Decrease
Cars,	230.61	803.55		572.94
Tracks,	293.11	483.03		189.92
	523.72	1,286.58		762.86

On account of using more scraper outfits in 1926, the cost of repairs to sub-level cars and tracks decreased.

Electric Tram Equipment:

	Amount	Per Ton
1926,	10,367.30	.046
1925,	11,618.05	.046
Decrease,	1,250.75	---

	1926	1925	Increase	Decrease
Generator & Motor,	306.31	44.77	261.54	
Locomotives,	1,447.14	2,405.36		958.22
Wiring,	1,552.78	1,628.01		75.23
Main Line Tracks,	2,221.69	2,560.26		338.57
Main Line Cars,	4,836.52	4,977.38		140.86
Spotting Engines,	2.86	2.27	.59	
	10,367.30	11,618.05		1,250.75

There was a small decrease in the cost for repairs in 1926, the cost per ton is the same for the two years due to the decreased production. Repairs to cars continues to be the main item of expense, they are high account of water conditions in the mine. Expense of repairs to locomotives shows the largest decrease for the year, due to extensive overhauling done in 1925.

Pumping Machinery:

	Amount	Per Ton
1926,	3,221.00	.014
1925,	13,861.46	.055
Decrease,	10,640.46	.041

	1926	1925	Increase	Decrease
Steam Pumps,	8.02	360.85		352.83
Electric Pumps,	1,883.82	6,346.38		4,462.56
Keystone Drill,	13.21	1,169.11		1,155.90
Pump House & Sump,	.36	5,010.75		5,010.39
Launders & Ditches,	1,315.59	974.37	341.22	
	3,221.00	13,861.46		10,640.46

The expense for electric pump repairs was much lower in 1926, due to extensive repairs made in 1925. There was no expense for pump house and sump in 1926, while in 1925 a pump house and sump were excavated on the 8th Level. Only one account shows an increase (Launders & Ditches); this was due to making ditches on the 7th and 8th Levels.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Total Underground Costs:		Amount	Per Ton
	1926,	334,846.81	1.472
	1925,	371,128.44	1.466
	Decrease,	36,281.63	
	Increase,		.006

	1926	1925	Increase	Decrease
Development in Rock,	22,295.73	20,069.99	2,225.74	
" " Ore,	1,929.68	866.93	1,062.75	
Stoping,	105,826.19	124,161.81		18,335.62
Timbering,	79,069.01	80,607.20		1,538.19
Tramming,	34,135.91	33,122.19	1,013.72	
Pumping,	44,056.13	50,049.41		5,993.28
Compr. & Air Pipes,	19,679.01	22,088.97		2,409.96
Undgr.Superintendence	13,737.41	13,392.01	345.40	
Cave-In,	5.72	3.84	1.88	
Hand Tram. Equipt.	523.72	1,286.58		762.86
Elec. " "	10,367.30	11,618.05		1,250.75
Pumping Machinery,	3,221.00	13,861.46		10,640.46
Total,	334,846.81	371,128.44		36,281.63

Five accounts show increased expenditures in 1926, while six show decreased. The cost for Stoping and Pumping account for the main decrease in operating cost, amounting to 66% of the total decrease, while maintenance of pumping machinery account for 29% of the decrease. The decrease in expenditures in these three accounts amount to 95% of the total decrease in expenditures.

The cost per ton for the two years is practically equal, as the decrease in production about equals the decrease in expenditures.

SURFACE COSTS:

Hoisting:		Amount	Per Ton
	1926,	13,509.49	.059
	1925,	13,129.35	.052
	Increase,	380.14	.007

	1926	1925	Increase	Decrease
Labor,	7,065.46	6,745.23	320.23	
Electric Power,	4,900.51	5,086.88		186.37
Heating,	1,228.22	927.68	300.54	
Other Costs,	315.30	369.56		54.26
	13,509.49	13,129.35	380.14	

The increase in expenditures is due to more time by hoisting engineers on the hoist at the "Auxiliary Shaft" and to the mine operating two more days in 1926. The small skip capacity (2 tons) of the skips in the "Auxiliary Shaft" made it necessary to hoist several hours at night to handle the increased production of ore and rock from the 7th and 8th Levels.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Stocking Ore,		Amount	Per Ton
	1926,	10,889.64	.048
	1925,	11,069.36	.044
	Decrease,	179.72	.004

	1926	1925	Increase	Decrease
Erecting Portable Trestles,	624.39	2,427.17		1,802.78
Optg. Tram System,	9,596.31	8,244.66	1,351.65	
Picking & Trmg.Rock,	668.94	397.53	271.41	
	10,889.64	11,069.36		179.72

There was a small decrease in expenditures in 1926, but the cost per ton increased due to a lower product. The cost for stocking or portable trestles decreased due to practically all trestles erected in 1926 being extensions of old trestles to new ground, which brings this expense into account "Docks, Trestles & Pockets". The cost of operating the tram system increased due to more side-dumping on stockpiles (more labor required, also blocking) and to mine operating two more days. Electric power increased due to longer tram.

Dry House,		Amount	Per Ton
	1926,	12,342.53	.054
	1925,	10,785.87	.043
	Increase,	1,556.66	.011

	1926			1925				
	Amount	Per Ton	Per Cent.	Amount	Per Ton	Per Cent.	Increase	Decrease
Heating,	7021.01	.031	56.88	6248.31	.025	57.92	772.70	
Water,	4141.50	.018	33.54	3126.23	.013	28.98	1015.27	
Labor,	962.30	.004	7.80	1084.19	.004	10.05		121.89
Other Costs,	217.72	.001	1.78	327.14	.001	3.05		9.42
Total,	12342.53	.054	100.-	10785.87	.043	100.--	1556.66	
MEMO OF HEATING PLANT:								
Tons Coal Used,	1,269			1,372				103
Amount for Coal	7504.02			8011.54				507.52
Per Ton Cost Coal	5.90			5.89			.01	
Labor at Htg. Plant,	1217.95			1995.78				777.83
Tot.Optg.Htg. Plant,	11455.15			11714.79				259.64
Dry.Ho.Proportion,	70%			53%			17%	

During the latter part of 1925 the pumps were operated by steam power due to a shortage of electric power from the hydro-electric plants and absorbed a large proportion of the cost of operating the boiler plant, decreasing the cost of heating to the dry house. During 1925 the steam electric generator at the Central Power Plant operated over-half of the year and absorbed a large proportion of the pump station expense which accounts for the large increase in water cost for 1926.

STEPHENSON MINE
ANNUAL REPORT
YEAR 1926

8. COST OF:
OPERATING:
(Continued)

b. Detailed Cost Comparison: (Continued)

Dry House: (Continued)

The decrease in labor and other costs is due to the charges being partly absorbed by the Austin Mine since May, 1926.

The cost per ton for heating alone averages nearly as high as the total cost for Dry House at the other company mines. It is probable that more of the heating expense in cold weather should be charged to heating the shaft, to the top landing and other buildings. The expense for water is out of proportion with the cost at all the other mines, due to the fact that the Stephenson has to absorb nearly the operating cost of the Central Pumping Station.

General Surface Expense:	Amount	Per Ton
1926,	2,459.15	.011
1925,	3,292.38	.013
Decrease,	833.23	.002

The expenditures in this account decreased in 1926 due to closer supervision and elimination of all unnecessary expenditures. The grounds at the mine were kept in as good a condition as in the previous year.

Hoisting Equipment:	Amount	Per Ton
1926,	2,593.59	.011
1925,	3,651.07	.014
Decrease,	1,057.48	.003

	1926	1925	Increase	Decrease
Electric Hoist,	397.65	1,350.93		953.28
Wire Ropes,	130.00	215.42		85.42
Skips, Cages & Skip Roads -	2,065.94	2,084.72		18.78
	2,593.59	3,651.07		1,057.48

Expenditures in this account decreased in 1926 due to less repairs to electric hoists. In 1925 a new brake rim and new brake lining were installed on the cage hoist; most of the repairs in 1926 were in connection with this brake band which has caused more or less trouble ever since the change from steam to electric power.

Shaft,	Amount	Per Ton
1926,	451.87	.002
1925,	614.24	.002
Decrease,	162.37	---

Repairs in 1926 were normal, consisting of replacement of worn and broken runners, dividers and casing plank. In 1925 they were higher account of rebuilding the skip pit pocket at the bottom of the shaft, after the skip dropped, due to breaking of clevis.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Top Tram Equipment,

	Amount	Per Ton
1926,	3,073.28	.014
1925,	2,683.60	.011
Increase,	389.68	.003

	1926	1925	Increase	Decrease
Engines & Motors,	814.79	135.24	679.55	
Tracks and Cars,	1,582.15	1,722.02		139.87
Wire Rope,	239.04	649.01		409.97
Sheaves, Rollers, Etc.	437.30	177.33	259.97	
	3,073.28	2,683.60	389.68	

The increase in expenditures was due to installing another top tram unit early in the winter. This, the fourth unit, was necessary to handle ore to stockpile in order to avoid delays to the hoist which otherwise would have occurred on account of the long tram. The expense for sheaves, rollers, etc., increased account extension of trestles to new stocking ground which increased the length of the trams, consequently more spools, rollers, etc., were used. Less new wire rope was used in 1926, but several of the ropes were practically worn out at the end of the year and will have to soon be replaced.

Docks, Trestles & Pockets:

	Amount	Per Ton
1926,	4,879.92	.021
1925,	1,668.03	.006
Increase,	3,211.89	.015

	1926	1925	Increase	Decrease
Grading & Planking,	1,687.59	1,423.86	263.73	
Permanent Trestles,	15.40	119.97		104.57
Portable " (Original Cost)	3,161.26	7.67	3,153.59	
Pockets, Chutes, Etc.	15.67	116.53		100.86
	4,879.92	1,668.03	3,211.89	

The expense for grading and planking increased in 1926 due to extension of stocking grounds. Portable trestles (912 ft.) representing the original cost of new trestles, accounts for over 90% of the increased expenditures in this account. The trestles erected in 1926 were charged to this account in 1925, when they represented replacement of old trestles, they were charged to Stocking Ore. Repairs to permanent trestles were much lower in 1926, also repairs to pockets and chutes.

Mine Buildings:

	Amount	Per Ton
1926,	617.02	.003
1925,	1,938.96	.008
Decrease,	1,321.94	.005

	1926	1925	Increase	Decrease
Office,	15.20	410.58		395.38
Warehouse,	15.63	224.02		208.39
Stables,	80.26	251.67		171.41
Shaft House,	6.89	16.98		10.09
Engine "	33.42	38.27		4.85
Boiler "	71.84	44.29	27.55	
Dry "	221.90	337.43		115.53
Fire Protection,	145.98	44.65	101.33	

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Mine Buildings: (Continued)

	1926	1925	Increase	Decrease
Water Tank,	25.90	--	25.90	
Oil House,	--	2.35		2.35
Timber Tunnel,	--	568.72		568.72
	617.02	1,938.96		1,321.94

Expenditures in this account show a decided decrease in 1926 due to less repairs required to the various mine buildings. Expenses in 1925 were high account of putting new timber in the tunnel from the timber yard to the shaft; expense for fire protection increased in 1926 due to setting up fire protection pump at weir on discharge line from mine, to furnish water under high pressure for fire protection in the timber yard. The pressure on the water main is too low on account of elevation to provide adequate fire protection at the mine.

Total Surface Costs:	Amount	Per Ton
1926,	50,816.49	.223
1925,	48,832.86	.193
Increase,	1,983.63	.030

	1926	1925	Increase	Decrease
Hoisting,	13,509.49	13,129.35	380.14	
Stocking Ore,	10,889,64	11,069.36		179.72
Dry House,	12,342.53	10,785.87	1,556.66	
Gen'l.Surf.Expense,	2,459.15	3,292.38		833.23
Hoisting Equipment,	2,593.59	3,651.07		1,057.48
Shaft,	451.87	614.24		162.37
Top Tram Equipment,	3,073.28	2,683.60	389.68	
Docks,Tres & Pkts.	4,879.92	1,668.03	3,211.89	
Mine Buildings,	617.02	1,938.96		1,321.94
	50,816.49	48,832.86	1,983.63	

Total surface expense increased in 1926 due to increased cost of operating dry house and more expense for handling ore on surface, on account of the large amount of ore in stock.

GENERAL MINE ACCOUNTS:

Insurance,	Amount	Per Ton
1926,	213.60	.001
1925,	217.00	.001
Decrease,	3.40	---

Engineering,	Amount	Per Ton
1926,	4,084.30	.018
1925,	4,688.34	.018
Decrease,	604.04	---

The decrease is due to less time charged to the Stephenson in this department on account of the Austin Mine re-opening in May and absorbing a portion of the expense.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Analysis:

	Amount	Per Ton
1926,	10,601.92	.047
1925,	11,715.85	.046
Decrease,	1,113.93	
Increase,		.001

	1926	1925	Increase	Decrease
Laboratory Costs,	7,994.07	8,754.84		760.77
Sampling Costs,	2,607.85	2,961.01		353.16
	10,601.92	11,715.85		1,113.93
Number Determinations,	29,144	31,376		2,232
Cost per " Laboratory,	.2743	.2790		.0047
" " " Sampling,	.0894	.0943		.0049
" " " Total,	.3637	.3733		.0096

Expense shows a decrease in 1926, due to less determinations and slightly lower cost per determination; also less expense for sampling. The re-opening of the Austin increased the total number of determinations and thus reduced the labor charge per determination. Sulphur determinations on car lots on all shipments increased costs during the shipping season.

Personal Injury Expense:

	Amount	Per Ton
1926,	6,395.71	.028
1925,	7,234.73	.029
Decrease,	839.02	.001

	1926	1925	Increase	Decrease
Legal & Other Expense,	56.83	---	56.83	
Medical & Hospital Attendance,	447.37	368.53	78.84	
Compensation Payments:				
Current Year,	1,679.61	798.66	880.95	
Previous Year,	3,126.10	4,874.14		1,748.04
Payments to Doctor:				
40¢ per Month,	1,085.80	1,193.40		107.60
	6,395.71	7,234.73		839.02
No.Compensable Accidents,	27	22	5	
Days lost acct.Accidents,	903½	505½	398	

The decrease in expense was due to less payments for personal injuries incurred in previous years. Although payments account of injuries received in 1926 was double those paid for injuries incurred during 1925, the decrease in payments for old injury cases was large enough to make a net decrease for the year. A few of the accidents in 1926 were more severe than those in 1925.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Safety Dept. Expense,	Amount	Per Ton
1926,	144.33	.000
1925,	213.10	.001
Decrease,	68.77	.001

	1926	1925	Increase	Decrease
Salary of Committees,	87.76	166.82		79.06
Traveling Expenses,	- --	- --		
First Aid Supplies,	56.57	46.28	10.29	
	144.33	213.10		68.77

The decrease is due to fewer Stephenson men being selected to serve on the various special inspection committees.

Telephones & Safety Devices,	Amount	Per Ton
1926,	592.62	.003
1925,	894.84	.003
Decrease,	302.22	---

	1926	1925	Increase	Decrease
Lighting for Shaft and Levels,	475.13	498.55		23.42
Mine Telephones,	81.15	64.98	16.17	
Safety Catches & Underground Impvt.,	7.56	36.01		28.45
Sign Boards, Signals, etc.	27.19	31.60		4.41
Fire Protection U.G.	1.59	263.70		262.11
	592.62	894.84		302.22

Several accounts show small decreases in 1926, but the main item of decrease is in Sub-Account "Fire Protection, Underground". The expense in this account in 1925 was due to guniting the drift from the Auxiliary Engine House to the Auxiliary Shaft, to make it fire-proof.

Local General Welfare:	Amount	Per Ton
1926,	2,704.25	.012
1925,	3,295.25	
Decrease,	591.00	

Expense in this account for the entire district decreased 4.9% in 1926. The proportion charged the Stephenson decreased 18%. The Austin Mine operated eight months in 1926 and absorbed a larger proportion of the total expense.

Mine Office,	Amount	Per Ton
1926,	4,307.00	.019
1925,	4,205.62	.017
Increase,	101.38	.002

The increase is due to re-distribution of clerk's time effective in September, 1926. The Chief Clerk at the Stephenson Mine acts as Shipping Clerk and a certain percentage of his time has been charged to the District Office. This percentage was decreased in September to bring it in line with existing conditions, which have materially changed since the original division was made.

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

District Office,		Amount	Per Ton
	1926,	8,351.12	.036
	1925,	10,823.37	.043
	Decrease,	2,472.25	.007

The cost of operating the District Office decreased 12.9% in 1926, due to economies effected during the year. The proportion charged to the Austin Mine was 6.06% in 1926 as compared with 0.3% in 1925. This reduced the amount charged to the Stephenson to 35.72% in 1926 as compared with 40.77% in 1925. The reduction in percentage charged to the Stephenson, together with the lower operating cost, accounts for the decrease of 22.8% in expense in 1926.

Total General Mine Accounts:		Amount	Per Ton
	1926,	37,394.85	.164
	1925,	43,288.10	.171
	Decrease,	5,893.25	.007

	1926	1925	Increase	Decrease
Insurance,	213.60	217.00		3.40
Engineering,	4,084.30	4,688.34		604.04
Analysis,	10,601.92	11,715.85		1,113.93
Pers. Inj. Expense,	6,395.71	7,234.73		839.02
Safety Dept. Expense,	144.33	213.10		68.77
Tel. & Safety Devices,	592.62	894.84		302.22
Local Gen'l. Welfare,	2,704.25	3,295.25		591.00
Mine Office,	4,307.00	4,205.62	101.38	
District Office,	8,351.12	10,823.37		2,472.25
	37,394.85	43,288.10		5,893.25

All but one of the General Mine Accounts show decreases in 1926; the net decrease was 13.5%. Nearly half of this decrease occurs in account "District Office".

10. TAXES:

Description:	1926 VALUATION	1926 TAXES	1925 VALUATION	1925 TAXES
80 Acres, S½ of SW¼ Sec.20-45-25	80,000	2,292.32	93,000	2,651.15
80 " N½ of NW¼ " 29 "	20,000	573.08	30,000	855.21
Personal Property,	579,250	16,600.00	592,000	16,876.14
Total,	679,250	19,465.40	715,000	20,382.50
Collection Fees,		194.65		203.82
Total Taxes,		19,660.05		20,586.32

On account of the large amount of ore in stock, the State Tax Department gave a nominal valuation to the ore in the mine and assessed most of the tax against the ore in stock in both 1926 and 1925. In 1926, the value of Real Estate, or ore in the mine, was approximately 15% of the total value; in 1925, it was 17%.

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13. EQUIPMENT AND PROPOSED EQUIPMENT:

d. Scraper Outfits:

There are now twenty-two scraper outfits in use at the Stephenson Mine; at the end of the previous year there were thirteen. Operating conditions in the mine do not permit of continual use of all outfits on account of water, finishing work on a sub-level and crushing of raises and drifts. Part of the scraper hoists are operated by air and part by electric power, both types work satisfactorily. By distributing the two types it is possible to avoid overloading the air line or the trolley line in any part of the mine.

In September, a large scraper outfit similar to the ones in use at the Cliffs Shaft Mine was purchased and installed on the 3rd sub below the 6th Level. A large box type scraper was built in the shops, 48 inches wide, 3 feet long and 2 feet deep. This scraper proved to be too large to operate to the best advantage and a smaller one was built. It was 44 inches wide, 3 feet long and 16 inches deep, giving a capacity of 13 3/4 cu. ft., or roughly, about one ton. The ordinary box scraper has a capacity of 10½ cu. ft., so that the larger type used with the more powerful hoist was 31% larger. Drifting and mining was carried on with the large scraper outfit at a distance of nearly 200 feet from the raise. The ordinary outfit is worked most economically to a limit of 100 feet from a raise. The last of the year the outfit with 20 H.P. motor had to be dismantled and removed due to crushing of the timber at the top of the raise. Mining had been completed from this raise to a point 150 feet distant; it is expected that the balance of ore on this sub-level can be removed with the regular 6--8 H.P. outfit.

As a result of the experience gained from the use of the outfit with 20 H.P., motor and larger scraper, it is evident that the more powerful outfit will work to good advantage, particularly in mines where the ground stands up for some time after the sub-level is opened and thus will make it possible to mine areas economically up to a distance of 300 feet from a raise. In small ore bodies this would effect a considerable economy as it will reduce the development work on the main levels and also the number of raises required. In large ore bodies more intensive mining is advisable which calls for more main level drifts and raises, and the use of the smaller unit with economical mining limit of approximately 100 feet under ordinary conditions.

The following table gives complete data on the cost of installing one electric scraper outfit and accessories:

	Cost of Scraper Hoist, (includes freight).....	$790.44
	90 ft. 1/2" Wire Rope (Pull)	6.59
	180 ft. 3/8" " " (Return).....	10.70
	Block and Sheave, ...	8.40
	Brackets and Safety Guards, ...	7.00
1	Scraper, ...	80.00
1	Switch, (electric)	8.57
70	Ft. Electric Cable, ...	28.69
	Labor installing, ...	9.20
	Total, ...	$949.59

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13. EQUIPMENT AND PROPOSED EQUIPMENT: (Continued)

d. Scraper Outfits: (Continued)

In 1925, $8,726.23 was expended for scraper outfits and accessories; in 1926, $11,104.29, making a total of $19,830.52 in the two years. Without these mechanical devices for handling ore on the sub-levels, the cost of production would have risen so much as to eliminate all profit on the ore.

The following table gives data on operation of scraper outfits in 1926, based on mine output without including overrun from pocket shipments. If the overrun could be included, even better results would be shown in the last three columns:

Month	Number of Scrapers in Operation Full Month	Production Tons.	Percent of Product	Tons Per Man Per Day.
January,	10	9,648	50%	17.47
February,	14	9,636	47	17.17
March,	14	11,304	48	16.67
April,	18	11,312	55.7	17.19
May,	20	11,630	61	16.81
June,	20	11,748	60	17.13
July,	15	11,906	60	18.37
August,	16	12,274	71	16.77
September,	14	11,246	68	17.35
October,	16	11,514	69	16.69
November,	22	11,596	72	15.63
December,	20	13,026	76.6	14.95
Avg. per Month,	16.6	11,403	61.5%	16.85

e. Compressor:

It costs from $60.00 to $80.00 per shift to run the 4,000 cu. ft., compressor at the Central Power Plant. It, therefore, cannot be run on the night shift to supply air for a few contracts without making the cost of the work unreasonably high.

In November, when it became necessary to start working a few gangs night shift to speed up development work on the 7th and 8th Levels, permission was obtained to borrow the 800 ft., compressor at the South Jackson for the winter. It was installed in the Stephenson engine house and started operating on November 29th. It also supplies air Sunday night for pumping out the skip-pit; heretofore, it was necessary to run the large compressor.

The total cost in connection with the installation of the compressor was $704.10.

f. E. & A. No. 474:

E. &. A. No.474 - "Additional Pumping Equipment", has not been completed, but this work must be done early in the new year as the water on the 8th Level is increasing quite rapidly and a relay pump must be installed to handle this water in case of accident to the plunger pump that is in service in this pumphouse. The installation of this pump will complete E. & A. No.474. It is planned to install the centrifugal pump now in the main pump house on the 7th Level, Princeton Mine, provided it is decided to pull the pumps here and let this mine fill with water.

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14. MAINTENANCE & REPAIRS:

There were no extraordinary maintenance or repairs in 1926.

18. NATIONALITY OF EMPLOYES:

	1926	1922
American,	13	11
English,	14	15
Italian,	68	63
Finnish,	48	48
Swedish,	27	30
Norwegian,	11	7
Canadian,	1	22
Austrian,	4	6
German,	1	2
Belgian,	1	1
French,	11	-
Total,	199	205

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1. GENERAL:

The Princeton Mine closed down August 27th, 1921, and has been idle since. The water has been pumped out and main level drifts repaired so that work can be resumed on short notice.

A number of alterations have been made since 1920 to lower the cost of handling the ore. This work has not yet been completed but it should be done before the mine re-opens. The principal unfinished construction items are, new steel shaft house, pulley stands and new permanent and stocking trestles.

2. PRODUCTION, SHIPMENTS & INVENTORIES:

a. Production:

During the year, 1,022 tons of Cambridge ore and 585 tons of rock were hoisted, all of which came from repair work, No record of this ore is kept and it goes on the stockpile as overrun. It all came from work done on the Princeton Mine property, Section 20.

b. Shipments:

Grade.	Pocket Tons	Stockpile Tons	Total Tons	Total Last Year
Cambridge,	None	6,540	6,540	13,213
Sec.19 Cambridge	"	--	--	--
Princeport,	"	--	--	--
Sec.19 Princeport,	"	--	--	--
Total,		6,540	6,540	13,213
Total last year,		13,213	13,213	
Decrease,			6,673	

There was a total of 6,540 tons of Cambridge ore shipped from stockpile, 4,503 tons of which was loaded by steam shovel and 2,037 tons by scraper. The ore loaded with scraper outfit was shipped all rail to Illinois. It is loaded over grizzly bars and all lumps broken so they will pass through a 2-1/2" opening.

c. Stockpile Inventories:

Grade.	Tons
Cambridge Ore,	136,359
Princeport Ore,	9,160
Sec.19 Cambridge,	17,709
Sec.19 Princeport,	1,313
Total,	164,541

f. Ore Statement:

	Princeport	Sec. 19 Princeport	Cambridge	Sec.19 Cambridge	Total	Total Last Year
On Hand Jan.1,1926	9,160	1,313	142,148	18,460	171,081	184,294
Output for Year	-	-	-	-	-	-
Transferred,	-	-	751	751	-	-
Total	9,160	1,313	142,899	17,709	171,081	184,294
Shipments	-	-	6,540	-	6,540	13,213
Balance on Hand	9,160	1,313	136,359	17,709	164,541	171,081
Decrease in Ore on Hand			6,540	---	6,540	

1926 - Mine idle during year.
1925 - Mine idle during year.

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3. ANALYSIS:

a. Average Mine Analysis on Output:

Grade.	Iron	Phos.	Silica	Mang.
Princeport,		(No Production)		
Cambridge,		(No Production)		

b. Average Analysis on Straight Cargoes:

Grade.	Iron	Phos.	Silica	Mang.
Princeport,		(No Shipments)		
Cambridge,		(All Mixed)		

4. ESTIMATE OF ORE RESERVES:

a. Developed Ore:

Assumption: 12 cu. ft. equals one ton
10% deduction for rock
10% deduction for loss in mining
Percentage of Bessemer equals 0.

	Princeport	Cambridge	Sec. 19 Princeport	Sec. 19 Cambridge	Total Tons
Ore above 2nd Level	2,552				2,552
" " 4th "		78,325			78,325
" " 5th "	20,000	58,778			78,778
" " 6th "	60,318	445,694	9,000	57,128	572,140
Total,	82,870	582,797	9,000	57,128	731,795

b. Prospective Ore:

Ore below 6th Level	20,000	418,815	5,000	46,921	490,736

Total Ore, ... 1,222,531

c. Estimated Analysis:

Grade.	Iron	Phos.	Sil.	Mang.	Alum.	Lime	Mag.	Sul.	Ign.	Moist.
Princeport:										
Dried 212°	59.50	.300	7.73	.505	1.214	1.605	1.037	.023	2.235	
Natural	50.60	.256	6.57	.429	1.032	1.365	.882	.020	1.900	15.00
Cambridge:										
Dried 212°	59.75	.853	4.42	1.193	.937	3.676	.840	.023	1.447	
Natural	50.80	.725	3.76	1.014	.797	3.125	.714	.020	1.230	15.00

d. Estimated Tonnage as Required by State Tax Commission:

Non-Bessemer Ore:

Developed,	1. Princeport,	91,870 tons		
	2. Cambridge,	639,925 "		
	Total Developed,		731,795	tons.
Prospective,	1. Princeport,	25,000 "		
	2. Cambridge,	465,736 "		
	Total Prospective,		490,736	"
	Grand Total,		1,222,531	"

The above estimates of ore in the mine were made in December, 1921.

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5. LABOR AND WAGES:

a. Comments:

(1) Labor:

The regular surface crew at this idle mine consists of a hoisting engineer only. Other surface labor is supplied when needed, from the Stephenson or Austin Mines.

The underground crew consists of three timbermen and a pumpman. It is not possible to keep the sub-levels open so that work is confined to the main levels and raises. The drifts in arkose near the footwall require the most attention as lime seams in this rock cause swelling, it breaks loose in large chunks, crushing the lagging and timber.

b. Comparative Statement of Wages and Product:

PRODUCT	1926 --	1925 --	INCREASE	DECREASE
AVG.NO. MEN WORKING:				
Surface,	3	4		1
Underground,	5	6		1
Total,	8	10		2
AVG. WAGES PER DAY:				
Surface,	4.52	4.54		.02
Underground,	5.00	4.69	.31	
Total,	4.83	4.85		.02
* WAGES PER MO. OF 25 DAYS:				
Surface,	113.00	113.50		.50
Underground,	125.00	117.25	7.75	
Total,	120,75	121.25		.50
TOTAL NO. OF DAYS:				
Surface,	742½	975		232½
Underground,	1384½	1767		382½
Total,	2127	2742		615
AMOUNT FOR LABOR:				
Surface,	3,356.87	4,433.88		1,077.01
Underground,	6,931.64	8,858.79		1,927.15
Total,	10,288.51	13,292.67		3,004.16

Proportion Surface to Underground Men:
1926 - 1 to 1.67
1925 - 1 to 1.50
1924 - 1 to 2.00
1923 - 1 to 1.33
1922 - 1 to 2.00
1921 - 1 to 2.81
1920 - 1 to 3.10
1919 - 1 to 4.69
1918 - 1 to 3.48

Mine idle since August 27th, 1921.

* Mine operated twenty-two days per month during year.

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6. SURFACE:

b. Stockpiles:

There was 6,540 tons of Cambridge ore shipped from stockpile, 4,503 tons were loaded by steam shovel and 2,037 tons by a scraper outfit. The timbermen load the ore with the scraper so as to keep down the total charges for labor.

7. UNDERGROUND:

d. Timbering:

The following table gives a summary of the re-timbering work done in 1926:

	Sets Timber	Caps	Legs	Props.	Raises Rep'd.	Tons Ore Hoisted	Tons Rock Hoisted
5th Level,				2			
6th Level Plat,	10						
Haulage Drift S.E.	54	4	18	25			
Hang.wall " S.E.	1						
Haulage Drift N.W.	57	1		4			
#1 Crosscut, N.W.	5		1				
6th Level Raises,					1		
Ore Hoisted 6th Level,						1022	
Rock " 6th "							585
Grand Total,	127	5	19	31	1	1022	585

Statement of Timber Used:

	LINEAR FEET	AVG.PRICE PER FOOT	AMOUNT 1926	AMOUNT 1925
4" x 6" Timber,	192	.0169	3.26	
6" x 8" "	504	.0381	19.20	7.68
8" x 10" "	1,128	.0601	67.84	6.38
10" x 12" "	350	.0836	29.25	50.89
12" x 14" "	378	.1058	40.03	215.50
Total Timber,	2,552	.0625	159.58	280.45
	LINEAR FEET	PER 100'		
5' Lagging (14 cds.= 850')	11,900	.7199	85.67	132.92
7' "	1,550	.60	9.30	54.37
8' "	23,300	.5908	137.64	
Total Lagging,	36,750	.633	232.61	187.29
Poles,	700	1.104	7.73	16.50
Total Lagging & Poles,	37,450	.6419	240.34	203.79
Total Timber, Lagging, Poles, etc.			399.92	484.24
Decrease, 1926 -			84.32	

The cost for timber decreased 17% in 1926, but the cost for labor retimbering drifts increased 50%. The timbermen repaired No.2 Shaft in 1925.

The report of the years work in detail is given herewith:

5TH LEVEL:

Two props were installed on the 5th Level plat at No.2 Shaft.

6TH LEVEL:

Haulage drift South-east of No.2 Shaft (leading to No.3 Shaft)

There were fifty-four sets of timber, eighteen legs, four caps and twenty-five props installed in this drift during the year. All of the repairs were made in the drift where it passed through the arkose. This ground breaks down in large masses, crushing the timber.

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7. UNDERGROUND:
(Continued)

d. Timbering: (Continued)

Haulage drift North-West of No.2 Shaft (leading to No.1 Shaft)

There were fifty-seven sets of timber, one cap and four props installed in this drift during the year. Most of the repair work was in ore and accounts for the ore hoisted during the year.

No.1 Crosscut North-West of No.2 Shaft:

There were five sets of timber and one cap installed in this cross-cut during the year.

6TH LEVEL RAISES:

There was new cribbing installed for a distance of 28 feet in the second raise, North-west of Crosscut to No. 2 Shaft.

6TH LEVEL PLAT:

There were ten sets of timber, with long caps, installed on the 6th Level plat near the shaft.

i. Ventilation:

Natural ventilation in the Princeton Mine is above average due to the three outlets. No.1 Shaft is nearly 60 feet lower than either No.2 and No.3; it is, therefore, downcast in the winter and upcast in summer. No.2, the operating shaft, and No.3, the timber shaft, are nearly level; there is a circulation in these shafts independent of No.1 Shaft, No.3 Shaft normally being downcast in winter and upcast in summer. Draft doors have been installed underground where needed to assist in controlling the air currents. The 7th Level connects with No.2 Shaft only, this level lacks circulation when the mine is idle. Even here, rot, due to the stagnant air, is not noticeable.

8. COST OF OPERATING:

a. Comparative Mining Costs:

	1926	1925	Increase	Decrease
PRODUCT	0	0		
Underground Costs,	11,091.16	9,509.91	1,581.25	
Surface Costs,	3,325.90	9,168.97		5,843.07
General Mine Accounts,	10,316.83	12,973.56		2,656.73
Cost of Production,	24,733.89	31,652.44		6,918.55
Taxes,	9,672.87	10,113.50		440.63
Central Office,	10,084.86	9,664.79	420.07	
Contingent Expense,	2,135.88	2,297.69		161.81
Cost Adjustment,	.21	1.73		1.94
Cost on Stockpile,	46,627.29	53,730.15		7,102.86
Loading & Shipping,	1,590.59	1,168.77	421.82	
Total Cost on Cars,	48,217.88	54,898.92		6,681.04
No. Days Operated,				
No. Shifts & Hours,				
Avg. Daily Product,				

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8. COST OF OPERATING: (Continued)

a. Comparative Mining Costs: (Continued)

COST OF PRODUCTION:

	1926	1925	Increase	Decrease
Labor:				
Underground Costs,	6,898.48	5,874.71	1,023.77	
Surface Costs,	2,748.57	6,718.66		3,970.09
General Mine Accounts,	7,189.51	7,710.48		520.97
Supplies:				
Underground Costs,	4,192.68	3,635.20	557.48	
Surface Costs,	577.33	2,450.31		1,872.98
General Mine Accounts,	3,127.32	5,263.08		2,135.76
Cost of Production:				
Labor,	16,836.56	20,303.85		1,467.29
Supplies,	7,897.33	11,348.59		3,451.26
Total,	24,733.89	31,652.44		6,918.55

UNDERGROUND COSTS:

Timbering,	4,167.79	2,792.19	1,375.60	
Pumping,	4,746.39	3,907.04	839.35	
Compressors & Air Pipes,	621.29	625.49		4.20
Underground Superintendence,	1,138.50	1,728.00		589.50
Cave-In,	5.80	0.00	5.80	
Electric Tram Equipment,	81.21	167.39		86.18
Pumping Machinery,	330.18	289.80	40.38	
Total,	11,091.16	9,509.91	1,581.25	

Expense increased account more time by timbermen on main levels, while in 1925 they worked for nearly half the year repairing No.2 Shaft. Pumping expense increased account more water pumped, due to heavy rainfall. Expense of Underground Superintendence decreased account of new division pf Capt. Jory's time in May, when the Austin Mine re-opened. Pumping Machinery expense increased account installing dam on 7th Level to hold the water back over Sunday. This dam was necessary when the mine water increased due to rainfall in September.

SURFACE COSTS:

Hoisting,	1,309.26	1,241.26	68.00	
Stocking Ore,	137.00	39.57	97.43	
Dry House,	420.26	324.76	95.50	
Gen'l. Surface Expense,	1,057.75	1,570.27		512.52
Hoisting Equipment,	215.08	327.03		111.95
Shaft,	145.00	5,347.52		5,202.52
Top Tram Equipment,	18.79	288.85		270.06
Mine Buildings,	22.76	29.71		6.95
Total,	3,325.90	9,168.97		5,843.07

Surface costs show a large decrease due to expense of repairing No.2 Shaft in 1925. General Surface Expense decreased account less time by policeman charged to Princeton Mine in 1926.

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8. COST OF OPERATING: (Continued)

a. Comparative Mining Costs: (Continued)

GENERAL MINE ACCOUNTS:	1926	1925	Increase	Decrease
Insurance,	144.12	144.12		
Engineering,	139.71	277.00		137.29
Analysis,	430.18	333.28	96.90	
Personal Injury Expense,	1,534.70	3,231.66		1,696.96
Tel. & Safety Devices,	19.52	7.67	11.85	
Local Gen'l. Welfare,	1,896.84	1,994.52		97.68
Mine Office,	376.04	433.29		57.25
District Office,	5,775.72	6,552.02		776.30
Total,	10,316.83	12,973.56		2,656.73

Personal Injury Expense decreased account less payments for accidents of previous years. The decrease in charges from the District Office was due to Austin carrying a larger percentage, also lower operating cost at the District Office.

10. TAXES:

Description:	1926 VALUATION	1926 TAXES	1925 VALUATION	1925 TAXES
NE¼ of NE¼ Sec. 19-45-25 (C.&.N.W.)	10000	286.54	10,000	285.07
158.27 Acres in Sec. 18-45-25	10,000	286.54	10,000	285.07
160 " in NW¼ of Sec.20-45-25	139,000	3,982.91	139,000	3,962.47
NE¼ of NE¼ Sec.19-45-25 Location,	420	12.04	420	11.98
S½ of NE¼ " 19- " " "	840	24.07	840	23.94
Personal Property,	174,000	4,985.00	191,000	5,444.84
Total,	334,260	9,577.10	351,260	10,013.37
Collection Fees,		95.77		100.13
Total Taxes,		9,672.87		10,113.50

Valuation of personal property was reduced in 1926, due to less ore in stock and decreased value of ore.

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1. GENERAL:

The Gwinn Mine closed on May 31st, 1921, and has been idle since that time. The pumps have been kept in operation and the timber on on main levels and sub-levels repaired so that work can be resumed on short notice.

It had been expected that the mine would re-open in 1927, when the Stephenson and Austin Mines were abandoned. This would permit one mine to operate in the district and thus avoid a complete shut-down. Developments in the latter part of 1926 indicate that there is a possibility of abandoning this property, in order to eliminate the continued expense of keeping it open; also from the fact that it is impossible to prepare figures that will show much profit from removing the balance of available ore.

The work done during the year is reported in detail under the various headings:

2. PRODUCTION, SHIPMENTS & INVENTORIES:

a. Production:

There was 483 tons of Gwinnport and Silica ore hoisted during the year, together with 2,572 tons of rock, all of which came from repair work and drifting. No record of this material is kept, but the ore will increase the overrun from stockpiles when they are cleaned up.

b. Shipments:

None in 1926.

c. Stockpile Inventories:

Gwinnport, 1,745 tons.

Including the overrun, it is estimated that there is in excess of 2,500 tons of Gwinnport ore in stock. There is also, 1,000 tons of Silica ore that could be loaded with a scraper outfit at a reasonable cost.

f. Ore Statement:

	Gwinnport	Gwinn Silica	Total	Total Last Year
On Hand Jan.1, 1926,	1,745	-	1,745	2,519
Output for Year,	-	-	-	-
Stockpile Overrun,	-	-	-	206
Total,	1,745	-	1,745	2,725
Shipments,	-	-	-	980
Balance on Hand,	1,745	-	1,745	1,745

1926 - Mine idle during year.
1925 - Mine idle during year.

3. ANALYSIS:

a. Average Mine Analysis on Output:

Grade	Iron	Phos.	Silica	Mang.
Gwinnport,		(No production)		
Gwinn Silica,		(No production)		

b. Average Analysis on Straight Cargoes:

Grade	Iron	Phos.	Silica	Mang.
Gwinnport,		(No shipments)		
Gwinn Silica,		(No shipments)		

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3. ANALYSIS:

c. High Sulphur Ore:

The last year that the mine operated (1921) high Sulphur ore was encountered on sub-levels between the 8th and 9th Levels. In the previous year high Sulphur ore had been found on a sub-level between the 9th and 10th Level. The ore between the 10th and 11th Levels in certain areas also contained more Sulphur than had been anticipated. The ore produced in 1921 ran .110 in Sulphur. If the mine re-opens and ore is produced from all available areas, it is estimated that the Sulphur will average .065, natural. The ore left on the upper levels runs below .040 in Sulphur, but from the 8th to the bottom of the deposit, the ore average between .060 and .125 in Sulphur. It runs high in Sulphur in the flat areas, where the dip is steep, it runs low. By restricting mining operations to the areas lying on a steep dip, it would be possible to lower the Sulphur to .050.

4. ESTIMATE OF ORE RESERVES:

a. Developed Ore:

Assumption: 12 cu. ft. equals one ton
10% deduction for rock
10% deduction for loss in mining.

Percentage of Bessemer equals 0.

	Gwinnport Tons	Gwinnwood Tons	Total Tons
Ore above 5th Level,	18,413		18,413
" " 6th "	170,734		170,734
" " 7th "	21,617		21,617
" " 8th "	118,663		118,663
" " 9th "	101,067		101,067
" " 10th "	155,077		155,077
Total developed ore,	585,571		585,571

b. Prospective Ore:

Ore below 10th Level,	80,159	40,079	120,238
Total all Ore,			705,809

The above estimate was made on December 31st, 1921, the only ore mined since has come from repair work. It is now assumed that only 200,000 tons of the ore can be mined at a profit.

It is also assumed that there are only 500,000 tons of available ore in the mine; the balance, or 205,809 tons, is unavailable on account of danger of the cave working through to surface and letting water in to the mine.

c. Estimated Analysis:

Grade.	Iron	Phos.	Sil.	Mang.	Alum.	Lime	Mag.	Sul.	Ign.	Moist.
Gwinnport:										
Dried 212°	58.00	.233	7.67	.243	1.761	1.026	.886	.074	1.500	
Natural	51.04	.205	6.75	.214	1.550	.903	.780	.065	1.320	12.00
Gwinnwood:										
Dried 212°	56.00	.625	11.20	.243	1.761	1.026	.886	.110	1.534	
Natural	49.28	.550	9.86	.214	1.550	.903	.818	.097	1.350	12.00

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4. ESTIMATE OF ORE RESERVES: (Continued)

d. Estimated Tonnage as Required by Tax Commission:

Non-Bessemer:

Developed,	1. Gwinnport,	585,571	tons
Prospective,	1. Gwinnport,	80,159	"
	2. Gwinnwood,	40,079	"
	Total,	705,809	"

5. LABOR AND WAGES:

a. Comments:

(1) Labor:

The surface crew at this idle mine consists of a night watchman, a surface foreman, one surface laborer and a hoisting engineer. The night watchman works every night in the year; the surface foreman and hoisting engineer six days per week and the laborer five days per week. The surface foreman and the laborer frame timber, send down timber and other supplies, handle the rock and ore that comes from repair work underground, sharpen tools, unload timber, etc. They also take care of all sewer and water repairs in Gwinn Townsite, so that a proportion of their time is not charged to the Gwinn Mine. The surface laborer does not work during the winter months when there is very little surface work.

The underground crew consists of the mining captain, five timbermen and a pumpman. In December, the timber crew was reduced to three men, as it seemed advisable to reduce expenses in view of the uncertainty connected with the future of this property.

b. Comparative Statement of Wages and Product:

	1926	1925	INCREASE	DECREASE
PRODUCT	--	206		206
AVG.NO. MEN WORKING:				
Surface,	4	5		1
Underground,	7	8		1
Total,	11	13		2
AVG.WAGES PER DAY:				
Surface,	4.55	4.49	.06	
Underground,	5.20	5.18	.02	
Total,	4.90	4.88	.02	
*WAGES PER MO.OF 25 DAYS:				
Surface,	113.75	112.25	1.50	
Underground,	130.00	129.50	.50	
Total,	122.50	122.00	.50	
TOTAL NO. OF DAYS:				
Surface,	1358	1511¼		153¼
Underground,	1911½	2012 3/4		101¼
Total,	3269½	3524		254½

* Mine operated twenty-two days per month during year.

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5. LABOR AND WAGES:
(Continued)

b. Comparative Statement of Wages and Product: (Continued)

	1926	1925	INCREASE	DECREASE
AMOUNT FOR LABOR:				
Surface,	6,174.13	6,780.26		606.13
Underground,	9,934.18	10,425.24		491.06
Total,	16,108.31	17,205.50		1,097.19

Proportion Surface to Underground Men:
1926 - 1 to 1.75
1925 - 1 to 1.60
1924 - 1 to 1.60
1923 - 1 to 1.75

Mine idle since May 31st, 1921.

7. UNDERGROUND:

d. Timbering:

The following statement shows the timbering done during the past year:

Location:	Sets of Timber Main Levels	Sets of Timber Sub-Levels	Raises Repaired
5th Level,	10		
6th "	18		
8th "	6		
9th "	10		
10th "	59		
11th "	41		
Subs above 8th Level,		48	
" " 9th "		5	
" " 10th "		5	
" " 11th "		59	
6th Level raises,			1
9th " "			3
10th " "			4
Total,	144	117	8

Statement of Timber Used:

KIND:	LINEAR FEET	AVG. PRICE PER FT.	AMOUNT 1926	AMOUNT 1925
4" to 6" Timber,	22,829	.0331	756.43	84.13
6" to 8" "	7,318	.0343	251.34	271.05
8" to 10" "	2,768	.0714	197.75	366.43
10" to 12" "	2,288	.0898	205.45	413.22
12" to 14" "	352	.10	35.20	274.32
Treated Mine Timber,				452.40
Total Timber,	35,555	.0406	1,446.17	1,861.55
	LINEAR FEET	PER 100'		
5' Lagging, Cds. 850 ft.	28,050	.7966	223.46	238.94
7' "				142.19
8' "	16,257	.7466	121.37	9.60
Total Lagging,	44,307	.7784	344.83	390.73
Poles,	5,660	.6976	39.48	41.64
Total Lagging and Poles,	49,967	.7692	384.31	432.37
Total Timber, Lagging, Poles, etc.			1,830.48	2,293.92

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7. UNDERGROUND:
(Continued)

The following paragraphs give the repair work in detail:

5TH LEVEL:
Ten sets of timber were installed in the main haulage drift that has to be kept open in order to bring in timber and other supplies when mining is resumed.

6TH LEVEL:
One raise from the 6th to the 5th Level was repaired, new cribbing being put in, new chute built and new ladders installed. This raise was put up twelve years ago and the cribbing was practically all gone due to dry rot. If the mine re-opens, several more of the old raises on the 6th Level will have to be repaired. Due to the uncertainty connected with the future plans for the mine, it was decided to postpone this work until a decision had been reached. During the year there were eighteen sets of timber installed in the main level drift.

3RD SUB ABOVE 8TH LEVEL:
An auxiliary traveling road, independent of the shaft, has been kept open during the time the mine has been idle. This traveling road passes through drifts on this sub-level, from which point it is connected by raises to the 9th and 7th Levels. During the year it was necessary to install forty-six sets of timber to keep the traveling road open on this sub-level.

4TH SUB ABOVE 8TH LEVEL:
There were two sets of timber installed on this sub-level early in the year.

8TH LEVEL:
There were six sets of timber installed on the main 8th Level at the top of a raise from the 9th Level. This raise is part of the auxiliary traveling road that has been kept open so that in case of accident to the power lines, the men working underground could climb part way to surface independent of the shaft.

3RD SUB BELOW 8TH LEVEL:
There were five sets of timber installed on this sub-level during the year.

9TH LEVEL:
Two of the raises extending from the 9th Level to the 3rd sub below the 8th Level were repaired and new cribbing installed. One raise from the 9th to the 8th Level was repaired. There were ten sets of timber installed in the main haulage drifts on the 9th Level.

SUBS BELOW 9TH LEVEL:
There were five sets of timber installed near the top of raises of two of these sub-levels. Mining was in progress here when the mine closed. These sub-levels have been kept open and mining can be resumed immediately on re-opening the mine.

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7. UNDERGROUND:
(Continued)

10TH LEVEL:

There were fifty nine sets of timber installed in the main haulage drifts on the 10th Level and new cribbing installed in four raises. These raises were also lined with 2" hardwood plank.

SUBS BELOW 10TH LEVEL:

There were fifty nine sets of timber installed in the four sub-levels that had been opened between the 10th and 11th Levels.

11TH LEVEL:

The main haulage drift was kept in repair, a total of forty-one sets of timber were installed here during the year.

e. Drifting and Raising:

Year	Ore Drifting	Rock Drifting
1926	70 ft.	175 ft.
1925	--	--

During the greater part of the past year it has been assumed that the Gwinn Mine would re-open in 1927. The general lay-out of drifts and raises with respect to the ore bodies were given careful consideration to determine if they were located so that scraper outfits could be used to advantage. The present drifts on several of the levels are not located so that scrapers can be used to the best advantage. This is particularly true of the 11th Level where the main haulage drift had been located under what was assumed to be the center of the ore body. The raises, however, disclosed the fact that most of the ore over the drift was lean and high in Phosphorus. Good grade ore was found near the footwall some distance away from the raises. Due to the fact that the raises are not located directly in the ore body they are practically useless for mining with scraper outfits. For the above reason it was decided to drive a new footwall drift on the 11th Level so that the ore could be mined with scraper outfits. During the past year a drift was driven a distance of 175 feet in the footwall. This work was done by the repair crew when they were not required elsewhere in the mine for retimbering work. By doing this work while the mine was idle, the delay would be avoided that would occur if this work was undertaken after the mine re-opened.

During the year a drift was driven a distance of 70 feet in ore on the 3rd sub above the 8th Level. This drift provided a timber road and outlet from the West end of this sub-level. Mining was in progress here when the mine closed and there was still considerable ore left. The old stopes and drifts caved and it was considered cheaper to drive a new drift than to repair the old drift.

i. Ventilation:

The Gwinn Mine has had only one outlet since the Francis was abandoned, and ventilation, particularly in an idle mine with only one outlet, is impossible in warm weather. Conditions became so bad shortly after the Francis closed that it was impossible for the repair crews to work underground; also the timber was rotting very rapidly due to the stagnant air. Authority was obtained for installing a ventilating system in the mine, which was done in 1923 and 1924. The cage compartment of the shaft was made practically

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7. UNDERGROUND:
(Continued)

i. Ventilation: (Continued)
air-tight by guniting from the collar to the 11th Level, ventilating doors were installed on all the levels from the 11th to the 4th and a 40,000 cu. ft., fan installed on the 11th Level. Since the fan was installed the air in the mine has been good. The fan has been operated continuously during the warm weather; in the cold weather it is operated intermittently, being used mainly to reverse the current and keep ice out of the shaft. During the past year two motors were burned out on the fan, one due to breaking down of the insulation on the coils, the other to lightning that jumped the arrester and entered the mine via the electric cable. As a consequence of these accidents, the fan was not operated as much in 1926 as in the previous year. In each case another motor was obtained as soon as possible, but there was always some delay before it was installed.

8. COST OF OPERATING:

a. Comparative Mining Costs:

	1926	1925	INCREASE	DECREASE
PRODUCT	0	0		
Underground Costs,	23,076.19	24,315.39		1,239.20
Surface Costs,	4,806.51	5,775.75		969.24
General Mine Accounts,	5,474.65	6,329.63		854.98
Cost of Production,	33,357.35	36,420.77		3,063.42
Plant Account,		121.54		121.54
Taxes,	8,276.97	8,349.71		72.74
Central Office,	8,849.70	8,483.16	366.54	
Contingent Expense,	1,596.77	1,697.50		100.73
Cost Adjustment,	12.35	.42		12.77
Cost on Stockpile,	52,068.44	55,073.10		3,004.66
Loading & Shipping,	--	255.23		255.23
Total Cost on Cars,	52,068.44	55,328.33		3,259.89
No. Days Operated,	--	--		
No.Shifts & Hours,	--	--		
Avg. Daily Product,	--	--		
COST OF PRODUCTION:				
LABOR:				
Undgr. Costs,	12,026.01	12,754.87		728.86
Surface Costs,	3,739.64	3,977.95		238.31
Gen'l. Mine Accts.	4,460.05	4,881.34		421.29
SUPPLIES:				
Undgr. Costs,	11,050.18	11,560.52		510.34
Surface Costs,	1,066.87	1,797.80		730.93
Gen'l. Mine Accts.	1,014.60	1,448.29		433.69
COST OF PRODUCTION:				
Labor,	20,225.70	21,614.16		1,388.46
Supplies,	13,131.65	14,806.61		1,674.96
Total,	33,357.35	36,420.77		3,063.42

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8. COST OF OPERATING:

b. Detailed Cost Comparison:

	1926	1925	Increase	Decrease
UNDERGROUND COSTS:				
Timbering,	10,573.75	10,000.01	573.74	
Ventilation,	1,032.49	1,445.57		413.08
Pumping,	7,597.84	8,454.32		856.48
Compr. & Air Pipes,	931.62	710.83	220.79	
Undgr. Superintendence,	2,304.00	2,304.00		
Compr. & Pwr. Drills,	--	135.47		135.47
Elec. Tram Equipment,	502.87	738.54		235.67
Pumping Machinery,	133.62	526.65		393.03
Total,	23,076.19	24,315.39		1,239.20

Five accounts show decreases and two increases, making a net decrease of $1,239.20 for the year. Timbering increased account ladders and 2" hardwood plank for lining raises. Ventilation decreased account of motors on fan burning out twice during the year, causing fan to be idle. Pumping cost decreased due to less labor required and less current used account less water pumped. Expense for overhauling underground locomotives is lower in 1926; also less repairs required by pumps. Compressors and Air Pipe expense increased account of putting up air lines that had to be dismantled to repair timber.

SURFACE COSTS:				
Hoisting,	1,915.65	1,833.51	82.14	
Stocking Ore,	378.39	1,718.87		1,340.48
Dry House,	493.68	531.56		37.88
Gen'l. Surf. Expense,	1,517.93	1,487.04	30.89	
Hoisting Equipment,	472.75	170.22	302.53	
Top Tram Equipment,	--	4.85		4.85
Mine Buildings,	28.11	29.70		1.59
Total,	4,806.51	5,775.75		769.24

The decrease is due to extensive repairs made to the permanent trestles in 1925, when new plank floors were installed. Expense for hoisting equipment increased due to installing secondary panel from Francis Mine on cage hoist to replace old one that was causing continual trouble.

GENERAL MINE ACCOUNTS:				
Insurance,	227.52	92.50	135.02	
Engineering,	254.95	392.82		137.87
Analysis,	43.39	128.16		84.77
Pers. Injury Expense,	59.60	187.53		127.93
Tel. & Safety Devices,	5.34	19.87		14.53
Local Gen'l. Welfare,	1,098.13	1,154.68		56.55
Mine Office,	441.89	560.80		118.91
District Office,	3,343.83	3,793.27		449.44
Total,	5,474.65	6,329.63		854.98

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

GENERAL MINE ACCOUNTS: (Continued)

A decrease in expense is shown in seven of the eight accounts. Insurance expense increased due to placing insurance on several storage sheds and contents, that had been overlooked in previous years. Engineering expense decreased due to less charges to Gwinn Mine account of the Austin Mine re-opening. Analysis expense decreased account no ore shipped in 1926. Personal Injury expense decreased due to only 8-1/2 days lost account accident in 1926 as compared with 58 days lost account accident in 1925. Mine Office expense decreased account less charges for clerk's time and District Office expense account Austin Mine absorbing more expense in 1926, also operating cost lower.

10. TAXES:

	1926		1925	
Description:	VALUATION	TAXES	VALUATION	TAXES
153.37 Acres in Sec. 28-45-25	276,000	7,908.52	276,500	7,882.20
Personal Property,	10,000	286.50	13,500	384.84
Total,	286,000	8,195.02	290,000	8,267.04
Collection Fees,		81.95		82.67
Total Taxes,		8,276.97		8,349.71

As there is practically no ore in stock, the ore in the mine (real estate) is the main item taxed at this property. Efforts to obtain a reduction in valuation were unsuccessful.

13. EQUIPMENT AND PROPOSED EQUIPMENT:

b. Stockpile Trestle:

The permanent trestles at the Gwinn Mine were overhauled in 1925. There is a short piece of portable trestle on the stocking ground West of the shaft where Gwinnport ore is stocked. There are no other stocking trestles at the mine, and if it should develop that the mine is to be re-opened in 1927, it will be necessary to purchase material and erect trestles on both the East and West stockpile ground.

d. Scraper Outfits:

If the mine is to be re-opened, considerable expense can be saved if the time of re-opening is set to follow the closing of the Stephenson Mine. This will release sufficient scraper outfits to equip the Gwinn Mine. As these have already been charged out they can be obtained without any expense. It is estimated that the saving for this item of equipment alone will amount to at least $20,000.00.

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1. GENERAL:

The Austin Mine had to be reopened in 1926 in order to complete mining before the expiration of the agreement made on June 15th, 1922, which extended the guaranty period to November 26th, 1927. Orders to reopen were received in March and a small crew started on March 15th repairing and widening the 2nd Level haulage drift for installation of electric haulage. This work was completed the last of April, during which month all necessary preparations were made on surface to handle ore, send down timber, etc.

The mine started on an operating basis May 3rd and worked five days per week for the balance of the year.

The ore in the mine consisted of that portion of No. 1 shaft pillar that had not been mined, extending from the 3rd Level to the top of the ore body above the 1st Level. It was estimated that there was 89,888 tons remaining in the mine with a possibility of 100,000 tons. The product in 1926 was 50,118 tons and at the end of the year it was estimated that there was 55,940 tons (Tax Commission figures) remaining in the mine. In the estimate of production for 1927, it was assumed that there was a possibility of between 60,000 and 70,000 tons in the mine, of which 60,000 tons can probably be mined at a profit. This assures a life of from six to eight months in 1927.

Due to installation of electric haulage on the 2nd Level and purchase of rocker-dump cars for this level, tramming costs have been reduced as compared with previous years. Six scraper outfits were purchased and have been in use since the mine re-opened, they have increased the output and decreased the cost of production. Ventilation is above the average; this has resulted in an increased output by the miners. The surface crew is small, due to efficient arrangements for handling the product. There was also a comparatively small amount of development work in ore and rock necessary during the year. The combination of these factors resulted in a good output in tons per man per day and a low cost of production.

In order to provide working places for sufficient gangs to maintain a product of 300 tons or more per day, it was necessary to divide the ore body into blocks and start mining at several different elevations in the shaft pillar. The ore was mined under the hanging at the predetermined top of the block at which point either one or two drifts would be driven, depending on the dip of the hanging. On the next sub-level more ore could be mined and when the 2nd sub-level was reached all the ore from the foot to the hanging could be removed without undercutting the ore pillar that had been left above the block. In other words, the ore was removed in each block so as to leave the face of the pillar above on an angle of 60^{0}. This prevented any loss from ore caving to form the matte above the mined area. Under this plan of work, the shaft pillar was divided into three blocks as follows: East side of pillar on 2nd Level, West side of pillar above 2nd Level and West side of pillar on the 2nd Level. In addition to these three areas, mining from the top of the ore body downwards has provided two additional areas, making five in all.

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2. PRODUCTION, SHIPMENTS & INVENTORIES:

a. Production by Grades:

Austin Bessemer,	4,047 tons
Austinport,	46,071 "
Total Ore,	50,118 "
Rock,	3,371 "

The product averaged 6264.5 tons per month for the eight months the mine operated in 1926. The product of Bessemer ore was lower than had been anticipated; it amounted to only 8% of the product. In former years it averaged much higher and it was expected that this higher ratio would continue during the balance of the life of the mine. There was actually much less ore of Bessemer grade produced in 1926, due to increase of Phosphorus in the ore mined account of flat footwall in the shaft pillar. Due to the high Phosphorus content of the Austinport ore, it was necessary to mix in the low Phosphorus or Bessemer ore to reduce the Phosphorus content.

b. Shipments:

Grade of Ore:	Pocket Tons	Total Tons
Bessemer,	3,804	3,804
Austinport,	22,760	22,760
Total,	26,564	26,564

The stocking ground at the mine is quite limited so that in order to have ground available for the winter of 1926-1927, it was necessary to ship as much ore as possible in 1926. The Phosphorus in the Austinport ore shipped was quite high, making it undesirable from this standpoint, but the high iron more than offset this on account of the low iron content of some of the other ores used in the mixture.

c. Stockpile Inventories:

Austinport,	64,115 tons.
Austinwood,	2,672 "
Total,	66,787

Due to pocket shipments being completed in September, the stocking situation will become a serious problem by the time the shipping season opens in 1927. The area is limited and the only solution is to raise the trestle and increase the capacity vertically, as it cannot be increased horizontally.

d. Division of Product by Levels:

The ore hoisted from the various levels was as follows:

Second Level,	37,542 tons
Third Level,	12,576 "
Total,	50,118

The 1st Level of No. 1 Shaft does not connect with No. 2 Shaft and the ore from this territory is handled on the 2nd Level.

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2. PRODUCTION, SHIPMENTS & INVENTORIES: (Continued)

e. Production by months:

Month	Austin Bessemer	Austin port.	Total	Rock
March,				* 352
April,				* 284
May,		2,585	2,585	484
June,	49	6,286	6,335	280
July,	3,273	3,703	6,976	350
August,	612	5,125	5,737	696
September,	113	6,857	6,970	236
October,		6,259	6,259	298
November,		7,147	7,147	128
December,		8,109	8,109	263
Total,	4,047	46,071	50,118	3,371

* Rock hoisted in March and April came from work done in preparation for reopening the mine.

f. Ore Statement:

	Austin Bessemer	Austin-port	Austin-wood	Total	Total Last Year.
On Hand Jan.1,1926	356	40,205	2,672	43,233	43,233
Output for Year	4,047	46,071	--	50,118	--
Transferred	599	599	--	--	--
Total,	3,804	86,875	2,672	93,351	43,233
Shipments	3,804	22,760	--	26,564	--
Balance on Hand	--	64,115	2,672	66,787	43,233
Increase in Output,				50,118	
Increase in Ore on Hand				23,554	

1926 - Mine idle Jan. 1st to May 3rd.
1 - 8-hr. Shift, five days per week, May 3rd to Dec.31st.

1925 - Mine idle during year.

g. Delays:

There were a total of five delays on account of accidents to the hoist, causing a loss of product of 210 tons. The hoist was idle a total of 7 hrs. 20 min. There was a delay underground, causing a loss of product of 64 tons due to the motor on the haulage locomotive being out of order for 4 hours during which time tramming was done by hand.

Detail of Delays as follows:

Date	Duration	Loss of Product	Cause.
May 25th.	2 hrs.20 min.	60 tons	Broken primary fingers on controller of hoist.
July 21st.	1 " 15 "	50 "	Trouble with bearing on hoist.
" 29th.	1 " 30 "	40 "	" " "
Aug. 6th.	1 "	20 "	Bolt in engine shaft broken.
" 12th.	1 " 15 "	40 "	Trouble with bearing on hoist.
" 18th.	4 "	64 "	Underground haulage motor out of order. Tramming by hand.

The bearings on the hoist caused trouble on three different occasions, due to the babbit working loose in the bearing. New bearings were installed as soon as a set could be found that would fit the shaft.

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2. PRODUCTION, SHIPMENTS & INVENTORIES: (Continued)

h. Delays from Lack of Current:
None in 1926.

3. ANALYSIS:

a. Average Mine Analysis on Output:

Grade	Iron	Phos.	Silica	Mang.
Austin Bessemer,	63.93	.033	5.81	.340
Austinport,	61.72	.372	5.57	.312

b. Average Analysis on Straight Cargoes:

Grade	Iron	Phos.	Silica	Mang.
Austin Bessemer,		(All Mixed)		
Austinport,		(All Mixed)		

c. High Sulphur Ore:

Ore running 3% in Phosphorus and .600 in Sulphur was encountered at one place on the 5th sub above the 1st Level, near the top of the ore body. Work in this area was stopped immediately, since which time there has been no further trouble from high Sulphur ore.

4. ESTIMATE OF ORE RESERVES:

a. Developed Ore:
Assumption: 12 cu. ft. equals one ton.
10% Deduction for rock
10% Deduction for Loss in Mining.

	Bessemer	Austinport	Total	
1st Level,	0	1,033	1,033	tons.
2nd Level and above,	1,500	27,335	28,835	"
Above 3rd Level,	1,500	24,572	26,072	"
Total,	3,000	52,940	55,940	"

c. Estimated Analysis:

	Iron.	Phos.	Sil.	Alum.	Mang.	Lime	Mag.	Sul.	Ign.	Moist.
Austin Bessemer.										
Dried 212°	63.00	.041	5.82	.692	.323	.915	.300	.016	.994	
Natural	53.55	.035	4.94	.589	.275	.778	.255	.014	.845	15.00
Austinport:										
Dried 212°	62.55	.400	5.27	1.306	.311	1.700	.341	.023	1.030	
Natural	53.17	.340	4.49	1.110	.265	1.445	.290	.020	.880	15.00

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4. ESTIMATE OF ORE RESERVES: (Continued)

f. Estimated Tonnage as required by Tax Commission:

Non-Bessemer Ore:			
Developed:	1. Bessemer,	3,000	tons
	2. Austinport,	52,940	"
	Total,	55,940	"

The last previous estimate made in 1923 showed 89,888 tons in the mine, 42,012 tons Bessemer, 10,503 tons Austin, or off-grade Bessemer and 37,373 tons, Austinport. The product in 1926 was 50,118 tons which ran 8% Bessemer and 92% Austinport. The estimate on December 31st, 1926, showed 55,940 tons, of which, it is estimated, only 5 to 6% will be of Bessemer grade. This radical change in grade was made necessary as the result of the grade of the ore produced this year, The grade of the product mined in previous years outside of the shaft pillar did not prove indicative of the grade in the shaft pillar. The footwall in part of the shaft pillar is quite flat, in these areas the Phosphorus runs from .200 to 2% depending on the distance from the footwall. An effort is made to leave from 1 to 2 feet of ore directly on the foot, but this is not always possible. A few gangs are always working near the footwall where the ore is very likely to run high in Phosphorus. In order to avoid raising the Phosphorus in the Austinport to a figure that would give a product between .450 and .600, an unsalable grade, all the ore is mixed to make one grade running about .350 in Phosphorus. In July, when most of the Bessemer ore produced in 1926 was hoisted, it happened that over half of the contracts were producing high grade Bessemer ore, while the balance were in ore averaging about .350 Phosphorus. Under these conditions it was possible to make a Bessemer product. It is assumed that it is possible for these conditions to be duplicated in 1927. The limited stocking grounds makes it impossible to stock two grades of ore so that this also had to be considered in making the estimate by grades for 1927. After shipping starts in May, 1927, there will be at least three months in which to hoist Bessemer ore, if conditions warrant.

In the estimate of production for 1927, made early in December, it was estimated that there was from 60,000 to 70,000 tons of ore in the mine, of which, it was assumed, 60,000 tons could be mined at a profit. The tonnage figures used in the estimate of production for 1927 allows for the ore that will be developed in 1927 and is only made in the last year of the life of a mine, for in all other years the product is always less than the ore estimated to be in the mine.

If the ore hoisted in 1926 be added to the estimate of December 31st, 1926, and the estimate of ore in the mine when work started last spring, then subtracted, it gives a figure of 16,170 tons which represents the ore developed in 1926.

Assuming that only 10,000 tons are developed during the remaining life of the mine, adding this amount to the estimate of developed ore, makes a total of 65,000 tons as the available ore in the mine.

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5. LABOR AND WAGES:

a. Comments:

Surface labor was recruited from men employed elsewhere in the district. There has been an excess of this class of labor since 1921 when a number of the mines were closed. When news of the reopening of the mine became gradually known, quite a few of the old employes came back, the balance of the underground men were transferred from the Stephenson Mine. The average number of men employed during the year was only 51, a comparatively small crew for a mine that produced 50,118 tons in eight months. The average tons per man per day was lowered considerably on account of labor employed underground and surface in the months of March and April, preparing for reopening. The best results in tons per man per day were obtained in December, when operating conditions were exceptionally good; the figures were as follows: Surface, 40.95 - Underground, 9.12 - Total, 7.46.

The wages paid the miners were comparatively high, but were justified by the tons per man per day stoping and cost per ton stoping. The proportion surface to underground men is low due to surface labor employed before the mine re-opened the first four months of the year unloading timber, lagging, etc., and preparing for re-opening.

Month:	Days Worked Surface	Days Worked Underground	Men Surface	Men Underground	Total Men
January,	48¼	6½	2	0	2
February,	62	6½	3	0	3
March,	142½	102½	5	6	11
April,	274 3/4	188	12	9	21
May,	319 3/4	737½	12	35	47
June,	283½	931½	12	42	54
July,	279	913¼	12	41	53
August,	297¼	870¼	12	39	51
September,	295¼	855 3/4	12	39	51
October,	281 3/4	806	12	37	49
November,	255	832	11	38	49
December,	230½	907½	10	42	52

The days worked are shown in the above statement to more clearly bring out the expense incurred prior to the re-opening of the mine on May 3rd.

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5. LABOR AND WAGES:

b. Comparative Statement of Wages and Product:

	1926	1925	INCREASE	DECREASE
PRODUCT	50,118	Mine idle.	50,118	
No.Shifts and Hours,	1, 8-hr.	" "		
AVG.NO. MEN WORKING:				
Surface,	11	1	10	
Underground,	40	-	40	
Total,	51	1	50	
AVG.WAGES PER DAY:				
Surface,	4.46	4.13	.33	
Underground,	5.21	7.19		1.98
Total,	5.00	4.67	.33	
* WAGES PER MO. OF 25 DAYS:				
Surface,	111.50	103.25	8.25	
Underground,	130.25	179.75		49.50
Total,	125.00	116.75	8.25	
PRODUCT PER MAN PER DAY:				
Surface,	18.09	--		
Underground,	7.00	--		
Total,	5.04	--		
LABOR COST PER TON:				
Surface,	.247	--		
Underground,	.745	--		
Total,	.992	--		
AVG.PRODUCT BREAKING & TRMG:	11.06			
" WAGES CONTRACT MINERS:	5.46			
" " " LABOR (Trammers)	5.17			
TOTAL NO. OF DAYS:				
Surface,	2,769½	390¼	2,379¼	
Underground,	7,157¼	84	7,073¼	
Total,	9,926 3/4	474¼	9,452½	
AMOUNT FOR LABOR:				
Surface,	12,356.13	1,614.59	10,741.54	
Underground,	37,353.36	603.90	36,749.46	
Total,	49,709.49	2,218.49	47,491.00	

Mine operated 1, 8-hour shift, five days per week,
May 3rd to December 31st.
Mine idle Jan. 1st to December 31st, 1925.

Proportion Surface to Underground Men:
1926 - 1 to 3.64
1925 - 1 to 0
1924 - 1 to 0
1923 - 1 to 2.52
1922 - 1 to 3.30

* Mine operated twenty-two days per month during year.

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6. SURFACE:

a. Buildings, etc:

No. 1 Shaft Head-frame:

In April, a small head-frame was erected at No.1 Shaft over the cage compartment. It was about 24 feet in height, which gave the necessary head room for handling a light timber cage. An air hoist, formerly used at the Gwinn Mine, was moved to the Austin, set up on a timber foundation and a rough board shanty built to house it. All mine timber and other supplies have been sent down No. 1 Shaft. In August, the ground started to work on the 1st Level and sub-levels above, and a little later cracks appeared on surface. The ground settled over quite an area and although there had been no ore mined within a hundred feet of No. 1 Shaft, it started to move to the East. No decided change in these conditions occurred during the balance of the year, but settlement continued with an average drop of nearly 3 feet in the level of the ground near the shaft. Although the shaft was somewhat out of line, it was possible to continue to use it by occasionally trimming the side timbers and the runners. Preparations were completed in September for handling supplies at No. 2 Shaft in case it became necessary to abandon No.1 Shaft. A light cage was built to run on the incline (No.2 Shaft inclines on an angle of 72°) and provision made for hanging it directly under the skip. An overhead trolley was built and a chain block attached, so that the cage could be quickly moved in or out of the shaft. When No.1 Shaft has to be abandoned it is planned to send down timber, lagging, etc., on Saturday, when the mine is idle, on the cage at No.2 Shaft. It is planned to have the men who send down supplies on Saturday stay at home on Monday so as to keep them on a five-day basis.

No. 2 Shaft Head-frame:

In order to reduce surface expense it was decided to install the top tram equipment in the base of the shaft house. The top tram engineer could then handle the top tram car, oversee the dumping of the skip and sample the ore. By this arrangement, one less man is required to handle the product on surface. In order to make the base of the shaft house fire-proof, necessary on account of housing electric equipment, also to make it warmer during the winter, it was boarded up, metal lath put on and gunited. On the East side towards the stockpile and railroad loading pocket, an entry was built with doors so that the shaft house could be closed when the mine was idle.

The underground men change at the Stephenson dry, which is about 3/8 of a mile from No.2 Shaft. They come to surface at noon and during the warm weather eat their lunches near the shaft. When cold weather came they had to walk across to the Stephenson dry. This shortened the noon hour and exposed them on the two trips. It was decided to build a shanty large enough to shelter the men, and install a stove to heat it. The shanty was built of rough hemlock lumber and covered with roofing paper. It provides a warm shelter for the men to use at noon.

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6. SURFACE:

b. Stockpiles:

In order to increase the stockpile capacity, nine bents of the trestle were raised five feet on blocking. This increase of height made it necessary to lay additional sollar plank on the sides of the stocking ground. Some leveling of the ground along the sides was necessary before the plank could be laid. One inch hemlock plank was used as a sollar, as the stockpile grounds will not be used again and it was only necessary to provide a separating medium between the ore and the sand.

7. UNDERGROUND:

a. No.1 Shaft, Repairs:

This shaft was in bad condition from surface down to the ledge where the close timber had rotted. New timber was installed in April, in the cage compartment and half of the ladder road and props put in to hold the old timber on the other side. This shaft has been used since the mine re-opened to lower timber and supplies. At the end of the year it was in bad condition due to being pulled out of line by caving ground 100 feet to the East.

b. Development:

The work done during the past year is described under this heading. During the year work has been done on the following sub-levels and main levels:

5th, 4th, 2nd and 1st Subs above 1st Level.
1st Level.
1st, 2nd, 3rd and 4th Subs below 1st Level.
2nd Level.
1st, 2nd and 4th Subs below 2nd Level.
3rd Level.

The work of 1926 covers practically every sub-level and level left unmined in the shaft pillar. The wide spread in operations was due to mining the shaft pillar in a number of sections or blocks.

5TH SUB ABOVE 1ST LEVEL:

Explorations in 1923, the last year that the mine operated, showed that the ore body extended above the 1st Level in the shaft pillar further than in the old workings. The top of the ore body was only a short distance below surface. The top, or 6th Sub above the 1st Level, was opened and mined, and the next sub, or the 5th above the 1st Level, was developed by several drifts from two raises. Mining was started on this sub-level in May, 1926, and was completed in September. Scrapers were used in mining the ore which went through raises to the 1st Level, where it was trammed by hand to a transfer raise and sent to the 2nd Level from which point it was trammed by electric haulage to No.2 Shaft. At one point on this sub-level ore running over 3% in Phosphorus and .600 in Sulphur was encountered near the footwall, and mining was immediately stopped in this territory. The Phosphorus and Sulphur was found in white seams, 1/2 to 1" in thickness in the ore. After this was determined, a careful watch was kept for these seams and whereever they were encountered, work was immediately stopped. It is estimated that at least 1,000 tons of ore was left on this sub-level on account of the high Phosphorus and Sulphur.

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7. UNDERGROUND:
(Continued)

b. Development: (Continued)

4TH SUB ABOVE 1ST LEVEL:

It had been expected that an area corresponding with the sub above would be found on this sub-level. Development work was started in July, but ore running over 3% in Phosphorus, showing the same white seams, was found near the raise. This reduced the area that could be mined near the footwall, and later it was found that there was no ore at the South-east end of the sub-level. The area of the ore body on this sub level was only 80' x 25'; mining was completed here in October. The sub immediately below had been mined out several years ago so that this completed the mining of the balance of ore near the top of the shaft pillar above the 1st Level.

2ND SUB ABOVE 1ST LEVEL:

When the mine re-opened in May, work was resumed on this sub-level and after the drift at the top of the raise was repaired, the balance of the ore left on this sub-level was mined; it consisted of two slices under the hanging at the South-east limit of the shaft pillar. All other ore on this sub-level was mined in previous years.

1ST SUB ABOVE 1ST LEVEL:

On re-opening the mine in May, work was resumed on this sub-level and mining was completed in July. There was only a small amount of ore left directly above the 1st Level under the hanging, the area mined being 75 feet in length by 10 feet in width.

1ST LEVEL:

Work was started on this level in June. A triangle of ore left on the footwall near the South-east end of the shaft pillar was mined. It was adjacent to an old square set room that had been opened many years ago on the foot above the 1st Level. The triangle of ore left here was approximately 35 feet in length by 30 feet in width on the incline of the footwall.

Two raises from the 2nd Level were holed to the 1st Level, both these raises were located on the hanging side of the pillar. Slicing of the pillar was started in August and was practically completed in December. The area mined was 115 feet in length with an average width of 60 feet; this comprised practically the full floor area of the shaft pillar on this level. Scrapers were used by the two gangs working here.

The 1st Level haulage drift from No.1 Shaft caved in August, up to which time timber had been trammed in from No.1 Shaft. After the cave it was necessary to hoist all timber and supplies from the 2nd Level.

When mining was completed on the subs above the 1st, it was no longer necessary to tram on this level. The trammers who had been employed here, transferring the ore to a raise from the 2nd Level, were discharged. The ore mined in the shaft pillar on the main level was, as stated before, handled with scrapers directly to raises connecting with the main haulage drift on the 2nd Level.

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7. UNDERGROUND:
(Continued)

b. Development: (Continued)

1ST SUB BELOW 1ST LEVEL:

The ore in the shaft pillar North-west of No.1 Shaft does not extend to the 1st Level. The formation on the 1st sub below is a rich jasper or Silicious ore, running from 35% to 50% Iron. At one point in the silicious ore there was a seam of good ore, and this was followed by a drift back towards the foot. It was hoped that this seam would lead into a trough of ore that might be found along the footwall back of the silicious ore. After advancing 40 feet, jasper was encountered in the breast of the drift and it was necessary to abandon further work at this point.

When mining was completed in July at the South-east end of the shaft pillar on the 1st Level, the gang employed here moved down to this sub-level and started mining. At the end of the year they had taken out an area 90 feet long by 35 feet wide. The ore here was considerably narrower than had been expected. Part of the ore on the hanging side had been mined many years ago so that practically the only ore left in this section was on the footwall.

2ND SUB BELOW 1ST LEVEL:

Part of the ore in the shaft pillar at the elevation of this sub-level was mined many years ago. The balance of the sub-level was developed and the ore left in pillars. There was a narrow pillar left almost directly behind No.1 Shaft, which was opened from a raise in August and work continued at this point for the balance of the year. The formation which had been a silicious ore on the subs above was found enriched at this elevation and a considerable area of ore has been developed on the footwall on this sub-level. When work started here it was expected that the pillar to be mined was only 50 feet long by 15 feet wide. After drifting through the old pillar, ore was found to continue back on the foot and, up to the end of the year an entirely new area 45 feet wide by 50 feet in length had been developed and mined. Ore was still being mined here at the end of the year, but work will soon have to be stopped to avoid undercutting the ore on the sub-level above.

3RD SUB BELOW 1ST LEVEL:

When the mine re-opened, the old raises on the footwall were repaired, also the old drifts on this sub-level. The footwall part of the pillar North-west of No.1 Shaft had been mined in 1923. Mining was started here in May and completed in September. An area 50 feet by 70 feet was mined by one contract, and another pillar, 80 feet by 35 feet, by another contract. This finished mining of the shaft pillar North-west of No.1 Shaft. The ore body extends the full length of the shaft pillar on this sub-level and practically all the area mined was directly under the silicious ore referred to in previous paragraphs.

At the South-east end of the shaft pillar one drift was driven along the hanging a distance of 65 feet, in connection with the work of mining a block or section from the 2nd Level.

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7. UNDERGROUND:
(Continued)

b. Development: (Continued)

4TH SUB BELOW 1ST LEVEL:

Work started on this sub-level when the mine re-opened at the extreme North-west end of the shaft pillar near the old workings. Some ore was found here that had been left near the hanging outside of the shaft pillar. A drift from this raise was also extended back towards the foot in the main shaft pillar to cut off some water that came in through a cave to surface in the old workings.

When mining was completed on the 3rd sub below the 1st, in the block North-west of No. 1 Shaft, one of the contracts dropped down and at the end of the year had removed a section 70 feet by 35 feet in the shaft pillar North-west of No. 1 Shaft.

In connection with the mining of the block or section on the 2nd Level, South-east of No. 1 Shaft, the ore under the hanging was mined on this sub-level for a distance of 160 feet, the full length of the shaft pillar. This ore was removed on account of mining the section of the shaft pillar lying South-east of No.1 Shaft on the 2nd Level.

2ND LEVEL:

A small crew of men started to work on the 2nd Level about the middle of March, preparing this level for motor haulage. The drift near No. 2 Shaft was widened for double track for a distance of 70 feet, and a tail drift driven beyond the shaft a distance of 25 feet. The loading pocket at No.2 Shaft was torn out and made deeper and larger on account of the decision to use rocker-dump cars on this level. The tracks were thoroughly overhauled, trolley wire installed and also several raises started in the foot-wall drift so as not to interfere with the trolley wire. A motor was taken underground, also the cars and all preparations completed for haulage by the time the mine opened on May 3rd.

During the year, four raises were put up in the footwall drift to the elevation of the 1st Level, one raise to the 3rd sub below the 1st and one to the 4th sub below the 1st. Two sections of the footwall haulage drift, which was in rock, were extended during the year. One of these extensions was for a distance of 35 feet to make room for another raise near the South-east end of the shaft pillar. The other extension was started in December, in which month the drift advanced 17 feet. This extension will be about 35 feet in length, and is being driven for the purpose of putting up a raise to the 3rd sub below the 1st for mining the ore in the shaft pillar. Due to the flat footwall from the 1st to the 2nd Level, the other raises located further back in the foot will be too far from the ore on the 3rd sub level.

When the mine re-opened, the footwall drift in ore was extended and connected to an old crosscut from No.1 Shaft. Mining of the South-east end of the shaft pillar was then started and a section 80 feet by 50 feet mined. The ore here was loaded on an incline by a scraper directly into haulage cars. On completion of the mining of this section, mining was started on subs below the 2nd.

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7. UNDERGROUND:
(Continued)

b. Development:

2ND LEVEL: (Continued)

In September, mining of the North-west end of the shaft pillar under the hanging was started and by the end of the year an area 80 feet long by 40 feet wide had been removed. Mining here is approaching No. 1 Shaft, from which it is now only 30 feet distant, and it is expected that the work being done here will cause the shaft to cave within a short time and make it impossible to send timber down. The mining of the section North-west of the shaft, under the hanging, made it possible to start mining on the sub-levels below on account of the flat footwall, and this rendered available another block or section which is now being mined out between the 2nd and 3rd Levels.

1ST SUB BELOW 2ND LEVEL:

On re-opening the mine, work was started on this sub-level near the South-east end of the shaft pillar. There was a section of the pillar that had been mined in 1923 on the 2nd Level, and work was started under this section. Mining was continued here throughout the year and an area 140 feet in length by 80 feet in width mined out.

At the North-west end of the shaft pillar the old drifts on this sub-level were repaired, and a section was being mined here at the end of the year. This section has already been mined on the 2nd Level, under the hanging.

2ND SUB BELOW 2ND LEVEL:

The work of opening this sub-level at the South-east end of the shaft pillar was started in December. At the end of the year a drift had been driven a distance of 50 feet from the raise where the footwall was encountered and mining started following the foot to take out the triangle of ore left here between this sub and the sub above. This sub-level should prove one of the best that will be available, as it has only a few old drifts driven in the pillar. Practically all of the various sub-levels in the shaft pillar were more or less cut up by development drifts when the mine operated in previous years. As most of these old drifts have caved, they cause considerable expense and delay while drifts are driven across them, as it is necessary to use fore-poles.

4TH SUB BELOW 2ND LEVEL:

Some ore has been mined on this sub-level at a point 480 feet South-east of No. 1 Shaft in the old workings. When the mine closed in 1923 mining was in progress here, as some ore had been found lying on the footwall which had not previously been mined. Work started at this point in June and was completed in July. The gang was then moved back in the old workings to a point 260 feet South-east of No.1 Shaft, at which point they put up a raise and started drifting through caved ground. They worked here for nearly the balance of the year, scramming ore left from mining work of nearly twenty years ago. The last of the year they found a small pillar left in the old workings near the limit of mining, which they are now taking out. As all the ore they have mined was found outside the shaft pillar, it constitutes ore which was not covered by estimates and can, therefore, be termed "newly developed ore".

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7. UNDERGROUND:
(Continued)

b. Development: (Continued)

3RD LEVEL:

The 3rd Level was cleaned up when the mine re-opened and tracks overhauled. In June, a rock raise was put up in the footwall drift South-east of No. 1 Shaft, to the 1st sub below the 2nd. Another raise was put up outside the shaft pillar in the old workings to the 4th sub below the 2nd, where considerable ore has been found in the old workings. The latter part of July a gang started cleaning up a haulage drift in the old workings West of No. 1 Shaft. A footwall drift had been driven here in 1923, as it was rumored that several pillars had been left near the footwall in the old workings at a point about 550 feet West of the shaft. No pillars were found, however, and it was decided to come back in this drift to a point about 400 feet West of No. 1 Shaft and drive a crosscut to the footwall. The crosscut was driven to the foot this year, and the foot followed for a distance of 80 feet. Some ore was found and at one point a small pillar, but work was finally stopped when the floor covering of the sub above was found lying on the footwall, which showed that the ore beyond this point had been mined many years ago. The tracks extending to this territory will now be removed back to the limit of the shaft pillar and this drift allowed to cave.

c. Stoping:

Month.	Product	No. Days Contract Stoping	Stoping Cost Per Ton	Tons Per Man Per Day Stoping.
May,	2,585 tons	163	.342	14.71
June,	6,335 "	327½	.279	19.14
July,	6,976 "	328½	.265	20.68
August,	5,737 "	274½	.266	21.27
September,	6,970 "	329	.267	21.14
October,	6,259 "	351½	.334	17.80
November,	7,147 "	394	.327	18.13
December,	8,109 "	410	.320	19.77
Avg.per Mo.	6,264½ "	322¼	.297	19.02

Stoping costs and tons were low in May on account of getting work under-way when the mine re-opened. Improvement occurred in June when all the ore hoisted was shipped and working conditions underground were normal. The cost per ton for the next three months was the lowest for the year and also the tons per man per day the highest. Shipping stopped in September, and the ore was stocked for the balance of the year. This reduced the output and costs were higher during the remaining three months of the year. Due to favorable operating conditions in December, a low cost per ton was obtained, also good tons per man per day Stoping. As stated elsewhere in this report, these results were due to the use of scraper outfits, good air and favorable working conditions, (no water to interfere with the work). Production varied considerably from month to month, as it depended on the number of gangs able to stope without interruption. Some areas mined were relatively small

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7. UNDERGROUND:
(Continued)

c. Stoping: (Continued)

and frequent changes in location of contracts was necessary in these sections. The change in location of a contract using a scraper always seriously reduced production on account of the small number of contracts working. In some months more gangs were working in rock, or there was more drifting in ore, which cut down the production as compared with slicing. It is impossible to avoid these fluctuations in output, in as small a mine as the Austin now is, with its very limited territory.

d. Timbering:

No comparison of timber used is made, as the mine was idle in both 1925 and 1924. The average price per foot was $.00676 lower than at the Stephenson, due to the use of more small timber, also the timber was delivered to the mine by a local jobber while freight was paid on practically all timber received at the Stephenson Mine. The saving from freight alone amounted to an appreciable sum and reduced the average price per foot.

More timber was required per ton of ore than at the Stephenson, due to repairing drifts that were taking weight on the 2nd Level and to fore-poling across old drifts on nearly every sub-level. Less lagging was used on account of the ore being harder and not caving on the sides of the drift. The total cost per ton for timber, lagging, poles and boards at the two mines was nearly equal, the cost at the Austin being slightly higher, actually $.0022 per ton more.

Statement of Timber Used:

	LINEAR FEET	AVG. PRICE PER FOOT	AMOUNT 1926
4" x 6" Timber,	225	.02275	5.12
6" x 8" "	29,017	.03919	1,137.30
8" x 10" "	25,649	.05359	1,374.37
10" x 12" "	9,952	.07538	750.20
12" x 14" "	576	.0834	48.58
Total Timber,	65,419	.05068	3,315.57

	LINEAR FEET	PER 100'	
5' Lagging (173 cds.@ 850'pr cd.	147,050	.701	1,032.07
7' "	66,114	.691	457.18
8' "	64,648	.880	569.07
Total Lagging,	277,812	.741	2,058.32
Poles,	26,750	1.23	331.29
Total Lagging and Poles,	304,562	.784	2,389.61
5/8" Covering Boards,	5,200	1.732	90.09

Product,	50,118
Feet of timber per ton of ore,	1.305
" lagging " "	5.540
" " per foot of timber,	4.246
Cost per ton for timber,	.06615
" " " lagging,	.04106
" " " poles,	.0006
" " " covering boards,	.00179
" " " timber, lagging, poles and boards,	.1156
Equivalent of stull timber to board measure,	104,408
Feet of board measure per ton of ore,	2.083
Total cost for timber, lagging and poles,	$ 5,795.27

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7. UNDERGROUND:
(Continued)

e. Drifting and Raising:

YEAR	ORE DRIFTING	ORE RAISING	ROCK DRIFTING	ROCK RAISING
1926	12 ft.	134 ft.	378 ft.	112 ft.
1925		(Mine Idle)		

There was only a small amount of drifting and raising necessary on re-opening the mine. Most of the rock drifts necessary for mining the shaft pillar were driven in 1923 just before the mine closed, as the work of mining the balance of the pillar was under-way at that time.

f. Explosives, Drilling and Blasting:

The ore in the upper levels of the mine is much harder than in the Stephenson or Princeton Mines, and is termed semi-plastic. Forty per cent powder is not strong enough for this ground and 50% and 60% powder was used. Results at the Stephenson indicated that Gelatin powder was superior to Red Cross, so Gelatin was used at the Austin. The cost per ton for powder was .006 higher than at the Stephenson, but the total cost for all explosives was slightly lower.

Statement of Explosives Used:

		QUANTITY	AVERAGE PRICE	AMOUNT	MINE IDLE IN 1925
40% Red Cross Powder,	Lbs.	150	.1300	19.50	
50% Gelatin "		4,600	.1425	655.50	
60% " "		10,150	.1550	1,573.25	
Total Powder,		14,900	.1508	2,248.25	
Fuse,	Ft.	51,400	.692	355.37	
Caps,		10,000	1.0656	106.56	
Cap Crimpers,		12	.412	4.95	
Tamping Bags,		3,000	2.15	6.45	
Total Fuse, etc.,				473.33	
Total All Explosives,				2,721.58	
Product,				50,118	
Pounds powder per ton of ore,				.336	
Cost per ton for powder,				.0506	
" " " fuse, etc.,				.00944	
" " " all explosives,				.0543	
Average price per pound for powder,				.1508	

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8. COST OF OPERATING:

a. Comparative Mining Costs:

	1926
PRODUCT	50,118
Underground Costs,	$66,414.87
Surface Costs,	8,373.00
General Mine Accounts,	6,855.34
Cost of Production,	$81,643.21
Plant Account,	--
Development,	--
Taxes,	3,306.67
Central Office,	4,189.15
Contingent Expense,	818.63
Cost Adjustment,	1,338.30
Cost on Stockpile,	$91,496.01
Loading & Shipping,	2,061.49
Total Cost on Cars,	$93,557.50
No. Days Operating,	174
No. Shifts & Hours,	1, 8-hr.
Avg. Daily Product,	288

COST OF PRODUCTION:		PER
Labor:	AMOUNT	TON
Underground Costs,	$ 42,574.48	.849
Surface Costs,	4,997.32	.100
General Mine Accounts,	4,319.07	.086
Supplies:		
Underground Costs,	23,840.39	.476
Surface Costs,	3,375.68	.067
General Mine Accounts,	2,536.27	.051
Cost of Production:		
Labor,	51,890.87	1.035
Supplies,	29,752.34	.594
Total,	81,643.21	1.629

b. Detailed Cost Comparison:

(1) Days and Shifts:

No cost comparison can be made as the mine was idle in 1925. Brief comment is, however, made on the various accounts to bring out points that may be of interest.

UNDERGROUND COSTS

	Amount	Per Ton
Development in Rock, 1926,	3,236.85	.065
Number Feet,	398	
Cost per foot,	$ 8.13	

The development work in rock covers drifting and raising in the footwall on the 2nd Level. The cost per foot was higher than in 1923 or 1922, on account of the ground being harder.

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8. COST OF OPERATING: (Continued)

d. Detailed Cost Comparison: (Continued)

Development in Ore,	Amount	Per Ton
1926,	718.26	.014
Number feet,	146	
Cost per foot,	$ 4.92	

This work was done in preparation for mining the shaft pillar.

Stoping,	Amount	Per Ton
1926,	25,082.65	.500

	Amount	Percent of Cost	Cost Per Ton
Labor,	15,654.63	62.42	.312
Explosives,	2,721.58	10.85	.054
Scraper Hoists,	4,734.16	18.87	.093
Wire Rope & Electric Cable,	675.27	2.69	.014
Scrapers & Appliances,	571.21	2.28	.012
Other Supplies,	725.80	2.89	.015
	25,082.65	100.--	.500

Eliminating the expense for scraper hoists and accessories, or $.119, brings the stoping cost down to .381.

Timbering,	Amount	Per Ton
1926,	19,892.33	.397

	Amount	Percent of Cost	Cost Per Ton
Mine timber, lagging, etc.	5,795.27	29.13	.116
Other Supplies,	1,268.00	6.37	.025
Labor,	12,829.06	64.50	.256
	19,892.33	100.--	.397

Timbering cost in 1923 was .386 and in 1922, .399, so that this years cost is practically the same as in previous years. Charges in this account in April, prior to opening the mine, amounted to $1,492.23, or nearly .03 per ton. Eliminating this expense, connected with re-opening the mine, and part of the expense in May due to the same cause, would bring the timbering cost for the year down to about .355.

Tramming,	Amount	Per Ton
1926,	6,773.84	.135
Electric Haulage,	3,205.97	
Other Charges,	3,567.87	
	$ 6,773.84	

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8. COST OF OPERATING: (Continued)

d. Detailed Cost Comparison: (Continued)

Tramming: (Continued)

This cost compares with a cost of .161 in 1923, and .168 in 1922. For several months after the mine re-opened part of the ore coming from sub-levels above the 1st Level was trammed by hand on the 1st Level to transfer raises, loaded again on the 2nd and trammed by electric haulage to the No.2 Shaft. This increased the cost appreciably as is shown by the monthly cost sheets. The ore on the 3rd Level is trammed by hand so that, tramming costs cover both electric and hand tramming. The cost of tramming in November was .112 per ton and in December .102 per ton.

Pumping,	Amount	Per Ton
1926,	609.15	.012
Steam Pumps,	9.15	
Electric Pumps,	600.00	
	$ 609.15	

A flat charge of $100.00 per month was made from July 1st by the Stephenson Mine for pumping the water that comes to the Stephenson from the Austin. It would cost the Austin much more than this to pump it. The charges for steam pumps cover work in connection with skip-pit pump at bottom of No. 3 Shaft.

Compressors and Air Pipes,	Amount	Per Ton
1926,	3,801.79	.076
Compressors,	3,175.30	
Air Pipes,	626.49	
	$ 3,801.79	
Total Cubic Feet of Air,	82,489,455	
Cu. ft. of Air per Ton of Ore,	1,646	

The Austin is charged for air on the basis of the number of tons of ore produced, the cost of operating the Central Power Plant compressor being divided in this way between the Stephenson and Austin Mines, a nominal charge to other mines, crusher, etc., having first been deducted. The cost for air under this plan is somewhat lower than in 1923 and 1922 when it averaged approximately 10¢ per ton.

Underground Superintendence,	Amount	Per Ton
1926,	3,150.27	.063

There is only one shift boss employed and part of the Mining Captain's time is charged to the Princeton Mine. The cost in 1923 was .070 and in 1922, .062 per ton.

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8. COST OF OPERATING: (Continued)

d. Detailed Cost Comparison: (Continued)

Cave-In,	Amount	Per Ton
1926,	3.84	.000

This small item of expense was incurred in repairing a fence around a cave.

Hand Tramming Equipment,	Amount	Per Ton
1926,	29.12	.001
Cars,	10.19	
Tracks,	18.93	
	29.12	

Hand tramming equipment and tracks required practically no repairs in 1926, due to use of scraper outfits in part of the contracts, and installation of electric haulage on the 2nd Level.

Electric Tram Equipment,	Amount	Per Ton
1926,	3,005.10	.060
Generator & Motors,	194.21	
Locomotives,	260.53	
Main Line Tracks,	341.86	
Main Line Cars,	2,208.50	
	$ 3,005.10	

Maintenance of electric tram equipment is high in only one sub-account, Main Line Cars, and this was due to purchase of six rocker-dump cars, costing $1,920.00. They were bought in April, just before the mine re-opened. They increased the cost .037 per ton. Eliminating this unusual item, the balance of expense was low, for a soft ore mine, when it is considered that the charges in the next item "Main Line Tracks" was incurred before the mine re-opened, being for tail track, siding, etc.

Pumping Machinery,	Amount	Per Ton
1926,	111.67	.002
Steam Pumps,	81.58	
Launders and Ditches,	30.09	
	$ 111.67	

The main charge in this account was incurred in overhauling a pump that was taken underground and used for pumping water from the skip-pit.

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8. COST OF OPERATING: (Continued)

d. Detailed Cost Comparison: (Continued)

UNDERGROUND COSTS:	Amount	Per Ton
Development in Rock,	3,236.85	.065
Development in Ore,	718.26	.014
Stoping,	25,082.65	.500
Timbering,	19,892.33	.397
Tramming,	6,773.84	.135
Pumping,	609.15	.012
Compressors & Air Pipes,	3,801.79	.076
Underground Superintendence,	3,150.27	.063
Cave-In,	3.84	.000
Hand Tramming Equipment,	29.12	.001
Electric Tram Equipment,	3,005.10	.060
Pumping Machinery,	111.67	.002
Total,	$ 66,414.87	1.325

It is interesting to note that the underground costs in 1926, $1.325 per ton, compares with a cost of $1.443 in 1923, and $1.327 in 1922. Eliminating the unusual items of equipment purchased in 1926, scraper outfits and haulage cars, would reduce the 1926 costs .156 per ton or to $1.169. The cost in December, the best month of the year, was .922 per ton and in November .986 per ton. In the cost for the year, consideration must also be given to the extra expense of re-opening the mine after a 2-1/2-year idle period. This increased the cost in several accounts.

SURFACE COSTS:

Hoisting, 1926,	Amount	Per Ton
	1,369.27	.027
Labor,	989.95	
Electric Power,	343.80	
Other costs,	35.52	
	1,369.27	

Power cost is low account of shallow depth of the shaft.

Stocking Ore, 1926,	Amount	Per Ton
	1,198.34	.024
Erecting Portable Trestles,	187.37	
Operating Tram System,	1,010.97	
Picking & Tramming Rock,	--	
	$ 1,198.34	

Stocking ore cost in 1926, is low in comparison with the cost in 1923 and 1922 when it was .071 and .088. When ore was stocked from No.1 Shaft the gravity tram system was used with end-dump car. At No. 2 Shaft, electric power tram is used and ore stocked from a trestle. Due to efficient arrangements for operating, two men do the work that formerly required four men.

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8. COST OF OPERATING: (Continued)

d. Detailed Cost Comparison: (Continued)

Dry House,	Amount	Per Ton
1926,	1,697.15	.034
Heating,	949.09	.019
Water,	561.08	.011
Labor,	130.18	.003
Other Costs,	56.80	.001
	$ 1,697.15	.034

The cost of operating the Stephenson dry is divided between the Austin and the Stephenson Mines on the basis of the number of men working underground. On account of greater output in tons per man per day the cost per ton at the Austin is lower than at the Stephenson.

General Surface Expense,	Amount	Per Ton
1926,	1,320.35	.027
Policeman,	987.00	
Other Expense,	333.35	
	$1,320.35	

Most of the above expense was incurred account of charging two-thirds of a policeman's salary against the mine. The balance is mainly covered by charge of a portion of the Stephenson surface foreman's time, who is in charge of the Austin Mine surface as well as the Stephenson.

Hoisting Equipment,	Amount	Per Ton
1926,	$1,001.70	.020
Steam Hoists,	94.77	
Electric Hoists,	271.21	
Wire Rope,	40.14	
Skips, Cages & Skip Roads,	595.58	
	$1,001.70	

The expense for steam hoists covers cost of repairs to hoist, operated by air, used in lowering timber at No.1 Shaft. The bearing on the electric hoist at No.2 engine house caused several delays due to broken babbit and they were replaced, this explains cost for repairs to electric hoist. The expense under sub-account "Skips, Cages and Skip Roads", was incurred in building a light timber cage for use in No.1 Shaft for lowering timber and other supplies and for a light timber cage built to use in No. 2 Shaft, when No.1 Shaft has to be abandoned on account of caving ground.

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8. COST OF OPERATING: (Continued)

d. Detailed Cost Comparison: (Continued)

	Amount	Per Ton
Shaft, 1926,	336.57	.007

The expenditures in this account cover cost of repairing No. 1 Shaft from collar to the ledge, the old rotten timber being replaced with new timber. No. 1 Shaft has been used all year for lowering timber and other supplies.

	Amount	Per Ton
Top Tram Equipment, 1926,	468.15	.009
Engines and Motors,	95.91	
Tracks and Cars,	250.62	
Wire Rope,	33.53	
Sheaves, rollers, etc.	88.09	
	$ 468.15	

The charges in this account are low and cover repairs and replacements.

	Amount	Per Ton
Docks, Trestles & Pockets, 1926,	414.72	.008
Grading and Planking,	379.30	
Permanent Trestles,	2.09	
Portable "		
Pockets, Chutes, etc.	33.33	
	$ 414.72	

The stocking trestle was raised 5 feet on blocking to increase the capacity of the stocking ground and this made it necessary to widen the grounds. It was leveled and 1" hemlock plank laid for a sollar.

	Amount	Per Ton
Mine Buildings, 1926,	566.75	.011
Shaft House,	539.81	
Engine "	19.26	
Fire Protection,	7.68	
	$ 566.75	

The expense for shaft house covers lathing and guniting the interior of head-frame, building of entry and doors, etc.

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8. COST OF OPERATING: (Continued)

d. Detailed Cost Comparison: (Continued)

SURFACE COSTS:	Amount	Per Ton
Hoisting,	1,369.27	.027
Stocking Ore,	1,198.34	.024
Dry House,	1,697.15	.034
General Surface Expense,	1,320.35	.027
Hoisting Equipment,	1,001.70	.020
Shaft,	336.57	.007
Top Tram Equipment,	468.15	.009
Docks, Trestles & Pockets,	414.72	.008
Mine Buildings,	566.75	.011
Total,	$ 8,373.00	.167

Surface costs in 1926, compare with cost of .405 per ton in 1923 and .271 per ton in 1922. They were abnormally high in 1923 account of building head-frame and engine house at No.2 Shaft, erecting stocking trestle, etc. They were lower in 1926 than in previous years account of more efficient methods of handling the product.

GENERAL MINE ACCOUNTS:

Insurance,	Amount	Per Ton
1926,	135.96	.003

This covers fire insurance on frame building and contents at the mine.

Engineering,	Amount	Per Ton
1926,	1,669.81	.033

The cost for engineering in 1923, was .032 per ton and in 1922, $.027 per ton. Two engineers are now employed and practically all of their time is charged to the Austin and Stephenson. In 1922 and 1923 there was more outside work, resulting in a lower charge against the Austin.

Analysis,	Amount	Per Ton
1926,	1,193.86	.024
Laboratory Costs,	1,121.90	
Sampling Costs,	71.96	
	$ 1,193.86	

Number of Determinations,		4,141
Cost per Determination,	Laboratory,	.2709
" " "	Sampling,	.0174
" " "	Total,	.2883

The cost per ton is lower than in previous years the mine operated due to fewer determinations account making only one grade of ore during most of the time the mine operated.

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8. COST OF OPERATING: (Continued)

d. Detailed Cost Comparison: (Continued)

Personal Injury Expense,	Amount	Per Ton
1926,	925.19	.019
Compensation Payments, Current Year,	41.99	
" " for accidents of previous Years,	728.00	
Payments to Doctor, 40¢ per man,	155.20	
	$ 925.19	
Number of Compensable Accidents,	2	
Days lost account of accidents,	29	

Safety Department Expense,	Amount	Per Ton
1926,	5.00	.000
First-Aid Supplies,	$ 5.00	

Telephones and Safety Devices,	Amount	Per Ton
1926,	135.95	.003
Lighting for Shaft and Levels,	51.84	
Mine Telephones,	39.75	
Safety Catches & U.G. Improvement,	2.49	
Sign Boards, Signals, etc.,	18.70	
Fire Protection Underground,	23.17	
	$ 135.95	

Local General Welfare,	Amount	Per Ton
1926,	465.16	.009

Mine Office,	Amount	Per Ton
1926,	1,014.10	.020

District Office,	Amount	Per Ton
1926,	1,310.31	.026

GENERAL MINE ACCOUNTS:	Amount	Per Ton
Insurance,	135.96	.003
Engineering,	1,669.81	.033
Analysis,	1,193.86	.024
Personal Injury Expense,	925.19	.019
Safety Department Expense,	5.00	.000
Telephones & Safety Devices,	135.95	.003
Local General Welfare,	465.16	.009
Mine Office,	1,014.10	.020
District Office,	1,310.31	.026
Total,	$ 6,855.34	.137

The expense under General Mine Accounts of .137 per ton compares with a cost of .188 in 1923 and .150 in 1922.

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10. TAXES:

Description:	1926 VALUATION	1926 TAXES	1925 VALUATION	1925 TAXES
346.37 Acres in Sec. 20-45-25,	50,000	1,432.71	55,800	1,590.69
39.05 " " 28-45-25	280	8.02	280	7.99
Personal Property,	64,000	1,833.20	64,200	1,830.14
Total,	114,280	3,273.93	120,280	3,428.82
Collection Fees,		32.74		34.29
Total Taxes,		3,306.67		3,463.11

The Austin Mine was idle at the time valuation was set by the State Tax Department in both 1926 and 1925. The small reduction in total value in 1926, amounting to approximately 5%, was a consideration granted on account of this property being idle.

13. EQUIPMENT AND PROPOSED EQUIPMENT:

d. Scraper Outfits:

The following table gives the cost of the various items charged out during the year in connection with use of scraper outfits for handling ore:

6 H.D.E. Sullivan electric double-drum hoists,	$4,734.16
Scrapers,	320.00
Repairs to scrapers, hoists, blocks, safety guards, etc.	121.59
Electric cable,	493.32
Wire rope, (haulage, pull and return ropes)	181.95
Sheaves for head blocks, etc.,	63.00
3/8" Chain for scrapers and blocks,	32.34
Electric switches,	34.28
Total,	$5,980.64
Cost per ton,	.119

On account of the mine only operating eight months, the cost for scraper outfits, amounting to nearly $6,000.00, cost 11.9 cents per ton. They are available for mining the balance of ore in the mine with only a small cost for repairs and supplies. If they had been charged against all the ore in the mine at the time they were purchased, they would only cost about 5 cents per ton.

The tons per man per day stoping and total for the mine tell the story of the results obtained by their use, showing that they have already more than paid for themselves as a result of the lower costs made possible by their use.

f. Haulage Cars for 2nd Level:

Six rocker-dump cars of 35 cu. ft., capacity, (or nominally 2 ton) were purchased for use with electric locomotive on the 2nd Level. Skip weights on ore shipped from pocket indicated that these cars held 2-1/2 tons or more of ore, so that it was possible to increase the rated capacity of the skip from 2 to 2-1/4 tons and still have a 10% overrun. The old hand-tram cars gave an 8 to 10% overrun on a rated capacity of 2 tons.

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13. EQUIPMENT AND PROPOSED EQUIPMENT: (Continued)

f. Haulage Cars for 2nd Level: (Continued)

The rocker-dump cars have proven very satisfactory in every way; on account of the tight bottom and sides they have reduced spilling of ore to a minimum. The six cars proved inadequate for hangling the ore on the 2nd Level and two were borrowed from the Stephenson Mine. The result of use of electric haulage and these cars is shown from the figures of tramming cost in 1926 - 13.5¢ as compared with 16.8¢ both in 1922 and 1923, the last previous years that the mine operated. The tramming cost in the month of December was 10.2¢ per ton, or 3.3¢ lower than the average for the year.

18. NATIONALITY OF EMPLOYES:

	1926	1923
Italian,	17	31
Finnish,	20	25
English,	2	7
American,	1	2
Swedish,	6	8
Norwegian,		2
Canadian,		4
Austrian,	1	
French,	5	
Total,	52	79

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1. GENERAL:

This mine was closed on November 30th, 1920, and in November, 1923, the pumps were removed and the mine filled with water.

There was no change in conditions in 1926. The remaining supply of iron and steel at the mine was transferred to the Stephenson and there are now very few supplies left at the mine, aside from machinery, tools, etc. In order to reduce costs during the winter the policemen now work half-time on day shift, and the property is without a watchman on the night shift. There is no fire risk after the snow comes, and no danger from thieves. The policemen travel back and forth on snow shoes, as the roads are not open. In the summer months a day and night policeman is required to protect the property at the mine and location.

2. PRODUCTION, SHIPMENTS & INVENTORIES:

b. Shipments:

None.

c. Stockpile Inventories:

GRADE.	TONS
Gardner,	1,557
" High Sulphur,	42,800
Mackinaw High Sulphur,	6,125
Total Ore,	50,562

4. ESTIMATE OF ORE RESERVES:

a. Developed Ore:

Assumption: 12 cu. ft. equals one ton.
10% deduction for rock
10% deduction for loss in mining.

Percentage of Bessemer equals 0.

Estimated Tonnage as required by the State Tax Commission:

Non-Bessemer:

Developed,	1. Mackinaw,	10,000 tons		
	2. " High Sulphur,	60,285 "		
	3. Gardner,	80,000 "		
	4. " High Sulphur,	106,348 "		
	Total Developed,		256,633	tons.
Prospective,	1. Mackinaw,	92,198 "		
	2. " High Sulphur,	276,594 "		
	Total Prospective,		368,792	"
	Total all Ore, ...		625,425	"

GARDNER-MACKINAW MINE
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4. ESTIMATE OF ORE RESERVES: (Continued)

c. Estimated Analysis:

Grade	Iron	Phos.	Sil.	Mang.	Alum.	Lime	Mag.	Sul.	Ign.	Moist.
1. Developed:										
Gardner:										
Dried 212°	58.00	.101	2.83	.269	1.530	2.880	1.315	.539	4.620	
Natural	52.78	.092	2.58	.245	1.392	2.621	1.197	.490	4.204	9.00
Gardner High Sulphur										
Dried 212°	58.50	.099	2.87	.313	1.538	3.180	1.432	.846	4.100	
Natural	53.22	.090	2.615	.285	1.400	2.893	1.303	.770	3.731	9.00
Mackinaw:										
Dried 212°	58.20	.138	3.24	.346	1.771	3.080	1.414	.560	4.808	
Natural	52.98	.126	2.95	.315	1.622	2.803	1.287	.510	4.375	9.00
Mackinaw High Sulphur										
Dried 212°	58.50	.138	2.92	.350	1.800	3.136	1.418	.867	4.560	
Natural	53.20	.126	2.66	.318	1.640	2.854	1.290	.789	4.150	9.00
2. Prospective:										
Mackinaw:										
Dried 212°	58.10	.156	3.24	.346	1.771	3.080	1.414	.560	4.808	
Natural	52.85	.142	2.95	.315	1.622	2.803	1.287	.500	4.375	9.00
Mackinaw High Sulphur										
Dried 212°	58.50	.138	2.92	.350	1.800	3.136	1.418	.867	4.560	
Natural	53.20	.126	2.66	.318	1.640	2.854	1.290	.789	4.500	9.00

All the available ore in the Gardner Mine is considered as developed ore. There is some developed ore in the Mackinaw but it cannot be mined until the prospective ore has been developed and mined. On re-opening this mine, the Mackinaw shaft must be sunk and new levels opened; in the meantime, stoping can be finished at the Gardner. The reserve ore in the Gardner stopes can then be hoisted while stopes are being opened at the Mackinaw. After mining is finished on the lower levels at the Mackinaw, the pillars on the upper levels can be mined, also some of the pillars on the Gardner.

There is a chance of developing a much larger tonnage of ore at depth in the Mackinaw than is shown by the estimate of prospective ore, which is conservative, due to lack of information.

GARDNER-MACKINAW MINE
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5. LABOR AND WAGES:

b. Comparative Statement of Wages and Product:

	1926	1925	Increase	Decrease
PRODUCT	-	-		
No. Shifts & Hours,	-	-		
AVG.NO. MEN WORKING:				
Surface,	2	2		
Underground,	0	0		
Total,	2	2		
AVG. WAGES PER DAY:				
Surface,	4.14	4.14		
Underground,	.00	.00		
Total,	4.14	4.14		
* WAGES PER MO. OF 25 DAYS:				
Surface,	103.50	103.50		
Underground,	.00	.00		
Total,	103.50	103.50		
TOTAL NO. OF DAYS:				
Surface,	669	730		61
Underground,	0	0		
Total,	669	730		61
AMOUNT FOR LABOR:				
Surface,	2,772.00	3,022.44		250.44
Underground,	.00	.00		
Total,	2,772.00	3,022.44		250.44

Proportion Surface to Underground Men:
1926 - 1 to 0
1925 - 1 to 0
1924 - 1 to 0
1923 - 1 to .67
1922 - 1 to 1.00
1921 - 1 to 2.00
1920 - 1 to 3.30
1919 - 1 to 3.00

Mine idle since November 30th, 1920.

*Mine operated twenty-two days per month during year.

6. SURFACE:

a. Buildings:

There were no repairs to buildings in 1926.

All houses in the location were vacant in 1926. Watchmen patrolled the location during the summer and the water line from the tank at the mine was kept in condition for use in case of fire. An electric fire pump is installed at the mine, ready to start in case of fire, so as to provide water under high pressure at the location. The fire line around the location was kept free of grass and brush, as a safeguard in case of a fire on the plains.

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8. COST OF OPERATING:

a. Comparative Idle Expense:

	1926	1925	Increase	Decrease
PRODUCT:	-	-		
Underground Costs,	-	-		
Surface Costs,	2,782.14	3,104.88		322.74
General Mine Accounts,	6,308.08	7,105.27		797.19
Cost of Production,	9,090.22	10,210.15		1,119.93
Plant Account,				
Equipment,				
Taxes,	2,031.54	2,021.23	10.31	
Central Office,	11,959.12	11,461.12	498.00	
Contingent Expense,	2,143.30	2,278.54		135.24
Cost Adjustment,	3.06			3.06
Cost on Stockpile,	25,221.12	25,971.04		749.92
Loading and Shipping,	.00	.00		
Total Cost on Cars,	25,221.12	25,971.04		749.92
No. Days Operated,				
No. Shifts & Hours,				
Avg. Daily Product,				
COST OF PRODUCTION:				
LABOR:				
Underground Costs,				
Surface Costs,	2,772.00	3,022.44		250.44
General Mine Accounts,	5,186.02	5,445.50		259.48
SUPPLIES:				
Underground Costs,				
Surface Costs,	10.14	82.44		72.30
General Mine Accounts,	1,122.06	1,659.77		537.71
COST OF PRODUCTION:				
Labor,	7,958.02	8,467.94		509.92
Supplies,	1,132.20	1,742.21		610.01
Total,	9,090.22	10,210.15		1,119.93

b. Detailed Cost Comparison:

SURFACE COSTS:			
Policeman,	2,772.00	3,022.44	250.44
Other Costs,	10.14	82.44	72.30
	2,782.14	3,104.88	322.74

Labor expense for policemen decreased account of no policeman working night shift for last two months of the year. Supply expense decreased account of less coal charged out for heating.

GENERAL MINE ACCOUNTS:			
Insurance,	277.32	376.00	98.68
Personal Injury Expense,	9.20	9.80	.60
Local General Welfare,	1,474.48	1,550.39	75.91
Mine Office,	57.44	75.98	18.54
District Office,	4,489.64	5,093.10	603.46
	6,308.08	7,105.27	797.19

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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison:

General Mine Accounts (Cont'd)

The main decrease in expense under "General Mine Accounts" is in account "District Office", and is due to higher charge against the Austin Mine in 1926 and lower operating cost at District Office. The total expense "Local General Welfare" for the district was lower in 1926; this accounts for reduced charges to the Gardner-Mackinaw Mine.

10. TAXES:

Description:	1926 VALUATION	1926 TAXES	1925 VALUATION	1925 TAXES
C.& N.W. Lease, Gardner:				
$SE\frac{1}{4}$ of $SE\frac{1}{4}$, Sec. 35-45-25 -	10,000	286.54	25,000	712.68
$NW\frac{1}{4}$ of $NE\frac{1}{4}$, " 2-44-25 -	200	5.73	200	5.71
Personal Property,	20,000	573.00	20,000	570.14
Total,	30,200	865.27	45,200	1,288.53
Collection Fees,		8.65		12.89
Total Taxes,		873.92		1,301.42
D.M. & M. Lease, Mackinaw:				
$N\frac{1}{2}$ of $SE\frac{1}{4}$ and $SW\frac{1}{4}$ of $SE\frac{1}{4}$ 35-45-25	40,000	1,146.16	25,000	712.68
Collection Fees,		11.46		7.13
Total Taxes,		1,157.62		719.81
Grand Total,	70,200	2,031.54	70,200	2,021.23

The total valuation set by the Tax Commission on these two properties was the same for 1926 and 1925, but in 1926 the value of the Gardner Mine was reduced and the value of the Mackinaw increased by a like amount. The valuation is as low as could be expected and is a very reasonable charge against an idle property. The valuation is set against equipment at the mine as the ore is assumed to be of no value on account of the high Sulphur.

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1. GENERAL:

There was no important change in conditions at this abandoned mine during the past year. The storage shed was dismantled and removed and at the end of the year the buildings and equipment left on the property were:

Steel shaft house and pulley stands.
Engine house, containing skip and cage hoists
Water tank and air receiver.
644'4½" - 10" Water column pipe.

The skip and cage hoists, with all equipment except motors, were sold to "The Ford Motor Company" the last of the year. They are to be loaded and shipped by the purchaser.

2. PRODUCTION: SHIPMENTS & INVENTORIES:

b. Shipments:

None.

c. Stockpile Inventories:

Grade.	Tons.
Franport Ore,	403,035

1926 - Mine idle
1925 - Mine idle

6. SURFACE:

a. Buildings:

The storage shed was dismantled and removed. Part of the material was sold, the balance was used at the Austin Mine.

b. Stockpiles:

All available trestle material was salvaged and sent to the Stephenson Mine, where it was used for blocking on stockpiles where ore was being stocked by side-dumping. All expense was borne by the Stephenson Mine.

8. COST OF OPERATING:

a. Comparative Mining Costs:

	1926	1925	Increase	Decrease
PRODUCT:	0	0		
Underground Costs,	0	0		
Surface Costs,	0	16.62		16.62
General Mine Accounts,	749.08	971.18		222.10
Cost of Production,	749.08	987.80		238.72
Plant Account,				
Equipment,				
Uncompleted Construction,				
Taxes,	11,480.53	11,451.77	28.76	
Central Office,				
Contingent Expense,				
Cost Adjustment,		90.06		90.06
Cost on Stockpile,	12,229.61	12,529.63		300.02
Loading and Shipping,		3.45		3.45
Total cost on cars,	12,229.61	12,533.08		303.47
No. Days operated,				
No. Shifts and Hours,				
Avg. Daily Product,				

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8. COST OF OPERATING:

a. Comparative Mining Costs: (Continued)

	1926	1925	Increase	Decrease
COST OF PRODUCTION:				
Labor,				
Underground Costs,				
Surface Costs,				
General Mine Accounts,		21.58		21.58
Supplies:				
Underground Costs,				
Surface Costs,		16.62		16.62
General Mine Accounts,	749.08	949.60		200.52
Cost of Production:				
Labor,		21.58		21.58
Supplies,	749.08	966.22		217.14
Total,	749.08	987.80		238.72

b. Detailed Cost Comparison:

		Amount	Per Ton
Stocking Ore,			
	1926,	.00	
	1925,	16.62	
	Decrease,	16.62	
Insurance,	1926,	99.00	
	1925,	294.73	
	Decrease,	195.73	

The decrease is due to sale of buildings. At the end of the year the engine house was the only mine building left. The steel shaft house, the pulley stands, and water tank comprise the balance of structures remaining at the mine.

		Amount	Per Ton
Engineering,			
	1926,	.00	
	1925,	21.58	
	Decrease,	21.58	

The expense in 1925 was incurred in running lines on surface to check several jobbers cutting timber on nearby forties, to determine if there had been a trespass.

		Amount
Analysis,		
	1926,	..00
	1925,	2.07
	Decrease,	2.07
Personal Injury Expense,	1926,	645.84
	1925,	645.84

Compensation for accident payments of previous years,	1926	1925
	$ 645.84	$ 645.84

FRANCIS MINE
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8. COST OF OPERATING: (Continued)

b. Detailed Cost Comparison: (Continued)

Mine Office,

	Amount
1926,	4.24
1925,	6.96
Decrease,	2.72

Expenditures in this account cover automobile mileage for inspection trips.

Total General Mine Accounts:

	Amount
1926,	749.08
1925,	971.18
Decrease,	222.10

	1926	1925	Increase	Decrease
Insurance,	99.00	294.73		195.73
Engineering,		21.58		21.58
Analysis,		2.07		2.07
Personal Injury Expense	645.84	645.84		
Mine Office,	4.24	6.96		2.72
	749.08	971.18		222.10

10. TAXES:

Description:	1926 VALUATION	1926 TAXES	1925 VALUATION	1925 TAXES
S½ of NW¼ Sec.27-45-25 80 Acres,	120	3.44	120	3.40
SW¼ (Ex.R.of W) " " 153.56 "	1500	42.98	500	14.26
SW¼ of NE¼ " " 40. "	120	3.44	120	3.43
Personal Property (Bldgs.$2,000. 1925)	395000	11317.00	397000	11317.30
Total,	396740	11366.86	397740	11338.39
Collection Fees,		113.67		113.38
Total Taxes,		11480.53		11451.77

Taxes are assessed against ore in stock, to which a value of $395,000 was given by the Tax Commission in both 1920 and 1925. The local assessor set a value of $2,000.00 on the buildings in 1925, and in 1926 make no assessment, as most of them were removed in 1925. A clerical error in copying the roll accounts for the increase of $1,000.00 in value of the SW¼ of NE¼, Sec. 27-45-25. Due to a slight increase in rate, the total tax increased $28.76 in 1926, although the total value, real and personal property, decreased $1,000.00.

GWINN DISTRICT MINES
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1. GENERAL:

The Stephenson Mine operated throughout the year on a five-day per week schedule; the Austin Mine reopened May 3rd, 1926 and operated the balance of the year on a five-day per week schedule. The pumps have been operated at the Gwinn and Princeton Mines and the levels kept in repair so that these mines can be reopened on short notice. The Gardner-Mackinaw Mine is full of water, but it can be pumped out and operations resumed on several months notice.

Operations in the district increased in 1926 due to the opening of the Austin Mine. The actual number of men employed at the end of the year as compared with the end of 1925, show a slight decrease, but during the summer, when the Gwinn District Crusher and steam shovels operated, there were more men employed than in 1925. There is, however, a feeling of depression due to the general knowledge that the Austin and Stephenson Mines are nearly exhausted; also to the large stockpile reserves at the mines and to the large number of vacant houses.

a. STATEMENT SHOWING TOTAL ORE PRODUCED BY YEARS FROM 1903 TO 1926 INCLUSIVE:

YEAR	AUSTIN	PRINCETON	STEPHENSON	GWINN	FRANCIS	GARDNER-MACKINAW	TOTAL
1903	1,086						1,086
1904	30,118						30,118
1905	57,210	(a) 8,224) 48,889)					114,323
1906	160,049	175,752					335,801
1907	192,424	174,457	8,333				375,214
1908	197,525	124,346	78,419				400,290
1909	203,129	144,882	142,816				490,827
1910	64,705	115,782	214,500				394,987
1911	145,221	96,670	226,022	537			468,450
1912	115,934	22,567	209,282				347,783
1913	68,259	74,884	255,979				399,122
1914		3,256	214,608	48,389			266,253
1915		122	207,724	127,300			335,146
1916	16,193	145	303,562	144,066			463,966
1917	51,659	(b) 1,106	253,266	161,963	1,778		467,560
1918	1,069	148,265	4,245	155,534	41,535	2,405	353,053
1919	14,896	193,228	2,402	137,847	80,528	69,326	498,227
1920	73	156,746	174,782	96,595	80,056	130,388	638,640
1921		97,150	196,539	63,501	71,075	159	428,424
1922	50,905	74	213,223	(c) 20,085	98,049	0	382,336
1923	82,976	0	247,212	27,334	110,550	0	468,072
1924	0	0	249,428	0	39,031	0	288,459
1925	0	0	253,193	(d) 206			253,399
1926	50,118	0	227,576	0	0	0	277,694
Total,	1,503,549	1,584,333	3,683,111	983,357	522,602	202,278	8,479,230

(a) On hand when mine was taken over August 1st, 1905.

(b) Stockpile shortage.

(c) Stockpile overrun.

(d) One-hundred and eleven tons produced from repair work; ninety-five tons stockpile overrun.

GWINN DISTRICT MINES:
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1. GENERAL:
(Continued)

b. STATEMENT SHOWING SHIPMENTS FOR EACH YEAR FROM 1905 TO 1926, INCLUSIVE:

YEAR	AUSTIN	PRINCETON	STEPHENSON	GWINN	FRANCIS	GARDNER-MACKINAW	TOTAL
1905	44,653	47,290					91,943
1906	173,182	166,894					340,076
1907	195,950	177,863	6,305				380,118
1908	111,229	36,033	52,588				199,850
1909	125,727	42,935	64,206				232,868
1910	188,587	89,442	225,726				503,755
1911	107,394	28,189	128,839	230			264,652
1912	102,529	162,137	214,386				479,052
1913	107,365	53,477	96,298				257,140
1914	30,491	13,607	93,796	20,159			158,053
1915		17,171	243,458	57,910			318,539
1916	64,521		368,739	143,708			576,968
1917	44,420	150,375	496,712	188,070			879,577
1918	8,533	66,244	75,162	182,541	30,775		363,255
1919	2,334	111,617	1,965	56,666	26,936	32,332	241,850
1920	3,665	153,609	110,924	196,593	34,199	49,051	548,041
1921		23,916	77,077	64,515	16,220	19,889	201,617
1922	5,065	26,145	202,522	26,436	11,437	40,180	311,785
1923	94,553	25,642	74,368	28,529	0	10,264	233,356
1924	0	7,453	186,899	4,935	0	0	199,287
1925	0	13,213	216,089	980	0	0	230,282
1926	26,564	6,540	213,427	0	0	0	246,531
Total,	1,436,762	1,419,792	3,149,486	981,272	119,567	151,716	7,258,595

c. STATEMENT SHOWING ORE IN STOCK AT THE CLOSE OF EACH YEAR, FROM 1903 TO 1926, INCLUSIVE:

1903	1,086						1,086
1904	31,204						31,204
1905	43,761	8,923					52,684
1906	30,628	18,681					49,309
1907	27,102	15,275	2,028				44,405
1908	113,398	103,588	27,859				244,845
1909	190,800	205,535	106,469				502,804
1910	66,918	231,875	95,243				394,036
1911	104,745	300,356	185,792	307			591,200
1912	118,150	160,786	180,688	307			459,931
1913	79,044	182,193	340,369	307			601,913
1914	48,553	171,842	461,181	28,537			710,113
1915	48,553	154,793	425,447	97,927			726,720
1916	225	154,793	360,270	98,285			613,573
1917	7,464	3,457	116,824	72,178	1,778		201,701
1918	0	85,478	45,907	45,171	12,538	2,405	191,499
1919	12,562	167,089	46,344	116,352	66,130	39,399	447,876
1920	8,970	170,226	110,202	16,014	111,987	120,736	538,135
1921	8,970	243,460	229,664	15,000	166,842	101,006	764,942
1922	54,810	217,389	240,365	8,649	253,454	60,826	835,493
1923	43,233	191,747	413,209	7,454	364,004	50,562	1,070,209
1924	43,233	184,294	475,738	2,519	403,035	50,562	1,159,381
1925	43,233	171,081	512,842	1,745	403,035	50,562	1,182,498
1926	66,787	164,541	526,991	1,745	403,035	50,562	1,213,661

GWINN DISTRICT MINES:
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5. LABOR AND WAGES:

The number of men employed in the district on December 31st, 1925 were 284; on December 31st, 1926, there were 274, the loss for the year was ten. This small loss, with two mines operating as compared with one mine a year ago, was due to the transfer of a number of men from the Stephenson to the Austin Mine. During the shipping season there were about 300 men employed as compared with 274 on December 31st,1925.

8. COST OF OPERATING:

District Office:

There has been several economies effected in the cost of operating the District Office during the past year. Brief comment is made on the chief items: The Superintendent's team and driver were discontinued in June, the saving in this item amounted to over $1300.00. The telephone operator and switchboard in the office was discontinued in September, effecting a saving of over $100.00 for the year. A more accurate distribution of two of the clerk's time was made as between the District Office and the Stephenson and Austin Mines, this redistribution reduced the cost of operating about $800.00 for 1926. As a result of the various economies and more correct distribution of clerk's time, a reduction in operating expense of approximately $2500.00 was effected in 1926. The reduced expense will amount to about $6,000.00 for the year 1927.