

SALISBURY MINE.

The estimate on the 12th level is necessarily only approximate, as the ore at this point is coming from between old timbers and cannot be measured. Four thousand tons was estimated last year, while 4,441 tons were mined during the year. Much more ore has come from the 17th level than was estimated last year, but this is accounted for by the discovery of a small deposit back of the paint rock, which was not known to exist on the date of the last annual report. Last year's estimate was 6,000 tons, but it has produced 20,732 tons, and there are 2,000 tons still remaining to come out. On the 18th level 304,500 tons was estimated in 1903. Deducting the year's output of 123,825 tons would leave a balance of 180,675 tons, whereas owing to new developments the estimate is 268,000 tons. The estimate of the 19th level is necessarily approximate, as the only data upon which to base it were three winzes and one raise. When the ore below the 18th level is fully developed, I feel confident there will be more than the estimate shows, but our present knowledge does not justify increasing it.

The following is a description of the work done during the year, and the present condition of the mine.

TWELFTH LEVEL.

Contract No.23 has continued scrambling on the 60 foot sub, 50 feet East of the air shaft. They are now stoping to the East, taking 25 feet of ore left on the foot. It is impossible to say how far this will continue. It is probable that sufficient ore will be found at this point to last another year. The ore, as a rule is non-Bessemer.

SEVENTEENTH LEVEL.

This level is exhausted, except a small amount of ore left on the foot, which will all be taken out by the first of February. Contract No.7 and 8 are working at this point.

EIGHTEENTH LEVEL.

East of the main cross cut, the ore has been mined to the sill floor, with the exception of a small amount remaining on the foot.

Contract No.2 is now taking out this ore. West of the main drift in No.3 cross cut, all the ore has been mined on the 50 and 40 foot sublevels, except a small amount on the footwall side of the 40 foot sub, where contract No.14 is still working.

On the 25 foot sub, contract No.21 is stoping from the second raise; No.12 from the 3rd raise, and No.19 from the 4th raise, while No.9 is stoping on the extreme

South end of No.3 cross cut.
Salisbury.

SALISBURY MINE.

In No.4 cross cut the 50 foot sublevel is exhausted, and they have just started to open the 40 foot sub.

Contract No.15 is stoping and dumping into No.1 raise.

Contract No.5 is opening out near No.2 raise, and No.11 in No.3 raise.

In No.5 cross cut, two raises have been put up to the 50 foot sub, and contracts No.18 and 13 have just started to open up the sublevel at this point. The 40 foot sub has not yet been opened. On the South side of the deposit on the sill floor of No.3 cross cut No.1 contract is taking the ore to the hanging.

Contract No.3 is stoping the ore to the hanging East of No.4 cross cut.

Contract No.22 is taking the ore on the West.

Contract No.10 is stoping on the South, on both sides of No.5 cross cut.

Contract No.4 is stoping between No.2 and 3 cross cuts.

Contract No.17 is between the same two cross cuts to the North.

The location of all contracts at the end of the year is shown on the maps, to which reference is made for further particulars.

As was the case last year, practically all the ore is coming from this level. The proportion of Bessemer ore is constantly decreasing. In 1903 44.95% of the output was Bessemer, while last year it was but 30.96%, and from present indications will not exceed 20% for the coming year.

NINETEENTH LEVEL.

The result of our work on this level has been extremely discouraging. No merchantable ore having been found during the year.

The main cross cut South West was driven 100 feet and stopped as we were evidently in the footwall, the diorite being very hard, and the drift well beyond the ore on the level above. A drift was then started 80 feet back from the breast, and contract No.6 has driven it 380 feet West, most of the way in diorite, but from time to time there were crossings of jasper. This drift was recommended by Prof. Smyth, and is for the purpose of exploring the formation, in the hope that farther West the foot may turn to the North and ore come in. So far there is nothing encouraging, but it will be continued until he is satisfied that there is no chance of ore. From this drift a cross cut was turned off opposite winze "D", and contract No.20 has made a connection with the winze. Most of the way the drift is in mixed ore and jasper. The breast is now in lean ore and will be extended South West for exploratory purposes.

SALISBURY MINE.

Thirty feet back from the breast of the main cross cut contract No.16 is putting up a raise to the 18th level. This has now reached a height of 45 feet, and is still in rock. There only remains 18 feet between this and the level above. At this point we anticipated a great^{er} thickness of ore, and consequently the result is very discouraging. While it is true that "D" winze passed through 30 feet of good ore, at the same time it is now evident that we will have only a limited tonnage below the 18th level, unless some new discovery is made to the West.

The life of the Salisbury would therefore seem to be short.

On the recommendation of Mr. Smyth, the territory East of the old mine will be explored by diamond drilling. A hole has been started 210 feet East of the East end of the 10th level, and is now in very hard jasper.

FATAL ACCIDENTS.

I am glad to be able to report that there were no fatal accidents at this mine during the year.

LOCATION.

No extraordinary repairs have been made to the houses, but the buildings have been kept in good condition.

Reference is made to the statement of rented houses for the expenditures for maintenance.

OGDEN MINE.

This property has not been operated during the year, but is in condition to start as soon as there is a demand for this grade of ore.

LEASES.

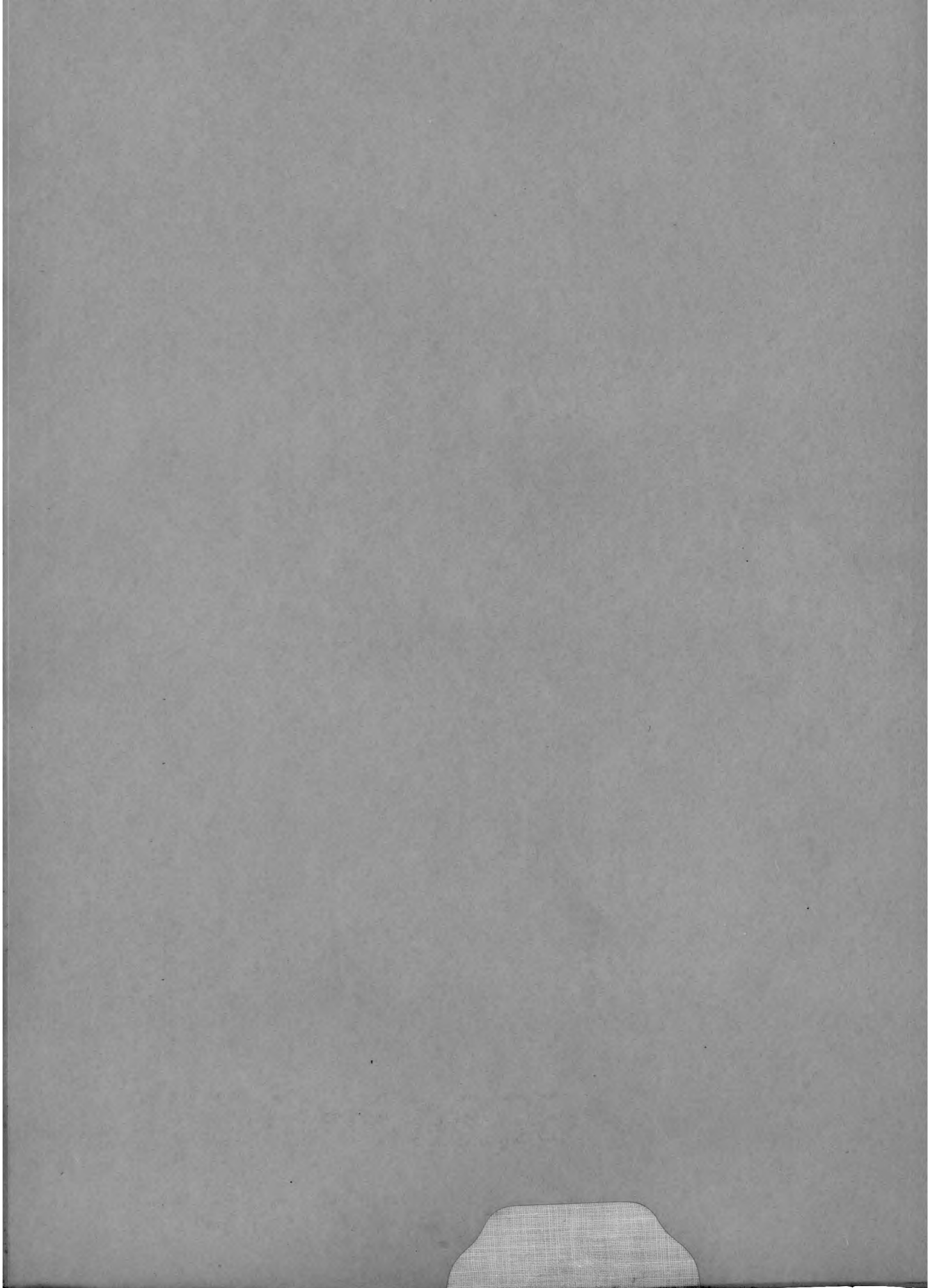
The only outstanding lease is on the East $\frac{1}{2}$ of the South West $\frac{1}{4}$ of section 19, 47-26, held by the Empire Iron Co.

No work has been done during the year, but the ground rent has been paid with the exception of the last quarter, which was due in October.

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "W. D. Sullivan". The signature is written in dark ink and is centered on the page.

Agent.



MISCELLANEOUS DATA

- 1 Cliffs Shaft Mine Cost Sheet
- 2 Salisbury " " "
- 3 Improvement and New Construction
- 4 Cost of Diamond Drilling at Cliffs Shaft Mine
- 5 Fire Insurance on Mine Buildings and Dwellings
- 6 Cost for Analysis, Including Sampling and Crushing
- 7 Detail of Accounts Receivable
- 8 Accounts Payable
- 9 Rented Houses, Cliffs Shaft Mine
- 10 " " Salisbury Mine
- 11 " " Foster Mine
- 12 Cost of Shop Work At Cliffs Shaft Mine Shops
- 13 Operating Steam Shovel No. 3
- Comparative Statement of Taxes (See C.C.I.CI. Miscel Data File)
- Record of Delays, at Mines " " " " "
- General Expense Statements " " " " "
- Ore Statements " " " " "

14 FOSTER MINE COST SHEET

THE CLEVELAND-CLIFFS IRON CO.

Cost of Production for the Month of years 1904 and 1903.

CLIFFS SHAFT	Month of <u>12 months of</u> , 190 <u>3</u>.....Tons. <u>16,902</u>						.....<u>12</u> Months, 190 <u>3</u>						<u>261.19</u> tons						
	LABOR		SUPPLIES		TOTAL		Labor		Supplies		Total		Amount	Cost Per Ton						
	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton								
GENERAL EXPENSE,																				
Insurance,			477	25	003	477	25	003		540	36	002	540	36	002					
Engineering,	720	00	004	5	47	000	725	47	004	475	05	002	528	49	002					
Analysis,	199	22	001	2	46	06	002	445	28	003	335	96	001	481	13	002				
Relief Fund,			697	50	004	697	50	004		123	60	005	123	60	005					
Mine Office,	173	45	011	263	14	001	1997	69	017	155	198	006	352	47	001	1904	45	007		
Total,	2653	77	016	1689	47	010	4343	19	026	2362	99	009	2662	40	010	5026	39	019		
MAINTENANCE—Repairs of																				
Tracks and Yards,	284	13	002	11	15	000	295	28	002	372	11	002	147	2	000	386	83	002		
Docks, Trestles and Pockets,	219	88	001	610	97	004	830	85	005	299	72	001	230	59	001	510	31	002		
Buildings,	296	62	001	429	06	003	725	68	004	219	90	001	251	06	001	470	96	002		
Shop Machinery,	96	78	001	169	17	001	265	95	002	22	73	000	37	92	000	60	65	000		
Boilers,	303	63	002	438	17	002	741	80	004	188	24	001	239	54	001	427	78	002		
Hoisting Machinery,	520	42	003	1309	36	008	1829	78	011	282	45	001	143	97	006	1722	12	007		
Compressors and Air Pipes,	126	36	001	301	55	002	427	91	003	16	80	000	47	57	002	643	78	002		
Cornish and Steam Pumps,	275	88	001	444	95	003	720	83	004	346	26	001	418	05	002	764	31	003		
Top Tram Engines and Cars,	104	44	001	93	87	000	198	31	001	163	97	001	117	12	000	281	09	001		
Skips and Skip Roads,	91	77	001	37	01	000	128	78	001	171	17	001	73	06	000	244	23	001		
Underground Tracks and Cars,	110	46	006	777	68	005	1887	33	011	1918	17	007	1594	45	006	3512	62	013		
Total,	3424	56	020	4622	94	028	8047	50	048	4132	79	016	4891	89	019	9024	68	035		
MINING EXPENSE,																				
Air Pipes,	555	60	003	109	94	001	665	54	004	669	35	002	466	92	002	1136	27	004		
Compressors,	106	41	006	508	43	030	614	85	036	183	19	007	788	75	030	971	99	037		
Hoisting,	203	61	012	265	73	016	468	46	028	345	22	013	400	43	016	745	63	024		
Pumping,	303	70	018	888	06	052	1191	75	070	290	20	011	845	12	032	1124	163	043		
Sinking,	316	43	019	943	77	006	4109	20	025	418	26	002	143	89	000	562	15	002		
Drifting,	454	47	038	301	46	018	946	94	056	229	84	038	610	56	023	2909	29	111		
Breaking Ore,	95	100	085	137	76	038	488	77	023	658	62	052	197	62	076	856	74	028		
Tramming,	252	63	077	114	88	007	265	72	065	496	81	066	213	104	009	518	20	199		
Filling,	475	90	003				475	90	003	1007	76	004	39	006		1008	15	004		
Timbering,	520	03	003	143	91	001	663	94	004	111	29	004	30	199	002	141	92	006		
Mining Captain and Bosses,	453	35	027				453	35	027	476	96	018				476	96	018		
Dry House,	647	07	004	352	09	007	999	16	006	707	66	003	84	99	000	792	65	003		
Top Landing and Tramming,	402	54	024	703	26	004	472	28	028	717	42	027	121	123	005	838	615	032		
Stocking Ore,	102	145	006	57	75	000	107	4	020	1780	46	007	94	94	000	1825	40	007		
Sorting Ore,	307	130	018	155	30	001	322	60	019	6170	22	024	156	32	000	632	654	024		
Breaking Ore, 1904-1903-221,480 Lfo on Product	3897	74	028	3078	95	023	6976	69	051	7246	52	028	4612	81	026	11859	33	054		
Total,	9497	566	400	9717	237	135	072	83	799	1776	1513	680	5571	589	212	2330	031	028		
Cost of Production, Per Cent.	101053	99	598	46409	53	310	275147	46357	100	873	184110	91	705	62971	18	241	24708	09	946	
EXPLORATORY,																				
Exploring in Mines,	109	428	006	2313	73	014	3408	01	020	890	13		2125	36		3015	49	011		
Total,	1094	28	006	2313	73	014	3408	01	020	890	13	003	2125	36	008	3015	49	011		
DEPRECIATION, Etc.																				
Inventory,							9570	001								55667	002			
Improvement, Hull Shovel	16	88	000	859	000		2547	000		36	30	000	1499	19	006	1535	49	006		
Improvement, Central Office Bldg	39	73	001	3375	000		73	48	001											
Royalty																				
Steam Shovel							28	67	000							3736				
Credits										36	30	000	1499	19	006	2054	80	007		
Total,	5661	001	4734	000	2537	000	3630	000	1499	19	006	2054	80	007	1753	31	067	10090	64	039
Taxes, Central Office,	756	583	045	300	399	018	1056	987	063	714	013	027	2950	51	012	10090	64	039		
Total Cost on Stock Pile,	109770	71	650	51769	59	307	178879	97	1059	1921	170	4735	69546	24	267	279775	33	1071		
LOADING AND SHIPPING,																				
Steam Shovel, 1903-21,967 Tons,	538	000	1639	07	015	1644	40	015					583	65		583	65	027		
By Hand, 1904-1021 "	141	61	137	27	26	027	168	87	064											
At Pocket, 1904-46315 "	918	80	010	191	11	000	937	91	010	1319	57		475	6		1367	13	014		
Sorters (L. E. Dock), 1903-97,649 "				338	00		338	00					491	25		491	25			
Shipping Expense,	216	30		239			218	69		185	82		173			137	55			
Total,	1282	209	007	2025	78	012	3307	87	019	1455	89	006	1124	19	004	2599	58	010		
Total Cost on Cars,	11105	280	657	53795	37	319	182187	84	1078	1936	3286	741	70670	43	271	28235	191	1081		
Royalty,																				
Comm'n and Expense, Cleveland Office,																				
Total Cost,																				

Accts. not sunk offMos.....	Mos.....		SINKING			DRIFTING			COMPARATIVE COST ON CAR				COMPARATIVE COST			
	Amount	Per Ton	Amount	Per Ton	Feet	Cost	Per Ft.	Feet	Cost	Per Ft.	Year	Mos.	Tons	Cost	Mos.	Tons	Cost	
New Construction											1900	12	264230	1149				
Improvement,											1901	12	243268	1093				
Total,											1902	12	249002	1106				

REMARKS:

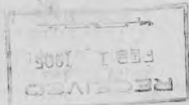
ANALYSIS OF LABOR.

OF LABOR.

Misc working on 10 hr shift during year (from Dec 1st 1903) till during March 1904, owing to repairs of Hoisting Machinery.

Labor as per Cost Sheet,
Other Charges,
Total,
As per Labor Statement,
General Pay Roll,
Total,

THE CLEVELAND-CLIFFS IRON CO.	COST OF SUPPLIES			COST PER TON	
	Mine.	Month	Year	For	For
				Mo.	Year
Product.					
General Supplies,					
Iron and Steel,					
Oil, Grease and Candles,					
Machinery Supplies,					
Building Material,					
Explosives,					
Mine Timber,					
Fuel,					
Barn,					
Sundries,					
Total Supplies,					
Miscellaneous,			1		
Total,					
SUMMARY					
As per Cost Sheet,					
Improvement,					
New Construction,					
Other Charges,					
Total,					



H. Niedecken Co., Mfg. Stationers, Milwaukee, 89251.

1-30-5
 1905
 1904

Cost Sheet for the Month of

MINE

The Cleveland-Cliffs Iron Co.

THE CLEVELAND-CLIFFS IRON CO.

Cost of Production for the Month of Years 1904 and 1903.

SALISBURY.....Mine.	Month of <u>12 Months of 1903</u> <u>150326</u> Tons.						..... <u>12</u> Months, 1904.					
	LABOR		SUPPLIES		TOTAL		Labor		Supplies		Total	
	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton
GENERAL EXPENSE,												
Insurance,			262 39	002	262 39	002			271 50	002	271 50	002
Engineering,	483 51	003			483 51	003	330 65	002			330 65	002
Analysis,	279 32	002	1285 42	008	1564 76	010	270 10	001	1396 15	008	1666 25	009
Relief Fund,			587 40	004	587 40	004			779 70	004	779 70	004
Mine Office,	1210 00	008	205 57	002	1415 57	010	1158 00	007	266 55	001	1424 55	008
Total,	1972 85	013	2340 78	016	4313 63	029	1756 75	010	2717 90	015	4469 65	025
MAINTENANCE—Repairs of												
Tracks and Yards,	975 23	006	175 27	001	1100 50	007	770 65	005	75 52	000	846 18	005
Docks, Trestles and Pockets,	898 90	006	1235 54	008	2134 44	014	559 11	003	473 26	003	1032 37	006
Buildings,	63 45	000	178 93	002	242 38	002	177 03	001	222 68	001	399 71	002
Shop Machinery,									135 61	001	135 61	001
Boilers,	119 42	001	354 23	002	473 65	003	157 31	001	106 41	001	263 72	002
Hoisting Machinery,	251 39	002	1205 91	008	1457 30	010	205 70	001	863 03	005	1068 73	006
Compressors and Air Pipes,	71 70	000	75 54	001	147 24	001	67 49	000	445 60	003	513 09	003
Cornish and Steam Pumps,	231 57	002	446 66	003	678 23	005	266 03	002	758 18	004	1024 21	006
Top Tram Engines and Cars,	44 24	000	130 74	001	174 98	001	130 82	001	110 61	000	241 43	001
Skips and Skip Roads,	897 93	006	1517 05	010	2414 98	016	1700 72	009	1717 46	010	3418 18	019
Underground Tracks and Cars,	1299 13	009	970 18	006	2269 31	015	1473 92	008	913 26	005	2387 18	013
Total,	4852 96	032	6240 05	042	11093 01	072	5508 78	031	5821 63	033	11330 41	064
MINING EXPENSE,												
Air Pipes,	153 07	001	69 93	000	223 00	001	212 08	002	94 05	000	306 13	002
Compressors,	1393 78	009	2516 20	017	3909 98	026	1396 30	008	2788 46	016	4847 76	024
Hoisting,	3482 46	024	6232 36	041	9717 32	065	3491 28	019	6926 05	039	10417 33	058
Pumping,	2851 32	019	3802 00	025	6653 32	044	2949 17	016	4212 48	024	7161 65	040
Sinking,	368 00	000	20 37	000	24 05	000	5135 05	029	978 98	005	6114 03	034
Drifting,	3928 54	026	787 63	005	4716 20	031	4738 37	035	1491 25	008	11229 62	063
Breaking Ore,	4644 35	308	3698 42	025	5014 97	333	6929 42	389	3578 63	020	7287 90	409
Tramming,	12945 92	086	436 32	003	13382 26	089	1899 47	106	461 37	003	19456 16	109
Filling,												
Timbering,	14652 64	097	6362 18	043	21014 82	140	14403 78	081	7335 95	041	21739 73	122
Mining Captain and Bosses,	3669 10	024			3669 10	024	4147 40	023			4147 40	023
Dry House,	1207 80	009	59 62	000	1267 42	009	597 30	004	62 25	000	659 55	004
Top Landing and Tramming,	2833 20	019	508 68	003	3341 88	022	2436 55	015	545 89	003	3282 44	018
Stocking Ore,	489 17	003	112 02	001	601 19	004	664 25	003	93 66	001	757 91	004
Sorting Ore,												
Total,	94056 76	625	24605 75	163	118662 51	788	132760 59	750	28569 02	160	162329 61	910
Cost of Production, Per Cent.	100882 57	670	33186 58	221	134069 15	891	141025 12	791	37104 55	208	178129 67	999
	75%		25%		100%		79%		21%		100%	
EXPLORATORY,												
Exploring in Mines, (Steam and Drilling)	118 93	001	193 38	001	312 31	002						
Total,	118 93	001	193 38	001	312 31	002						
DEPRECIATION, Etc.												
Inventory,					48 93	000					53 40	000
Improvement,												
New Construction,												
Total,					48 93	000					53 40	000
Taxes, Central Office,	5043 87	034	2002 66	013	7046 53	047	4760 07	026	1953 96	011	6017 81	034
Total Cost on Stock Pile,	106045 37	705	35382 62	235	146624 28	975	145785 19	817	39058 51	219	190808 11	1070
LOADING AND SHIPPING,												
Steam Shovel, 1904-49, 250 Tons,	108 57	001	1296 19	018	1404 76	019	760		1618 90		1626 50	033
By Hand, 1905-49, 318 "	88 03	025			88 03	025						
At Pocket, 1905-63, 100 "	694 13	011	32 25	001	726 38	012	1156 87		28 95		1185 82	013
Sorters (L. E. Dock), 1905-91, 900 "												
Shipping Expense,			17 71	000	17 71	000						
Total,	890 73	006	1346 15	009	2236 88	015	1164 47	007	1647 85	009	2812 32	016
Total Cost on Cars,	106936 10	711	36728 77	244	148861 16	990	146949 66	824	40706 36	228	193620 43	1086
Royalty,												
Comm'n and Expense, Cleveland Office,						150						150
Total Cost,						1170						1236

Accts. not sunk offMos.....	Mos.....		SINKING			DRIFTING			COMPARATIVE COST ON CAR				COMPARATIVE COST			
	Amount	Per Ton	Amount	Per Ton	Feet	Cost	Per Ft.	Feet	Cost	Per Ft.	Year	Mos.	Tons	Cost	Mos.	Tons	Cost	
New Construction Improvement,											1900	12	160.635	1.052				
											1901	12	180.918	.991				
Total,											1902	12	178.686	1.037				

REMARKS:

ANALYSIS OF LABOR.

OF LABOR.

Labor as per Cost Sheet,
Other Charges,
Total,

sheet,

As per Labor Statement,
General Pay Roll,
Total,

ment,

THE CLEVELAND-CLIFFS IRON CO.	COST OF SUPPLIES		COST PER TON		
	Mine.	Month	Year	For	For
Product.				Mo.	Year
General Supplies,					
Iron and Steel,					
Oil, Grease and Candles,					
Machinery Supplies,					
Building Material,					
Explosives,					
Mine Timber,					
Fuel,					
Barn,					
Sundries,					
Total Supplies,					
Miscellaneous,			2		
Total,					
SUMMARY					
As per Cost Sheet,					
Improvement,					
New Construction,					
Other Charges,					
Total,					



1-30-5
H. Nidecken Co., Mfg. Stationery, Milwaukee, 89,951

March 1904 and 1903. 190

Cost Sheet for the Month of

MINE *Anthony*

The Cleveland-Cliffs Iron Co.

IRON CLIFFS COMPANY

ANALYSIS OF IMPROVEMENT & NEW CONSTRUCTION FOR YEAR ENDING NOVEMBER 30 1904.

	Inventory Nov.30.03	Expenditure For Year	Total	Depreciation For Year.	
<u>Cl-Shaft Improvement</u>					
Drill Sharpening Machine		25.47	25.47	25.47	
Extension to General Office		73.48	73.48	73.48	
Total Iron Cliffs CO.		98.95	98.95	98.95	

IRON CLIFFS COMPANY.

COST OF DIAMOND DRILLING AT CLIFFS-SHAFT MINE FOR YEAR ENDING NOVEMBER, 30TH, 1904.

	DAYS	AMOUNT		COST PER FOOT.	
				1904	1903
<u>LABOR</u>					
Foreman & Setter	55	191	00	.092	.204
Operating	417 $\frac{1}{2}$	887	00	.429	.984
Shop Labor & Repairing	7	16	28	.008	.013
<u>Total</u>	479 $\frac{1}{2}$	1094	28	.529	1.201
<u>Supplies</u>					
Fuel & Light		326	49 ✓	.158	.095
Oil & Waste		13	03	.006	.012
Bits & Tools		61	96	.030	.051
Repairs Etc.		45	87	.022	.029
Carbon	<u>57</u> 27 $\frac{57}{64}$ kts.	1533	97 ✓	.742	2.493
General Supplies		17	41	.008	.012
<u>Total</u>		1998	73	.966	2.692
Additions to Equipment, rentals etc.		315	00	.152	.178
<u>Total Cost</u>		3408	01	1.647	4.071
Total feet drilled				2068	741
Average feet per day of 10 hours	190 4			10.86	4.49
Average feet per man per day	479 $\frac{1}{2}$			4.31	1.92
Feet per karat of carbon				75.01	20.91
Average cost of carbon per karat				55.64	57.50
Average cpst per foot				1.647	4.071

IRON CLIFFS COMPANY.

COST OF DIAMOND DRILLING AT CLIFF-SHAFT MINE FOR YEAR ENDING NOVEMBER, 30TH, 1904.
CONTINUED.

HOLE#	LOCATION	DEPTH	HOURS	LENGTH OF TIME ACTUAL DRILLING.	DAYS
73	B. Shaft	70	114	Feby. 2nd, 1904 to Feby. 15th,	11.4
74	A. Shaft	62	31	" 17th, 1904 to " 20th,	3.1
75	B. "	70	122	" 23rd, " " Apr. 11th,	12.2
76	B. "	95	150	Apr. 12th, " " Apr. 28th,	15.
77	B. "	327	360	May 2nd, " " June 14th,	36.
78	B. "	63	50	June 16th, " " " 21st,	5.
79	B. "	54	40	" 25th, " " " 29th,	4.
80	B. "	75	70	" 30th, " " July 8th,	7.
53	B. "	139	135	July 11th, " " " 25th,	13.5
81	A. "	89	40	" 27th, " " " 30th,	4.
82	A. "	52	30	Aug. 1st, " " Aug. 3rd,	3.
83	A. "	224	150	" 5th, " " " 23rd,	15.
84	B. "	308	260	" 25th, " " Sept. 24th,	26.
85	B. "	53	15	Sept. 26th, " " " 27th,	1.5
86	B. "	276	246	" 29th, " " Nov. 1st,	24.6
87	A. "	111	91	Nov. 1st, " " " 15th,	9.1
Total		2068	1904		190.4

11
2
6

IRON CLIFFS CO.

Cliffs Shaft Mine
Cost of Exploring
Nov 30 - 1904.

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IRON CLIFFS COMPANY.

CONTINUED.
 DEPT. DRILLING AT CLIFF-SHAFT MINE FOR YEAR ENDING NOVEMBER 30th, 1904.

DATE	LOCATION	DEPT.	HOURS	LENGTH OF THE VOLUME DRILLING.	DAYS	Total
21	V.	111	31	NOV. 1st	12th	2.1
22	B.	548	348	" 2nd	1st	24.8
23	B.	22	12	Sept. 28th	1.2	
24	B.	208	280	" 29th	26.	
25	V.	224	120	" 30th	12.	
26	V.	22	20	NOV. 1st	3.	
27	V.	22	40	" 2nd	4.	
28	B.	122	122	NOV. 11th	12.2	
29	B.	12	10	" 12th	1.	
30	B.	12	40	" 13th	4.	
31	B.	24	20	" 14th	2.	
32	B.	22	20	NOV. 15th	2.	
33	B.	22	20	" 16th	2.	
34	B.	22	20	" 17th	2.	
35	B.	22	20	" 18th	2.	
36	B.	22	20	" 19th	2.	
37	B.	22	20	" 20th	2.	
38	B.	22	20	" 21st	2.	
39	B.	22	20	" 22nd	2.	
40	B.	22	20	" 23rd	2.	
41	B.	22	20	" 24th	2.	
42	B.	22	20	" 25th	2.	
43	B.	22	20	" 26th	2.	
44	B.	22	20	" 27th	2.	
45	B.	22	20	" 28th	2.	
46	B.	22	20	" 29th	2.	
47	B.	22	20	" 30th	2.	
48	B.	22	20	" 31st	2.	
49	B.	22	20	" 1st	2.	
50	B.	22	20	" 2nd	2.	
51	B.	22	20	" 3rd	2.	
52	B.	22	20	" 4th	2.	
53	B.	22	20	" 5th	2.	
54	B.	22	20	" 6th	2.	
55	B.	22	20	" 7th	2.	
56	B.	22	20	" 8th	2.	
57	B.	22	20	" 9th	2.	
58	B.	22	20	" 10th	2.	
59	B.	22	20	" 11th	2.	
60	B.	22	20	" 12th	2.	
61	B.	22	20	" 13th	2.	
62	B.	22	20	" 14th	2.	
63	B.	22	20	" 15th	2.	
64	B.	22	20	" 16th	2.	
65	B.	22	20	" 17th	2.	
66	B.	22	20	" 18th	2.	
67	B.	22	20	" 19th	2.	
68	B.	22	20	" 20th	2.	
69	B.	22	20	" 21st	2.	
70	B.	22	20	" 22nd	2.	
71	B.	22	20	" 23rd	2.	
72	B.	22	20	" 24th	2.	
73	B.	22	20	" 25th	2.	
74	B.	22	20	" 26th	2.	
75	B.	22	20	" 27th	2.	
76	B.	22	20	" 28th	2.	
77	B.	22	20	" 29th	2.	
78	B.	22	20	" 30th	2.	
79	B.	22	20	" 31st	2.	
80	B.	22	20	" 1st	2.	
81	B.	22	20	" 2nd	2.	
82	B.	22	20	" 3rd	2.	
83	B.	22	20	" 4th	2.	
84	B.	22	20	" 5th	2.	
85	B.	22	20	" 6th	2.	
86	B.	22	20	" 7th	2.	
87	B.	22	20	" 8th	2.	
88	B.	22	20	" 9th	2.	
89	B.	22	20	" 10th	2.	
90	B.	22	20	" 11th	2.	
91	B.	22	20	" 12th	2.	
92	B.	22	20	" 13th	2.	
93	B.	22	20	" 14th	2.	
94	B.	22	20	" 15th	2.	
95	B.	22	20	" 16th	2.	
96	B.	22	20	" 17th	2.	
97	B.	22	20	" 18th	2.	
98	B.	22	20	" 19th	2.	
99	B.	22	20	" 20th	2.	
100	B.	22	20	" 21st	2.	

IRON CLIFFS COMPANY.

RECORD OF FIRE INSURANCE ON MINE BUILDINGS AND DWELLINGS

YEAR ENDING NOVEMBER, 30TH, 1904.

	AMOUNT OF INSURANCE CARRIED	PREMIUM ACCRUING FOR 1904	FIRE LOSS PAID 1904
<u>CLIFFS-SHAFT MINE</u>			
Mine Buildings	23500 00	348 26	
Dwellings	10600 00	81 78	
<u>TOTAL</u>	34100 00	430 04	
<u>SALISBURY MINE</u>			
Mine Buildings	6850 00	150 43	
Dwellings	17350 00	86 75	
<u>TOTAL</u>	24200 00	237 18	
<u>FOSTER MINE</u>			
Mine Buildings	50 00	1 00	
Dwellings	2550 00	18 50	
<u>TOTAL</u>	2600 00	19 50	
 <u>TOTAL IRON CLIFFS COMPANY</u>	 60900 00	 686 72	

NOTE:--

The Iron Cliffs Company had no Fire Loss during year 1904.

IRON CLIFFS COMPANY.

STATEMENT OF COST FOR ANALYSIS, INCLUDING SAMPLING AND CRUSHING

FOR EACH MINE, YEAR ENDING NOVEMBER, 30TH, 1904.

	NO. DETRS.	PER DETR.	AMOUNT.
<u>CLIFFS-SHAFT MINE</u>			
Laboratory Expense	2505	.0966	242 06
Sampling Etc.		.0811	203 22
Total	2505	.1777	445 28
Total 1903	4697	.1740	817 09
<u>SALISBURY MINE</u>			
Laboratory Expense	12818	.0948	1214 45
Sampling Etc.		.0273	350 31
Total	12818	.1221	1564 76
Total 1903	13812	.1206	1666 25
<u>SECTION 13, EXPLORATION</u>			
Laboratory Expense	12	.1200	1 44
<u>SECTION 12, EXPLORATION</u>			
Laboratory Expense	8	.0725	58
Total Exploration	20	.1010	2 02
GRAND TOTAL	15343	.1312	2012 06
GRAND TOTAL 1903	18560	.1341	2488 46

IRON CLIFFS COMPANY.

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DETAIL OF ACCOUNTS RECEIVABLE, NOVEMBER, 30TH, 1904.

REPRESENTATIVE ACCOUNTS RECEIVABLE.

Unearned Premiums Boiler Insurance	234.91	
Unearned Premiums Fire Insurance	<u>94.47</u>	
Total		329.38

ACCOUNTS RECEIVABLE.

Paymaster Account	50.97	
Negaunee Mine	934.47	
Cleveland-Cliffs Iron Company	4315.90	
Cleveland Iron Mining Company	1639.33	
Herman Kitto	8.00	
L. S. & I. Ry. Co.	77.80	
Empire Iron Company	750.00	
L. F. Pearce	<u>9.00</u>	
Total		<u>7785.47</u>
Grand Total		<u>8114.85</u>

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JAN 9 - 1905

IRON CLIFFS COMPANY.

DETAIL OF ACCOUNTS PAYABLE, NOVEMBER, 30TH, 1904.

REPRESENTATIVE ACCOUNTS PAYABLE.

Cliffs-Shaft Benefit Fund	3485.16	
Cliffs-Shaft Suspense Fund	3485.16	
Salisbury Benefit Fund	4172.09	
Salisbury Suspense Fund	2616.45	
Foster Benefit Fund	502.79	
Foster Suspense Fund	238.91	
Cliffs-Shaft Brass Checks	236.00	
Salisbury Brass Checks	187.00	
Foster Brass Checks	5.25	
Total		14928.81

VCHR.
NO.

ACCOUNTS PAYABLE.

Accured Taxes Unpaid	22979.67	
Pay-Rolls	18286.76	
Total		41266.43

BILLS AUDITED.

5708	Prize Awards	23.00	
5709	C. & N. W. Ry. Co.	45.85	
5710	D. S. S. & A. Ry. Co.	3.03	
5718	John T. Burke	25.75	
5719	Neg. & Ish. St. Ry. Co.	48.35	
5720	Jno. W. Jochim Hdw. Co.	41.28	
5721	Henry Harwood	80	
5722	L. S. & I. Ry. Co.	1031.64	
5723	Wm. T. Cole	17.78	
5724	Lake Shore Engine Works	42.62	
5725	Cons. Fuel & Lumber Company	48.40	
5726	Mrs. A. Williams	1.00	
5727	August Jacob	4.00	
5728	Anthony Powder Company	21.96	
5729	Chas. Hodge	10.00	
5730	L. S. & I. Ry. Co.	2.72	
5731	Ishpeming City water Works Co.	28.70	
5732	Cleveland-Cliffs Iron Co. Land Dept.	14.00	
5733	Cleveland Iron Mining Company	95.50	
5734	A. B. Miner, Cashier	17.00	
5735	Felch & Vandeventer	362.00	
5736	James Pickands & Company	25.89	
5737	The Diamond Rubber Company	83	
5738	Machinist Supply Company	1.86	
5739	The Link Belt Machy. Co.	7.20	
5740	I. E. Swift & Company	18.28	
5741	I. E. Swift & Company	3.17	
5742	The Bucyrus Company	3.75	
5743	Marshall-Wells Hdw. Co.	4.49	
5744	Cleveland Iron Mining Company	1.80	
5745	Cleveland Iron Mining Company	225.39	
5746	Cleveland Iron Mining Company	480.58	
5747	Negaunee Mine	4.84	
	Total		2663.46

Grand Total

58858.70

IRON CLIFFS COMPANY.

CLIFFS-SHAFT MINE.

STATEMENT OF RENTED HOUSES, SHOWING RENTS RECEIVED

COST OF REPAIRS ETC. YEAR ENDING NOVEMBER, 30TH, 1904.

HOUSE NO.	PRESENT OCCUPANT	RENT RECEIVED		REPAIRS		INSURANCE.		TAXES		TOTAL EXPENSE.	
A	A. J. Yungbluth	144	00	29	82	10	00	73	19	113	01
B	Duncan Campbell (	72	00	187	69	6	00	58	09	251	78
B	H. H. Ramsdell (	72	00								
C	C. J. Shaddick	120	00	29	75	5	00	43	39	78	14
1	T. Doherty	54	00	22	80	2	00			24	80
2	Felix Genord (	60	00	37	17	3	00			40	17
2	Geo. Oatman (	60	00								
3	D. J. Campbell	60	00	69	08	1	50			70	58
4	A. Denatte (	65	00	57	96	4	00			61	96
4	Otto Schadt (	60	00								
5	H. Kontala (	46	25	7	44	3	00			10	44
5	A. Matson (	57	50								
75	Jos. Kurtti	60	00	12		2	50			2	62
76	D. E. Maloney	65	00	114	39	2	50			116	89
	Boarding Herman Elson House	270	00	18	17	41	25			59	42
	TOTAL	1265	75	574	39	80	75	174	67	829	81
	TOTAL 1903	1359	50	279	07	80	78	160	86	520	71
						<u>1 9 0 4</u>				<u>1 9 0 3</u>	
Net Earnings for year						435	94	838	79		
Per Cent Earnings on Insurance Valuation						4	2%	8	1%		
Insurance Valuation						10400	00	10400	00		

IRON CLIFFS COMPANY.

SALISBURY MINE

STATEMENT OF RENTED HOUSES, SHOWING RENTS RECEIVED

COST OF REPAIRS ETC. FOR THE YEAR ENDING

NOVEMBER, 30TH, 1904.

HOUSE NO.	PRESENT OCCUPANT	RENT RECEIVED		REPAIRS		INSURANCE.		TAXES		TOTAL EXPENSE.		
1	Thomas Buzzo	144	00	13	65	10	25			23	90	
2	W. M. Sterling	96	00	12	55	5	00			17	55	
3	James Matthews	96	00	37	25	4	00			41	25	
4	W. C. Quayle	24	00	10	49		25			10	74	
5	Benjamin Luce (	48	00	13	53	5	00			18	53
5	John Christion (	42	00								
6	Phil. Christion	72	00	8	02	3	00			11	02	
7	F. Collett	36	00	7	04		75			7	79	
9	Robert Morris	19	00		92		50			1	42	
10							75				75	
14	Jos. Graham	42	00	3	70		37			4	07	
15	Wm. Gauthier	30	00	5	79		38			6	17	
16	Mrs. A. Williams	42	00	26	47	2	00			28	47	
17	Geo. Kermod	72	00	12	50	1	50			14	00	
18	Ros. Anderson (	30	00	4	82	1	00			5	82
18	Mrs. Wm. Canibeau (	15	00								
19	Chris Houson	42	00	1	86	1	00			2	86	
20	M. Gaiten	36	00	19	70	1	00			20	70	
22	Walter Vicary	96	00	9	90	5	00			14	90	
23	Wm. Johnson (	40	30	4	99	5	00			9	99
23	Wm. Cowley (	54	00								
24	Rich. Penow (	12	25								
24	Thomas Cloque (	54	00	15	80	5	00			20	80
25	Thomas Creer	96	00	6	37	5	00			11	37	
26	John Cain (	54	00	12	28	5	00			17	28
26	Frank Hinds (	7	00								
27	O. B. Wills	104	00	7	15	5	00			12	15	
28	John Lawrence	60	00	10	97	2	50			13	47	
29	Ant. Forget	58	75	10	52	2	50			13	02	
30	John Stephens	60	00	3	17	2	50			5	67	
31	Robert Cadkin	60	00	5	96	2	50			8	46	
32	Edward Treloar	60	00	8	74	2	50			11	24	
33	John Jenkins $\frac{1}{2}$ Old	60	00	6	94	2	50			9	44	
	Robert Morris Office	44	00	14	23	2	50			16	73	
	Chas. Kenward "	40	00									
	Water Pipe extended & repaired account caved ground			104	96					104	96	
	TOTAL	1646	30	400	27	84	25			484	52	
	TOTAL 1903	1688	25	312	92	84	25			397	17	
	Net Earnings for year					1	90	4		1	90	3
	Per Cent Earnings on Insur.Val					1361	78			1491	08	
	Insurance Valuation					8	4%			8	8%	
						16850	00			16850	00	

IRON CLIFFS COMPANY.

FOSTER MINE.

STATEMENT OF RENTED HOUSES, SHOWING RENTS RECEIVED

COST OF REPAIRS ETC. FOR THE YEAR ENDING

NOVEMBER, 30TH, 1904.

HOUSE NO.	PRESENT OCCUPANT	RENT RECEIVED		REPAIRS		INSURANCE.		TAXES		TOTAL EXPENSE.	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
	TOTAL						18 50				18 50
	TOTAL 1903.		49 00		19 67		18 55				38 22
						1 9 0 4		1 9 0 3			
Net Earnings for year											10 78
Net Loss for year							18 50				
Per Cent Earnings on Ins. Val.											004%
Per Cent Loss on Insur. Valua.							007%				
Insurance Valuation							2550 00				2550 00

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IRON CLIFFS COMPANY.

RECORD OF COST FOR SHOP WORK AT CLIFFS-SHAFT MINE

SHOPS FOR YEAR ENDING NOVEMBER, 30TH, 1904.

	MACHINE SHOP		BLACKSMITH SHOP		CARPENTER SHOP	
	1904	1903	1904	1903	1904	1903
Average number of men	2	3	4½	9	1	2
Total number of hours worked	5695	8247½	13700	27330	2972	5165
Hours on Shop tools etc.	73	195	115	325½	3	26
Hours for other shops	66	82	545	452	73	119
Hours for Various Persons	1		1			
Hours for Mine Accounts	5555	7970½	13039	26552½	2896	5020
Total Cost per Hour hour	.2883	.265	.2793	.245	.2169	.211
Cost per hour on Shop tools	.2883	.265	.2793	.245	.2169	.211
Cost per hour for other shp.	.2945	.267	.2803	.251	.2130	.237
" " " " Various Ac.	.2600	.271	.3000	.248		.212
" " " " Mine Accts.	.2921	.271	.2818	.248	.2155	.212
Total Labor Cost	1347.53	1792.50	2964.04	5547.23	634.64	1067.96
Cost per Hour	.2365	.217	.2163	.203	.2135	.207
Total Supply Cost	294.96	391.02	863.88	1150.02	10.00	22.19
Cost per Hour	.0518	.048	.0630	.042	.0034	.004
TOTAL LABOR & SUPPLY COST	1642.49	2183.52	3827.92	6697.25	644.64	1090.15
Profit on work done for various persons & mines other than Cliffs-Shaft	.32		.30			
Average charge per hour to various persons & mines	.60		.60			
Profit per hour various persons & mines	.32		.30			
SUPPLIES USED AS FOLLOWS:						
General Supplies	19.23	22.64	582.03	898.72	3.26	18.04
Iron & Steel	46	2.71	1.86	76		1.42
Oil, Grease & Candles	24.99	17.79	3.79	44	15	12
Machinery Supplies	6.06	25.48	14.31	13.86		
Building Material	52	35	25	2.64		10
Mine Timber	24					
Fuel	189.61	299.24	203.02	149.63		
Sundries	53.85	22.81	58.62	83.97	6.59	2.51
TOTAL	294.96	391.02	863.88	1150.02	10.00	22.19

1642.49
3827.92
644.64
1090.15
6115.05

2183.52
6697.25
1090.15
9970.92

THE IRON CLIFFS COMPANY.

REPORT OF OPERATING STEAM SHOVEL NO. 3, FOR SEASON 1904.

		1904	1903								
Number of Dayd Shovel Worked		82	106								
Average Number Hours Worked Per Day		4.90	4.50								
Total Number Tons Loaded		114727	137668								
Average Tons Per Day Loading		1399	1299								
Number of Men Working with Shovel		11	11								
Average Tons Per Man Per Day		127	118								
Average Wages Per Day for Runners		2.49	2.54								
Average Wages Per Day for Laborers		1.75	1.74								
Labor Cost Per Ton Operating		.017	.023								
Supply Cost Per Ton Operating		.003	.003								
	<u>TOTAL</u>	.020	.026								
		1904	1903	1	9	0	4	1	9	0	3
		TONS	TONS	AMOUNT	COST	AMOUNT	COST	AMOUNT	COST	AMOUNT	COST
Hard Ore			10816	16	87			420	53	038	
Lake	71999		68705	1429	11	020		2093	94	030	
Cliffs Shaft	12539		9890	227	21	018		273	49	028	
Salisbury	9887		47000	288	75	029		1549	66	033	
Negaunee	20302			573	84	028					
Michigamme			1257					74	45	059	
	<u>TOTAL</u>	114727	137668	2535	78	022		4412	07	032	
<u>OPERATING SHOVEL</u>											
Labor				2017	12	017		3237	56	023	
Supplies				305	38	003		374	16	003	
				<u>TOTAL</u>	2322	50	020	3611	72	026	
<u>REPAIRS TO SHOVEL</u>											
Labor & Supplies				213	28	002		800	35	006	
				<u>TOTAL OPERATING & REPAIR COST</u>	2535	78	022	4412	07	032	

High Repair Cost Year 1903 Due to Overhauling & Rebuilding Crane.

With repairs cost year 1902 396 40 Overhauling & Repairs 1902 425.

REPORTS SUPPLIES
 TOTAL OPERATING & REPAIR COST 8232 48 033 4413 04 033

REPAIRS TO SHOVEL

TOTAL 3233 20 030 2817 43 032

SUPPLIES 302 38 008 344 10 003

REPORT 3014 15 014 2824 28 032

OPERATING SHOVEL

MOUNTAIN 174434 18488 3232 42 033 4413 04 033
 17324

REPAIRS 30208 242 24 032

REPAIRS 3824 44000 388 42 032 1240 00 032

CITIZEN SHOVEL 13223 22251 018 342 42 032

REPORT 41333 23402 1430 17 032 3032 24 032

REPORT 1921 1921 19 24 480 22 032

TONS	TONS	AMOUNT COST	AMOUNT COST
1902	1902	1 3 0 4	1 3 0 2

TOTAL .030 .032

CREDIT COST FOR TON OPERATING .002 .002

REPORT COST FOR TON OPERATING .014 .032

REPAIRS REPORT FOR TON OPERATING 1.42 1.44

REPAIRS REPORT FOR TON OPERATING 3.43 3.44

REPAIRS TONS FOR TON OPERATING 134 118

REPAIRS TONS FOR TON OPERATING 11 11

REPAIRS TONS FOR TON OPERATING 1303 1303

REPAIRS TONS FOR TON OPERATING 11434 12432

REPAIRS TONS FOR TON OPERATING 4.30 4.28

REPAIRS TONS FOR TON OPERATING 33 102

1904 1902

REPORT OF OPERATING STEAM SHOVEL NO. 3 FOR SEASON 1904.

THE IRON CLIFFS COMPANY.

IRON CLIFFS CO.

Report of Steam Shovel # 3
 Season 1904.

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THE CLEVELAND-CLIFFS IRON CO.

Cost of Production for the Month of NOVEMBER 1904

E. O. S. T. E. R. Mine.	Month of <u>November</u> , 190 <u>4</u> No. <u>4</u> Tons.				12 Months, 190 <u>4</u>				12 Months, 190 <u>4</u>			
	LABOR		SUPPLIES		TOTAL		No. TONS		No. TONS		No. TONS	
	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton	Amount	Cost Per Ton
GENERAL EXPENSE, (For Year)												
Insurance,					19 50			19 50			61 05	
Engineering,												
Analysis,												
Relief Fund,												
Mine Office,												
Total,					19 50			19 50			61 05	
MAINTENANCE—Repairs of												
Tracks and Yards,												
Docks, Trestles and Pockets,												
Buildings,												
Shop Machinery,												
Boilers,												
Hoisting Machinery,												
Compressors and Air Pipes,												
Cornish and Steam Pumps,												
Top Tram Engines and Cars,												
Skips and Skip Roads,												
Underground Tracks and Cars,												
Total,												
MINING EXPENSE,												
Air Pipes,												
Compressors,												
Hoisting,												
Pumping,												
Sinking,												
Drifting,												
Breaking Ore,												
Tramming,												
Filling,												
Timbering,												
Mining Captain and Bosses,												
Dry House,												
Top Landing and Tramming,												
Stocking Ore,												
Sorting Ore,												
Total,												
Cost of Production, Per Cent.					19 50			19 50			61 05	
EXPLORATORY,												
Exploring in Mines,												
Total,												
DEPRECIATION, Etc.												
Inventory,												
Improvement,												
New Construction,												
Storing material at Ishpeming.											170 54	
Total,											170 54	
Taxes, Central Office,					166 88			166 88			195 95	
Total Cost on Stock Pile,												
LOADING AND SHIPPING,												
Steam Shovel, Tons,												
By Hand, "												
At Pocket, "												
Sorters (L. E. Dock), "												
Shipping Expense,												
Total,												
Total Cost on Cars,												
Royalty,												
Comm'n and Expense, Cleveland Office,												
Total Cost,					186 38			186 38			427 54	

	Accts. not sunk off		MOS.		SINKING			DRIFTING			COMPARATIVE COST			
	Amount	Per Ton	Amount	Per Ton	Feet	Cost	Per Ft.	Feet	Cost	Per Ft.	Year	Mos.	Tons	Cost
New Construction														
Improvement,														
Total,														

<p>REMARKS:</p> <p>Mine closed down November, 1898.</p>	<p>ANALYSIS OF LABOR.</p> <p>Labor as per Cost Sheet, Other Charges, Total,</p> <p>As per Labor Statement, General Pay Roll, Total,</p>
--	--

THE CLEVELAND-CLIFFS IRON CO.	COST OF SUPPLIES		COST PER TON		
	Mine.	Month	Year	For	For
	Product.			Mo.	Year
General Supplies,					
Iron and Steel,					
Oil, Grease and Candles,					
Machinery Supplies,					
Building Material,					
Explosives,					
Mine Timber,					
Fuel,					100 00
Barn,					100 00
Sundries,					
Total Supplies,					
Miscellaneous,			14		
Total,					
SUMMARY					
As per Cost Sheet,					
Improvement,					100 00
New Construction,					
Other Charges,					
Total,					

100 00 100 00

Checked with Ledger Acct. *Method*

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H. Niedecken Co., Mfg. Stationers, Milwaukee, 89, 951.

NOVEMBER 4 1904

Cost Sheet for the Month of

FOSTER MINE

The Cleveland-Cliffs Iron Co.



Commenting on Annual Report - 1904 - of the Furnace Department of the Cleveland-Cliffs Iron Co.

On page 5 of the Annual Report for 1903 is the following paragraph:- "A new brick cast house was built and covered with a heavy galvanized iron roof + A new roof was put on the boiler house and new sheathing on part of the walls --- While these expenditures have greatly added to the cost, it has put the furnace proper in first-class condition. In fact it is better than when first built.

The brick cast house will greatly decrease "Maintenance" charges, as will be the case with the boiler house owing to the heavy roof and sides." Referring to the cost of pig iron for year on page 4 of the Annual Report for 1904,- the high cost of the iron it is said is due to charging up repairs, etc. to cost of iron after furnace was shut down.

According to monthly reports for the five months of 1904 that the furnace was in blast, the cost of production was higher than for years and much in excess of 1903 as following table shows:-

	1902	1903	1903	1904	1903	1904	1903	1904	1903	1904
	DEC	DEC	JAN	JAN	FEB	FEB	MAR	MAR	APR	APR
	COST	COST	COST	COST	COST	COST	COST	COST	COST	COST
	PER	PER	PER	PER	PER	PER	PER	PER	PER	PER
	TON	TON	TON	TON	TON	TON	TON	TON	TON	TON
<u>General Expense</u>	.539	.338	.460	.527	.510	.386	.483	.470	.429	.380
<u>Maintenance</u>	.195	.270	.176	1.181	.187	.341	.174	.321	.385	.262
<u>Operating</u>	1.293	1.215	1.234	1.984	1.160	1.287	1.153	1.514	1.224	1.234
<u>Stock</u>	12.375	13.104	11.277	13.670	11.673	13.599	11.673	13.384	11.285	12.643
<u>Depreciation</u>	.500	.500	.500	.500	.491	.500	.500	.500	.500	.500
<u>Loading</u>	.040	.014	.075	.018	.071	.017	.111	.026	.058	.136
<u>TOTALS</u>	14.942	15.441	13.729	17.80	14.092	16.130	14.094	16.215	13.881	15.158

The cost of pig iron for five months in 1903 was \$14.138 while for the corresponding months in 1904 the cost was \$16.063 an increase of \$1.925 per ton. It is true as shown above, stock cost more but a large per cent. of the increase is on "Maintenance" and "operating" noticeably in Jan. 1904 when iron cost 17.80 to produce, here the cost of Main-

tenance reached the unusual amount of 1.181 per ton due to repairs on cast house roof which was put in such excellent condition in the latter part of 1903.

Referring to cost of charcoal on page 4 of Report 1, it is not clear how he arrives at the average cost of .091 per bushel for charcoal. According to the cost sheets there were no repairs charged up to Kilns after the furnace closed down. The increase in cost of charcoal up to the time of shut down was not on account of repairs but mostly on account of wood. The cost statement says there was consumed 1,252,064 bushels of charcoal at a total cost of \$102,339.15 which makes the average cost delivered at the furnace of .087 per bushel.

If repairs were made after the shut down it does not appear in the Annual Cost Statements that they were charged to Cost of Charcoal for the total cost of charcoal Dec. 1st was \$102,339.15 and it was the total cost at time of closing May 1st.

Referring to Parsons' chopping, page 131 - The Cost Sheet for December gives the cost of chopping as 80 cents while in his list of prices paid he has "December work and following = .90¢.

Referring to Parson's teaming, page 14,- In comparing the prices in the Annual Report with the cost Sheets for the year we find that the figures differ. The Cost Statement gives the average cost of teaming as .877 as against .786 for 1903. This increase is accounted for on the cost sheet as follows:- .095 for Depreciation, instead of .086 as in Report, as against .06 for previous year. Of the balance .016 is for new barn and well as against .008 for buildings in 1903, and the rest is accounted for by the increase in the Barn items, "Hay" and "Oats".

Referring to Mathews-Delta Ry. page 18:- According to Annual Report of 1903, 1.5 miles of this road was completed that year. In 1904, 3.54 miles were built, making a total mileage of 5.04 miles. The cost statement of "Improvements and New Construction", November 1904 gives the total cost of this road as \$4,723.82 which is

\$937.27 per mile.

The Report on page 19 says the N. W. Cooperage & Lumber Co. have borne one-half the expense and it is presumed that they have already paid \$2,361.91 of the total cost and the Furnace Dept's. New Construction should be credited with this amount.

Referring to Limestone Job, page 21:- Stating that the yield in cordwood of the 800 acres which have been cut was 19.53 cords per acre. The estimated yield on this land was the average yield of 35.475 cords to the acre.

Referring to teaming on Limestone Job, page 21:- The cost of teaming as shown by the cost sheets for 1904 show that the increase in cost was caused by the advance in cost of labor, that is, teamsters, swampers, car loaders, and foreman. This labor cost .594 per cord in 1904 as against .531 in 1903.

Referring to Eben Chopping - page 29:- Report of 1903 says balance on hand at end of year was 5,215 cords. The wood cost sheets show 14,675 cords were cut in 1904 making a total of 19,890 cords. There were shipped during 1904, according to cost sheet, 14,034 3/4 cords leaving a balance on hand at the end of year 1904 of 5,855 1/4 cords. These figures differ from the Annual Report and hence change the total cordage on hand on page 31.

Referring to Taxes - page 32:- When Brampton was in Masonville township taxes were as follows:-

Furnace Plant	\$4,805.03
" " Personal.....	\$1,735.11
Limestone Quarry.....	<u>\$ 2.67</u>
	\$6,542.81

After Brampton became a Township, Taxes were as follows:-

(4)

	1903	1904
Furnace Plant	\$3,449.35	\$3,236.04
" " Personal	\$1,735.85	\$1,341.46
Limestone Quarry	\$ 1.92	\$ 1.80
	\$4,827.12	\$4,579.30

Referring to "General Remarks" Gladstone Plant page 37.

"Maintenances" charges reduced - The monthly cost sheets show that during the months the furnace remained in blast in 1904 the "Maintenance" charges were higher than for 1903 with the exception of the last month in blast April.

Referring to "Club House" - page 37:- The Colorado Fuel and Iron Co. had a similar problem with their Club-House experience but solved the matter in a most satisfactory way, an account of which appears in the World's Work Magazine for March 1904. The Annual Reports of the Sociological Dept. which can be had on application give full details as to their success in running a bar in their Men's Clubs.

Referring to dates in the matter of Acetate Plant at Marquette, Page 43:-

The Crown Dryer Co. first started their experiments during the first week of April 1904 and broke down the following week. By the last of May, the 26th, they were running half capacity but were continually delayed by break downs and change of plant till Nov. 8th 1904 when the Furnace took charge of the plant.

Referring to installation of double skips - page 45:- There was a decrease of 5.3 bushels of charcoal to the ton of iron produced and it is claimed that this decrease was caused by the use of this new skip.

Referring to bins - page 45:- After the ore has been dumped in bins it seems they are unable to mix it so as to gain uniform results from the furnace, and it is presumed that he means that it would increase the cost of ore, per ton of iron, if the bins were discarded and labor employed in mixing and handling the ore. It would seem that to get a proper mixture was more important.

WAL-WAH

3/24/05

F-D 29

THE CLEVELAND-CLIFFS IRON COMPANY

AND

PIONEER IRON COMPANY

PIONEER FURNACE DEPARTMENT

ANNUAL REPORT

1904

GLADSTONE,

MICHIGAN

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Mr. W. G. Mather, President.

Mercantile Bank Bldg.,
Cleveland, Ohio.

Dear Sir:-

I beg to submit my report covering the operations of the Pioneer Furnace Department of The Cleveland=Cliffs and Pioneer Iron Companies, for the year ending November 30., '04.

FURNACE OPERATING

GLADSTONE:

Owing to the depression in the iron market, it was decided to bank the Gladstone furnace, which was done May 1st., 1904, and since that time, up to the end of the fiscal year, the furnace has been out of blast. This fact makes it impossible to obtain any comparison with the preceding year.

Since the furnace has been out of blast, all repairs, office expenses, the wages of men retained, coal and supplies, have been charged against the pig iron and alcohol. This necessarily has gradually increased the cost under our system of book-keeping, and they have gradually gone up toward the end of the fiscal year. This explanation will cover all comparative statements shown in this report.

The furnace was in blast during the year 1904, 137 working days. Ten days and seven hours were lost during January, repairing the hot blast stoves. Four days and eight hours were lost during March, due to the blizzard and heavy snow storm which prevailed during that month.

FURNACE OPERATING

	<u>1904</u>		<u>1903</u>	
	<u>Hr.</u>	<u>Mi.</u>	<u>Hr.</u>	<u>Mi.</u>
Total time delayed - - - -	417	57	279	38
Avg. delay per day exc. of cleaning stoves		29		31
Average tons made per hour - - -	4.32		4.48	
Total number casts for year - -	545		1449	
Average tons per cast - - - -	26.0		27.1	
Average tons per day - - - -	103.7		107.7	
Average burden for year (Ore) - -	2911	2908	2920	
Average burden for year (Limestone)	135	121	130	
Average burden for year (Charcoal) -	1200		1200	
Total average burden for year - -	4246		4250	
Total number full charges for year -	20652		55586	
Total number blank charges for year -	215		12	
Total number charges for year - -	20867		55598	
Average number charges per day - -	151.0		154.0	
Average heat of stove No. 1 for year -	1188		1112	
Average heat of stove No. 2 for year -	1188		1112	
Average steam pressure for year - -	92		90	
Average blast pressure for year - -	7 $\frac{1}{4}$		7 $\frac{1}{4}$	
Average revolution of engine for year -	35		36	

2

COMPARATIVE DETAILED STATEMENT OF DELAYS

	<u>1904</u>		<u>1903</u>	
	<u>Hrs.</u>	<u>Min.</u>	<u>Hrs.</u>	<u>Min.</u>
Casting - - - - -	51	27	138	23
Repairing engines - - - -	0	0	0	0
Cleaning and putting in blow pipes -	4	45	2	0
Repairing hoist - - - - -	3	15	4	30
Replacing tuyeres - - - - -	1	50	4	0
Changing gas vlaves - - - -	0	40	12	30
Cleaning and repairing stoves - -	247	0	89	30
Repairing water pipes - - - -	0	0	1	35
Cooler plates - - - - -	5	0	22	10
Bell and hopper - - - - -	0	0	1	0
Repairing cast house roof around stack -	0	0	4	0
Time lost account storm in March -	<u>104</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL DELAYS:- - - - -	417	57	279	38

The output for the year was 14,198 tons of Non-Bessemer pig iron. The small tonnage was due to the banking of the furnace. The following is a detailed statement of percentages of the different grades produced.

COMPARATIVE STATEMENT OF PIG IRON MADE

GRADES	<u>Tons percent</u>		<u>Tons Percent</u>	
	<u>1904</u>		<u>1903</u>	
A Scotch - - - - -	350	2.5	385	1.
B Scotch - - - - -	276	1.9	385	1.
C Scotch - - - - -	198	1.4	488	1.2
No. 1 Special - - - - -	649	4.4	2758	5.6
No. 1 Foundry - - - - -	1626	11.6	3872	10.1
No. 2 Low - - - - -	1653	11.7	4385	11.5
No. 2 High - - - - -	2552	18.2	5088	13.0
No. 3 Low - - - - -	2899	20.6	7897	20.4
No. 3 High - - - - -	1502	10.1	3804	9.8
No. 3 Malleable - - - - -	64	0.4	1015	2.2
No. 4 Low - - - - -	517	3.7	1972	5.0
No. 4 High - - - - -	679	4.8	1981	5.1
No. 5 - - - - -	692	4.9	2430	6.3
No. 6 - - - - -	541	3.8	1929	4.9
Bessemer Special - - - - -	0	0	1114	2.9
TOTAL - - - - -	14198	100.0	38903	100.0

There was consumed during the year the following quantities of material.

O r e	Used		Per Cent	Over-run		Shortage	
	Tons	Lbs.		Tons	Lbs.	Tons	Lbs.
Lake	19738	530	73.8				
Salisbury	3707	1238	13.9				
Cliffs Shaft	2760	1728	10.3				
Lake Bess. Silica	534	2142	2.0				
TOTAL	26741	1158	100.				
Limestone	1117	720					
Charcoal	1252064	Bushels					

The average yield of ore for the year was 53.1 - being one-half per cent lower than the preceeding year. The bushels of coal per ton of pig iron were 88.2 - showing an increase of 1.9 bushels per ton of pig iron produced. This was entirely due to the banking of the furnace in January, March and the final stoppage in April. The pounds of limestone per ton of pig iron were 176 - being a decrease of 8 pounds per ton over the preceeding year.

							<u>Non-Bessemer Yield</u>	
							<u>1904</u>	<u>1903</u>
Ore	-	-	-	-	-	-	53.1	53.5
Coal	-	-	-	-	-	-	88.2	86.3
Flux	-	-	-	-	-	-	176	185

No Bessemer or Special irons were made during the year. There was consumed during the year 1,282,064 bushels of charcoal at an average cost delivered to the furnace of .091. The increase in the cost of charcoal is due to charging up repairs to the kilns after the furnace was shut down. The cost of pig iron for the year was \$18.11, as against \$15.11 for the preceeding

year, being an increase of \$3.00 per ton. This increase has been already explained, and is due to charging up office expenses, repairs etc., to the end of the fiscal year against the small tonnage produced. *why not against repairs*

				<u>1904</u>	<u>1903</u>	<u>Increase</u>
General Expense	-	-	-	.922 ✓	.412	.510
Maintenance	-	-	-	.852 ✓	.526	.326
Operating	-	-	-	1.863 ✓	1.214	.649
Stock	-	-	-	13.270 ✓	11.994	1.276
Depreciation	-	-	-	.726 ✓	.550	.176
Loading	-	-	-	.132 ✓	.072	.060
TOTAL	-	-	-	17.765 ✓	14.768	2.997
Cleveland Office Expense	-	-	-	.350 ✓	.350	
TOTAL	-	-	-	18.115 ✓	15.118	2.997 ✓

There was shipped during the year 15,901 tons of pig iron, 8,740 tons by rail and 7,161 by vessel. The average cost of loading on cars was .089, being an increase of .016 per ton, due to the switching charge paid the railway company after laying up our engine.

The cost of loading vessels was .153 per ton, an increase of .022 per ton, due to dividing the cost of repairing loading rigs by a very small tonnage. The wages paid the loaders was the same as last year. The shipments exceed production by 1703 tons. We closed the season of navigation with 4303 tons of pig iron on dock, as against 6,006 tons at the close of 1903, a decrease of 1,703 tons in stock carried. After the furnace was banked, the machinery and locomotive was put in thorough repairs, stoves and flues were cleaned and the boilers left in good shape.

The fires were kept up continuously under one battery of boilers for the purpose of fire protection. Considerable work was done on the pig iron dock, as the caps and piling were in bad shape. At the time of banking, the furnace had completed here fifty-fifth consecutive month on her second blast, and so far as I can judge is still in good condition. It is an open question whether, during the shut down, we should put in new linings. Unless something unforeseen should happen, the furnace should be in condition to start up and run for several months at least on the present lining.

Shortly before the close of the fiscal year, it was decided to replace the present blowing engines with a modern machine similar to the one installed at Marquette, and to install two triple expansion condensing pumps. These alterations are at the present writing well under way.

Our stock house should be enlarged, as it has been a constant source of expense to us every Winter, extra men being required to keep open the run ways and handle the frozen ore. When the furnace starts up again, everything will be in first class shape.

CHARCOAL SUPPLY

Conditions in this department have not changed. The supply from outside sources is diminishing yearly. Our total receipts for the year were 79,779 bushels, ^{2,40,296 bushels} less than the preceding year. We received from Cadillac, according to the railroad weights at point of shipment, 32,299 bushels of coal. The furnace records show that we received 30,039 bushels or a loss of about 7 percent, making the net price of this coal at the furnace .075 per bushel. Owing to the rapidly decreasing supply from outside sources, if we expect to run our furnace up to her full capacity, it is absolutely necessary that we increase

Have an outsider change the reports & report on running them

our kilns at Gladstone. If this is done, we should add ten additional kilns of 90 cords capacity each. Our retort plant is very expensive to operate, and largely adds to our cost of charcoal. I would recommend abandoning this plant entirely and making an arrangement with the Masheck Chemical Company for their output of charcoal.

FREIGHT ON CHARCOAL

	<u>1904</u>	<u>1903</u>
	<u>Cost</u>	<u>Cost</u>
	<u>Per. Bu.</u>	<u>Per. Bu.</u>
<u>OUTSIDE JOBBERS</u>		
Frts. on C. & N.W. various places to Larch	.0073	.0097
Frts. from Larch various places to Furnace	.0024	.0026
TOTAL:-	.0097	.0123
Total freight on coal over C & N W	.0097	.0091
Total freight on coal over Soo Line only	.0031	.0039
Total freight on coal from jobbers (Note)	.0095	.0084
Total freight on coal from Cadillac	.0211	.0224
Note:- Does not include coal from Cadillac		
Bus. coal over C. & N. W. from various plc's	46200	139780
Bus. coal over Ann Arbor via Manistique	32299	37815
Bus. coal over Soo Line only	1280	126460
Total bushels from outside sources	79779	320075

PIONEER FURNACE KILNS:

GLADSTONE:

Owing to the partial operation of the kilns during the past year, it is hard to make a comparison with the year preceeding. After the furnace was banked, the battery was thoroughly repaired and put in first-class condition. Where the walls had bulged and become thin, the brick were removed and replaced. The battery in its present condition is good for many years to come.

The cost of these repairs has been charged against the coal produced during the past year, which accounts for the increase noted.

COMPARATIVE STATEMENT OF KILN OPERATIONS

	<u>1904</u>	<u>1903</u>
Number kilns filled during year - - -	363	1024
Number of kilns emptied during year - - -	356✓	1025
Cords wood put into kilns during year - - -	20810✓	60126
Cords wood in kilns December 1st., - - -	4422✓	3850
Total cords - - -	25232✓	63976
Cords wood carbonized during year - - -	21672✓	60859
Balance cords in kilns - - -	3560✓	3117
Inventory November 30th., (Cords) - - -	4428✓	4422
Over-run (Cords) - - -	868✓	1304
Total bushels coal made during year - - -	894360✓	2626440
Average bushels coal per kiln - - -	2512✓	2562
Average bushels coal per cord - - -	43.0✓	44.1
Average time turning kilns (Days) - - -	27.8✓	24.9
Average brands per kiln - - -	5.9✓	5.7
Average cords per kiln - - -	58.4✓	57.4
Total - - -	64.3✓	63.1
Average kilns turned per month - - -	71	85
Number of kilns in battery to Dec. 1st. - - -	70	70

REMARKS

As previously stated our several costs of iron, alcohol and charcoal, have been largely increased through the charging up of the various items going to make up the cost sheets, of the repairs, office expenses, fuel consumed for fire protection etc., against these commodities since the shutting down of the furnace. For the sake of comparison these cost sheets are misleading, inasmuch as they increase each month the furnace is out of blast. I have two suggestions to make on these lines. First: Repairs made around the furnace, which come under the head of " Renewals ", should be taken care of by a " Relining and Renewal " fund, which now amounts to about \$18,000.00 and the only charge against this in the future will be the relining of the furnace, which would not cost to exceed \$5,000.00

to \$6,000.00, which would leave from \$12,000.00 to \$13,000.00 available for much of the repair work which I contend has been wrongly charged to " Maintenance, " making this item of our cost sheet unduly high, and as years go by, one is apt to forget that much of the cost going into this item should have been charged to renewals and just what these expenditures were.

Second: It seems to me that the cost for salaries, office expenses, fire protection etc., entailed through the stopping of the furnace, should be credited to the Treasurer. At the end of the fiscal year this amount could be charged against the Department and deducted from the profits or added to the losses of the Department as they shall appear. If this is done the cost sheets would not be changed, and we would not be compelled to cudgel our brains two or three years after when we are making comparisons to remember why these abnormal costs occurred, and to what they were due.

PARSONS WOOD JOB

Refer to Plat " A "

November 30th., 1904, closes the 10th. year of operations on the " Parsons Tract. " Plat " A " will show the following:-

Original Parsons Tract - - - - -	8,360	Acres
Only 3.8 Per cent still remains as standing timber	320	"
Cordwood at the stump accupies 2 sections -	1,280	"
We have sold and deeded 7.6 per cent - -	640	"
We have under options and under contract 34%-	2,800	"
We have cut over lands - not sold 39 per cent	3,320m	"
41 % of Parsons Tract is deeded, Con'td or Op'td.	3,440	"
We have cut in 10 years ending Nov. 30., 04	8,040	"
Average cut over per year - - -	804	"
Cut in 10 years ending Nov. 30., 04 - -	323,736	Cords
Average cut per year	32,373	"
Average yield per acre - - -	40.2	"

The above figures are significant in many ways. They show that for ten years a steady and nearly uniform rate of operating has been conducted, and especially that the Parsons Tract has borne out our predictions as to being perhaps the choicest group of hard-wood lands which any furnace company has ever operated, not only as to location, shape, and topography but above all, its splendid stand of timber.

We opened the year 1904 with	-	-	-	-	29,455	Cords
We cut during the year 1904	-	-	-	-	23,505	"
Total	-	-	-	-	52,960	"
Shipped during the year 1904	-	-	-	-	14,269	"
Total on hand Nov. 30th. 04	-	-	-	-	38,691	"

We do not expect that the timber left standing at the end of the year will make more than 10,000 cords, and this will all be cut during the balance of the present winter, and if the Gladstone furnace starts in the Spring of 1905, the last of the wood will be shipped from the Parsons Tract late in the year of 1906.

A further examination of plat " A " will show that the cord-wood at the stump (colored blue), is pretty well accessible to the Eastern extension of Parsons Railway, and that our camp No. 4, located in the S. W. corner of Section No. 2, is the last camp which will have to be built on this tract. At this camp we have every facility for completing the work, including a good barn to take care of 16 teams, good well, blacksmith shop, and plenty of boarding houses to take care of a large crew. It will be our plan to ship freely from this point while we are on wheels because the bottom on the Mathews Tract is wet, and can be better operated on sleighs. It will be a matter of much regret to us when Parsons ceases to be a source of supply for this furnace.

In addition to the showing made above of cord-wood furnished during the past ten years by this tract, we have sold a very considerable amount of other forest products as the following will show.

TIMBER AND BARK SALES

<u>YEAR</u>	<u>SOLD TO</u>	<u>KIND</u>	<u>QUANTITY</u>	<u>PRICE</u>	<u>TOTAL PROFIT</u>	<u>PROFIT PER</u>
1897	A.F. Underwood	Basswood	422,128	7.00	1060.05	2.51
1897	Peter Mc Rae	Pine Stpg	807,000	Lumped	3800.00	
1897	Buckeye S. Co.	Elm Stpg.	2,131,367	1.625	3362.83	
1898	Buckeye S. Co.	Elm Stpg.	2,566,770	1.625	4050.14	
1899	2-Riv. Mfg. Co.	Bass Bolt	160	2.75	258.60	
1899	U.S. Wood Co.	Bass Bolt	641	1.00	641.25	
1900	U.S. Wood Co.	Bass Bolt	231	1.00	231.50	
02-3	N.R. Allens	Hem. Bark	581	6.35	1464.12	
1902	N.W.C. & L. Co.	E & B logs	233,238	9.00	1107.88	4.75
1902	N.W.C. & L. Co.	Bass Bolt	11	2.25	24.75	
1903	N.W.C. & L. Co.	Hem logs	803,684	6.00	3210.57	
03-4	Dennis Bros	Bch. logs	229,851	3.00	689.55	
03-4	Dennis Bros.	Elm logs	62,967	5.00	314.84	
03-4	Dennis Bros.	Basswood	32,895	5.00	164.47	
TOTAL:-					20380.55	

NOTE:

In the above table in sales of stumpage which we do not operate, they are treated as profits.

It is not pleasant to contemplate that most of the above was sold at very low prices for stumpage, and that at the present prices it would have yielded a much larger revenue. The Gladstone furnace closed May 1st., and left us with a large number of horses without work. For the purpose of furnishing employment for our teams and keeping up our organization, we commenced about the 1st. of November to deliver along side of the Eastern extension of Parsons Railway, elm and basswood logs from Sections 2, 3 and 10, which according to Howies original estimate should amount to about 500,000 feet. This we are selling to The Northwestern Cooperage & Lumber Company at the following prices:- Elm \$10.50 per M, Basswood \$10.50 per M, Birch \$7.75 per M. At

the close of the fiscal year we had gotten out and scaled 109,722 feet of Elm, 90,415 feet of Basswood and 35,808 feet of Birch. At this writing the work is going well, there being the right amount of snow to facilitate hauling on drays, and we look for a nice margin of profit at the close of the operations. In this connection, it is proper to state that on all the timber products taken from this land and showing a profit of over \$20,000.00, not one dollar has been charged to help out Construction of railroads, camps etc., or to take care of taxes, and cordwood, which has been worked for the Gladstone furnace, has been compelled to carry the entire burden, which is manifestly unjust.

PARSONS LAND SALES

We have sold on this tract during the past year 600 acres at an average price of \$5.00 per acre. We have issued options on 1,600 acres at \$5.00 per acre and on 80 acres at \$3.50 per acre, the latter being stoney and sandy and is a good sale at the price named.

EASTERN EXTENSION OF PARSONS RAILWAY

During the year of 1903, we graded two miles for the the Eastern Extension of the Parsons Railway. During the year of 1904, we removed the steel from the Northern Extension and completed the Eastern Extension. The estimated cost of this work including grading, ties, and laying steel, was \$5,912.50. The actual cost was \$5,555.25, showing a net saving over the estimate of \$357.25, and a cost per mile of \$2313.14, which also includes the taking up of the two miles of steel from the Northern Extension,

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and relaying the same. If it had not been necessary to extend the railroad into the Eastern portion of the Parsons Tract, this job would have had a very easy load to carry so far as construction is concerned, but it was not practical to operate Sections 2, 3 and 10 from the main line. It was a necessity that the road be built. The worse feature about it is that the road extends through a thinly timbered country, which will yield less than 30 cords to the acre.

The principle reason why we should operate the balance of the stumpage at Parsons as soon as possible is, that we need to release the 7 7-10 miles of Soo Line steel which we are using there. This steel will be needed to open up other territory to take the place of Parsons.

PARSONS CHOPPING

At the beginning of the year, the choppers, who for several months had been walking long distances to their work, were established at the new camp on the S E corner of Section 2 - 41 - 17, and although the timber was thin and the price had been reduced from 90 cents to 80 cents in December, the men made an average per month of 48 cords, as against 43.1 cords for the preceding year. The prices paid for chopping were the same for corresponding periods at all jobs, irrespective of the distance to be walked or the character of the timber, and were as follows:-

December work and following	-	-	-	-	-	90	¢
January work and following	-	-	-	-	-	75	¢
June work and following	-	-	-	-	-	70	¢
October work and following	-	-	-	-	-	80	¢

The average number of choppers employed per month during the year was 41, as compared with 61 for the preceding year, showing a decrease of 20.

During the Winter months, we ran a stiff crew, but on the shutting down of the furnace the 1st. of May, we discharged all unmarried men, and for the balance of the year, we gave chopping to from 18 to 20 married men, who are living with their families on the location.

PARSONS TEAMING

The average cost of teaming for the year was 86¢ - as against 78¢ for the preceeding year. This includes 8.6¢ for depreciation, as against 6¢ for the preceeding year, being an increase of 2.6 ^{cents} per cent. The additional .054 increase was due to a longer haul from territory over which the cordwood was scattered, and because we built a new barn, well ect., the cost of which was spread over a comparatively small number of cords hauled, due to the shutting down of the furnace. We hauled from this job only the first six months of the year. The cords hauled for the several months were as follows:-

December	-	-	-	-	2,374.50	✓
January	-	-	-	-	1,856.25	✓
February	-	-	-	-	2,104.50	✓
March	-	-	-	-	2,033.25	✓
April	-	-	-	-	4,441.75	✓
May	-	-	-	-	1,458.75	✓
TOTAL:-	-	-	-	-	14,269.00	✓
We cut during the year	-	-	-	-	23,505.12	✓
Shipped as above	-	-	-	-	14,269.00	✓
Cut exceeded shipments	-	-	-	-	9,236.12	✓

WESTON LANDS

These lands which have been offered to us at different times at prices ranging from \$10.00 to \$16.00 per acre, have been sold to parties who succeeded the F. & F. Company at Thompson. At what price we have been unable to determine, although we have every reason to believe that it is at least \$16.00 and possibly even higher. The logs will be shipped over the Delta Co's. railroad to their improved mills at Thompson They will cut into logs everything down to eight inches in diameter. We are about to investigate the possibility of getting cordwood from their tops and smaller timber.

MATHEWS WOOD JOB

Refer to Plat " B "

We commenced the year with a balance of 19,410 cords of wood at the stump. We cut during the year 23,109 cords. We shipped during the year 10,419 cords, leaving a balance on hand at the end of the fiscal year of 32,101 cords. During the Winter we shipped the remainder of the cord-wood on Section 28 - 44 - 21, and suspended operations in March and moved our team outfit to Parsons.

From figures you will note later, your attention will be forcibly called to the expense entailed in operating such a tract of land as go to make up the Mathews group. Although but one-half of this tract is cut over, we have already built many camps and as much railroad as was necessary to operate the entire Parsons job. A careful study of the topography of the plat will show the large swamp and creek areas, but does not give you an adequate idea of the other difficulties encountered. Even where there are no swamps, the land is wet and spongy, and

even slight rains give us no end of trouble from mud. The original Mathews tract embrace 8,640 acres. Thirty-seven per cent of the tract or 3,240 acres is cut and hauled. Cordwood is standing at the stump on 760 acres. The total acreage cut is 46 per cent or 4,000 acres. Light yellow shows the Sutherland-Innes stumpage operated in connection with this job, and is 720 acres. The dark yellow shows the Sutherland-Innes stumpage still tributary to this location. We have cut in connection with this job as follows:-

<u>YEAR</u>	<u>CORDS</u>
1900 - - - - -	26,539
1901 - - - - -	29,819
1902 - - - - -	27,167
1903 - - - - -	21,130
1904 - - - - -	<u>23,109</u>
TOTAL - - - - -	127,765
This total includes S. I. stumpage	<u>35,923</u>
Cut from Mathews lands - - -	91,842

The yield from the Sutherland-Innes lands operated is 49.8 cords per acre. The yield for Mathews lands operated to date is 22.9 cords per acre. Mr. Noble's estimate of this cordage was 22 cords per acre. Mr. Howie's estimate was 22.6 cords per acre. The great disparity between the yield on the Sutherland Innes lands and the Mathews lands is startling, and deserves an explanation. In the case of the Sutherland-Innes land, we have under consideration only 18 forties, which were the cream of the country, and the best of the 10040 acres originally selected. There were only three fringes of swamp which were unproductive and the stand of hardwood was magnificent. We cannot assume that all the Sutherland-Innes stumpage will show this remarkable yield. In fact we have good reasons for knowing that it will be much less, as the

showing on the descriptions tributary to Limestone job are very disappointing, and I believe in the end we shall find that the average yield will be considerably less than 40 cords to the acre, on which basis this stumpage was bought. From the above you will note that under ordinary conditions, the working of Parsons and Coalwood is an easy proposition compared to operating such territory as the Mathews and Rumley tracts. The question of sinking off railroads and taxes on these tracts is disheartening, to say nothing of the teaming. In view of the full information you have had furnished in the shape of maps and reports to illustrate the great difference between good country and bad, it is undoubtedly clear to you why the cordage per mile of railroad and per camp is so small on some jobs as compared with others.

At the time of writing my last annual report, we had just completed our fourth camp on Section 3 - 43 - 21, and established our choppers for the Winter. During that time we ran a good stiff gang of choppers. We had a great deal of trouble from a saloon adjacent to our property. We instituted a suit against them for Sunday selling and running a house of ill-fame. They were convicted and fined \$100.00 and cost. This ended the saloon. The saloon at Limestone was also closed up through our attacking his bondsman. We have found this a very effective weapon. In our fight against the saloons, one-half the expense has been borne by The Northwestern Cooperage & Lumber Company.

MATHEWS CHOPPING

The price paid for chopping at various periods during the year were the same as given for Parsons tract, and was uniform at all locations.

The average cords per man, per month was	-	-	-	-	-	-	-	39.0	Cords
As compared with 1903, which was	-	-	-	-	-	-	-	<u>33.5</u>	"
Increase	-	-	-	-	-	-	-	5.5	"

Due to nearness to work and better timber. At the beginning of the year we had 70 choppers.

The monthly average was	-	-	-	-	-	-	-	50.0	Men
As compared with 1903, which was	-	-	-	-	-	-	-	<u>52.5</u>	"
Decrease	-	-	-	-	-	-	-	2.5	"

MATHEWS TEAMING

We shipped from Mathews during the first four months of the year. The shipments were as follows:-

December	-	-	-	-	-	-	-	2,796	Cords
January	-	-	-	-	-	-	-	3,346	"
February	-	-	-	-	-	-	-	2,181	"
March	-	-	-	-	-	-	-	<u>2,094</u>	"
Total	-	-	-	-	-	-	-	10,417	Cords

This work was done at a cost of .777 per cord as compared with .75 for the preceeding year, being an increase of .027 per cord. The topography shown on Section 28 - 44 - 21 where this hauling was done, does not adqutely illustrate the difficulties of the situation. There are no hills on this section, but with the exception of a few hardwood ridges, the timber was mixed and the bottom very dirty. It was not possible to do the work at any reasonable cost.

MATHEWS-DELTA RAILWAY

This road was fully described and partially built at the time of writing my 1903 report. Since then we have completed 3.54 miles at a cost of \$1150.00 per mile. Our estimate for this work was \$1200.00 per mile. The Northwestern

Cooperage & Lumber Company have borne one-half of the expense of this extension. The Soo Line R'y. have accepted and operated the railroad. If we have accomplished nothing else, we have succeeded in lowering the standard for railroads built by us which they were to operate.

The lowest cost for the Parsons standard railway being \$1,550.00 per mile through a better territory for railroad operations.

The Cooperage Company are taking out the Elm and Bass wood logs over this road which we are getting out for them.

Referring to Plat " B " you will note that the road makes accessible the cordwood at the stump, and also extends into the center of Section 3 - 43 - 21, as yet uncut. We shall not be obliged to spend more money for railroads in this country for some time to come.

MATHEWS BARK AND LOG JOB

In my report for 1903, I referred to the fact that none of the outside stumpage on this tract had been operated, except the cordwood, and the elm and basswood which was sold to The Northwestern Cooperage & Lumber Company in 1895. In the Spring of 1904, we undertook to take care of the timber left on the S. W. side of the Whitefish river. We sold our hemlock bark to the Northwestern Leather Company and received therefor only \$5.50 of 2240 pounds f. o. b. cars, which was the best offer we could get from any source. We measured in the woods and paid for 457 cords, and received from the buyers 451 cords, showing a shortage of 6 cords. The history of the bark business is, that the buyers are knaves and the producer often gives his

bark makers too large measurements in the woods, often resulting in large shortages. We must congratulate ourselves therefore on this showing. We are not able at this writing to say what fraction of a cord of bark we have obtained from 1000 feet of peeled hemlock logs, for the reason that the logs are not all out of the woods. In the making of peeled hemlock logs, hemlock bark, standard hemlock ties, and No. 2 hemlock ties, it was not possible to keep the costs of each separate, and we can only divide the profits on the various kinds of material when the deal is closed. The country where it was gotten out is very dirty and conditions unfavorable, but the timber had to be removed, and the job has served to keep up our organization, and to take care of our teams while the furnace is out of blast. All indications, however, point to a profit for this work, which will be doing as well or even better than we expected. We have ready for scaling, as soon as we complete the hauling, about 300,000 feet of hemlock logs and 5,000 standard ties.

Why not

MATHEWS BUCKEYE LOG JOB: This work was undertaken because the Buckeye Company justly claim that they had a right to enter our territory and get the benefit of timber for which they had paid to open up with a railroad. Rather than have their jobbers in our way, for the sake of keeping up our organization, with the hope of making some profit, we undertook this work. At this writing, although the job is not completed, we are in a fair way to make a little profit. The price for operating this timber and putting it along side the track is \$4.50 per M.

LIMESTONE WOOD JOB

Refer to Plat " C "

At the present writing this job is 2 years old. We cut

in 1903, 8,592 cords, in 1904, 7,033 cords, making a total of 15,625 cords. We shipped in 1903, 4,950, in 1904, 4,162 cords, making a total of 9,112 cords. We started the year with a balance on hand of 6,513 cords. This is all Sutherland-Innes stumpage. Plat " C " will show that the original acreage tributary to this camp was 1,760 acres, of which we have cut to November 30th, 1904, 45 per cent or 800 acres. From this 800 acres the yield in cordwood was 19.53 cords per acre. This confirms what we said under the head of Mathews camp relative to the average yield of cords on the Sutherland-Innes lands, and is decidedly at variance with the showing of 49.8 cords yield from the fine descriptions on Sections 15 and 21, Town 44, Rrange 21.

The territory is badly cut up by swamps. The fine stand of timber which one sees from the line of the Rapid River branch of the Soo Line railway in passing through these lands, is very misleading, as the survey of the road runs through strictly hardwood, but on either side at distances varying from a few rods to one-half mile, unproductive swamps are found, which cut down the average yield per acre and add to the difficulties and cost of operating. As mentioned in my report for 1903, the location was paralyzed for the first of its existance by a saloon adjacent to the property. By instituting a suit against one of the bondsmen of the saloon keeper, we put him out of business and it has had a deterring effect on other men aspiring to this sort of business.

Nearly all the hauling done on this job has had to contend with either mud or deep snow. The teaming cost for 1904 was .839 per cord, as against .789 per cord for the preceding year, being an increase of .050 per cord, due entirely to weather conditions.

The average number of choppers employed per month during the year was 15, as compared with 31 for the preceding year, being a decrease of 16. The average cords per man per month were 39, as against 34.8 for the preceding year, being an increase of 4.2 cords. This increase was not due to better timber, but to a steadier and harder working class of men. After closing down the Gladstone furnace, we discharged our foreman, and cut the choppers down to 6 men, who have families and are living on the location.

STOCK OF WOOD FOR GLADSTONE FURNACE

We closed the year with the following stocks on hand and all jobs cut down to minimum, employing only family men who live on the location. The majority of the men and all the teams have been employed in logging operations as previously set fourth. The closing of the Gladstone furnace has enabled us to complete our spurs and camps, and put them in good shape for new operations.

Parsons	-	-	-	-	-	-	38,691	Cords
Mathews	-	-	-	-	-	-	32,101	"
Limestone	-	-	-	-	-	-	6,512	"
E $\frac{1}{2}$ of E $\frac{1}{2}$ Section 31 - 46 - 21								
(Being S. I. stumpage)							<u>6,302</u>	"
Total	-	-	-	-	-	-	83,607	

This cordage represents about 13 months run for the Gladstone furnace. At the present time, as you will note by list of choppers at the various jobs, is increasing very slowly, and as soon as hauling is commenced in the Spring, we will put the choppers on swamping and loading and discontinue cutting almost entirely. We deemed it best to avail ourselves of the present comparatively low cost for chopping. Indications point

to an advance. Our neighbors at Manistique have already made it and it practically amounts to 90¢ and \$1.00 per cord. They use considerable sophistry and give plausible reason for this advance, but the fact can not be denied that it is unsettling our men.

AVERAGE YIELD PER ACRE FOR TEN YEARS FROM ALL
LOCATIONS TRIBUTARY TO THE GLADSTONE FURNACE

<u>LOCATION</u>	<u>ACRES</u>	<u>CORDS</u>	<u>YIELD PER ACRE</u>
Parsons - -	8,040 - -	323,736 - -	40.2
Mathews -	4,000 -	91,842 -	22.96
S. I. Stmpg. -	<u>1,670 -</u>	<u>57,850 -</u>	34.64
Total -	13,710 -	473,428	
Avg. for 10 Yrs.	1,371 -	47,342 (all lands)	34.53

PIONEER IRON COMPANY JOBS

COALWOOD: Refer to Plat " D "

This location has covered its fourth year of operation, and has maintained its record as being next to Parsons, the best territory we have operated. The year commenced with a balance of 66,000 cords of wood on hand, and closes with a balance with 58,124 cords, a decrease of 8,876 cords.

The following table shows the quantity of wood cut and shipped during the life of the operation to date.

<u>YEAR</u>	<u>CUT</u>	<u>SHIPPED</u>
1901 - - - - -	30,166 - - - - -	0,000
1902 - - - - -	54,630 - - - - -	0,000
1903 - - - - -	26,441 - - - - -	44,388
1904 - - - - -	<u>44,635</u> - - - - -	<u>53,360</u>
Total - - - - -	155,872 - - - - -	97,748

To illustrate the magnitude of our wood operations, I would call your attention to the shipments from Coalwood for the year 1904, amounting to 53,360 cords. This is the largest shipment from any one location on record in the state, covering the same period of time.

The original Coalwood tract contained about 12,800 acres. Thirty-one percent of the lands are now cut over, amounting to 3,960 acres. The average yield in cords per acre to date is 39.3.

CHOPPING

The price that was paid for chopping at this location for the year was the same as prevailed at the other locations. The average number of men chopping per month was 87, as against 52 for the preceding year, being an increase of 35. The average cords chopped per man per month was 43, as against 42 for the preceding year, being an increase of one cord.

TEAMING

The cost of hauling and loading for the year was .709 per cord, as against .710 for the preceding, a decrease of .005 per cord. During the Winter of 1903 and 1904, part of the force hauled from a hilly country North of the bluff indicated on the plat, and had a very difficult proposition to contend with. The great depth of snow, which exceed all known records, prevailed here as it did all along the Munising Railway and made the work of supplying the two furnaces at Marquette very expensive, to say nothing of being able to command the necessary quantities. That part of the force which was working on the B branch of Coalwood spur No. 1, was obliged to abandon this territory on account of our inability to keep the spur open, and hauled to the spur at the location from ground which we should have

saved for Summer haul, the result being that during the Summer of 1904, all the teams were on long sandy hauls, and it was very hard to keep up the stock. I am glad to say that with the return of sleighing, the Coalwood horses have been brought around in good shape. Had it not been for the large territory North of the bluff, which is very hilly, this job would have broken all records for cheapness of hauling, and the small cost for camps and railroad per cord of wood. As it is the cost of camps have long since been sunk off, and only about \$500.00 of the very expensive Valley spur remains to be taken care of, and the total amount yet to be sunk off for all spurs amounts to about \$1,100.00, with a large cordage on which to charge it off.

As our operations extend Easterly, the timber becomes thinner and unless we acquire some additional descriptions to the West, it is not to be expected that the yield per acre will hold out.

SPURS

No. 1 spur was extended in an Easterly direction for about 2,400 feet, the steel being removed from the B branch of this spur and laid on the extension. This extension cost about \$250.00, the work being very light.

LAND SELECTIONS

The showing of nearly 40 cords per acre at Coalwood on sandy loam lands where the timber is small, but stands thick on the ground as compared with the yield shown on the Mathews tract, and later on the Rumley lands, in addition to the fact that sandy land is much cheaper for us to operate, should teach us that this class of land, while not yielding much timber suitable for wood working industries, is especially adapted to

our needs, and these facts should be carefully kept in mind when lands for furnace uses are to be selected.

RUMLEY WOOD JOB: Refer to Plat " E "

The current year just closed is the third in the history of this location. The year commenced with 38,725 cords of wood on hand, and closed with 26,628 cords, being a decrease of 12,097 cords. The record of the wood cut and shipped is as follows:-

<u>YEAR</u>	<u>CUT</u>	<u>SHIPPED</u>
1903 - - - -	23,508 - - -	26,709 ✓
1904 - - - -	14,290 - - -	26,129 ✓

The original Rumley group consisted of 8,280 acres, of this we have cut thirty-one per cent or 2,620 acres. The average yield of cordwood per acre to date is 30.3 cords. The timber at Rumley is large and makes a rough class of wood, while the location is popular with choppers, they do not like the timber, and we are often troubled to get the requisite amount of wood cut at this location. Recent reports to you have shown the desirability of securing for the Furnace Department, some of the C. & N. W. R'y. purchase lands for the purpose of filling out the grouping. Reference to the plat will make my meaning clear. The Rumley district is the highest of any along the Munising R'y. and always catches more snow than any section of the country.

CHOPPING

During the Summer of 1904, we are unable to get men at the price we were paying, viz., 70¢, and the average number of choppers per month was 31, as against 52 for the previous year,

being a decrease of 21. The average cords per man per month was 39, as against $37\frac{1}{2}$ for the preceding year, being an increase of $1\frac{1}{2}$ cords per man. This goes to show that during hard times and low prices, we get better averages out of our men.

TEAMING

The average cost for hauling for the year was .858 per cord, as against .910 for the preceding year, a decrease of .052 per cord. We need never look for low cost for hauling in this country. The haul from section No. 24 to spurs Nos. 1 and 2 were very long. We actually worked in five feet of snow part of the time. There were many places where the wood piles could not be determined by even a mound, and for weeks we had to dig canals through the snow to get our horses through. Worse Winter conditions have never been known, and this was followed by mud in the heavy clay soil, which made it impossible to make decent figures on costs. Notwithstanding the deep snow and the bad bottoms, we have kept up our stock and the horses look well.

SPURS

Deimling spur, which I referred to in my last years report as being surveyed, was built in the Spring of 1904, and its location is shown on the plat. It is $2\frac{12}{100}$ miles long, and is for the purpose of opening up Sections 28 and 22, and later to be extended to the N. E. and finally to the N. W. Bids were submitted for this work, the lowest being \$2,200.00. We considered this too high and concluded to do the work ourselves, which we completed at a total cost to us of \$1,593.66, being a saving over the lowest bid of \$606.34. This cost spread on $2\frac{12}{100}$ miles of work, makes the cost per mile ready for laying

track, exclusive of ties, \$751.72. The following table shows the distribution of cost of this spur.

Clearing	-	-	-	-	-	-	-	247.30
Grading	-	-	-	-	-	-	-	882.76
Foreman	-	-	-	-	-	-	-	176.60
Grubbing	-	-	-	-	-	-	-	192.80
Dynamite	-	-	-	-	-	-	-	92.65
Culvert	-	-	-	-	-	-	-	<u>1.55</u>
Total	-	-	-	-	-	-	-	\$1593.66

In connection with this spur, the railway company have rendered us bills for material furnished and labor done in laying and surfacing the track, amounting to \$1,254.48. You are already familiar with this matter, but have not as yet made a ruling covering the question at issue. Both Mr. Noble's and my understanding from our recollection of the Chicago meeting, is that the railway company were to furnish and lay for us a reasonable amount of steel on our sidings on the line of the Munising Railway, we furnishing the grade and ties, on exactly the same lines as our existing agreement with the Soo Line Railway. These bills are still held up awaiting your decision.

For your information would state that to date the Soo Line Railway have furnished and laid for us 9 9-10 miles of steel, while the Munising Railway have furnished and laid for us, including the Diemling spur just referred to, 6 6-10 miles.

2A

EBEN WOOD JOB: Refer to Plat " E "

This job was originally started to furnish wood for the Carp River furnace, but as conditions change from time to time, this wood may go either to the Carp River or the New Furnace as the case may be. The general condition of the soil, snow, mud and timber are on a par with those at Runley. Added to this, its teams have nearly always had to haul green wood, which naturally increases the cost. During the Winter of 1903 and 1904, the Eben teams hauled from Section 24 - 46 22, and had a hard fight with the snow.

Eben suspended hauling on the closing down of the Carp River furnace. Part of its teams were employed on Grand Island and part were sent to help out the log job at Mathews. No spurs were built at this location during the current year.

EBEN CHOPPING

The average men working per month was 25.3, as against 45 for the preceding year, showing a decrease of 19.7. The average cords chopped per month per man was 41.5, as against 35.0 for the preceding year, being an increase of $6\frac{1}{2}$ cords per man.

We closed the year with a balance on hand of 5,564 cords. We cut during the year of 1904, 14,675 cords. We shipped during the year 8,565 cords, leaving a balance on hand of 5,372, being a decrease of 192 cords. The total amount cut includes 6,302 cords Sutherland-Innes wood for Gladstone. Since the starting of the Eben job, it has cut on various descriptions as follows:- S. $\frac{1}{2}$ of Section 30 - 46 - 21, which yielded 9,823 cords, the average yield per acre being 30.6 cords. Section 25 - 46 - 22 yielded 8,552 cords for that portion operated, viz., being South of the track, the average yield per acre being 31.2 cords. 29

Eighty acres of Section 36 - 46 - 22 yielded 1,918 cords or an average of 23.8 cords per acre.

TEAMING

The cost of teaming for the current year was .850, as against .960 for the preceding year, showing a reduction of .110 per cord.

WOOD FROM FARMERS

WOOD ALONG MUNISING R'Y.

The conditions governing this source of supply are the same as existed last year. Outside of farmers who have purchased our lands on contract, we have received no wood from this source. At the opening of the year we had on bank at the various sidings 5,567 cords. We received during the year 23 cords, making a total of 5,590 cords. We shipped during the year 2,683 cords, leaving on banks at the end of the year 2,907 cords. This by no means represents the amount of wood we received from farmers during the year. In addition to the 23 cords placed on banks, we received on cars for direct shipment from various farmers 12,157 cords, making a total from farmers 12,170 cords. Practically all of this wood was shipped to the Carp River furnace.

GENERAL PLAN OF WOOD OPERATIONS FOR THE MARQUETTE FURNACES

We closed the year 1903 with 119,905 cords of wood. At the end of the present fiscal year, our total cordage amounts to 98,222 cords, being a decrease of 21,683 cords over the preceding year. This amount of wood at our present rate of consumption would last the Marquette furnaces a trifle under nine

months. This agrees very closely with the figures given you in my last annual report, in which I stated that we would reduce our cordage to about 99,000 cords. The following table shows the amount and location of the wood at our various sources of supply.

Coalwood	-	-	-	-	-	-	-	58,124	Cords
Rumley	-	-	-	-	-	-	-	26,628	"
Eben	-	-	-	-	-	-	-	5,372 ⁸⁸⁵⁵	"
Wood Along Munising R'y.				-	-	-	-	2,907	"
Marquette Furnace Yard				-	-	-	-	5,191	"
Total	-	-	-	-	-	-	-	98,222 ⁹⁸⁷⁰⁵	Cords

CORDWOOD OPERATIONS IN GENERAL

So far the season has started in favorably, and we sincerely hope it will continue, and that we will be able to improve our records.

After ten years operating I beg to submit a few figures, which I think may be of interest to you. At the various Cleveland Cliffs locations we have cut over 13,710 acres, from which we obtained 473,428 cords of wood. The average cords per acre were 34.53.

From the various locations of the Pioneer Iron Company, on the line of the Munising Railway, during the past four years we have cut over 7,356 acres, and obtained 258,799 cords of wood or an average yield of 35.1 cords per acre. The average yield of cordwood per acre from all the lands of both companies cut over, and amounting to 21,066 acres is 34.75, and the total cords cut from all locations amount to 732,227 cords.

LOT AND LAND SALES

We sold one lot in the City of Gladstone during the current year, being Lot 29, Block 2, South Shore Addition, price \$200.00.

Our revenue from lease holders on Government Lot No. 3 increased \$55.00, being \$426.00, as against \$371.00 for the preceding year.

We have sold 600 acres on the Parsons Tract at an average price of \$5.00 per acre. We have issued options on the Parsons Tract for 1,680 acres, as against 560 for the preceding year. Sixteen hundred acres are optioned at \$5.00 per acre, and eighty acres at \$3.50 per acre, the latter being stoney and undesirable land. We have optioned 360 acres at \$5.00 per acre on the Mathews Tract. All this goes to show that there is a greatly increased demand for cut over lands or more properly speaking farming lands in general in the Upper Penn.

TAXES

*Taxes before
after Brampton 50* The total taxes for the year decreased \$658.09. Of this decrease \$250.00 was in Brampton township. We are gradually reducing the taxes in this township, and hope they will soon reach a minimum. The remaining decrease covered all the townships, with the exception of Garden and Inwood. There was a slight increase in both these townships, being \$7.00 in Garden and \$240.00 in Inwood townships. The increase in Inwood township was due to cordwood at the stump. Our valuations on realty were not increased over the preceding year, except in Mathias and Limestone townships, where they were raised under instruction of the Tax Commission. All lands, however, were treated alike, and we have no complaints to make. 32

CHEMICAL PLANT NO. 1

GLADSTONE:

Chemical Plant No. 1 was operated from the beginning of the fiscal year until May 11th., The Plant continued in operation after the furnace had shut down until all kilns burning were carbonized.

Owing to the interruptions occurring during the past two years, due to remodeling etc., it is almost impossible to make any comparison. This is further interfered with by the fact, that for about two months of the past fiscal year we ran on crude alcohol. During the early part of the year we rebuilt our smoke main entirely and re-set and repaired the five old boilers at this plant, this work being charged to " Maintenance " ran that item up enormously. These repairs were about finished when the furnace went out of blast, and we were not able to avail ourselves of the benefits to be derived therefrom, and the entire cost was charged off against comparatively few gallons of alcohol.

As you already know the Still House was struck by lightning about 10:00 o'clock in the morning of August 15th., and totally destroyed by fire. The condensers, boilers and pump house, as well as the Acetate plant were saved. In November of the fiscal year, it was decided to re-build the plant, and plans and estimates are being gotten out. When the new plant is erected, in connection with our improvements at the blast furnace, I predict that we will make a very satisfactory showing so far as the cost of alcohol is concerned. Our experiment in making crude alcohol was disastrous from a financial standpoint and bore out my statements that we had no business going into this branch of the business.

I submit the following comparisons, which are the only ones available and of any use to you for reasons already given.

We produced during the time of operation 50,124 gallons of refined alcohol, and 47,579 gallons of crude. The operating covering this period was practically the same as for a like period during the preceding year. During the preceding year, owing to changes in the Chemical plant and loss of smoke, we could keep no record of yields, with the exception of the last month of the year 1903. During that month the yield of refined alcohol was 4.2 gallons per cord and for crude 4.86 gallons per cord. During the time we ran in the year 1904, the yield for refined was 4.29 gallons per cord, being an increase of practically .3 gallon per cord. Our coal decreased .04 ¢ per gallon during the same period over the year preceding.

The yield for crude alcohol was 5.04 gallons per cord, as against 4.86 gallons per cord for the preceding year, being an increase of .18 gallon per cord. It was most unfortunate that we could not continue our plant in operation for a few months longer, as we were just beginning to get it in shape to avail ourselves of the improvements to the apparatus, smoke main and boilers.

*What was and used
coal for cord
acetate re during
crude alcohol run*

ACETATE PLANT NO. 1

GLADSTONE:

Acetate Plant No. 1 was operated the same length of time as Chemical Plant No. 1. Our output for the year was 809,650, as against 2,022,208 pounds for the preceding year, a decrease of 1,212,558 pounds. The average output per day was 6,361 pounds, as against 5,777 pounds for the preceding year, being an increase of 584 pounds per day. This plant was

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working satisfactorily up to the shutting down of the furnace.

RETORT PLANT

I have no reason to change my views regarding the retort plant. I would recommend that we buy our charcoal from Wells and shut down this plant. As a result of splitting the wood and changing the settings, the retorts work better and the " Maintenance " charges were not so high. We also succeeded in reducing the coal somewhat, but you can never maintain these retorts at anything like a reasonable cost while you are compeled to fire them direct, and we certainly can not use an extension front so long as we buy our coal. A comparative statement of retort operations follows:-

STATEMENT OF RETORT OPERATING

<u>Pioneer Furnace No. 1°</u>	<u>1904</u>	<u>1903</u>
Number retorts filled - - - - -	1293	1910
Number retorts emptied - - - - -	1293✓	1910
Cords wood put in retorts during year -	6152	9101
Less brands not put back - - - - -	132	229
Less over-run - - - - -		280
Cords, less over-run, carbonized during year	6020✓	8592
Total bushels coal made during year -	276340✓	379900
Average bushels coal per retort - -	214	199
Average bushels coal per cord - - -	46.0✓	44.2
Average time turning retorts (Note) -	25 H. 15 M.	0 ✓
Average cords per retort - - - - -	4.8✓	4.8
Average retorts turned during month -	258	159
Number retorts in battery - - - - -	10	10
Pounds fuel per cord of wood - - -	557	647

Note:

Owing to irregular working, it is impossible to give acurate figures for 1903.

CHEMICAL PLANT NO. 2

Chemical Plant No. 2 was operated continuously during the past fiscal year until the closing down of the furnace on May 1st., with the exception of the four days lost during the March blizzard.

We produced for the year 43,912 gallons of refined alcohol. The yield was 7.34 gallons per cord of wood carbonized. Owing to the irregular working of the plant during the preceding year, no comparisons are possible. The plant is in good condition, but we could well afford to shut it down in connection with the retorts and buy our coal from outside sources. The piping of the gas from the retorts to the boiler house of this plant resulted in quite a saving in fuel.

ACETATE PLANT NO. 2

This plant was operated during the same period of time as Chemical Plant No. 2. We produced for the year 740,110 pounds of Gray Acetate of Lime, an average of 5,351 pounds per day and 123 pounds of Acetate per cord of wood carbonized. The plant is in good condition, but comparisons are not admissible for reasons stated.

GENERAL REMARKS

GLADSTONE PLANTS:

The operation of the furnace was fairly satisfactory up to the time of banking. Although commencing the eighth month in her fifth year of consecutive operations, so far as can be observed the furnace is in good condition, and could have continued in operation indefinitely. We were handicapped by a very severe Winter, with totally inadequate stock house protection, and were put to great expense and trouble in

consequence of being compelled to handle large quantities of frozen ore. The Winter storms culminated in a severe blizzard in March, which caused us great expense and closed down the furnace for four days.

The " Maintenance " charges were greatly reduced, as shortly after the beginning of the year we finished the renewals in our yard and completed the brick cast house. All the Gladstone plants are in better condition than the preceding year, with the exception of Chemical Plant No. 1, still house which was destroyed by fire last August.

The dwelling houses have been kept up, and although many of them are unoccupied, due to the furnace being shut down, they are in good condition. Up to the shutting down of the furnace the patronage of the Club House was about as usual. The Club House has not met my expectations. If we started up again, I would recommend selling whiskey as well as beer to the men. They still patronize the saloons and will have whiskey. I think we could give them a better quality and the inducements to take too much would not exist in the Club as they do in the saloons.

PIONEER FURNACE NO. 2

MARQUETTE:

FURNACE OPERATING

The furnace was in blast during the year 1904, about 350 working days. We had extraordinary stoppages, amounting to 16 days and 10 hours. Four days and nine hours due to March blizzards, seven days and thirteen hours installing double skip, four days and twelve hours due to strike for higher wages on the part of the men. These stops were expensive, inasmuch as they added to our labor cost and fuel. Each one was almost equivalent to a blow-in, so you can readily see that our fuel

consumption was seriously affected.

DETAIL STATEMENT OF FURNACE OPERATING

	<u>1904</u>	<u>1903</u>
<i>Days run</i> Total time delayed - - - - -	547 H 28 M	535 H 42 M
Average delay exclusive of above causes -	26	3 33
Average tone made per hour - - -	5.36	4.46
Total number casts for year - - -	1382	847
Average tons per cast - - - - -	30.5	28.1
Average tons per day - - - - -	120.4	107.8
Average burden for year (Ore) - -	5950	3750
Average burden for year (Limestone) -	92	116
Average burden for year (Charcoal) -	2400	1550
Total average burden for year - -	8442	5400
Total number full charges for year - -	30412	30216
Total number blank charges for year -	199	362
Total number charges for year - - -	30611	30578
Average number charges per day - -	87	139
Average heat of stove No. 1 for year	1300	1300
Average heat of stove No. 2 for year -	1275	1250
Average heat of stove No. 3 for year -	1225	00
Average steam pressure for year - - -	118	117
Average blast pressure for year - - -	9	8 $\frac{1}{4}$
✓ Average revolution of engines for year -	86	84

DETAIL STATEMENT OF DELAYS

	<u>1904</u>		<u>1903</u>	
	<u>Hrs.</u>	<u>Min.</u>	<u>Hrs.</u>	<u>Min.</u>
Casting - - - - -	96		201	
Repairing engines - - - - -	9	26	0	50
Cleaning and putting in blow pipes	28	54	36	25
Repairing skip track - - - - -	0	0	1	40
Replacing tuyeres - - - - -	3	0	13	3
Explosion doors - - - - -	1	8	9	10
Changing bosh plates - - - - -	8	15	0	0
Repairs to notch - - - - -	0	0	8	16
Cooler plates - - - - -	4	50	14	28
Top house machinery - - - - -	0	30	4	35
Bell and hopper - - - - -	0	0	2	52
Total delays - - - - -	152	3	292	42

The output for the year was 42,151.T Of this amount 38,550 was Non-Bessemer, 2,165 Bessemer and 1,436 Special High Phos. pig iron. The following is a statement of the various grades and percentages made.

STATEMENT OF PIG IRON MADE

<u>GRADES</u>	<u>1904</u>		<u>1903</u>	
	<u>Tons</u>	<u>Percent</u>	<u>Tons</u>	<u>Percent</u>
A Scotch - - - - -	401	.9	515	2.5
B Scotch - - - - -	355	.8	303	1.2
C Scotch - - - - -	876	2.5	657	2.9
No. 1 Special - - - - -	2032	4.8	2030	8.5
No. 1 Foundry - - - - -	5036	11.6	3065	12.8
No. 2 Low - - - - -	5500	13.0	4425	18.6
No. 2 High - - - - -	7609	18.0	3988	16.6
No. 3 Low - - - - -	8592	20.1	3285	13.6
No. 3 Malleable - - - - -	1108	2.6	136	.5
No. 3 High - - - - -	2277	5.4	0	.0
No. 4 Low - - - - -	1745	4.1	1046	4.4
No. 4 High - - - - -	1147	2.7	589	2.4
No. 4 Malleable - - - - -	0	.0	17	.0
No. 5 - - - - -	1297	3.7	847	3.5
No. 6 - - - - -	575	1.4	886	3.8
High Phos - - - - -	1436	3.3	0	.0
Bessemer - - - - -	2165	5.1	0	.0
TOTAL - - - - -	42151	100.0	23821	100.0

There was consumed during the year the following quantities of material.

O r e	Used		Per Cent	Over-run		Shortage	
	Tons	Lbs.		Tons	Lbs.	Tons	Lbs.
Lake	66744	1490	82.7	306	1955		
Cliffs Shaft	6929	2210	8.6				
Salisbury	345	992	.4	26	758		
Lucy	167	220	.2	227	840		
Cambridge	779	1290	.9			14	505
Lake Bessemer	2909	1390	3.6	50	314		
Abbotsford	1164	140	1.5	28	1060		
Clinton	997	2120	1.2			5	1800
Imperial	726	920	.9	10	965		
TOTAL	80764	1812	100.0	649	1412	20	65
Limestone	1278	490					
Charcoal	3673040	Bushels					

The average yield of ore for the year was 52.2. The bushels of coal per ton of pig iron was 86.6, a decrease of 5.3 bushels, per ton of pig iron produced. This decrease is partly due to the more regular working of the furnace, but almost entirely to the installation of the double skip. During the coming year, I hope to make a still better showing on fuel consumption, as it is not likely we will have more labor troubles or be compelled to shut down to install new machinery. We did not derive the benefit from the double skip until well into the fiscal year.

In addition to the Non-Bessemer iron, we produced 2,165 tons of Bessemer. The average yield of Bessemer ore was 53.4 and 1,436 tons of Special High Phos. pig iron, the average ore yield for which was 57.0.

The pounds of limestone consumed per ton of iron was 68.1. There was consumed during the year 3,673,040 bushels of charcoal. The average cost of coal was .678, an increase of

three tenths. This was due to going on to one dollar wood. This high price wood is used up, and the cost for the coming year will be correspondingly reduced. Our entire charcoal supply came from our own kilns, not one bushel of outside coal being received.

The cost of pig iron made for the year, including Bessemer and Special Phos.- was \$13.47, being a decrease of \$1.71 over the preceding year. The following table shows a variation in the different items making up the cost.

	<u>1904</u>	<u>1903</u>	<u>Increase</u>	<u>Decrease</u>
General Expense - - -	.360 ✓	.506		.149
Maintenance - - -	.223	.397		.174
Operating - - -	1.046	1.513		.467
Stock - - -	10.700	11.757		1.057
Depreciation - - -	<u>1.143</u>	<u>1.006</u>	<u>.137</u>	
Total - - -	13.472	15.182	.137	1.710

There was shipped during the year 30,779 tons of pig iron. Of this amount 8,242 tons was forwarded by rail, and 22,537 tons by vessel. The average cost of loading on cars was .073. The cost of loading vessels was .486, an increase of .220 per ton. As a matter of fact the cost of loading vessels decreased .036 per ton. The increase is due to the twenty-five cents shifting and handling charge paid to the railway company, which during the preceding year was absorbed by the Superior Charcoal Iron Company.

We closed the season of navigation with 17,185 tons of pig iron on the furnace dock, as against 5,813 tons for the preceding year, being an increase of 11,372 tons. At the close of the year, the furnace had completed her nineteenth and one-half consecutive month on her first blast and is working satisfactorily.

CHARCOAL SUPPLY

The remarks in my 1903 report covering our charcoal supply for the Marquette furnace still apply. We had considerable trouble during the year with the settling of our bottoms in the kilns. A goodly sum was spent filling in the bottoms with cinder and clay, and considerable more work will have to be done on these lines on account of the soft ground on which the kilns are built, until we get a good bearing. These low bottoms made it hard to operate the kilns satisfactorily, and tended to reduce our yield of coal.

The following is a statement of the operation of the kilns at Pioneer Furnace No. 2

STATEMENT OF KILN OPERATIONS

	<u>1904</u>	<u>1903</u>
Number kilns filled during year - - -	1293.	808
Number kilns emptied during year - - -	1290.	752
Cords of wood put into kilns during year -	91132	58078
Cords wood in kilns December 1st. - - -	6164	0
Total cords	97296	58078
Cords wood carbonized during year - - -	91003	51914
Balance cords in kilns - - -	6293	6164
Inventory November 30th. (Cords) - - -	6293	6164
Total bushels coal made during year	3673355	2158665
Average bushels coal per kiln - - -	2847	2871
Average bushels coal per cord - - -	40.3	41.5
Average time turning kilns (Days) - - -	23.2	23.6
Average brands per kiln - - -	7.3	7.9
Average cords carbonized per kiln - - -	70.7	69.0
Total - - -	78.0	76.9
Average number kilns turned per month - - -	107.5	100.2
Number kilns in battery - - -	86	86

MARQUETTE CHEMICAL PLANT

The Marquette alcohol plant was operated for 354 days during the fiscal year. Eleven days were lost, due to the shutting down of the furnace. 42

The total number of gallons produced during the year was 371,742 gallons. The average yield of alcohol per cord of wood carbonized was 4.38 gallons. The average gallons per day were 1,054 $\frac{1}{2}$. The average increase in yield was .43 gallons per cord. The average increase gallons per day was 133.4.

The plant has continued to work most satisfactorily, Although handicapped by the shutting down of the furnace on three different occasions. My prediction that our fuel would be less than .02 per gallon has been borne out, the average for the year being .016, This amount being still further reduced during the latter part of the year, when for several months it closely approximated .01 per gallon. Our lowest yield per cord equaled our highest yield per cord for the preceding year, which was 4.28. Our highest yield for the present year was 4.45. This splendid work still further justifies our expenditure on this plant and its accessories.

MARQUETTE ACETATE PLANT

The showing for this plant has been anything but creditable. The Crown Dryer Company were greatly delayed in its construction, and when it was finally started up, it was a failure. They worked for months trying to over-come their difficulties without success. During the entire fiscal year they produced but 289,880 pounds of inferior acetate. We paid them 70 cents per cwt. for 251,144 pounds, making the net cost to us for the 289,820 pounds, 61 cents. *date?*

Shortly before the close of the fiscal year, after an agreement made with you in Cleveland, the plant was turned over to our Company. We immediately commenced the installation of pans, but the construction work was not completed nor the plant *date?*

put in operation until after the ending of the present fiscal year.

MARQUETTE FORMALDEHYDE PLANT

The formaldehyde plant started on its test run March 17th., It was found necessary to make some changes in the apparatus, and it resumed operations on March 22nd. Owing to some of the seperators being too small, the Contractor replaced these and the plant is now finished. The test run showed that it came up to the guarantee of the Contractor, both as regards the quality and quantity of formaldehyde produced.

During the fiscal year, the plant was in operation but 33 days, and these were not consecutive. We only ran when we had an order for formaldehyde, as we can not keep this stuff in stock, for the reason that it deteriorates. Our total production was 70,659 pounds, of which we shipped 65,802 pounds or three car loads. We were evidently grossly misinformed as to the demand for formaldehyde, as our agents were unable to dispose of but three car loads in six months. Under these conditions, it makes it impossible to arrive at any reliable figures as to cost. I believe though that could we operate the plant up to anything like its capacity, we will closely approximate our estimate of cost, viz., about $7\frac{1}{2}$ cents per pound. At the present price of formaldehyde, there is a very small margin of profit at these figures.

GENERAL REMARKS

Taken as a whole, the operation of the Marquette furnace for the past year was satisfactory. The crew gradually gained in efficiency, and in spite of unavoidable shut downs, which were most expensive, we succeeded in reducing the cost.

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on all items entering into the cost sheet, not including stock used.

The installation of the double skip helped our distribution enormously, and admitted of our carrying an increased burden closely approximating 200 pounds to the charge, thus greatly decreasing our fuel per ton of iron.

The condition of the plant is good, all necessary repairs having been kept up. This applies not only to the furnace, but the Chemical plant as well. One of the greatest difficulties we have to contend with is the working of the ore bins, as our ore comes direct from the mines and is dumped into the bins, we are unable to mix it, and as our Lake mine vary continually in the quality of its ore, it is very hard to run the furnace uniformly for reasons given. This is somewhat offset by the labor saved through the operation of the bins.

At an expense of about \$300.00, I have gotten up a heating system, which enables us to use the bins during the Winter, although furnace managers and engineers stated that it would be impossible to do so unless we made a very large expenditure.

The tenement houses are in first class condition, all repairs having been kept up from time to time.

We have been greatly troubled with the contamination of the City water at Marquette by the refuse of the Chemical plant. The only remedy for this is an extension of the intake, and if necessary I would advise the Company paying a certain part of the cost for this extension. It would be the cheapest way out of it for us.

After another year's experience with the furnace, the only recommendation I can make is the changing of the lines when we go out of blast. If this is done, I can greatly increase

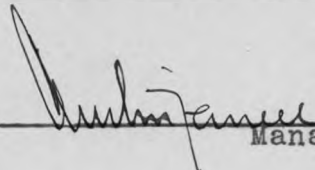
the output of the furnace and reduced the fuel per ton of pig iron produced.

I would not recommend going into any new schemes or new construction for the coming year, but rather bend all our energies to bring what we now have up to the highest standard.

Referring to the question of a private telephone line between our two furnaces, this does not at the present time seem feasible. From all I can gather the Munising Railway and the Marquette & Southeastern Railway are so tied up with the Western Union and the Bell Telephone Company, that it would be impossible for us to utilize their poles, and it would not pay us to put in a pole line of our own.

For further information covering the operation of the Chemical plants, I would refer you to the tabulated statements, which are a part of this report.

Trusting it may meet with your approval, it is respectfully submitted.



Manager.

Gladstone, Mich., January 6th., 1905.

46

1904

THE PIONEER IRON COMPANY
Pioneer Furnace No. 2.

RECORD OF CHEMICAL PLANT NO.

Month	Cords Wood Carb. Mthly	Gallons Green Liquor Monthly	Percent 95%Alco inGreen Liquor	Gallons Green Liquor Per Cd.	Gallons 95%Alco Lab'y. Results	Actual Yield	Gallons 95%Alco Loss Monthly	Percent of Loss	Yield Per Cd Lab'y. Results	Yield Per Cd. Actual	Loss Per Cord
December	7750	1697250	2.01	219	34114	33219	895	2.62	4.40	4.38	.12
January	8123	1746445	2.09	215	36500	35733	767	2.10	4.49	4.40	.09
February	7312	1542832	2.13	221	32662	32100	562	1.72	4.47	4.39	.08
March	7250	1537000	2.11	212	32431	31757	674	2.08	4.47	4.38	.09
April	7581	1645077	2.08	217	34217	33316	901	2.63	4.51	4.39	.12
May	7830	1625190	2.09	213	33966	33610	356	1.04	4.45	4.40	.15
June	7797	1715340	2.06	220	35336	34726	610	1.72	4.53	4.45	.08
July	2732	584648	2.11	214	12336	12032	314	2.54	4.51	4.40	.11
August	7242	1607724	2.02	222	32475	32058 $\frac{1}{2}$	417 $\frac{1}{2}$	1.26	4.48	4.42	.06
September	6564	1424388	2.04	217	29057	28291	766	2.63	4.42	4.31	.11
October	7495	1581445	2.13	211	32684	33220	464	1.37	4.49	4.42	.06
November	7526	1618090	2.10	215	33979	33257	722	2.12	4.52	4.42	.10
Average	7084	1527119	2.08	216	31730	31109	620	1.99	4.49	4.39	.10

1904

THE CLEVELAND-CLIFFS IRON COMPANY
Pioneer Furnace No. 1

RECORD OF CHEMICAL PLANT No. 2

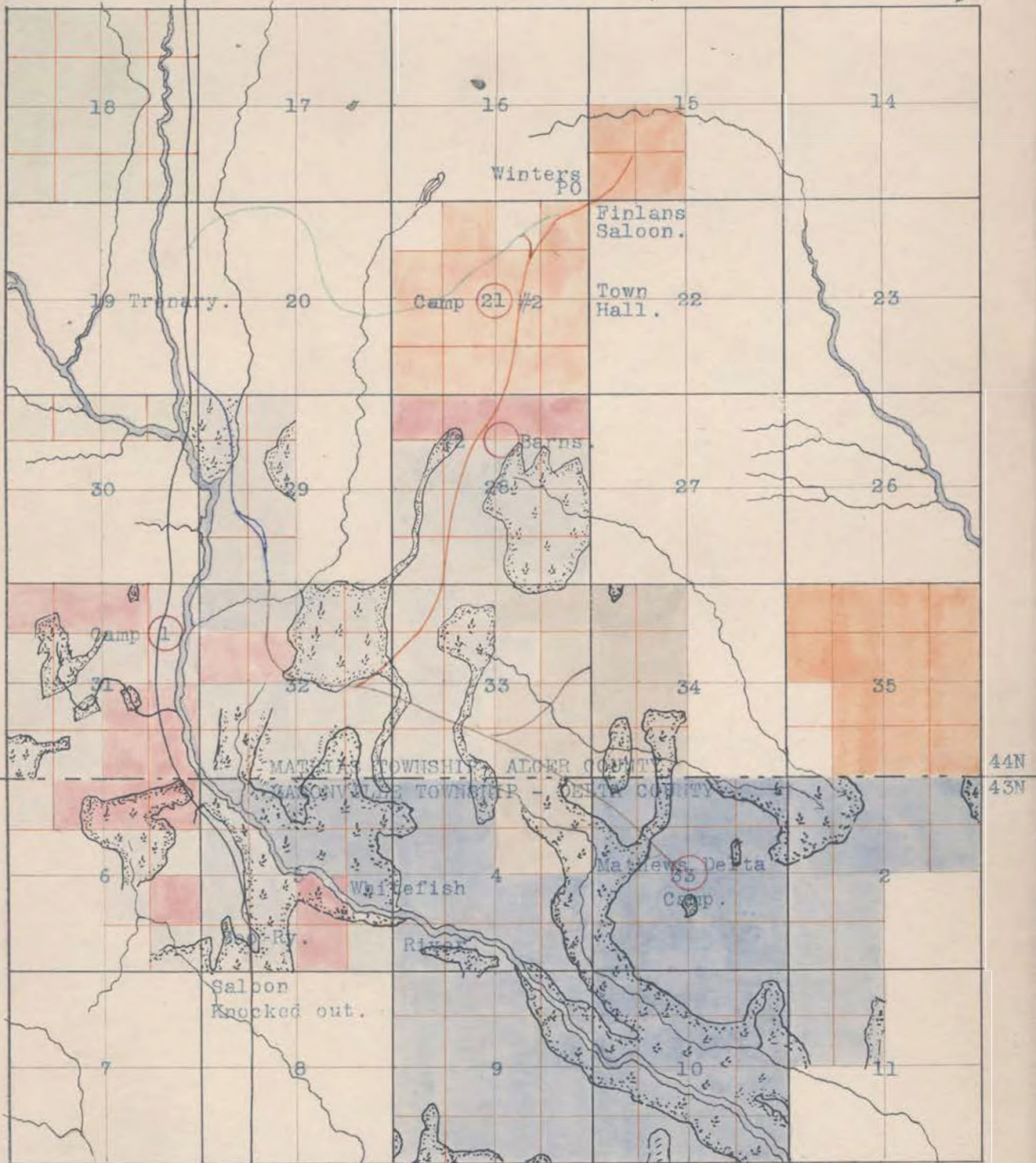
Month	Cords Wood Carb. Mthly	Gallons Liquor Neut. Monthly	Percent Alcohol in Neut Liquor	Gallons Neut. Liquor Per Cd.	Gallons Alcohol Lab'y. Results	Actual Yield Monthly	Gallons Loss 95% Alcohol Monthly	Percent Loss Monthly	Yield Per Cd Lab'y. Results	Yield Per Cd Actual
December	1430	356900	3.50	213	10748	10368	382	3.55	7.51	7.2
January	996	258000	3.45	222	7659	7360	299	3.90	7.68	7.3
February	1102	288100	3.19	224	7908	7554½	353½	4.47	7.17	6.8
March	1118	266600	3.74	212	8856	8783½	72½	.82	7.92	7.8
April	1374	344000	3.47	215	10271	10125½	145½	1.41	7.47	7.3
Average	1204	302720	3.47	217	9088	8838	250	2.88	7.55	7.3

1904

THE CLEVELAND-CLIFFS IRON COMPANY
Pioneer Furnace No. 1

RECORD OF CHEMICAL PLANT No. 1

Month	Cords Wood Carb. Mthly	Gallons Green Liquor Monthly	Percent 95%Alco inGreen Liquor	Gallons Green Liquor Per Cd.	Gallons 95%Alco Lab'y. Results	Actual Yield	Gallons 95%Alco Loss Monthly	Percent of Loss	Yield Per Cd Lab'y. Results	Yield Per Cd. Actual	Loss Per Cord
December	5046	1068480	2.07	212	22117	21183	934	4.22	4.39	4.20	.19
January	4662	1025700	2.04	220	20924	20301	623	2.98	4.48	4.35	.13
February	2754	611000	2.00	221	12220	11795½	424½	3.47	4.44	4.28	.16
March	4230	909450	2.09	215	19007	18372	635	3.23	4.49	4.34	.15
April	4356	969800	1.99	222	19298	18553½	744½	3.85	4.43	4.26	.17
May	342	73872		216		1640½				4.79	
Average	4208	916886	2.04	218	18713	18041	672	3.55	4.44	4.28	.16



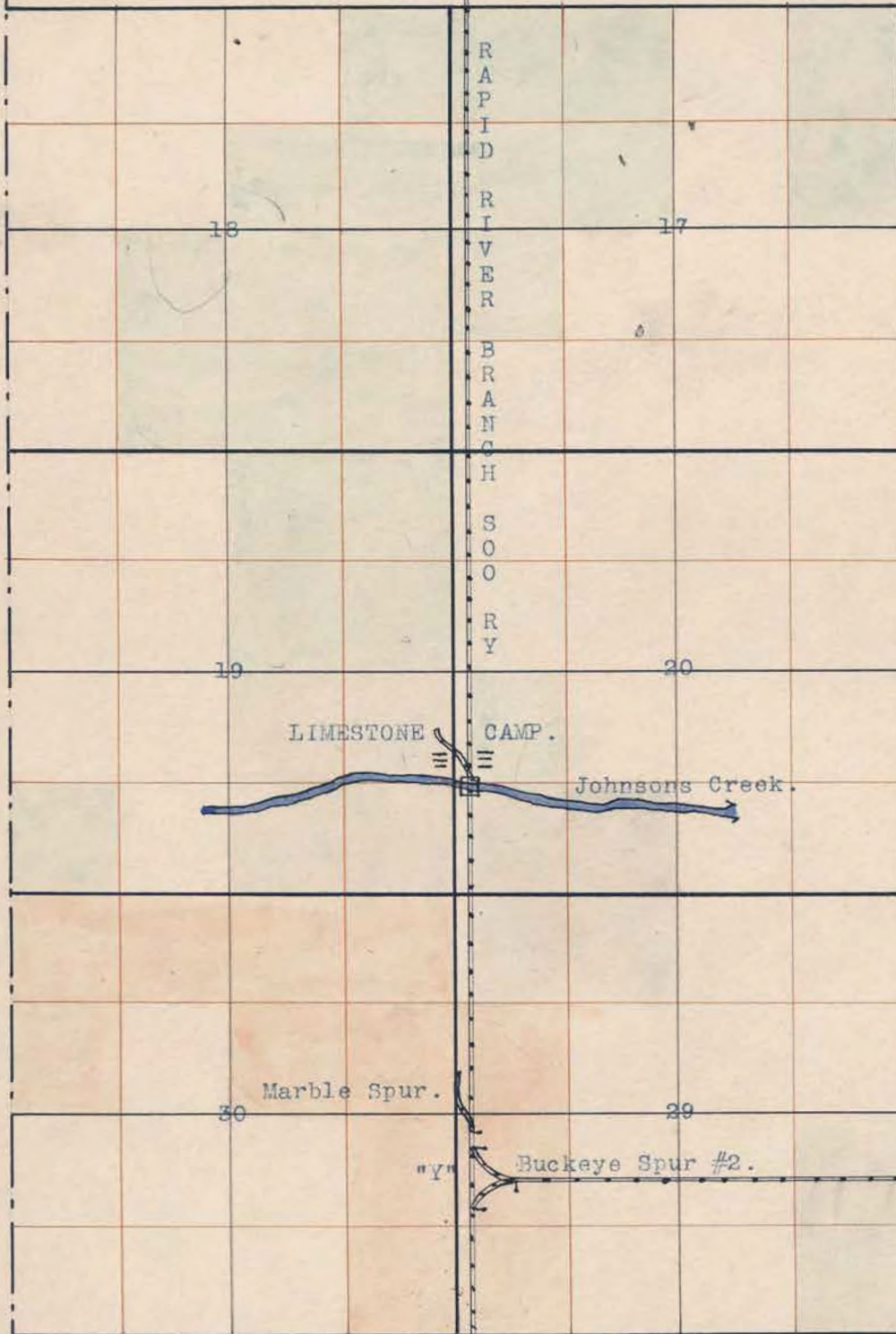
Soo Ry - Black, Buckeye #3-Green, Mathews Port'l Yellow, M-Delta Brown.
 Original Mathews Tract 8.640 acres.
 37 1/2 Lt Blue & Red 3.240 ,,
 Drab 760 ,,
 Dark Blue
 8 1/2 Red 760 ,,
 Light Yellow 720 ,,
 Dark Yellow
 Circle - Camp Locatns.

Cut & Hauled.
 Wood at Stump.
 Mathews Standing Timber.
 Optioned or Contracted.
 S-I Stumpage cut & hauled.
 S-I ,, Standing Tmbr.

PLAT "B"

"MATHIEWS TRACT".
 1904.

RANGE 21 WEST.



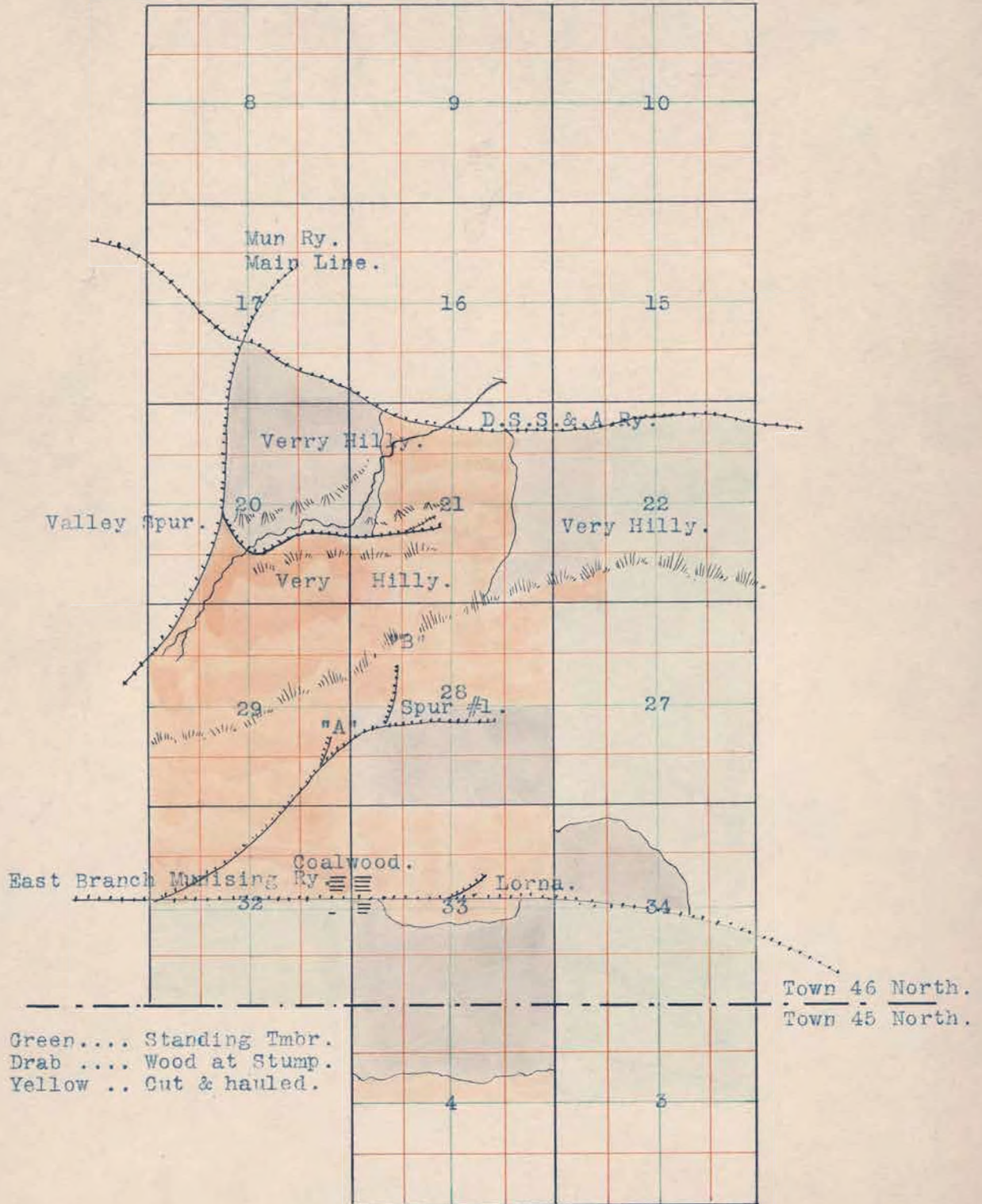
Green ... Sutherland
 Drab " "
 Yellow .. " "

"X" - Nickels Saloon knocked out.
 Innis Stumpage. Standing Timber.
 " " " " Wood at stump.
 " " " " Cut & hauled.

Original S-I Stumpage tributary to Limestone Camp 1.760 acres.
 45 % " " " " " " cut ... 800 "

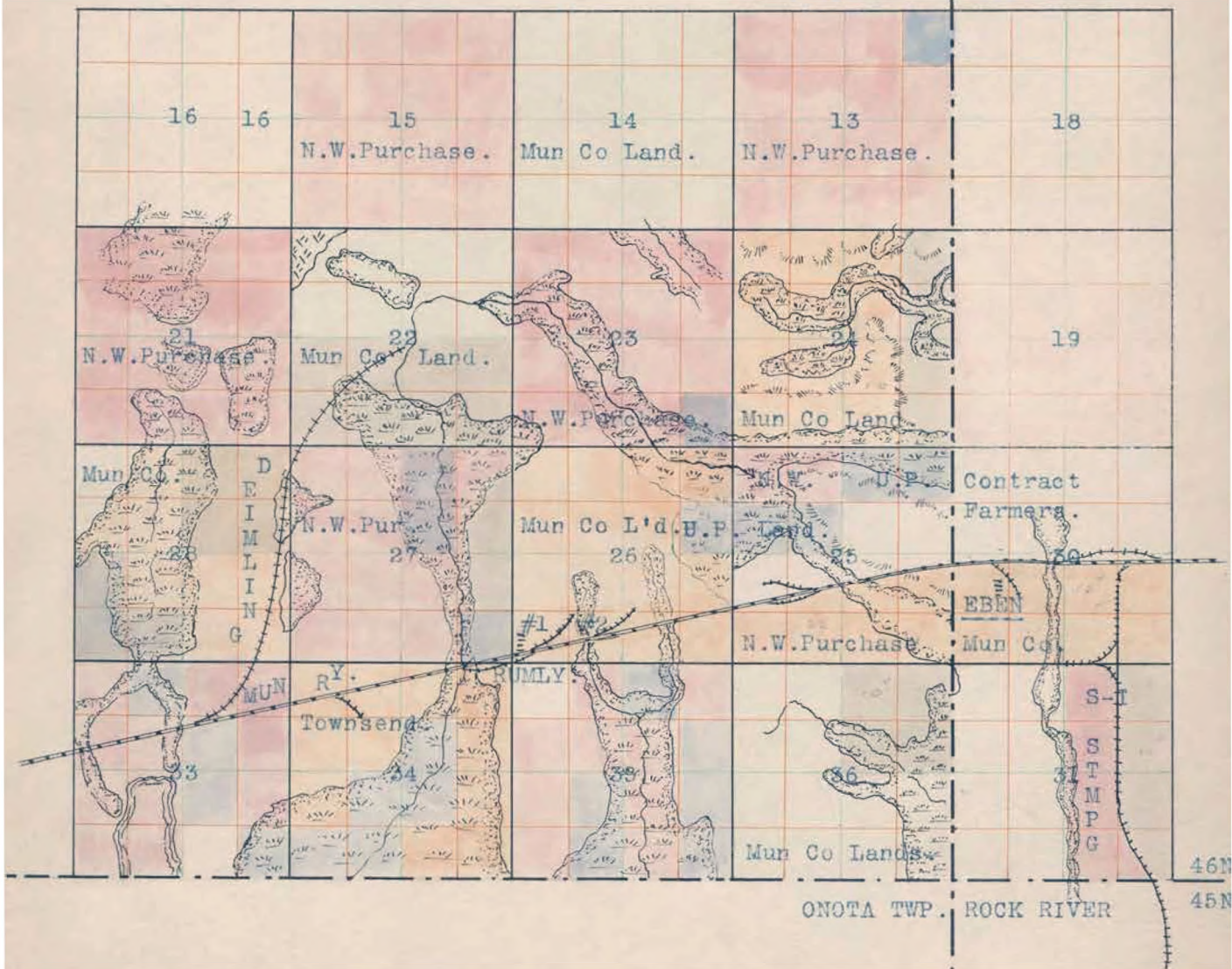
PLAT "C".
 LIMESTONE CAMP/
 1904.

RANGE 19 WEST.



Original "Munising East" Tract (about) 12.800 acres.
 31 % of original area now cut. 3.960 ,,

PLAT "D".
 MUNISING CAMP - EAST.
 1904.



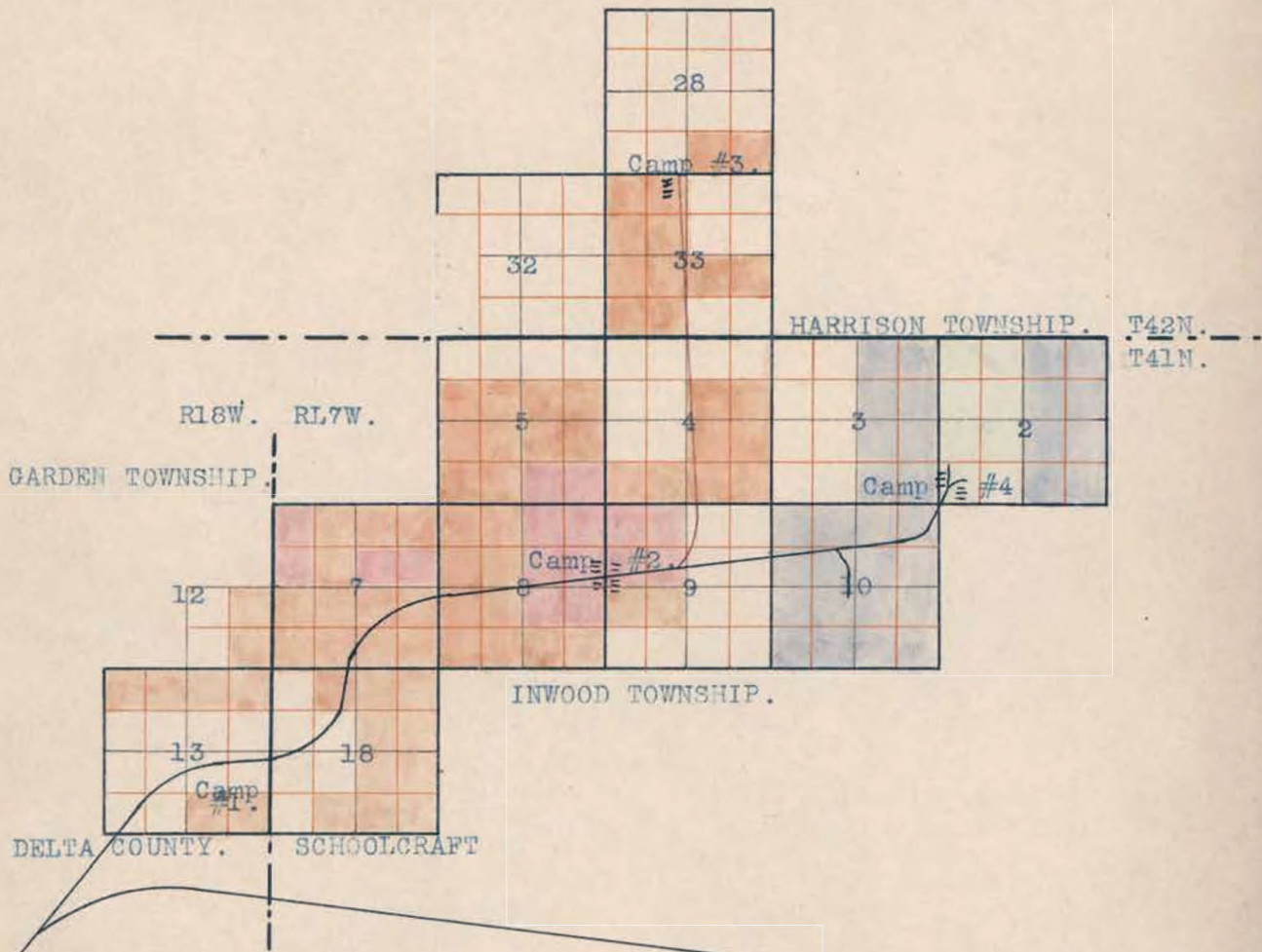
The original Rumly group consisted of - 8,280 acres

Of this, we have cut 31 %, or - 2,260 ,,

Green	-	-	-	-	Munising Co Land, -Timber.
Light Pink,	-	-	-	-	C. & N.W. Purchase, -Timber.
Dark Pink,	-	-	-	-	Sutherland-Innis Stumpage.
Yellow,	-	-	-	-	Cut-over lands.- Hauled.
Drab,-	-	-	-	-	Cordwood at the stump.
Blue,	-	-	-	-	Upper Peninsular Lands.

PLAT "E".

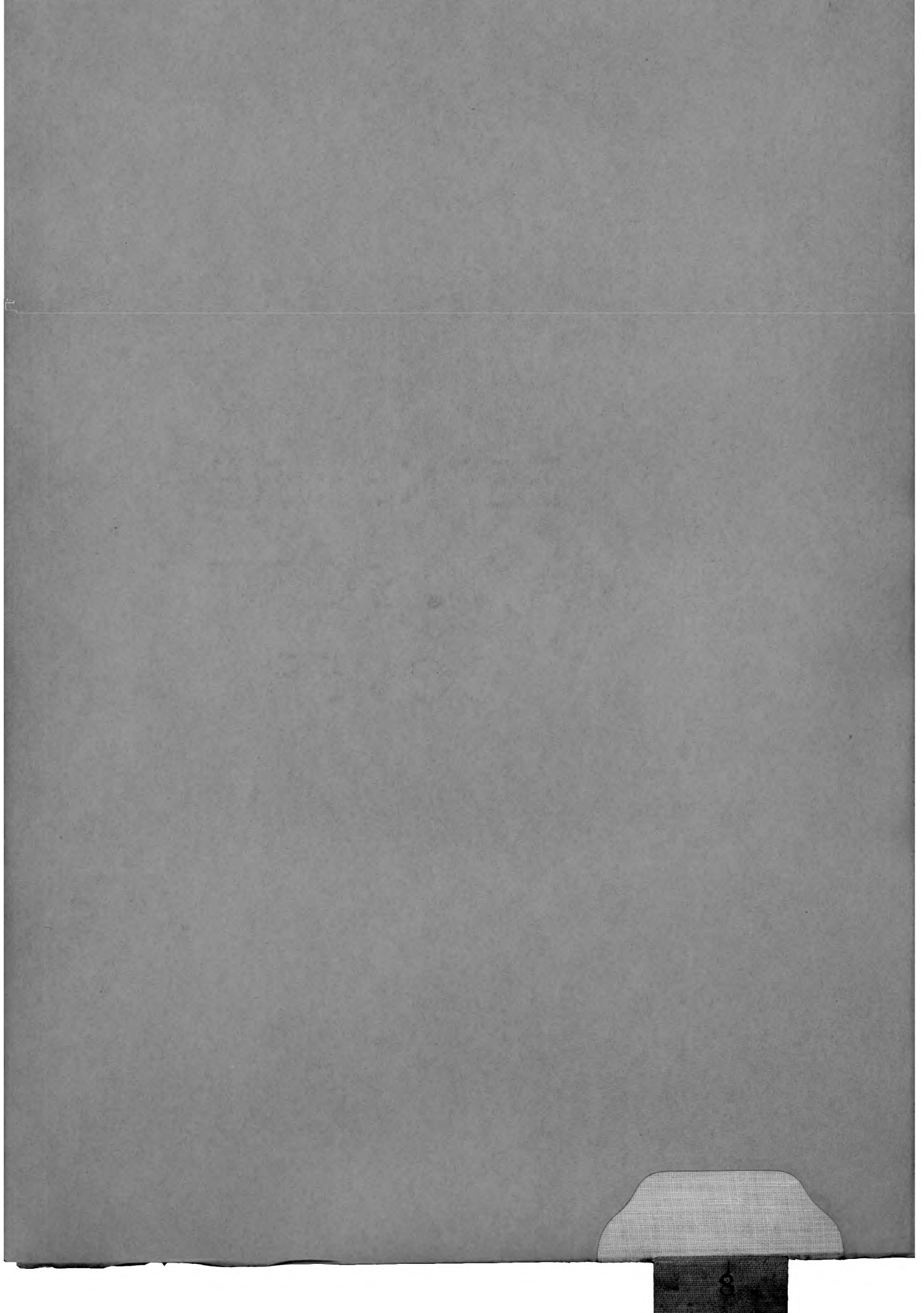
RUMLY & EBEN CAMPS.
1904.



Original Parsons Tract	8.360 acres.
3.8 Green Standing Timber	320 "
15 Blue Cordwood at the stump	1,280 "
7.6 Red Sold and Deeded	640 "
24 Yellow Under Option or Contract ...	3,800 "
39 White Cut & Hauled - not sold	3,320 "
41 Optioned, Contracted or Deeded	3,440 "
Cut in 10 years ending Nov 30-th 1904	8,040 "
Average cut per year	804 "
Cut in 10 years ending Nov 30-th 1904	323,736 Cords.
Average cut per year	32,373 "
Average yield per acre.....	40.2,,

PLAT "A"

"PARSONS TRACT"
1904.



MISCELLANEOUS DATA

PIONEER FURNACE No.2

- 1 Comparative Pig Iron Cost Sheet
- 2 Pig Iron Cost Sheet, Bessemer
- 3 Pig Iron Cost Sheet, Non-Bessemer
- 4 Wood Alcohol Cost Sheet
- 5 Acetate of Lime Cost Sheet
- 6 Formaldehyde Cost Sheet
- 7 Comparative Wood Cost Sheet
- 8 Comparative Charcoal Cost Sheet
- 9 Cost of Loading and Hauling Eben Wood
- 10 " " " " " Munising East Wood
- 11 " " " " " Munising West Wood
- 12 Pig Iron Stock Report, Nov. 30th, 1904
- 13 Stock Report, Nov. 30th, 1904
- 14 Labor Statement ofor Year
- 15 Shop Labor Statement
- 16 Improvement and New Construction
- 17 Fire Insurance Statement
- 18 Comparative Statement of Taxes
- 19 Legal Expenses
- 20 General Expenses
- 21 Donation Statement
- 22 Salaries and Perquisites
- 23 Per Cent of Division of Common Expense
- 24 Comparative Wood Report
- 25 Cost of Stable Expense
- 26 Steam Coal Used
- 27 Charges to Rented Houses and Rents Received
- 28 List of Unpaid Vouchers
- 29 Stock Accounts
- 30 Side Ledger Trial Balance
- 31 New Construction Trial Balance
- 32 *New Construction and improvements which has been charged off*

CARP RIVER FURNACE

- 35 Annual Report of Noah W. Gray
- 36 Pig Iron Cost Sheet, Carp Furnace
- 37 Wood Report for the Year
- 38 Comparative Charcoal Cost Sheet
- 39 Pig Iron Stock Report
- 40 Labor Statement

DETAIL OF STOCK USED.

Ore	1904				1903				Tons	Lbs.	Price	Amount	Cost Per Ton	Percent of Ore Used
	Tons	Lbs.	Price	Amount	Tons	Lbs.	Price	Amount						
Lake	66744	1490	2 377	158655 66	3 764	82 7	35938	2010	2 848	102384 97	4 300	78 0		
Lake Silica	2909	1390	2 625	7638 79	181	3 6	859	390	1 506	1293 83	054	1 9		
Abbotsford	1164	140	3 164	3683 16	087	1 5								
Imperial	726	920	1 624	1179 55	028	9								
Lucy	167	220	2 531	422 69	010	2	393	1280	2 837	1128 70	047	8		
Clinton	997	2120	1 973	1968 93	047	1 2								
Cambridge	779	1290	2 124	1656 70	040	9								
Cliffs Shaft	6929	2210	3 588	24865 94	590	8 6	4586	1570	3 688	16913 95	711	10 0		
Salisbury	345	992	2 197	757 96	018	4	410	308	2 817	1155 02	048	9		
Bedford							3874	1840	2 707	10494 01	441	8 4		
Dr.a/c yrs. anlys.ore				292 56	007									
Total	80764	1812	2 603	201121 94	4 772	100 0	46063	678	2 896	133370 48	5 601	100 0		
Cr.a/c yrs. anlys ore				920 45	022									
Total	80764	1812	2 603	200201 49	4 750	100 0	46063	678	2 896	133370 48	5 601	100 0		
Limestone	1278	490	1 256	1606 21	038		2017	1030	1 458	2942 35	123			
Charcoal	(Bu) 3673040		0678	249221 23	5 912		2188312		0657	143665 97	6 033			

PIONEER IRON COMPANY
Pioneer Furnace No. 2

COMPARATIVE STATEMENT OF PIG IRON COST SHEETS FOR 1903 AND 1904.

Blast No. 1 Tons Made This Blast, 65965	IRON MADE IN 1904, 42151 TONS				IRON MADE IN 1903, 23814 TONS			
	Labor	Supplies	Total	Cost Per Ton	Labor	Supplies	Total	Cost Per Ton
GENERAL EXPENSE:								
Insurance		70.92	70.92	.001				
Taxes		4846.61	4846.61	.115		5188.62	5188.62	.218
Analysis	1177.06	648.34	1825.40	.044	637.01	392.06	1029.07	.043
Salaries and Other Expenses	5915.82	2522.50	8438.32	.200	3926.10	2438.64	6414.74	.270
Total	7092.88	8088.37	15181.25	.360	4563.11	8069.32	12632.43	.531
MAINTENANCE:								
Tracks and Yard	851.37	328.12	1179.49	.028	132.83	132.15	264.98	.011
Trestles and Dock	51.22	83.40	134.62	.003				
Buildings	406.35	416.27	822.62	.020	522.30	565.84	1088.14	.046
Machinery	656.90	398.24	1055.14	.025	416.86	96.11	512.97	.023
Tuyeres	125.67	304.38	430.05	.008	178.43	1028.39	1206.82	.052
Relinings and Renewals		4225.00	4225.00	.100		2382.10	2382.10	.100
Water Supply	102.59	56.59	159.18	.003	100.65	21.03	121.68	.005
Pig Iron Trucks, Coal & Ore Buggies	358.68	75.69	434.37	.010	307.71	85.38	393.09	.016
Stack	113.37		113.37	.003	1321.16	1674.84	2696.00	.113
Stoves	180.54	128.25	308.79	.007	118.68	22.72	141.40	.006
Cleaning Up	551.16	82.61	633.77	.016	345.74	39.09	384.83	.016
Hose						200.00	200.00	.009
Total	3297.85	5999.15	9297.00	.223	3444.36	5947.65	9392.01	.397
OPERATING:								
Machinery	2871.14	743.88	3615.02	.086	2718.98	738.28	3502.86	.146
Electric Light	765.83	343.59	1109.42	.026	414.01	317.52	731.53	.031
Bottom Fillers	2798.03	60.31	2769.34	.065	4737.27	185.53	4922.80	.207
Top Fillers	2700.22		2700.22	.064	1956.78	127.83	2084.61	.086
Handling Iron	5654.06	23.25	5677.31	.135	3575.69	33.74	3609.43	.156
Handling Cinder	3190.38	275.53	3465.91	.082	2252.14	214.94	2467.08	.103
Weighing and Grading	640.50		640.50	.015	364.00	78.75	442.75	.019
Founders, Keepers and Helpers	9722.62	279.50	10002.12	.239	7340.16	188.75	7528.91	.316
Coal Forkers	11009.19	134.54	11143.73	.264	8033.99	87.19	8121.18	.337
Casting Tools	460.53	325.52	786.05	.018	304.74	393.94	698.68	.029
Sand and Clay	79.85	597.08	676.93	.016	454.05	593.25	1047.30	.044
Cleaning Stoves	431.12	107.71	538.83	.013	80.41	16.51	96.92	.004
Fuel	58.90	869.50	928.40	.023		826.75	826.75	.035
Total	40352.37	3760.41	44112.78	1.046	32232.22	3648.58	36080.80	1.513
STOCK USED:								
Ore		200201.49	200201.49	4.750		133370.48	133370.48	5.601
Charcoal		249221.23	249221.23	5.912		143665.97	143665.97	6.033
Limestone		1606.21	1606.21	.038		2942.35	2942.35	.123
Total		451028.93	451028.93	10.700		279978.80	279978.80	11.757
Cost of Production	50843.10	468876.86	519719.96	12.329	40239.69	297844.35	338084.04	14.198
DEPRECIATION:								
Equipment		5998.86	5998.86	.145		193.80	193.80	.008
Construction		42256.00	42256.00	1.000		23821.00	23821.00	1.000
Total		48254.86	48254.86	1.145		24014.80	24014.80	1.008
Over-run Supply Account		95.38	95.38	.002		54.19	54.19	.002
Total		48159.48	48159.48	1.143		23960.61	23960.61	1.006
Total Cost On Yard	50843.10	517036.34	567879.44	13.472	40239.69	321804.96	362044.65	15.204
LOADING & SWITCHING:								
1904	1903							
Loading Cars, Tons	8242	10092						
Switching	8242	10092						
		494.52	494.52	.060	361.44	247.43	608.92	.060
		57.16	107.51	.013	84.70	246.06	330.76	.033
Total Loading Cars		57.16	602.03	.073	446.14	493.54	939.68	.093
Loading Vessels	22537	7916	10973.99	.466	63.30	2040.39	2103.69	.266
Grand Total	51091.81	528363.65	579455.46	13.747	40749.13	324238.89	365088.02	15.334
Construction Acc't. Not Sunk Off			366370.17				394716.79	
Cost Per Ton For Labor				1.212				1.711

SUMMARY OF COST PER TON

Cost on yard, as above	On Yard	On Cars	On Ves'l	On Yard	On Cars	On Ves'l	YIELD	
	13 472	13 472	13 472	15 204	15 204	15 204	1904	1903
Cost to load, as above		073	486		093	266	522	517
Total	13 472	13 545	13 958	15 204	15 297	15 470	68	919
Com. and Expenses, Cleveland Office	350	350	350	350	350	350	68	Flux 190
Total Cost	13 822	13 895	14 308	15 554	15 647	15 820		

PIONEER IRON CO.

PIONEER FURNACE NO. 2.

BESSEMER
PIG IRON COST SHEET.

Month of _____ YEAR 1904

RECEIVED
JAN 30 1905

Pig Iron		Cast Iron		Steel		Miscellaneous	
Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
100	10.00	100	10.00	100	10.00	100	10.00
200	20.00	200	20.00	200	20.00	200	20.00
300	30.00	300	30.00	300	30.00	300	30.00
400	40.00	400	40.00	400	40.00	400	40.00
500	50.00	500	50.00	500	50.00	500	50.00
600	60.00	600	60.00	600	60.00	600	60.00
700	70.00	700	70.00	700	70.00	700	70.00
800	80.00	800	80.00	800	80.00	800	80.00
900	90.00	900	90.00	900	90.00	900	90.00
1000	100.00	1000	100.00	1000	100.00	1000	100.00

PIONEER IRON COMPANY.

PIONEER FURNACE NO. 2.

NON BESSEMER
PIG IRON COST SHEET.

Month of _____ YEAR _____ 1904

Number of Blast 1.	Tons Produced 1 month _____			
Tons made this Blast 63800	Tons Produced 12 months 39986			
	Labor	Supplies	Total	Cost per Ton
				1 month 12 months
GENERAL EXPENSE				
Insurance		67 37	67 37	002
Taxes		4666 61	4666 61	117
Analysis	1117 52	584 55	1702 07	043
Salaries and other Expenses	5605 19	2346 66	7951 85	199
Total	6722 71	7665 19	14387 90	361
MAINTENANCE				
Tracks and Yards	822 76	324 60	1147 36	029
Trestles and Dock	42 35	67 92	110 27	003
Buildings	372 22	386 24	758 46	019
Machinery	620 30	395 88	1016 27	025
Tuyeres	125 67	204 38	330 05	008
Relinings and Renewals		4009 10	4009 10	100
Water Supply	101 95	55 11	157 06	004
Pig Iron Trucks, Coal and Ore Buggies	334 11	74 03	408 14	010
Stack	113 37		113 37	003
Stoves	165 98	61 24	227 22	006
Cleaning Up	551 16	82 61	633 77	016
Total	3249 96	5661 11	8911 07	223
OPERATING				
Machinery	2736 41	728 71	3465 12	087
Electric Light	725 11	334 59	1059 70	026
Bottom Fillers	2574 53	60 31	2634 84	066
Top Fillers	2565 79		2565 79	064
Handling Iron	5367 31	23 25	5410 56	135
Handling Cinder	3033 33	263 21	3296 54	082
Weighing and Grading Iron	609 00		609 00	015
Founders, Keepers and Helpers	9305 02	267 50	9572 52	240
Coal Forkers	10452 21	134 41	10586 62	265
Casting Tools	438 71	311 95	750 66	020
Sand and Clay	79 85	563 29	643 14	016
Filtering				
Wood				
Cleaning Stoves	395 23	167 52	562 75	013
Fuel	58 90	869 50	928 40	023
Total	38361 40	3664 24	42025 64	1 052
STOCK USED				
Ore		188952 03	188952 03	4 725
Charcoal		236140 58	236140 58	5 905
Limestone		1389 61	1389 61	033
Total		426482 22	426482 22	10 663
Cost of Production.		48334 07	443472 76	491806 83
DEPRECIATION				
Equipment		5998 86	5998 86	150
Construction Account		40091 00	40091 00	1 002
Improvement Account		46089 86	46089 86	1 152
Total		95 88	95 88	002
Credits				
		45994 48	45994 48	1 150
Total		48334 07	489467 24	537801 31
Total Cost on Yard.				
LOADING AND SWITCHING				
Loading Cars 8242 Tons		494 52	494 52	060
Switching "		57 16	50 35	013
Total Loading Cars.		57 16	544 87	602 03
Loading Vessels 20534 Tons		174 53	9824 14	9998 67
Grand Total 1 month		48565 76	499836 25	548402 01
" " 12 months				13 714
Construction Acc't not sunk off			366370 17	
Improvement Acc't not sunk off				

Summary of Cost per Ton.

	On Yard	On Cars	On Vessel
Cost on Yard, as above	13.449	13.449	13.449
Cost to Load, as above		.073	.486
Total	13.449	13.522	13.935
Commissions and Expenses, Cleveland Office	.250	.250	.250
Total Cost	13.799	13.872	14.285

Stock Used.

Ore	Tons	Lbs	Price	Amount	Cost Per Ton	Per Cent. of Ore Used
Lake Bessemer	667	337	1.2261	818.00	1.2261	3.30
Cliffs Shaft	12261	6130	1.2261	7500.00	1.2261	3.30
Salisbury	12261	6130	1.2261	7500.00	1.2261	3.30
Lucy	12261	6130	1.2261	7500.00	1.2261	3.30
Cambridge	12261	6130	1.2261	7500.00	1.2261	3.30
Clinton	12261	6130	1.2261	7500.00	1.2261	3.30
Debit A/c yrs only ores	12261	6130	1.2261	7500.00	1.2261	3.30
Total	76718	683	2.403	188952.03	2.403	4.725
Limestone	1103	1840	1.249	1389.61	1.249	0.35
Charcoal	3482360	Bus.	0.678	236140.58	0.678	5.905

Yield.

	1 month	12 months
Average yield of Ore	52 ¹ / ₂	52 ¹ / ₂
Bush. Coal per Ton	87 ¹ / ₂	87 ¹ / ₂
Lbs. Flux per Ton	61 ⁸ / ₁₆	61 ⁸ / ₁₆

Cost per ton for Labor 1 month

" " " " 12 months 1.214

PIONEER IRON COMPANY.
Pioneer Furnace #2

COMPARATIVE STATEMENT OF REFINED ALCOHOL COST SHEETS FOR 1903 AND 1904

	GALLONS PRODUCED 1904, 371742						GALLONS PRODUCED 1903, 180797							
	Labor	Supplies	Total	Cost Per Gal.	Labor	Supplies	Total	Cost Per Gal.						
GENERAL EXPENSE:														
Office Expense	3335	17	1438	19	4773	36	013	2251	06	808	77	3059	83	023
Fire Insurance			5199	96	5199	96	014			1700	66	1700	66	013
Analysis	675	50	310	79	986	29	002	324	98	140	16	465	14	004
Taxes			4846	61	4846	61	013			2988	61	2988	61	023
Total	4010	67	11795	55	15800	22	042	2576	04	5644	20	8220	24	063
MAINTENANCE:														
Tanks and Stills	1105	27	856	90	1962	17	005	32	39	13	33	45	72	000
Condensers	389	17	155	21	544	38	002			36	00	36	00	000
Machinery	326	31	136	53	512	84	001	51	86	27	95	79	81	001
Boilers	983	71	512	39	1496	10	004	42	02	23	41	65	43	000
Fans and Pulleys	46	51	86	56	133	07	000	1	51			1	51	000
Smoke Mains	212	16	105	29	317	45	001	8	40	41	25	49	65	001
Buildings	124	89	392	55	517	44	001	4	40	3	95	8	35	000
Water Supply	175	39	78	83	254	22	001	5	26			5	26	000
Cleaning Up	241	43	35	56	276	99	001	227	73	19	84	247	57	002
Total	3604	84	2409	82	6014	66	016	373	57	165	73	539	30	004
OPERATING:														
Superintendent	1200	00	30	30	1230	30	003	463	37			463	37	004
Stillmen	7993	12	26	23	8019	35	023	3397	04	43	44	3440	48	026
Engineers	2009	62			2009	62	005	1239	56	65	30	1304	86	010
Firemen	706	90		34	707	24	002	617	91			617	91	005
Machinery	2568	91	921	81	3490	72	010	514	94	464	06	979	00	007
Boilers	182	73	172	34	355	07	001	32	75	58	25	91	00	001
Fuel	364	99	5700	39	6065	38	016	27	30	10478	08	10505	38	080
Electric Light	457	96	503	99	961	95	002	247	30	216	24	463	54	003
Lime			8455	25	8455	25	023			4820	15	4820	15	037
Chemicals			420	00	420	00	001			226	10	226	10	002
Total	15484	23	16230	65	31714	88	086	6540	17	16371	62	22911	79	175
Cost of Production	23099	74	30436	02	53535	76	144	9489	78	22181	55	31671	33	242
DEPRECIATION:														
Construction			42642	24	42642	24	114			17767	60	17767	60	135
Over-run Chemical Supplies			32	87	32	87	000			25	71	25	71	000
Total			42609	37	42609	37	114			17741	89	17741	89	135
Total Cost	23099	74	73045	39	96145	13	258	9489	78	39922	44	49413	22	377
LOADING AND SWITCHING:														
Barrels, Gals.	332276	88157	11423	80	11423	80	034			2688	25	2688	25	030
Loading	358018	117092	252	60	271	07	001	72	33	4	32	76	65	001
Switching	358018	117092	14	31	26	41	000	3	94	2	86	6	80	000
Total	266	91	11454	37	11721	28	035	76	27	2695	43	2771	70	031
Total Cost On Cars	23300	65	84499	76	107866	41	290	9566	05	42618	87	52184	92	399
Construction Acct. Not Sunk Off					373574	90	438					407628	41	396
Yield Alcohol Per Cord Of Wood														
Smoke Rec'd. Cords	1904	1903												
	85002	33044												

PIONEER IRON COMPANY,

PIONEER FURNACE No. 2

COMPARATIVE STATEMENT

REFINED ALCOHOL

1903 & 1904.

JAN 26 1905

1903		1904		Total	
Quantity	Value	Quantity	Value	Quantity	Value
100	100	100	100	200	200
200	200	200	200	400	400
300	300	300	300	600	600
400	400	400	400	800	800
500	500	500	500	1000	1000
600	600	600	600	1200	1200
700	700	700	700	1400	1400
800	800	800	800	1600	1600
900	900	900	900	1800	1800
1000	1000	1000	1000	2000	2000
1100	1100	1100	1100	2200	2200
1200	1200	1200	1200	2400	2400
1300	1300	1300	1300	2600	2600
1400	1400	1400	1400	2800	2800
1500	1500	1500	1500	3000	3000
1600	1600	1600	1600	3200	3200
1700	1700	1700	1700	3400	3400
1800	1800	1800	1800	3600	3600
1900	1900	1900	1900	3800	3800
2000	2000	2000	2000	4000	4000
2100	2100	2100	2100	4200	4200
2200	2200	2200	2200	4400	4400
2300	2300	2300	2300	4600	4600
2400	2400	2400	2400	4800	4800
2500	2500	2500	2500	5000	5000
2600	2600	2600	2600	5200	5200
2700	2700	2700	2700	5400	5400
2800	2800	2800	2800	5600	5600
2900	2900	2900	2900	5800	5800
3000	3000	3000	3000	6000	6000
3100	3100	3100	3100	6200	6200
3200	3200	3200	3200	6400	6400
3300	3300	3300	3300	6600	6600
3400	3400	3400	3400	6800	6800
3500	3500	3500	3500	7000	7000
3600	3600	3600	3600	7200	7200
3700	3700	3700	3700	7400	7400
3800	3800	3800	3800	7600	7600
3900	3900	3900	3900	7800	7800
4000	4000	4000	4000	8000	8000
4100	4100	4100	4100	8200	8200
4200	4200	4200	4200	8400	8400
4300	4300	4300	4300	8600	8600
4400	4400	4400	4400	8800	8800
4500	4500	4500	4500	9000	9000
4600	4600	4600	4600	9200	9200
4700	4700	4700	4700	9400	9400
4800	4800	4800	4800	9600	9600
4900	4900	4900	4900	9800	9800
5000	5000	5000	5000	10000	10000

THE CLEVELAND CLIFFS IRON CO. PIONEER IRON COMPANY,

GRAY ACETATE COST SHEET

PIONEER FURNACE No. 2

MONTH OF

YEAR

1904.

PLANT NO.

Production this month lbs. Average per day lbs.
 Production months 289820 lbs. Average per day lbs.

	Labor	Supplies	Total	Total Months	Cost per 100 Lbs.	
					1 Mo.	Mos.
GENERAL EXPENSE						
Office Expense						
Analysis						
Fire Insurance						
Total						
MAINTENANCE						
Building						
Tanks						
Conveyor						
Dryer						
Piping						
Boilers						
Generator						
Motors						
Total						
OPERATING						
Raking						
Skimming						
Engineers						
Firemen						
Fuel						
Electric Light						
Boilers						
Pumps Sacking	8 76		8 76			003
Crown Dryer Co.		1758 01	1758 01			606
Total	8 76	1758 01	1766 77			609
Cost of Production	8 76	1758 01	1766 77			609
DEPRECIATION						
New Construction Account						
Improvement Account						
Total						
Total Cost	8 76	1758 01	1766 77			609
LOADING AND SWITCHING						
Sacks 289820 lbs.		115 28	115 28			040
Loading " lbs.	84 32		84 32			030
Switching " lbs.	1 02	96	1 98			000
Storing lbs.						
Total	85 34	116 24	201 58			070
Total Cost on Cars 1 Month						
Total Cost on Cars.....Months	94 10	1874 25	1968 35			679
Construction Account not sunk off			32469 02			
Improvement " " "						
Yield per Cord of Wood						
Smoke Rec'd from.....Cords, 1 Mo.						
" " " " " Mos.						

We paid Crown Dryer Co. 70¢ per 100# on 251144#