R E P O R T

ON THE

POLAR AND ROCKY POINT

GROUP OF MINES

GILMAN, EAGLE COUNTY.

For the Year 1908

MINE MANAGER'S REPORT

PAGE 252

STATE BUREAU OF MINES

STATE OF COLORADO.

THE POLAR AND ROCKY POINT GROUP OF MINES

Denver, Colo. Dec. 8th, 1891.

To the Owners of The Polar and Rocky Point Group of Mines, Denver, Colo.

Gentlemen; -

At your request I have examined the mines of the above group, at Gilman, Colorado, and herewith have the honor of submitting my report.

LOCATION AND GENERAL DESCRIPTION.

This property consists of nine claims, somewhat overlapping each other, and situated as shown in the accompanying maps. Five of these claims, namely: the Polar, Accidental, Bob Ingersoll, Rocky Point and Wilmot, are located on the outcrop of the quartzite vein, and the other four claims, namely: the Veteran, T. V. Powderly, Great Hope, and St. Elmo, are located on the small veins in the granite underlying the quartzite. They are all situated at the Mining camp of Gilman, on Battle Mountain, which rises precipitously above the Eagle River. The Denver and Rio Grande R. R. skirts along Eagle rive, under the cliffs of Battle Mountain, and affords the best facility for the shipping of ores and freight, the mine being connected with the railroad by a wire rope tramway five hundred feet long. Red Cliff, the County Seat of Eagle County, is three miles from Gilman, and is the nearest railway station for passengers; it is distant 22-½ miles from Leadville and 299.9 miles from Denver. The population of Red Cliff is about one thousand, while that of Gilman is about seven hundred. The elevation of Red Cliff is 8671 feet above sea level, and that of Gilman is about 8950 feet. The general conditions of the situation and climate of Gilman are very favorable.

GEOLOGICAL FORMATION.

The study of the geology of Battle Mountain and its veins is intensely interesting. The lowest rock is a redish granite of archaen formation, which rises one hundred and fifty feet above the river. The granite contains several fissures striking approximately northeast and southwest; this is followed by about one hundred feet of hard non-metalliferous quartzite, probably of silurian fromation. On this lies conformably the iron stained bed of quartzite some thirty feet thick, which carries gold and silver in workable quantities. The ores of the precious metal are largely carried in clay and talc, which lie as interstratified deposits or veins in the ore-bearing quartzite. Above this quartzite there are eighty feet of shaly sandstone followed by a thirty foot bed of quartzite on which lies some twenty feet of blue limestone, followed by some one hundred and eighty feet of grey limestone, near the top of which there is a thick and valuable deposit of gold, silver and lead ore, associated with much iron oxide. Characteristic mines of that strata are the Iron Mask Group, the Belden and the Cheesman-Clayton Mines. Above this gray limestone, there is a bed of porphyry at least one hundred feet thick, which is followed by beds of red sandstone and carboniferous limestone. The strata have a northwest and southeast strike, dipping to the northeast at about fifteen degrees. The structure of the mountain will be more clearly seen by reference to the accompanying section.

There seems to be no connection between the limestone and quartzite formations, but both bear evidence of having been extensively eroded and cut into caves by thermal water from depth, the action of which has probably been aided by carbonic acid or other solvent agents. These cavities has subsequently been filled by aqueous depositions of the miner-

als carrying the gold, silver, lead etc. The marked difference in chemical composition, between the ore deposits in the limestone and those in the quartzite, would lead to the hypothesis that they must have been of a different origin though both have apparently come from veins intersecting the two ore-bearing strata, at a much lower point than that already attained in the mine development.

The veins mentioned above as traversing the granite, are apparently confined to this rock and do not enter the quartzite, immediately above it. We have in this present report to deal chiefly with the quartzite formation and will confine our remarks principally to it.

THE OUTPUT OF PRECIOUS METALS.

FROM THE

QUARTZITE GROUP UNDER CONSIDERATION.

Original smelter returns have been presented to me, tabulated copies of which accompany this report, showing a gross amount of $350,278.37 as the out-put. It is probable that there are additional amounts, records of which have not been kept. The average freight and treatment charge on the ore has been $13.30 per ton and the total net value of these shipments at the smelter has been $268,434.72. At least 25% of this amount can be considered as net profits, the extensive development on the property and the surface improvements, having been paid out of the product, which is an unusually good showing. The property is in good working shape, with considerable ground opened ahead; consequently larger profits can be expected for the future.

VALUE OF THE ORE NOW DEVELOPED IN THE MINE.

The accompanying mine map will show a large extent of workings, some of which were driven to show continuity of ore body in case of dispute with the owners of limestone properties above, and will not be of much use for the extraction of ore. As might be expected, also, the ore lies, in chutes and a considerable portion of the workings are in barren ground, counting however, only the pay ground now practically in sight, it is estimated that 6,000 tons of ore of an average value of $60.00 per ton, can be extracted, which should yield a net profit of $30.00 per ton, or $180,000.00.

In estimating the value of the ore now developed in the mine, it has been exceedingly difficult to place values on the individual blocks owing to their wide difference in richness and their varying thickness.

More dependence has been placed on the actual working results and a comparison of the space from which $350,278.37 has already been produced, with the ground still standing. Another means of approximate calculation has been the amount of ore that one man can produce in a day by stoping, this often amounts to 1000 lbs. of clean ore, assaying about $75.00 per ton; consequently labor worth $3.00 per day produces about $37.50 in gross value. There has never been a time when the property could not be leased to miners, who would bear all expenses and pay from 25% to 50% of the value of ore extracted as royalty.

Taking all of the above facts into consideration, I calculate that from the outcrop of the vein to the bottom of the main incline, with a lateral extension from the Accidental to the Wilmot there is now developed a net value of about @180,000.00 after deducting all expenses of mining, freight treatment and administration, and I believe this amount of profit could be taken out, clear of all expense, probably in three years. This would still leave promising ground containing sulphide deposits to be followed in depth.

THE ORE BODIES.

The ore chutes vary from 50 to 200 feet in width and the ore is from 2 inches to 2-½ feet in thickness. The physical condition of the ore makes it very easy to mine. In places, the gold and silver are carried in soft clay, in others in loose ferruginous earth. There is also a black manganese ore containing some free gold. Caves and openings are a feature of the quartzite deposit and from these the ore can be cheaply extricated. Outside of the caves the ore lies principally in chutes or channels with rolls of quartzite between them. In the bottom of the mine there are pyrites and undecomposed ore and under the Rocky Point claim some galena had been extracted. There is every promise that the sulphuret ore will hold in depth, and will be mined profitably for years to come. The ground is always firm and very little timbering is required, the ore being easily followed in low stopes. The footwall is generally a hard white quartzite, the roof or hanging wall being marked by a shale parting. The ore bearing quartzite, which is about 30 feet thick, contains pyrites. The development at the Bell Shaft is well worth of notice; through a strange perversity of the mining law, the manager of the Iron Mask mine pretended to have a right to sink to the quartzite deposits and extract ore there. The Bell Shaft was sunk 330 feet, most

of the distance through barren ground, and a fine body of high grade ore not less than 2½ feet thick was developed. The continuity of this body, was that already opened on the claims under consideration, was well established by drifts run on ore to the same Bell Shaft stopes. A desirable compromise was effected, the Iron Mask Co. paying $25,000. damages, besides turning over $6000.00 worth of ore which was on the dump, and the hoist engine, pumps and all improvements. The Iron Mask Co. furthermore, deed all the quartzite underlying their claim to the Polar and Rocky Point mine, in exchange for a deed to the limestone on the Polar and Rocky Point claims. A compromise line was established, very favorably to the Polar and Rocky Point interests, giving them the undisputed right to follow the quartzite ore body indefinitely in depth. The rock through which the Bells Shaft was sunk is noted in the accompanying section of Battle Mountain.

PUMPING.

It now requires about 4 hours to every 24 to free the mine of water. Eventually the property should be drained by a tunnel.

TUNNEL SITE.

As good a tunnel site as could well be imagined exists on the Great Hope claim, and a distance of 165 feet has already been driven on this tunnel. Advantage was taken of the fissure vein which lies in almost exactly the right direction to intersect the quartzite ore deposit in the shortest possible distance. The vein is 4 feet 6 inches wide, and will not only assist mining generally greatly, but may yield sufficient mineral to help defray the expense of the tunnel. The length of tunnel still to be driven is 1600 feet, as determined by surveys, and the work could be done for $12.00 per foot.

THE MANAGEMENT OF THE PROPERTY.

At the time of my visit there were only 16 men employed on the property, out of this number only 4 or 5 were stoping ore. The monthly product was from $2000.00 to $2500.00 whereas with 30 men all told, 18 of them could be kept on ore and would turn out a net profit of say $5000.00 to $6000.00 per month. A number of changes could be made, which would be a marked improvement.

ASSAYS.

Thirty-one hand samples were carefully taken, the assay results on which are given below. Some were taken of material which was thought to be barren, merely to test it. The average yield of 5802 tons of ore which have been shipped to smelters is a better criterion of the value than any hand work, and this is given in the statement herewith. Much higher assays could easily have been taken.

	Ozs. Gold per ton of 2000 lbs.	Ozs. Silver per ton of 2000 lbs.	Per cent of Lead per ton of 2000 lbs.	Net value per ton of 2000 lbs. after deducting freight & treatment.
No. 1. A.	0.36	55.64	0.0	$ 44.45
2. B.	0.12	12.90	0.0	.75
3. C.	0.26	10.22	0.0	1.20
4. D.	5.82	112.68	0.0	196.48
5. E.	trace	2.00	0.0 loss	11.45
6. F.	1.08	42.42	0.0	45.42
7. G.	1.10	8.40	0.0	14.48
8. H.	0.16	4.34	3.00 loss	4.88
9. I.	0.04	10.46	10.2	2.15
10. J.	0.38	60.62	trace	49.40
11. K.	0.84	17.66	1.00	18.76
12. L.	1.56	46.94	trace	58.33
13. M.	1.36	84.64	0.0	89.37
14. N.	0.12	49.88	0.0	34.78
15. O.	2.52	122.96	trace	145.80
16. P.	0.44	11.56	6.0	8.35
17. Q.	0.10	9.90	0.0 loss	2.36
18. R.	1.72	46.78	9.0	61.10
19. S.	0.08	5.42	0.0 loss	6.85
20. T.	0.10	10.90 copper	6.08%	
		"	6.04%	4.61
21. U.	0.08	12.42 lead	0.0 loss	.41
22. V.	1.52	18.46	0.0	31.39
23. W.	0.05	7. 95	6.0 loss	5.07
24. X.	0.44	12.56	0.0	6.27
25. Y.	0.52	36.98	0.0	30.20
26. Z.	0.16	10.34	0.0 loss	.87
27. Alpha	2.92	25.58	0.0	63.46
28. Beta	0.64	3.36	0.0	1.45
29. Epsilon	30.88		0.0	71.99

30. Gamma	0.32	7.68	0.0 loss	.40
31. Delta	0.10	2.10	0.0 loss	9.54

30% Silica, 23.4% Iron, 15.6% Manganese

* These letters are marked on the accompanying map.

\# The net value of the ore at the smelters, calculated taking gold at $18.23 the average value paid for all shipments for 5 years.

Silver at $.9686 " " " " " " " " ".

Freight at $2.00 per ton.

Treatment at the average price $11.30" " " " " " " ".

DESCRIPTION OF ASSAYS.

No. 1. A. Sulphides from junction of lowest drift and main incline 8 inches thick.

2. B. Sandy sulphides from N. W. side of incline above lowest drift.

3. C. Soft ore of one carload, out of face of second drift.

4. D. Along N. W. side of main incline above second drift.

5. E. Large development of yellow clay above drift to Belle Shaft.

6. F. White talc. ore from various places along lowest connection with Belle Shaft.

7. G. Small stope of main incline.

8. H. Two foot seam, 50 feet S. E. from foot of Bell shaft.

9. I. Drift N. W. from Belle Shaft.

10. J. Bottom of old incline tramway from foot of Bell Shaft, a layer of flocculent black oxide of iron, underlaid by a seam of talc.

11. K. Pillar above first level near new tram.

12. L. Along new tram above Smith's stope.

13. M. Small sample from N. W. side of new tram, seam 8 inches thick.

14. N. All around big cave, iron and talc, deposit 2 feet thick.

15. O. Near Belle Shaft.

16. P. Along a drift to the West of the Belle shaft.

17. Q. Cross cut to N. W. from head of new tramway, ore just coming in, 4 in. streak partly talc., partly hard.

18. R. 14 inch seam beautiful looking talc. in big cave in Accident.

19. S. Talc. on edge of Accidental and Eureka, worked by leasers.

20. T. Sulphide streak on contact of Accidental with Eureka upper strata.

21. U. Sulphides lower down than No. 20 on middle strata.

22. V. Sulphides bottom workings on Wilmot.

23. W. Pyrites out of Great Hope Tunnel.

24. X. Around Uhlricks Stope.

25. Y. S. E. Side of main incline under cross-cut, under Spirit claim.

26. Z. S. E. side of main incline below No. 25.

27. Face of second level to N. W. 121 feet from main incline.

28. Lower side of 1st level near tramway.

29. Above 1st level towards Polar chute.

30. Nine carload out of face of 2nd, level 60% waste, 40% ore of this grade.

31. Iron flux from the Wilmot claim.

TITLE TO THE PROPERTY.

The important ground is all patented, and I believe the title to the Accidental, Polar, Bob Ingersoll, Rocky Point, St. Elmo, Wilmot, and Great Hope claims will be pronounced perfect, and that the title to the Veteran and Powderly, unimportant claims, can be easily perfected.

The wise location of these claims, the strong combination of the old Polar and Accidental mine with the Rocky Point Group, and the settlement with the Iron Mask Group, seem to remove all possibility of litigation.

CONCLUSION.

The property is well developed and in running order. Original smelter returns showing the sale of ore to an amount of $350,278.37 have been presented of which sum probably $75,000.00 has been net profits. Considerable development work and many improvements have also been paid for out of the proceeds of the mine.

The average yield of 5802 tons of ore already extracted is $60.36 per ton, without paying freight and treatment of which nearly one half is in gold. The gold in the ore gives especial attractiveness to the investment. The property has not been run for a product as there has been disagreement along the owners.

It is estimated that a net profit of $180,000.00 after paying all costs and administration can be probably realized inside of three years, from the ground developed in the mine. There seems no reason why the ore bodies will not be productive to great depths or why the mine shall not pay well for many years.

In short the property is one in which a safe and conservative investment can be made, which gives every assurance of returning the purchase money within three years; and then continuing to pay from 25% to 33% per annum on the $25,000.00 stock for many years to come.

Respectfully submitted,

(Signed) E. E. OLCOTT.

Mining Engineer.