

REPORT
on the
SPANISH PEAK GROUP OF MINING CLAIMS.

by

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M.E.

Report furnished by Mr. James G. Elliott.

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Walsenburg, Colorado.
July 21st, 1899.

Dear Sir:

As instructed by you, I have carefully and systematically investigated your group of Spanish Peak Mining Claims with a view of ascertaining all the facts relative to their technical and commercial value, and I have the honor to submit below my report of said investigation together with such professional conclusions and recommendations as the facts warrant:

The claims are approached from Aguilar, a station on the Colorado and Southern Railroad, by means of a good smooth, easily ascending wagon road up the valley of the Trujillo River for a distance of $18\frac{1}{2}$ miles, where a trail leads to the mines. $1\frac{1}{2}$ miles distance up the hills.

Situation of Claims

The claims are situated on the Southeast slope of the West Spanish Peak, lying in West Spanish Peaks Mining District, Las Animas County, State of Colorado, at an altitude of about 10,000 feet for the lowest claim, while the highest extends very near to the top of the peak.

Geological Surroundings

The Spanish Peaks are at their apex composed of immense bodies of eruptive rock, leucolites of porphyritic diorite, while innumerable porphyritic dykes extend in all directions from the center, or porphyritic core of the mountain. The core and the dykes pass downward through the Upper and lower carboniferous periods into the foundation metamorphic granite of the Archaean Age (See Hayden's Geological and Geographical Atlas of Colorado) 1881, Dept. of the Interior, Washington D. C. sheet 16, and Lake's Geology of Colorado and Western Ore deposits pages 68 and 246.

Surface Surroundings

In the immediate locality of the claims the country rock is porphyritic with numerous veins intersecting the porphyritic leucolite and extending down into the carboniferous limestone. From the top of the peak the mountain is extended in a ridge running to the Northeast. The group of claims run parallel to this ridge, the Highest claim, the Monitor, being very near to the top of the ridge. About midway between the Northeast and Southeast end lines of the group, two gulches with flowing water intervene, forming the side of the mountain into two slopes, the Northeast one dipping to the Southwest and the other dipping to the Northeast. The two gulches come together near the center of the group, creating a draw which contains about 1,000 feet below the claims where it opens into a level park, through which flows a splendid stream of water, supposed by the two brooks running down the gulches referred to, and the two other streams, one of which is the main stream draining the area between the West and East Spanish Peaks. From the side line of the Luella claim, the depth is about 1,100 feet. The surface covering the claims is meagre, consisting of slide rock and float, the bare porphyry being visible in some places. The territory surrounding and even a portion of the claims is abundantly timbered with pine and spruce.

Description of Claims

Going up the mountain in a Northwesterly direction the first claim approached is the LUELLA LODE, this claim I found to be an unpatented location, of regulation size, (311 x 1500 ft.) and running with the ridge in a Northeasterly direction, about one-third of which, the east third, lies in the gulch and is well timbered, by means of the outcroppings and prospect holes, I found a well defined, perpendicular vein of quartzite with iron oxide, running the entire length of the claim, with an average width of 4 feet. This vein matter, both physically and structurally resembles Cripple Creek quartz. Samples taken from various parts of the vein assay from \$2.00 to \$20.00 per ton in gold, the ore will undoubtedly concentrate. As yet, however this claim is only a prospect.

Little Mattie Lode

Continuing up the mountain in the same direction, I found this claim running parallel with and adjoining the LUELLA, but commencing some 250 feet further up the mountain to the Southwest, the claim is patented and is 295 x 1496 feet, covered the bluff of which the vein or lode outcrops, at this point, about 120 feet from the East end line, the vein is opened up about 150 feet of tunnel with drift. The tunnel is superficial and in very bad condition. The vein is exposed by the outcrop and workings is vertical and well defined, is near the center of the claim and runs parallel with the side lines. It is from ten to twelve feet wide, consisting of quartzite impregnated with considerable lead and carbonates and with a 4 inch to 18 inch streak of silver-gold bearing galena. Samples taken from this streak of galena assay from 40 to 70 percent in lead, 30 to 100 ounces in silver and \$2.00 to \$10.00 in gold. This lode could be easily worked and is of course, a smelting proposition.

American Flag Lode

The next claim reached is the American Flag, this is not a full claim being 1500 feet long, 300 ft. at its west end and about 200 feet at its balance with slide. The lode exposed by a cut, is vertical to 6 to 8 feet wide and composed of porphyritic quartz mineralized with oxide of iron containing gold. Very little development has been done and a just estimate of the claim would require some explanation. What is in sight looks good. It is patented.

Spanish Gold Mine Lode

This claim runs about East by South, portions of it overlapping the "Monitor", "Uncle Sam" and "American Flag" claims. It is of regulation size and patented. Its Northwest corner is within 300 to 400 feet of the top of the peak, while its Southeast corner lies about 300 feet from the Northeast corner of Little Mattie. The surface is covered principally with slide and flat. The lode is exposed by out-crops, discovery cut, and about 100 feet of tunnel. It is from 30 to 40 feet wide, composed of more or less decomposed quartzite and partially decomposed porphyry, heavily impregnated with iron oxide and slightly stained with green copper. It is a distinct fissure vein with well defined North and South walls of the porphyritic loccolite, vertical or nearly so, easily traced along the middle of the claim from one end to the other. Samples taken from different parts of the body of the vein assay from \$2.00 to \$50.00 in gold per ton, the loose decomposed portions of the vein giving the highest results. Part of the gold is free milling and the balance evidently subject to concentration. How much of the gold value is free milling, I am not prepared to state, as its determination would require the taking of a larger sample than the circumstances permitted. However, yielding considerable iron and silica, it is at once seen to be a most desirable fluxing ore.

Monitor Lode

The Monitor claim lies very nearly to the top of the ridge, its Northwest corner being only a few hundred feet to the Southwest and below the top of the peak, while its Northside line runs from the corner Northeast, just below the top of the ridge. The claim is full size and patented. The surface is partially covered with slide. A discovery cut in the center of the claim exposes a strong, well marked vein from 10 to 12 feet wide, running toward the center of the peak and heavily mineralized with iron oxide. The development work consists only in the discovery cut, which merely exposes the surface of the vein and is consequently of little value in determining the work of the lode. No assays.

Uncle Sam & Erie Lodes

The Northwest corner of the Uncle Sam claim lies very near the center and a hundred feet or so inside the South side-line of the Monitor then running Northeast. Its Southwest corner overlaps the Spanish Gold mine claim. The Erie is a Northeast extension of the Uncle Sam, the two claims extending across the two gulches and well up on the opposite slope. They are both regular size and patented.

On the Uncle Sam there is a small quantity of timber while the Erie is well covered with timber. The lode out-crops in the Eastern gulch, in the middle of which the two claims join. On the Uncle Sam the lode is also exposed by a discovery shaft in the gulch and on the Erie by a discovery cut and tunnel. It is from 4 to 5 feet wide and of porphyritic character. Where the lode is exposed, the surface not being denuded of its sedimentary deposit, it is probable that this lode is a porphyritic dyke forced up through the sedimentary rocks. Just where it is exposed, however, the action of the water in the gulch has so acted on the lode matter, that I cannot say that this is absolutely the case. A little more development work would, I feel sure, establish this fact, and if so there is every indication that good contact veins, probably galena bearing, would be uncovered with depth. No. Assays

Empire Lode

Following down the Eastern gulch in a Southerly direction, over from 300 to 400 feet of unlocated ground, the Empire Lode is reached. This claim is a Northeast extension of the Little Mattie, designed to cover a probable continuation of that lode. The Empire is only a prospect location with no development work and unpatented, it is well timbered. No Assays.

Miscellaneous Facts

The area covered by the entire group of eight claims is very close to 77 acres, while the six patented claims cover virtually 55 acres.

The timber on the claims, and adjoining them in abundance, is of the most desirable quality for mine work, lumber work or for charcoal burning while a sawmill in operation two miles away makes timber cheap and plentiful. The level park some thousand feet below the claims, offers ample space and facilities for a mill-site, while the stream running through it affords plenty of water for stamping and concentrating and an abundance of power. Limestone can be had within three miles, with a strong probability that with depth and the mines will produce all that may be desired. Coke can be had from Trinidad, and with suitable wagons could be hauled from the railroad and put down at the mines at a price not greater than the cost laid down at the smelter at Pueblo.

Conclusions

From the facts enumerated above, just as I found them together with the geological formations as evidenced by the authorities referred to and my own personal observations, I have arrived at the following conclusions: Taken geologically, the location of the claims is most promising indeed. While no special rock or formation has a monopoly of the precious metals in Colorado, yet is a well established fact that certain rocks and formations taken with a combination of certain circumstances are always ore producers. These, in this case, are intrusive eruptive rock, especially porphyry, forced up through the foundation granite, passing through the carboniferous limestone, penetrating but not overflowing the sedimentary formation and forming intrusive dykes and leccolites. An illustration of these conditions is seen in the great Leadville District (See Plate 7, Lakes Geology of Colorado and Western Ore Deposits). In the Spanish Peaks these circumstances are so perfect that the authorities use illustrations of these peaks as being typical of these conditions.

The value of these conditions lies in the fact that the eruptive rock melted into a state of fusion in the bowls of the earth, forces itself up through a common core, or dyke, until reaching the sedimentary formation and finding a weak spot therein has sufficient power to push it up more or less in the shape of a cone, but not enough to force itself through and overflow, thus forming a leccolite, more or less spread into a great mass between the sedimentary formation and the formation next below; or the older rock beneath, rises into one and flows into the other, filling them up and possibly widening them by its intrusive force, thus forming dykes. When the leccolites cool and solidify, the contraction is very great, forming fissures or cracks, which subsequently become "fissure veins". The dykes in their contraction leave a space between the intruded rock and their wall or walls, which space, when filled with veinous matter becomes a contact vein; the reasons porphyry is so valuable under these conditions are three fold; first, because of its want of power to push completely through the Earth's crust and overflow, it gathers in the large mass of the leccolite and dyke, producing in its contraction large fissures and of course deep ones; second, this class of porphyritic rocks belong to a very old age, that is, their eruption occurred so very long ago that their fissures were there to receive the deposit of metaliferous veinous matter, and the further fact that the leccolites, especially, had ample time to become more or less denuded by erosion of their sedimentary covering, thus leaving the fissures more or less open to the better to receive the liquids precipitating the metals; third, porphyritic rocks are composed principally of quartz and feldspar, and being acted upon by the hot alkaline solutions furnish the very material to make up the gauge or veinous matter best calculated to gather, as it were, the desired metals.

So then, unless theory based upon practical experience is wrong, the Spanish Peaks District should as certainly contain producing mines as the Leadville, Gunnison or Aspen Districts.

Having a district undoubtedly containing ore-bearing veins, the question, the answer to which is desirable, is have you located any of them? In answering this question, I will take the facts as I found them. The vein in the Luella claim is certainly a true fissure vein and while only its survey is exposed it yields a fair value and will concentrate. However, I should judge from its nature that it will grow richer with depth. As a prospect it is good, and with proper development will doubtless become a producer.

The Little Mattie only needs the proper development to make a producing and paying gold-silver bearing lead mine. The point where the vein outcrops in the gulch is, along the entire length of the claim, about an average of 300 feet below the surface. Not taking into consideration the extension, the Empire, I am perfectly safe in estimating that the vein extends the full 1500 feet to the Southwest and the galena streak will average eight inches in width and 250 feet above the lowest point visible. This will give 250,000 cubic feet of galena ore, or about 58,000 tons, averaging 60 percent, lead, 50 ounces silver, and $\frac{1}{4}$ ounces gold, with a total value of \$9.00 per ton. Here there is virtually in sight a grand total of \$5,162,000, however it would be impracticable to mine all this, so I think I am perfectly safe in saying that there are \$2,000,000 of available ore in sight on this claim, and without taking into consideration the probable quantity of ore or its increased richness in precious metals with further depth.

Of course this estimate assumes that the vein continues in richness the same as where exposed, which is more than probable. Add to this the further fact that the gauges of the vein, in addition to the pay streak, is impregnated with sand carbonates, presenting a splendid concentrating and smelting proposition the value of the lode is greatly enhanced and its possibilities enormous.

The American Flag, Monitor, Uncle Sam, and Erie lodes are simply prospects. They have good looking veins but still require more exploration to determine their worth. Judging from the porphyritic character of their vein matter, together with the presence of iron oxide, it is probable that with depth they may turn into iron pyrites, with or without values.

The Spanish Gold Mine is undoubtedly a valuable claim. It is an immense vein, probably extending across the whole district, and is sufficiently prospected to determine its value. All it requires is the necessary development to enable it to be worked. From the fact of the presence of oxidized iron, freemilling and refractory gold, it is probable with depth the ore will turn into sulphides. The claim is so situated that any measurement of the quantity of the ore, beyond the immensity of it, would be mere guess. That there is an enormous amount of the ore is plainly apparent and its availability cannot be questioned. Its mining possibilities, by reason of the width of the lode, are great and easy. I feel confident that the entire vein matter will average \$20.00 per ton in gold, which makes it, with its silicious gauge and iron, a splendid smelting fluxing ore. It is also workable by amalgamation and concentration combined, with a strong probability that the free-milling properties will be lost with depth and the concentrating become more marked.

The Empire claim is simply a located extension of the Little Mattie and as no work to any extent has been done on it, very little can be said of it, for or against, beyond the strong probability that the Little Mattie lode passes through it. To sum up, I am confident you have two good, paying mines in the Little Mattie and the Spanish Gold mine and a splendid prospect for a mine in the Luella.

External Facilities

The location of the claims is most excellent for both mining and extraction of the metals, and the sheltered position together with the climate, is such that work could be prosecuted all the year around. The mines could be easily worked by either tunnels or shafts, and the lay of the ground is well situated for a tramway to the park a thousand feet below, where there is ample space for mills or smelters and abundant water for power and other purposes.

Ore from the Little Mattie can be mined and shipped. The pay streak or galena can be mined, sorted, laid down in Pueblo and smelted for \$20.00 per ton, yielding a net profit of certainly not less than \$50 per ton, and these are outside figures. The railroad freight to Pueblo \$1.50 per ton of ore. The Spanish Gold Mine ore could be concentrated and shipped and the concentrates laid down in Pueblo and smelted at a cost of about \$10.00 per ton of the ore, leaving at the lowest estimate \$5.00 per ton net profit. In the concentrates from this ore there would be sufficient iron to more than pay railroad freight on them. On the other hand, by concentrating and smelting on the ground a beautiful proposition is presented. The Little Mattie would furnish the lead, the Spanish Gold Mine the iron and silica, while charcoal and can be cheaply burnt or coke had as cheap as elsewhere and the limestone near at hand. This would result in a saving of at least 50 percent, over any other way of handling.

Recommendations

I would therefore recommend that in developing these mines you do so by a tunnel, starting at a point in the gulch about 400 feet South-east of the East end of the Luella and 300 feet South and West of the Southeast corner of the Little Mattie running due Northwest. This would clearly be the most feasible and practicable way of opening your mines and at the same time prospecting your most valuable claims. Such a tunnel would give you drainage, facilities for drifting and stopping the tap your veins at a good depth. It would tap the Luella vein at a depth of about 100 feet. The American Flag at 500 ft. and the Spanish Gold Mine at 750 ft. Uncle Sam at 900 ft. and the Monitor at from 1000 to 1100 feet. The construction of such a tunnel with reasonable drifting, and tapping the Monitor lode would cost approximately \$15,000. When the tunnel tapped the Little Mattie vein, which it would do in about 300 ft. the mine could be placed on a paying basis by sorting and shipping the ore.

In handling your ore, I would advise the erection of a tramway from the mouth of the tunnel to a concentrating mill built in the park below I would advise first the building of a concentrating plant, shipping the concentrates and erecting from the proceeds a base-bullion smelter. In as much as the lead must be shipped, it would be best to only make base-bullion as the freights would be no more than on the pig lead, while the cost of separating the previous metals from the lead, on the grounds, would be greater than the refiners would charge.

From the wagon road to the mines, one and one half miles a road should be built, costing in the neighborhood of \$500.00.

In conclusion let me say that it is my frank opinion that you have this group of claims a most valuable, and from a technical standpoint a wonderful proposition. If with depth you strike limestone, and I believe you will get deep enough for that, you will then have right at hand everything required for smelting purposes, lead, iron, silica, lime charcoal, and an abundance of water power. And still more interesting, as far as I can see no interfering elements, as zinc or barium, surely if nature is as lavish with good things of her great storehouse with depth as she is on the surface, this district is destined to become a great and prosperous camp.

Respectfully submitted,

Signed- Davis S. Carraway M.E.