

Confidential

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WATER CANON:

The Water Canon District is situated on the east side of the Magdalena Mountains, about five miles from Water Canon station, - good wagon road from station to the most of the mining claims.

The mineral belt of the Magdalena District crosses the Magdalena range at a bend in the mountains on the east side of Little Baldy and extends for five miles across the head of North Fork, Dark Canon, Water Canon, Copper Canon and South Fork.

The geology is identical with the geology on the west side of the range, with the exception that there are more dikes, which, according to the effect on the ore deposition on the west side of the range, should be favorable for a repetition of the same character of deposits as are found on the west side of the range.

This district is entirely undeveloped. The early mining in the district, some twenty five years ago, was for gold and was confined to the greenstone underlying the sedimentaries and in the andesite west and above the sedimentaries, with the exception of about twenty five feet of work on what is now known as the Dago, which is under the silver pipe, and which produced about 100 tons of oxidized lead ore, carrying about \$15.00 in silver and gold, according to information obtained from the former owners.

I see no reason why the crystalline limestone in Water Canon on the east side of the range should not be as productive as the same limestone on the west side. The conditions controlling the ore deposits, as far as can be seen from the surface, are identical with those existing on the west side and some of the conditions are much more favorable.

The Magdalena District extends from the summit of the Magdalena

range west, and the Water Canon District commences at that point and extends along the east side of the range for about ten miles. The distance from the Little Baldy group on the summit of the range on the west side to the Mogul group is about one and one-half miles.

MOGUL GROUP:

The Mogul Group of thirteen claims is located in Water Canon, on a continuation of the limestone belt of the Kelly district that crosses the Magdalena range at Little Baldy, where the range makes a bend to the west.

GEOLOGY:

There is a large east and west fault on the south side of Little Baldy, throwing the entire sedimentaries over 3000 feet to the east, from which point the limestone belt extends across North Fork a distance of something over a mile across Copper Creek, about the same distance, and then across the main fork of Water Canon, where it is cut off by the eruptives.

All of the geological conditions existing on the west side of the range are found on the east side, the crystalline limestone having practically the same thickness with the silverpine in its normal position, with the shales, quartzites, and upper series of the sedimentaries correlating with those on the west side of the range.

The intrusion known as the Kelly-Graphic dike that cuts the sedimentaries at the base of the mountain west of the Kelly and Graphic groups extends south from Kelly 30° East, which throws it well up on the west side of the range as you approach the south end of the Kelly district.

This dike continues across all of the several branches of Water Canon, cutting the sedimentaries on their west line. The Country above that contact, and to the west, is covered with andesite and later intrusions.

By referring to the attached blue print "A section for locating drill

holes in North Fork Canon", made July 29th and 30th, 1910, by Wm. H. Herrick, you will note that the west side of that blue print is marked Kelly-Graphic fault, which should read - Kelly-Graphic dike".

The only difference between the geology on the west side of the range and the geology on the east side in Water Canon is the existence of several intrusions similar in character to the Kelly-Graphic dike, which is classified by some geologists as rhyolite, and by others as felsite, it varying somewhat in character at different places where it is exposed by erosion in the canons, being soft and basic in some places and very hard and acid, resembling typical rhyolite, at other localities. Five of the larger dikes show on Mr. Herrick's plat, I having assisted him in the survey and worked in the geology. In addition to the dikes shown on the plat, there are several smaller ones which I did not deem advisable to plat.

The dip of the formation, is, of course, only approximate, as I know that there is a gradual faulting, the throw being up, along all of the dikes, the strike of which is approximately parallel to the strike of the formation. The displacement, of course, is only approximate, and since the drilling of Hole #1 I believe the throw is greater than shown on the blue print, the displacement as shown being figured on a basis of the displacement that we know exists on the west side of the range, where, there is a gradual faulting and raising of the formation from the summit of the range down to the base.

ORE OCCURRENCES:

The deposition of every ore stope on the west side of the range can be traced either to the effects of a fault or dike cutting the three ore horizons which are the contact of the greenstone and lower crystalline limestone, the silver pipe contact, or the upper or west ore horizon, near the top of the crystalline limestone, and generally under what is known as the upper or west silverpipe, the dikes exerting a far greater influence on the ore depositions

than the faults.

We base our system of developments for prospecting new ground on the above facts. The largest ore depositions so far developed on the west side of the range are down in the vicinity of the Kelly-Graphic dike.

The largest stope of sulphide ore developed in the district is in the Graphic, which was discovered from the 9th level, 400 feet on the dip of the formation below the 6th level. The ore shoot is 450 feet long on the 9th level, and has been prospected on levels Nos. 8 and 7, which are connected by several raises. No. 7 is also connected with No. 6, with two, and I think three raises, the ore being continuous from the 6th down to the 9th level.

No prospecting has been done on the ore shoot below the 9th level. A crosscut in the middle of the ore shoot shows 105 feet of ore horizontally across the formation. The average width of the ore shoot is from 20 to 40 feet on the 9th level. Conservative estimates on this stope places the ore blocked out between the 6th and 9th level at a half million tons.

The silverpipe is considered to be the principal ore horizon in the Kelly district. Probably 85% of the ore recovered in the Kelly mine occurred on the upper ore horizon, under what is known as the upper silverpipe, resembling the silverpipe and occurring from 2 to 12 feet below the shale; sometimes the west silverpipe is missing, in which case the ore occurs directly against the shale, - possibly in such cases the upper silverpipe may have been replaced by mineral, but there are cases where the west silverpipe is missing, and other places where crosscuts show the existence of the west silverpipe and still it may not be mineralized.

The development on the west side of the range has demonstrated the fact that the dip of the ore shoots is to the northwest, - that the heaviest mineralization is between the dikes, sometimes heavy on the

upper side, and at others the largest deposition is on the lower side, and figuring by analogy, the existence of the large dikes on the east side of the range, there is reason to expect a similar ore deposition.

In making the survey and plat of the dikes with Mr. Herrick, I located holes #1, #2, and #3 with a view of intersecting the lower part of the crystalline limestone, at or near the intersection of the dikes with that formation.

DEVELOPMENT:

There is no work on the Mogul group worthy of mention. In 1910 I made an examination of the ground with a view of doing some drilling, and located sites for several holes and arranged for 3000 feet of drill work. Owing to inexperienced workmen, the contractor threw up his contract after drilling 449 feet in two holes.

By referring to the plat you will see that hole #1 should have reached the dike at about 250 feet. The facts are that it did not reach the dike, but instead cut the greenstone at 237 feet, showing that there must have been a fault between the apex of the sedimentaries and the dike, which is very common, as our developments on the west side of the range have shown up many faults that do not appear on the surface, consequently I think that the depth of holes necessary to intersect the dikes and greenstone in #2 and #3 will be much less than shown by the plat.

The contour of the plat was run in the bed of the canon on North Fork. Hole #1 is located on Phoenix #1, 100 feet north of the bed of the creek, and reached water level about 25 feet below the surface. Two holes have been drilled #1 on the location of #1 on the plat.

The work was done with a Keystone Churn Drill. I never had a log of either hole. I was, however, kept informed by daily reports over the phone by Mr. Hall, who was working on the drill, and is interested in the Water Canon district, and who, I think, reported the situation as it actually existed.

The reports show that hole #1 went thru 19 feet of heavy pyrite, containing some lead and zinc, then 6 feet of limestone, then 20 feet of pyrite, making a total of 39 feet of sulphide ore in hole #1. I was present when they were in the middle of the last stratum of sulphide ore, and had them pump out the cuttings from four feet of drilling. The sludge was dumped by itself, dried, and cut down to an assay sample, I having the sample assayed by our assayer. The result was 3% lead, 1% zinc, 4 oz. silver, and 0.03 oz gold. The bottom of this sample, was, I think, about four feet above the bottom of the sulphide ore.

There are lenses of pyrite in the midst of the bodies of sulphide ore on the west side of the range, and while I would rather have seen a higher grade of lead and zinc in this hole, the records show that there is a heavy mineralization, notwithstanding the fact that it is principally sulphur and iron.

Hole #2 is located 300 feet south of #1, and about 200 feet south of the bed of the canon; the elevation being about 50 feet higher than #1, and it, consequently reached water level at about 75 feet below the top of the hole. Hole #2 on plat is west of #1 and up the canon.

It reached the top of the crystalline limestone, according to reports given me over the phone, at 187 feet, and went thru the usual series found on the upper side of that formation, into mineralized matter at 200 feet, and continued in that down to 212 feet when operations were suspended owing to the hole's becoming too crooked to operate the drill. Chippings and pieces of quartz showing galena and blende very coarsely crystalline, with some pyrite were brought in, but owing to the fact that I did not know what it represented, I did not deem it worth while to have the samples assayed. Mr. Hall confirms the statement that they went thru 12 feet of mineralized ground, which is the proper location for the west or upper horizon, and may represent the extent of the mineralization at that point.

It would probably be anywhere from 20 to 50 feet down to the silver pipe and approximately 80 feet thru the crystalline limestone, which is the lower ore

The bottom of the hole should cut the bottom of the crystalline limestone very near to the point of intersection of the dike with that horizon, but owing to the fact that there has been no development on that side of the canon to give one an idea of any minor faulting that may and probably does exist, I am unable to say whether the hole would reach the dike or greenstone first.

By way of further explanation, I will say that Water Canon is an old silver gold camp. The early mining was confined to the greenstone below the sedimentaries and the eruptives above them. Several mills were operated at various times at different portions of the camp, no attention being given to lead and zinc until I traced out the continuation of the mineral belt from the Kelly district.

CHARACTER OF ORE:

We could expect nothing but sulphides in any of the holes from the bed of the canon as indicated on the plat. The holes drilled on Phoenix #1 are located near the bed of the canon, the ground rising very abruptly to the south and quite abruptly after leaving the second bench from the creek on the W. side. Above the bed of the creek one would expect oxidized ores. The large zinc companies, however, are basing their future operations on the existence of sulphides rather than carbonates. The limited amount of work done indicates much higher values in silver and gold than ores on the same horizons on the W. side of the range; also that the crystallization of the ore is much coarser, making a separation of the blende and galena much more simple.

Summing the situation up, it is a development proposition, which if it were located on the W. side of the range would be considered a 'sure thing', and considering the fact that it has all the geological conditions that have controlled the ore depositions on the W. side, and in addition to that, that the country has been cut and broken by additional dikes that do not exist on the

west side, I consider that it is a legitimate and safe development proposition.

Yours very truly,

W. Brown

