

REPORT
on the
CREEDE FLAT VEIN

Mineral County, Colorado

By

Victor G. Mills

Report on the Creede Flat Vein

(COPY)

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In accordance with your request I have made an examination of the "FLAT vein" of Bachelor Mountain, Creede Mining District, Colo.

This is a most unusual form and nature of silver ore deposit. The ore is an enrichment of horizontal beds of volcanic breccia which extend through Bachelor Mountain, out-cropping on the south-west side above Windy Gulch and on the North-East side, overlooking West Willow Creek and the old mines of the Creede District. This series of stratified volcanic rock forms the top of the mountain and the entire south-west side down to windy gulch. Certain of the strata are so enriched as to form silver ore. The development already done shows a zone of sufficient thickness and extent and value for highly profitable mining. A sample of all of the exposures so far made show an average thickness of more than seven feet carrying 15.6 ounces of silver to the ton, and apparently underlying fifty eight acres of the ground under consideration. See sampling details below.

The striking feature of the situation is in the condition which permits of measuring and sampling the entire ore deposit before constructing any reduction work or going into any kind of expensive equipment.

I have prepared an elevation view of the south west face of Bachelor mountain showing the vertical thickness exposed by a group of open cuts. Referring to this elevation and the many assay samples detailed on another page, it is found that the samples from cuts no. 1, 2 and three combined give a total of 20.8 feet, vertical thickness, carrying a mean of 32.80 ounces of silver per ton, or taking the unexposed zone of 21.2 feet between cuts 2 and 3 considered as barren of value, the whole 42 feet, vertical covered by these three samples shows a mean of 16.2 ounces.

The samples from cuts five and 6, taken together, show substantially one continuous vertical exposure of 20.7 feet carrying 10.0 ounces. This I consider, in a way, the best and most emphatic and encouraging exhibit of my examination.

The samples from cuts four to seven serves as to verify those from cuts 1, 2, 5, and six.

The River View tunnel is situated 700 feet east of cut no. 2. Here there is an exposure of 9.2 feet, perpendicular to the strata carrying 9.88 ounces per ton. The elevation of the tunnel was not determined, but it is probably in the same zone as cuts No. 1 to 7 inclusive.

Combining all samples from the River View tunnel and cuts 1 to 7 inclusive, give an average thickness of six feet carrying a mean of 18.77 ounces. But as this ore should be mined and milled without sorting I assume six feet as the least thickness for practical working in these horizontal beds, and to each sample taken of less than six feet add enough rock, assumed to be barren, to make six feet thick, carrying 14.57 ounces.

The two samples taken at cuts Nos. 10 and 11, on the north-east side of the mountain, show an average thickness of 3.05 feet carrying 33.36 ounces, or, reducing this to my standard of six feet working thickness makes 12.8 ounces per ton. This it is seen corresponds closely with the mean value shown on the south side of the mountain, or, combining these samples from cuts 10 and 11 with the above, makes the sampling results average 5.65 feet with a mean of 19.94 ounces, and adding assumed barren rock, as before, increases the thickness to 7.22 feet and reduces the value to 15.6 ounces, which I consider the more reasonable view, and which I gave above in the second paragraph of this report.

The horn Silver shaft and cut no.8 are considerably above the other workings and evidently in a lean zone, as shown by the samples, see elevation view.

The Tar Baby no. 2 cut No. 12 is some 200 feet lower than cuts 1 to 7 and the two samples taken there were merely exploratory and should not be considered in this connection. The same may be said of the sample from cut no. 9 which was caved so that the face originally exposed could not all be seen.

However, combining my entire 17 samples taken on the mountain gives an average thickness of 4.41 feet with a mean of 18.15 ounces, or with my six feet minimum thickness this becomes 6.5 feet and 12.29 ounces.

The Samples

All sample cuts were made perpendicular across the strata, the total weight of my samples was 540 pounds. This is more than seven pounds to each foot of cut, and the result should be quite dependable. On another sheet I give the location, the thickness taken, and the ounces of silver per ton of each sample.

The thickness of the Deposit, and the question of whether there are two or more payable zones separated by lean strata, is an important factor. It is as yet undetermined, and this matter calls for careful consideration. To this end I have prepared a vertical section through Bachelor Mountain. Heretofore the exposures at cuts numbered 10 and 11 have been considered in the same stratum as that seen at 1 to 7 and the River View Tunnel on the other side of the mountain. The dip of the bedded formation in the River View Tunnel, where it is known for 110 feet is 4 Degrees and 45' North, this dip is shown on my section through the top of the mountain. From this it appears that cuts 10 and 11 are on another some 200 feet above that shown at cuts 1 to 7, this view is strengthened by the fact that the enriched zone found at cut No.9 and the workings on the Mallissa lode on the south-west side of the mountain, are at about the same elevation as 10 and 11. However the dip in the River View tunnel, without other evidence, is not to be depended upon as extending through the mountain and the enriched zone at cut No.11 may yet prove identical with that at cut No. 7.

Amount of Ore

The Area of this mineralized zone within the properties under consideration, and identical on the map, is 58 acres. This at 13 cubic feet per ton makes 1,457,200 tons for 7.5 feet thickness. The amount is 194,300 tons to each vertical foot, 1,943,000 tons for ten feet, 3,886,000 tons for 20 feet, and so on.

Character of the ore and milling

Since we are conducting special tests in the crushing and treatment of this ore, I need not go into this subject. However, since this ore contains a considerable amount of petrified wood, suggesting the possibility of a deleterious element for cyanide treatment, I have ascertained by testing the samples that they do NOT contain any free Carbon.

The following copy of three smelter returns, made from hand sorted ore, which came from the workings sampled, serves to show something of the character of the ore.

| Lot No. | Ounces Silver | Zinc% | Sulphur% | Iron % | Insoluble % |
|---------|---------------|-------|----------|--------|-------------|
| 1 | 847.25 | 0.5 | 0.5 | 3.1 | 68.4 |
| 2 | 181.45 | 0.5 | 0.5 | 3.2 | 83.2 |
| 3 | 60.77 | 0.5 | 1.0 | 2.1 | 88.1 |

The attempts which have been made to market this ore by hand sorting, have, evidently, not proved very successfully, it is not at all an ore suited to that method of concentration.

Mill Site

The only available site for a cyanide mill seems to be about where I have marked "proposed Mill Site" on the map. This location is favorable for water supply and there is a large area below for tailings disposal on your property. The north East side of the mountain would be objectionable for cyaniding on account of the possible contamination of Willow Creek, and the water supply of the town of Creede.

Water Supply

At a point in Windy Gulch 3500 feet north east and 450 feet higher than the proposed mill site, I measured the discharge of the water and found it to be 0.23 of a cubic foot per second of time. This gives 590 tons of water in 24 hours or sufficient, without storage to treat 300 tons of ore per day.

Further Development Required

The showing already made indicates that mining and milling this ore will be highly profitable and to an extraordinary degree a substantial and dependable enterprise. It is outside of the class of ordinary lode metal mining. Situated as it is near the top of the mountain, and in a horizontal position, The amount of ore can be determined in advance and without undue expense, Churn drilled at modest depths will establish the thickness and value of the deposit, this with more open cuts on both sides of the mountain will readily prove the gross amount of ore available.

The entire mountain is covered with three to five feet of talus largely overgrown with aspens and some larger trees so that nothing further can be determined without more work in the form of cuts or drilling

Accompanying and forming a part of this report, find "A list of my samples with thickness, location and assay values. One general map. One vertical section.

Respectfully Submitted,
(signed) Victor G. Hills.

List of Assays
The Creede "Flat Vein"
July 15-19 1921

| V.G. Mills' Serial Number | Location on Map Description | Thickness Sampled feet | Ounces Silver |
|------------------------------|---|------------------------------|------------------|
| ***** | | | |
| 10739 | River View Tunnel All Exposed | 9.2 | 8.88 |
| 10740 | Cut 2 All Exposed | 8.6 | 76.00 |
| 10741 | Cut 3 All Exposed | 6.2 | 3.12 |
| 10742 | Cut 1 All below zone of cut 2 | 6.0 | 1.50 |
| 10743 | Cut 4 The hard fine tuff leaf | 0.8 | 30.08 |
| 10744 | Cut 4 The lower hard zone | 1.6 | 19.84 |
| 10745 | Cut 5 The whole exposure | 13.0 | 7.30 |
| 10746 | Cut 6 The whole exposure | 7.7 | 14.65 |
| 10747 | Cut 7 The leaf next to Talus (soft) | 3.8 | 9.08 |
| 10748 | Cut 7 Below 10747 Hard horny | 3.0 | 9.00 |
| 10749 | Cut 8 The dark leaf | 1.5 | 1.72 |
| 10750 | Bottom H.S. Shaft, Hard Gray only cave | 1.50 | 1.00 |
| 10751 | Cut 9 Sunel Adit, All exposed above) | 2.6 | 1.20 |
| 10752 | Cut 10 Arion the dark gray only | 3.9 | 28.60 |
| 10753 | Cut 11, Horn Silver, Hard dark Tuff | 4.0 | 38.60 |
| 10754 | Cut 12, Tar Baby, Lower Leaf, Hard dark | 1.25 | 0.52 |
| 1075 5 | Cut 12, T. B. NO. 2 The top leaf Breast | 0.5 | 1.04 |