REPORT

ON

THE ATLAS MINE.

OURAY, COLORADO.

For the Year 1905.

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MINE MANAGER'S REPORT PAGE 219.

STATE BUREAU OF MINES
STATE OF COLORADO.
The Atlas mine is situated in the Mt. Snareeles mining district, about one mile east of the Humbolt, Terrible and Virginus mines, the latter forming the backbone of the world-famous Revenue mine. At present the Atlas has attained an underground development of about one thousand feet along the Atlas vein, with approximately another thousand feet of cross-cuts and raises. The general strike or course of these workings is about 8.56°E. These workings are very near the horizontal level where the San Juan series (andesitic breccia) meets the Silverton series (intermediate series), the latter characterized by andesitic flows separated by flow breccias and vice versa. The elevation of these workings is approximately 11,900 feet, lying 600 to 700 feet below the lowest layer of Potosi eruptives (rhyolites and trachytes).

A large trap dike follows the Atlas vein throughout its entire length with unmistakable physical prominence, which will average from eight to ten feet in width. By referring to the accompanying map, near the center of the Atlas claim, where the Narcoochee intersects it, this dike is crumbled into stone and so intertwined with side rock and surface wash that its existence is indeterminate, save only for the fragments of the unmistakable diabase. To the southeast of the point where the Narcoochee intersects the dike continues along the westerly side of the Atlas vein through the Klondyke group. To the northwest of this point for a distance of perhaps a thousand feet the surface is covered with slide rock and soil, making a study of dike and vein outcrops impossible. After this distance has been passed, however, the dike is very pronounced, with a well-defined vein on each side of it, which condition holds, at least, until the territory occupied by the Governor claims has been traversed. Going into the Atlas workings a tunnel 145 feet in length intersects the dike and vein from the east, at about 300 feet from the northwesterly end line of the Atlas claim. At this point the dike lies immediately to the east, or on the east side of the vein, continuing so for 192 feet, the point at which the Narcoochee intersects the Atlas. Here a similar condition as above stated, with reference to the surface indications, holds-dike material being broken into innumerable fragments. From here the dike forms the westerly boundary of the vein up to the breast of the workings.

From the foregoing one must be convinced, I believe, that the Atlas vein is a natural consequence subsequent to the dike formation. The dike cooling is contracted, thereby forming a fissure, extending downward into the earth, affording a passage for the mineral charged solutions which, coming in contact with the cooler walls, the pressure diminishing, lessens the solubility of the minerals which crystallize out and deposit themselves, thus building up the vein. A great deal of faulting has occurred, both lateral (horizontal) and vertical. But the foregoing conclusions, with reference to the general relation of dike to vein and vice versa, are verified by numerous cross-cuts which I examined very carefully.
Without doubt the Tarcoohee and the Atlas occupy the same fissure for several feet to the northwest after coming together. The Atlas is by far the greater vein, however, and its importance is held out in strong relief by its continuity with this huge persistent dike.

After drifting 712 feet, a cross-cut 38 feet long was driven in a northeasterly direction, intersecting a vein running exactly parallel to the general course of the Atlas drift, which is called the "New Discovery" and which is in reality the Atlas set over by faulting.

This "New Discovery" was drifted on for some fifty or sixty feet and from it some promising assay returns have been obtained.

The main drift had been run for nearly 200 feet beyond this cross-cut in a southeasterly direction, so a second cross-cut was driven from the face of this main heading, which intersected the vein at a distance of fifteen feet or more, with the vein widening and giving more promise with each day.

Stoping has been done to a height of more than 100 feet from a point 156 feet from where the vein was intersected by a cross-cut, and continuing 270 feet, thence for a height of fifteen to twenty feet and a distance of 340 feet, known as the "Big Stope" and "Second Stope" respectively. Two hundred and twenty-five tons of ore shipped from this "Big Stope" gave a gross value of $90,000 as shown by the mint and smelter returns of the same. The maximum depth of surface above this "Big Stope" will not exceed 100 feet, therefore I was surprised at obtaining assay returns running as high as $125.

Samples from the roof of the "Second Stope" gave returns of an average valuation of $13.36 per ton. I concentrated in a crude way an equal portion of each sample taken, and this concentrated product assayed $60.15 per ton. During the present month Mr. Harston and I have very carefully sampled and assayed the floor of the drift underneath the "Big Stope," obtaining values from $2.00 or $3.00 per ton to $65.00 per ton, the average valuation being for gold and silver alone $12.90.

We find the vein of no considerable width at any point, but this is typical of the veins of this locality at this elevation, and while the width here ranges from a few inches to almost three feet in places, it is strong and continuous and will no doubt broaden with depth. I cite, for example, a condition which came under my observation while I was at the Camp Bird mine, the vein intersecting at an elevation of a little less than 12,000 feet was from six inches to four and five feet in width while vertically underneath 370 feet, the vein was from eight to thirty feet in width. The present workings of the Atlas are way up in the San Juan breccias to say the very least, which granting for the moment the very foolish assertion of Philip Ayres, that "the lodes of this region occupy contraction fissures and do not extend down in the underlying schists and sediments," would give the Atlas vein (see F. L. Ransome in Bulletin No. 182, U. S. G. S.) 2,000 feet of depth yet unexplored. It will be noted in my introductory statements that the Atlas lies very near the Virginus, and other noted mines. Like these properties, it has a general northwest and southeast strike and dips to the northeast at an
angle of 79° to 80°. The southeasterly end line of Klondyke No. 2, being the southeasterly end of the Atlas group, intersects the Camp Bird group in what is known as the "Around Hole" ledge Dur. No. 16,673. On the northwest lies the Governor group, which is today milling a very attractive grade of ore. Taking into consideration then, the general existing physical conditions of this mine, its northwest-southeast strike, its easterly dip, intimate relation or association with the above mentioned diabase dikes, its "endigenous" vein construction, and the vein filling being almost identical in every particular, physical and chemical, to the other big producers of this district, and all this added to the remarkable showing made for its limited development, I cannot but feel that the Atlas is to become one of the very big mines of the San Juan country.

Mr. Remsman in his report in the Economic Geology of the Silverton quadrangle (Bulletin No. 182, U. S. G. S.) hints very strongly at the possibility of Mt. Sneffels and Stony Mountain being the craters from which flowed out the eruptions of this immediate district. This being the case it is very reasonable to surmise that the Atlas vein is one of the very strong, if not the strongest, fissure emanating from this volcanic center.

Both of these mountains are certainly entirely different from the formations which go to make up the surrounding peaks and ridges of the country, these being composed of a later eruptive rock mass of the augite-eyeinite family, known as "monzonite" or monzonite porphyry and called by the miners of this district "volcanic granite." It is very certain, therefore, that even if Mt. Sneffels and Stony Mountain were not the initial craters of this district they were undoubtedly chimneys connected with the seat of the molten unrest. It is, therefore, logical to assume that the Atlas vein was the necessary outcome of this centralization of disturbance and that its depth continues uninterrupted far down in the bowels of the earth.

It is entirely unnecessary for me to enter upon a more detailed account of the geology of this region. Suffice it to say that it is the universal eruptive formation of what is known as the San Juan country of Colorado. Moreover, it is needless for me to attempt an estimation of the value of the property. The fact that the present exposed boundaries of the vein give an exceptionally good milling product, which must yield from five to six dollars profit per ton of ore, and this after all of the best ore encountered has been disposed of, and further, that the said ore body occupies a zone so near the surface where the decomposition and consequent leaching out of the values make it apparent to any fair-minded man that the ore which will be encountered by the new tunnel, just beginning, at a depth of five hundred feet below the present workings must have a valuation far in excess of anything heretofore discovered.

Respectfully submitted,

(Signed) CHARLES S. THOMAS.

Ouray, Colo., Oct. 25, 1904