

Denver, July 20th, 1887

E. Wallace, Esq.,

Dear Sir:

As you requested in your letter from St. Louis, dated July 8th, 1887, I have examined the Joe Fenwick Lode, and submit the following report and maps:

The estate is situated on Quartz Hill, in Gilpin county, Colorado, and consists of the following group:

The Egyptian lode is	290 ft. in length		
" " Side lode	1330	"	"
" Pikes Peak lode	600	"	"
" New Pikes Peak lode	815	"	"
" Pikes Peak Ext. lode	1500	"	"
" <i>Pratt lode</i>	355	"	"
" Massachusetts lode	1200	"	"
" Sugar Tit lode	1200	"	"
Total . . . .	7290	"	"

As shown by diagram marked Exhibit "A", the aggregate width of the property is 300 feet, all of which I understand is covered by patent from the United States.

The frequency of the veins upon Quartz Hill is mainly due to the structure of the rock which forms the mountains, the noticeable feature of which is its jointure, fitting it for the advent of fissures and the subsequent storing of mineral treasure therein. The rock is denominated metamorphic granite, and is of ancient origin, and is of an age noted as being the mother of precious metals.

The principal cleavage traverses the country in a north easterly and south westerly direction, slicing the mountains into vertical sections, and thus has shaped the course and occurrence of the veins. The cleavage is general, and from this it must be assumed that the fissures are not the

result of accident, but of a wide spread and prevailing force, thus assuring the continuance of the fissures in depth beyond the reach of human device for working.

Of the group of lodes under consideration, the Egyptian is the principal factor, and owing to its development is the one I examined particularly.

It is a large, well defined fissure, varying from five to nine feet in width, and is inclosed by granite walls, and underlies the south at an angle of about 15 degrees. See plate No. 1.

The matrix filling the fissure is composed chiefly of feldspathic quartz, fine pyritous mineral matter is dissiminated throughout the whole of the gangue, with masses, seams and strings of the various minerals characteristic of the vein, interjected. Sometimes upon one wall, sometimes upon the opposite wall, and again in the center of the vein, but always with a tendency to form heavily upon the hanging wall or along the course of the fissure. The lines of fracture are as well defined in the lowest workings as at the surface; hence, nothing is indicated unfavorable to the continuity of the fissure in depth. The life of the vein will, therefore, depend upon the filling matter. There is no practical change in the vein matter at a depth of 1800 ft. (the depth of the deepest shaft in the district, and near the Egyptian lode) from what is found at the surface.

The mine is opened by the ordinary system of shafts, levels and back stopes, and is done with as much economy of labor as in any other section of the country.

The facilities for hauling the ore from the mines to the mills and market are superior to the other sections, and will be greatly increased, both in rapidity and cheapness by the "tram railroad" now under construction, the line of which reaches the dump of the Egyptian mine. The ordinary stamp mill is the method used to reduce the ore, and is amalgamated both inside and outside the batteries, after which, blankets are used with sluices, and buddles are used to concentrate the overflowing tailings, which, being reduced to a ten per cent. gangue limit, becomes a marketable product because

of their fluxing qualities more than for their value in gold. The richer sulphurets, called "smelting ore," are hand picked and dressed for the smelters.

#### D E V E L O P M E N T .

Consists of the following shafts and levels: The main shaft on the Egyptian is 775 feet in depth, from which levels have been run and stoping done, as shown in the diagram marked Exhibit "B". Another shaft at a point 120 feet east has been sunk to a depth of 200 feet; another shaft on the Sugar Tit lode has been sunk to a depth of 200 feet, with winze, level and stope, as shown in diagram. There are other minor shafts and openings not essential to the value of the property or this report.

The drifts will aggregate 2120 feet in length as follows:

At 100 ft. in depth, running east 60 ft., west	00
" 250 " " " " " 50 " "	150
" 300 " " " " " 175 " "	250
" 380 " " " " " 150 " "	300
" 460 " " " " " 10 " "	500
" 600 " " " " " 110 " "	540
" 700 " " " " " 58 " "	900

In addition to which on south vein, a level at 460 ft. running west 350 ft., and a level at 600 ft. running west 600 ft.

As will be seen by the plate marked No. 2, the Pikes Peak Lode makes a junction with the Egyptian at a point 540 feet west from the main shaft, forming an angle of about 12 degrees as it runs west. On the exhibit "B", the stopes are represented as North and South vein.

#### C O S T O F U N D E R G R O U N D W O R K

Sinking main shaft	\$20 per foot.
Drifting	4 " "
Sinking winze	\$6.50 " "
Stoping	\$10 " fathom

COST OF HOISTING AND HAULING

Per cord..... \$15.00

COST OF HAULING, CRUSHING, ETC.

Per cord (hauling \$8., crushing \$ 15) \$23.00

(The term "cord" applies to 128 cubic feet, weighing about 8 tons, and is a term used by mill men and miners in the district.)

The Egyptian lode has produced about \$200,000 since 1880, as shown by returns and books of the owners. Prior to that time no record of the mine's product was kept.

The stopes "A" and "B" yielded \$130,000 gold, while the remaining stopes \$70,000.

The capacity of the ground is as follows, per fathom, running 6 x 6

1 1-2 cords of ore worth 3 ozs. gold per cord at \$16...	\$72.00
1-2 ton smelting ore per ton	\$55 \$27.50
1 1-2 tons tailings	\$10 \$15.00
Total cost per fathom.....	\$114.50

COST PER FATHOM.

Stoping one fathom of ground....	\$ 10.00
Timbering.....	3.00
Tramming and filling buckets.....	5.00
Hoisting and dressing S. ore.....	7.50
Hauling to mill.....	12.00
Crushing 1 1-2 cord at \$15 .....	5.00
Total per fathom.....	64.00

Showing a net profit of \$50.50 per fathom.

(The work "fathom" is used here because it is the measurement used and adopted by the mine owners and miners in all contract work for stoping.)

The gross product for the mine for the year 1886 was about \$5,000 per month, of which 50 per cent. was profit. Since January 1st, 1887, the work at the mine has been confined to development chiefly, which work is

being now prosecuted vigorously. During this time the gross yield of the mine has been--smelting ore--\$10,068.58. Mill dirt--\$6,282.25.

#### ORE IN SIGHT

Between the 600 and 700 foot levels a block 600 x 60--1000R.

fathoms, at \$114.50.....	\$114,500
Block at A and B and backs 500 x 125.....	194,993
Shaft below 700 foot level.....	47,632
Above 600 foot level.....	50,000
Bottom 700 foot level contains valuable smelting ore, ten inches thick, worth \$70, 500 feet.....	50,000
Total.....	\$457,125

The property can be worked at a net profit of 50 per cent. of the gross output.

The development of the Sugar Tit lode, viz: by sinking the 200 ft. shaft to the level of the Egyptian Lode, as the owners contemplate doing, will undoubtedly open up a large resource of ore that will greatly increase the estimated value of the property. The location of the shaft on the Sugar Tit is such that it must penetrate the zone of ore encountered and worked so profitably in the Egyptian Lode. A careful survey of the premises establishes the fact that the veins are the same; that is, the Sugar Tit is the same vein as the Egyptian.

I consider the property a very valuable one, and should pay 20 per cent. on \$500,000 per annum. To accomplish this, a larger engine and boiler should be substituted for the one now in use, (the present plant will answer for a depth of 1000 feet probably) also a 25 stamp mill should be erected near the property to save hauling and commission on crushing the product of the mine.

A suitable site for a mill can be had at a point near the mouth of Leavenworth Gulch, which affords a stream sufficiently large for sluicing purposes. In addition to this, an ample supply of water can be had from the pumps of the Alps mine.

Herewith, find a letter from the Messrs. McFarlane & Co., agreeing to erect a 25 stamp mill at a cost of \$7,000 complete.-----

T.H. Lowe, M.E.

Theo. H. Lowe M.E.