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VICE-PRESIDENT,

WILLIAM IRVINE.

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LAZARD FRÈRES.

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GENERAL SUPERINTENDENT,

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HUGH MARSHALL,

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JONAS MEYER.



# President's Report.

SAN FRANCISCO, March 1, 1882.

*To the Shareholders  
of the Sutro Tunnel Company.*

During the past year the Main and Lateral Tunnels have been repaired in many places, and the South Lateral Tunnel has been extended 4309 feet to the Foran shaft, which, for the present, is its objective point in that direction.

In my last annual report I stated that on October 4th, 1880, under a satisfactory understanding with the mining companies directly interested, work on the North Lateral Tunnel had been temporarily suspended in front of the Mexican Company's mine, at a point 4403 feet north of the Main Tunnel. The understanding referred to was, that the interested companies should waive all claims against this Company for damages, should the work be suspended for ninety days or longer, and, also, that this Company should be entitled to royalty from the Mexican and Union Consolidated Companies at once, and from the Sierra Nevada and Utah Companies at the dates, respectively, that the Lateral Tunnel would have reached the points named in the agreements entitling this Company to royalty, had the work not been suspended.

At the time that this understanding was entered into, mining matters along the Comstock were much depressed, and there was no special advantage to be gained by this Company in pressing that work. Very soon thereafter all the "north end" mines were drained into the North Lateral Tunnel through the joint Ophir and Mexican drift, by a system of drainage of their own.



About 4500 feet remain to be constructed to extend this Lateral Tunnel to the Utah Company's shaft, its objective point on the north, and the work can be resumed at any moment. Under the above arrangement, however, if properly respected by the mining companies, this Company is entitled to receive royalty the same as if the work had not been suspended, and is saved the expense and trouble of maintaining that much additional Tunnel.

The connection of the South Lateral Tunnel with the Forman Shaft completed a system of drainage for the mines of the twenty-four Comstock companies that have agreements with this Company, which extend from the Utah Mine on the north to the Overman Mine on the south. Taken as a whole, our works are in excellent condition at this date, and the Company is now prepared to offer transportation as well as drainage facilities to all contiguous mining companies. Some additional repairs yet remain to be made upon the Tunnels to place them in perfect condition, and I understand that ample funds have already been arranged for that purpose.

On the 3d of July last a quartz vein was cut in the South Lateral Tunnel, which the Company has prospected a little more than 200 feet, and with results sufficiently encouraging to justify the recommendation that it be still further prospected. I am assured that several large and valuable ore bodies have been discovered in the Comstock Lode by following indications of a much less favorable character.

Some steps should be taken at an early day to increase the revenue of the Company, which is small at this time, owing principally to the reduced ore product of the Comstock mines. I know of none more likely to accomplish that end than for the Company to explore some of its own grounds which have indications of mineral value, as recommended by the Superintendent in his report.

The Company's ranches have been worked at a profit during the past year, and its ponds have recently yielded a valuable supply of ice.

*Confield Locke*

The financial condition of the Company is as good as could reasonably be expected under all the circumstances. In order to enable us to make the repairs to the Tunnels to which I have referred, which were absolutely necessary for their preservation, and also to enable us to comply with our agreements with the mining companies, the mortgage indebtedness of the Company has been increased somewhat during the past year. This was rendered necessary in part by the default of several of the mining companies, which still owe us at this date amounts aggregating over \$27,000.

I may here say, in reply to many inquiries from our shareholders, that the due date of the mortgage referred to is January 1st, 1891; that the advances secured by it constitute the entire indebtedness of the Company, and amount at this date to \$946,922<sup>52</sup>/<sub>100</sub>, exclusive of interest, which on January 1st, 1889, amounted to \$219,238<sup>54</sup>/<sub>100</sub>.

For statements of amounts received and disbursed during the year ending March 1st, 1889, and for details of work done at the Tunnel, I respectfully refer you to the accompanying reports of the Secretary and the Superintendent.

Respectfully submitted.

C. W. BRUSH,

*President.*



# Secretary's Report.

SAN FRANCISCO, March 1, 1882.

To the President  
of the Sutro Tunnel Company,

SIR:

Following is a Statement of Receipts and Disbursements of this Company, as shown on the Company's books, for the year ending this date.

## RECEIPTS.

BALANCES ON HAND.		
San Francisco Office, March 1, 1881	\$ 807 16	
Nevada Office, February 12, 1881	2,326 67	
	<u>\$3,133 83</u>	
AMOUNTS RECEIVED,		
For S. Lat. Tunnel constructed (S. F. Office) .. \$160,846 46		
" " " (Nev. Office) .. 37,643 28		
Under Mortgage of January 4, 1877 .. 120,167 70		
From Temporary Loan .. 559 00		
	<u>\$319,207 44</u>	
RENTS, SALES, ETC.		
Rents and Payments on account Land Sales .. \$6,623 65		
Sales of Hay, Wood, Vegetables, Etc. .... 2,606 19		
Miscellaneous Sales of Material .. 421 74		
	<u>\$9,651 58</u>	
INTEREST ON DEFERRED PAYMENTS FOR SOUTH LATERAL .. 79 13		
EXCHANGE ON NEW YORK DRAFTS .. 20 00		
ROYALTIES (half of amounts due),		
Crown Point Mining Company .. \$3,379 69		
Con. Imperial .. 3,054 75		
California .. 2,270 80		
Ophir .. 1,762 62		
Con. Virginia .. 1,666 50		
Savage .. 1,631 12		
Belcher .. 1,449 00		
Challenge .. 376 75		
Kentuck .. 345 00		
Confidence .. 230 50		
Union Con. .. 25 65		
	<u>19,177 38</u>	
Total Receipts ..	<u>\$351,269 36</u>	

## DISBURSEMENTS.

Superintendent's Account ..	\$337,716 36
Salaries (Registrars, Secretary, Etc.) ..	4,560 00
New York Office (Salaries, Books, Etc.) ..	2,848 03
Legal Expenses ..	1,101 20
Travelling Expenses ..	1,016 09
Office Expenses ..	457 70
Miscellaneous Expense ..	541 19
Office Rent ..	398 00
Office Furniture ..	203 80
Telegrams ..	248 73
Exchange on Drafts ..	152 50
Interest on Overdrafts ..	23 64
Balance on hand S. F. Office, March 1, 1882 .. \$ 122 57	
" " " Feb. 12, 1882 .. 1,879 55	
	<u>2,002 12</u>
Total Disbursements ..	<u>\$351,269 36</u>

Respectfully submitted,

PELHAM W. AMES,

Secretary.



# Superintendent's Report

SUTRO, NEVADA, March 1st, 1882.

COL. C. W. BRUSH,

*President of the Sutro Tunnel Co.,*

*San Francisco, Cal.*

DEAR SIR :

I respectfully submit herewith my annual report for the year ending March 1st, 1882.

## MAIN TUNNEL.

During the past year, considerable work has been done along the main line. Between the entrance and Shaft No. 2, over 300 sets of new timbers have been put in, and the ground thoroughly lagged and secured. Also many of the old timbers were eased and relagged, and in several places the roof of the Tunnel has been made higher and safer.

Between Shaft No. 2 and point 17,465, the track has been planked between the rails and on both sides, and every 1000 feet a small platform has been made on the side of the track for the shift-cars, when rock-trains are passing.

Between points 2000 and 16,550, over 500 sets of old decayed timbers have been removed, and in places the roof has been picked down and made safe. Also old planks and debris have been taken out, and the Tunnel thoroughly cleaned up.

Two switches have also been laid, one near Shaft No. 1, 175 feet long, and one 250 feet long, east of point 17,465.

Considerable work has been done in the heavy swelling ground near the Combination Shaft connection. The

heaviest and most dangerous portion of the ground was between points 17,465 and 18,500. It has been thoroughly retimbered with 14 x 16 timbers and well secured. This work was difficult and expensive, owing to the old timbers being almost entirely decayed, while the ground was heavy and portions of it of a swelling nature. In some places the timbers had been squeezed in, and required constant repairing to allow room for the trains to pass through.

From the 16,550 to the 17,465-foot point, the south posts of the timbers have been placed in position, and the ground on the south side of the Tunnel lagged up. This portion of the work was deferred, when the ground was being retimbered last year, until the sub-drain was cut.

Immediately west of point 18,500, there are 224 feet of heavy ground, which require to be retimbered. There are other places in the Main Tunnel, aggregating about 500 feet in length, which should be retimbered during the coming year. As all the worst and most dangerous places have been retimbered and secured, this work can be done gradually and as circumstances will permit.

## SHAFT NO. 1.

Shaft No. 1 has been retimbered a distance of 300 feet from the surface, and from that point to the bottom it has been overhauled and repaired. About ninety feet from the surface, the sides had caved in, and a considerable quantity of old timbers and dirt had lodged there. This shaft is now in good order, and the drift connecting it with the Tunnel has been opened and thoroughly rebuilt.

## SHAFT NO. 2.

Shaft No. 2 is in bad condition, and should be overhauled and repaired at an early day. The lumber is already purchased for that purpose, and is on the ground at the shaft.



## NORTH LATERAL TUNNEL.

No work has been done in this Tunnel since my last report, excepting some few repairs. It is now in very good order, excepting about 250 feet near the Gould & Curry connection, which require to be partially retimbered very soon.

## SOUTH LATERAL TUNNEL.

At the date of my last annual report, this branch of our work had reached a point 2,749 feet southerly from the turning point near the shaft of the Julia Company. Since that time, it has been extended 4,309 feet to a point 200 feet west of the Forman Shaft, its terminal point, having connected on March 25th, 1881, with a drift 732 feet long, run by the Yellow Jacket Company, north from a point near its shaft, and having connected on January 31st, 1882, with a drift 816 feet long, run north from the Forman shaft by the Overman Company. The drift run by the Yellow Jacket Company has been duly taken over by this Company, but that made by the Overman Company is not yet in a sufficiently complete state to be turned over to us. The total length of this Lateral Tunnel, from its starting point at the Main Tunnel to a point 200 feet west of the Forman shaft, is  $8,423\frac{63}{100}$  feet.

With the exception of about 500 feet, the ground passed through has been favorable for progress, and work has been prosecuted almost uninterruptedly. After securing the work done near the Yellow Jacket Company's connecting drift, the header-men were put to work on the Main Tunnel drain. Work on the South Lateral was resumed on May 19th, 1881, south of the Yellow Jacket Shaft. From that point, the ground was favorable for our drills, and we averaged 309 feet a month, or  $10\frac{3}{100}$  feet per twenty-four hours.

There are several bad places between the Julia and Yellow Jacket Shafts, which will require retimbering before very long. One place, about 300 feet long, near

where we connected with the Yellow Jacket drift, is very heavy ground and required great care to go through, and will need close watching for some time.

## PROSPECT DRIFTS, NOS. 3 AND 4.

On July 3d, 1881, the south header encountered a vein of very lively and nice looking quartz at point 4,035.

At this point, the vein matter had an average width of thirteen feet and nine inches, and the quartz vein an average of five feet and six inches.

The vein was prospected by two drifts, run northerly and southerly, from the Lateral Tunnel, 212 and 26 feet respectively, and by an upraise, which was cut eighty-three feet above the caps of the drift on the northerly side of the Tunnel. Several cross-cuts were made from the prospect drifts, which showed the vein to be well defined.

In raising up on the vein, a strata of ore from two to two and a half feet in width was followed to a height of sixty-seven feet above the tops of the drift timbers. At points along the top of the drift, assays from the ore were obtained as high as \$233.95 per ton. In the upraise assays, as high as \$69.75 per ton were obtained. The average of all the assays made in following the ore strata was \$17.99 per ton, without calculating the high assays.

I think it would be advisable to follow this strata, by drifting from the upraise, and also to continue the upraise higher as the developments warrant further explorations.

## DRAINAGE.

A large amount of work has been done during the past year, in enlarging, improving and extending our system of drainage.

Previous to March 1st, 1881, a second line of drain-boxes had been laid in the Main Tunnel, as far west as point 11,000 from the Tunnel entrance, but had not been covered. Since that time, covers have been put on, and



the boxes extended along the Main Tunnel as far as the large sub-drain had been excavated, viz., to a point 17,465 feet from the Tunnel entrance. From this point a larger sub-drain has been excavated below the railway track, and furnished with a large single box for a distance of 1239 feet, which carried it through the heavy swelling ground east of the Combination Shaft connection, to a point 18,724 feet from the Tunnel entrance, or about forty feet west of the Combination Shaft connection. The old boxes on the floor of the Tunnel were removed up to that point, and on the 11th day of June, 1881, the water from the Combination Shaft was turned into this new line of boxes, and on the following day the water from the North and South Lateral Tunnels was also turned into it.

Previous to the date of my last report, the drain-boxes had been laid, above the level of the track, west of the Combination Shaft connection, in the Main Tunnel, and extended to the Hale & Norcross connection, in the South Lateral. This year we have constructed boxes and placed them in the South Lateral on trestles and blocks from the Hale & Norcross connection for a distance of 7204<sup>100</sup><sub>100</sub> feet to the point of connection with the drift run by the Overman Company. This line of boxes has a carrying capacity of 4,885,716 gallons per twenty-four hours, which is amply sufficient to drain the south end mines.

Between points 18,724 and 19,651 (the South Lateral intersection) a large sub-drain was partially excavated in 1879, for an aggregate distance of 666 feet. During the last year, this excavation has been cleaned out and cut down to a proper grade, and the intervening distance of 261 feet has been excavated two-thirds the size required for boxes, so that by widening this 261 feet of sub-drain to the regular size, the drain-boxes above point 18,724 can be placed below the track, thus extending this system of sub-drainage from the Tunnel entrance to the intersections with the Lateral Tunnels.

From its intersection with the Main Tunnel, the sub-drain in the South Lateral has been enlarged to two

feet wide, and one and a half feet deep for a distance of 3595 feet. Also, as the South Lateral header advanced, a smaller sub-drain was excavated for a further distance of 3493 feet.

The small sub-drain in the North Lateral Tunnel has been enlarged and cleaned out from the Main Tunnel to a point about 200 feet north of the Gould & Curry connection.

In the Main Tunnel the cold water, which is allowed to run in the open sub-drain, has been dammed up in various places, and the drain-boxes submerged at several points for the purpose of preserving them. This cold water comes principally from the Virginia and Gold Hill Water Works, through the Chollar Combination Shaft, where it is used for driving pumping machinery.

The average daily flow of water from the Comstock Mines, during the past year, has been 4,923,814 standard gallons, and the present flow is 7,205,933 gallons per twenty-four hours.

After all the twenty-four Companies that have agreements with this Company turn their water into the Tunnel, the daily average flow of water will be likely to be at least five and a half million gallons, or 23,844 tons, or 993 tons for each of these twenty-four mines. Between June 30th, 1879, when the Chollar Combination pumps were started up, and the date of this report, March 1st, 1882, there has been discharged at the mouth of the Tunnel, through the boxes, 3,799,018,820 gallons of water, or 16,467,355 tons, besides a large amount of other water which is not confined to boxes. The expense of pumping this amount of water from the Tunnel level to the surface would have been a serious tax upon the several Companies.

Our Main Tunnel boxes have now a capacity of about 10,000,000 gallons per twenty-four hours. After boxes are laid to the Forman Shaft, our drainage capacity will be amply sufficient to handle all the water that may reasonably be expected from the Utah Mine on the north to



the Overman on the south, or, in other words, the Sutro Tunnel will drain, in a direct line, over three miles of the Comstock Lode.

### TRANSPORTATION.

Transportation in the Tunnel is carried on by mules, as heretofore, but the distances have become so great and the heat is at times so oppressive, that mechanical power would be cheaper and more reliable.

Should steam motors be adopted, one compartment of Shaft No. 2 could be made an upcast for the escape of the smoke and gas given out by them.

### VENTILATION.

During the past year a great deal of attention has been given to improving the ventilation of the Tunnel, not only that the work might be carried on to better advantage, but to free the Tunnels of the foul air and excessive heat which are so injurious to the timbers and the cause of their rapid decay.

A brattice, or partition, about fifty feet long, has been constructed, leading west from the connection with Shaft No. 1. This conducts the fresh air from the shaft (which has been made a downcast) to the end of the partition, and this air having the same course as the air from the mouth of the Tunnel, they become one volume, and rush in with increased rapidity past Shaft No. 2 connection. By a similar partition, about ninety feet long, that shaft has also been made a downcast. The volume of cold air through the Main Tunnel has thus been greatly increased, and the air cooled along its entire length, and as far in the South Lateral as the Julia Shaft connection. By the construction of another partition and door at the Julia Shaft connection, a counter current of cold air from the Yellow Jacket Shaft is also allowed to pass up the Julia Shaft.

Near the Yellow Jacket connection one door has been put up in such a manner as to allow a portion of the cold

air from that shaft to pass up the South Lateral, and ventilate that part of the Tunnel towards the Forman Shaft, which is an upcast.

By this plan of ventilation, the Main and the South Lateral Tunnels are supplied with cool air, and ventilated almost as well as could be desired.

The North Lateral Tunnel is well ventilated as far as the Consolidated Virginia and California Shaft connection, but beyond that point, the ventilation is poor.

### CULTIVATION.

During the past year, twenty-five additional acres of the Gee Ranch were brought under cultivation. The whole, aggregating 138 acres, is apportioned—to Barley, about seventy acres; to Alfalfa, about sixty-eight acres.

The area under cultivation on the Moore Ranch is the same as last year, viz: 54½ acres, of which 34 acres are in Alfalfa hay, 20 acres in Barley, and ½ acre in Potatoes. The N. E. and S. E. squares of the town of Sutro, each containing about eleven acres, which were seeded to alfalfa several years since, have yielded a better crop than ever before.

The products of the above mentioned tracts of land are as follows: Alfalfa hay, 895 tons; Barley, 84 tons, and Potatoes, 10,395 pounds.

In addition to the regular farming work, five and a half miles of rough fence have been constructed, thirty-five acres of land have been leveled and ditched, and numerous repairs made to the main irrigating ditches and their branches, and three wells have been sunk—two on the Gee Ranch, and one on the Moore Ranch.

A shed stable, 126 feet long by 16 feet wide, has also been built on the Gee Ranch, mostly of second hand lumber, and is capable of stabling 28 animals.

The live stock of the Company consists of 119 head of mules and horses, 17 of which are colts.

The cost of cultivation for the year ending March 1st, 1882, amounts to \$10,201.79. The product of the Ranches,



sold for cash, used, and on hand, amounts to \$13,891.32, showing a profit over cost of cultivation of \$3,689.53.

The product of the Ranches in Hay and Grain considerably exceeded that of the previous year, but owing to the competition of new farming localities opened up by the Carson and Colorado Railroad, the price of all products has been materially lessened, and the gains correspondingly reduced.

#### ICE.

During the month of January last, a good supply of ice was secured, amounting to nearly 1500 tons.

#### THE BRUNSWICK LODGE.

In my last annual report, I gave my views on the subject of prospecting this lode, but as I consider it one of the best and most attractive mining projects in this section of Nevada, I cannot refrain from referring to it again.

The lode is traceable on the surface over two and a half miles, and sufficient explorations have been made to prove it to be a mineral bearing vein of magnitude.

Over \$700,000 have been extracted from near the surface, and until the difficulty of hoisting water presented itself, portions of the lode were worked profitably, even when the price of reducing ores was high.

During the last two years, the Monte Christo Mine, which is on the northern portion of this lode, has been worked by contractors, and the ore yielded a handsome profit over the cost of extracting, transporting and reducing it at mills in the Six Mile Cañon.

Two small drifts were run several years ago into the Brunswick Lode from the Main Tunnel, and assays obtained from the ore ranging from \$10 to \$30 per ton. These assays should give encouragement for further explorations. It would cost but little to determine the extent and value of this lode, and considering the fine order of the Main Tunnel, and the facilities for prospecting and working this lode so far below the surface

at a minimum cost, and the great benefit that the discovery of ore there would be to this Company, I hope this work may soon be undertaken.

I am satisfied that, with the natural advantages at our command, ores can be reduced at the mouth of the Tunnel, or at the Carson River, for less than \$2 per ton.

#### MT. DAVIDSON.

Explorations made during the past few years prove conclusively that metalliferous veins exist on both the eastern and western slopes of Mt. Davidson. The McKibben Tunnel, which is some distance west of the Comstock Lode, shows a vein of quartz sixty feet in width. Ore was also discovered in the Cole Tunnel, which is still further west.

Recently ore of excellent character, assaying as high as \$300 per ton, has been found west of the summit. This ore was taken from a tunnel 175 feet below the surface, driven northeast about 300 feet into the southwestern slope of the mountain. This drift also shows porphyry, which proves that the rock of Mt. Davidson is not, as has heretofore been supposed, a solid mass of syenite.

The Suto Tunnel Company, under its grant, is entitled to a large portion of this ground, and as all these developments show the presence of ore in Mt. Davidson, I think that by extending our Main Tunnel 2000 or 3000 feet further west, there would be a strong probability of discovering ore bodies of value.

Yours very respectfully,

C. C. THOMAS,

*Gen'l Superintendent.*