THE FRONTINO AND BOLIVIA (SOUTH AMERICA) GOLD MINING COMPANY LIMITED
DIRECTORS' REPORT AND BALANCE SHEET
1884 A 1905

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TO THE DIRECTORS

OF THE

Frontino and Bolivia (South American) Gold Mining Company, Limited.

GENTLEMEN,

Having, in accordance with your instructions, recently visited your mines in Remedios as well as the farms and other properties, for the purpose of inquiring into their present conditions and prospects and qualifying myself, by personal examination of the underground and surface operations, to advise as to the measures which it may be necessary to adopt for their future prosecution, I would beg respectfully to submit for your information the following detailed report thereon as the result of a residence on the property for a period of four months, during which I devoted myself exclusively to the accomplishment of the important objects of the mission, and thoroughly investigated every accessible portion of the mines now in operation.

I do not consider it necessary on this occasion to recur to the past history of your mines, or to offer any remarks on the mode of working hitherto pursued, beyond what may be required for the purpose of elucidating the measures which it will be my duty to recommend for their future prosecution.

I shall therefore proceed without further preface to describe, in the first place, the state of the underground operations in the mines, from whence the present returns are almost exclusively obtained.

THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company,

LIMITED.

REPORT

ON

The Mines and other Property of the Company,

MADE BY

HENRY CLEMES, Esq.

John

DECEMBER, 1884.

1884

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My first inspection took place in the m July 1884 with the following results :—

SAN JOAQUIN MINE.

The direction of the lode is from 30 to 40 E. of N.

No. 2 Level.—In the rise from the drift above this level the lode is divided into two parts, viz., in the bottom and a branch in the back; these uniting will make the lode about 5 feet wide. On south side the lode has been already taken away, and the rise is being put up through a pillar left standing.

Another drift is being driven south from the rise, which communicates with the open cutting. Part of the lode has already been taken away in the back; this will very quickly hole to surface, and is probably a branch running under the quartz reef on the ridge.

Above this (No. 2) level all ore of any value has been removed.

Drift below No. 2.—In the end a rise has been put up and holed to the No. 2 level. From this drift there is also a winze communicating to the No. 3 level below. In sinking the winze old workings were encountered, the bottom part of the lode being taken away, and some left standing in the back. A drift has been commenced to drive north. The lode is about 3 feet wide, underlying west at an inclination or angle of about 42.

No. 3 Level.—The lode in the end is about 2 feet wide with the usual underlie. There is a good deal of ground standing above the No. 3 level, but it is very poor, and will not pay for taking away.

SALADA BRANCH, SAN JOAQUIN.

On the Salada site a cross-cut has been driven in the hill about 23 fathoms, from this point a winze has been sunk about 15 fathoms, and holed to the No. 2 level, which is driven from the San Joaquin or north side.

This level has fallen together in places, consequently the ventilation is very bad, and great trouble has been experienced in clearing it. The object in clearing is to open up communications to the No. 3 level, which comes under this, and near the end of ground a rise has been put up and holed to the No. 2 level.

The lode in end of No. 3 level is small and poor, and from information nearly all the payable mineral above this level has been already taken away. A cross-cut from this level put out west will cut the San Joaquin lode in about 27 fathoms driving.

Open Cut.—An open cutting has been commenced on the Salada side of San Joaquin on a quartz reef which is running about N. 25 E. Along the ridge of the hill and in the side of the valley this reef can be seen cropping out in many places. Indian pits can also be seen. At this moment the trees are being cut down to facilitate, if thought practicable, the taking away of this mineral by open cut.

Conveyance of Ore to the Stamps.—The present mode of conveying the ore to the stamps is not as good as it might be. All mineral broken from the workings above and below the No. 2 level is wheeled out to the entrance on north side, from thence it is thrown down a tip, and again wheeled on for some distance to another tip, after which it is taken in a third barrow to the stamps. The mineral from the No. 3 level is conveyed in the same manner, there being only one tip.

Dressing Department.—The water running over the stakes is most outrageously in excess, the same occurring in the concentrating table. This is a subject for immediate consideration as a quantity of gold is undoubtedly being washed down the valley.

The stamping mill has 12 heads working with grates of 8 holes to the inch. I presume the reason of this is that a greater quantity of stuff can be got through, but there should be at least grates with 16 holes to the inch.

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SILENCIO MINE.

Descending footway shaft to the 103-feet level and proceeding south, I found the lode from shaft some the roof all extracted with the exception of a to the 63-feet level. Again, further south, the lode has not been productive to any extent; from this point it is cut off by a dyke about 10 fathoms long. From the southern side of the dyke to the extreme end the lode is small and most irregular, and in the end itself presents a few fluccany strings with quartzy veins; altogether it would appear that the lode had reached a point of almost exhaustion. Some fathoms behind the end a small cross-cut is driven east for a short distance, revealing unpromising flat veins from 6 to 18 inches wide. The enclosing rock is a semi-decomposed granite. This cross-cut and the end south have been abandoned, and not too soon, as the expenditure on the driving of the level itself has offered no inducement (so far as I could judge in examining the little lodey matter) for a considerable time past.

In this section of the mine I do not see a single inviting point to expend another dollar on, and I cannot but express my deep regret that the extension has been a simple waste of capital without a redeeming quality to justify it.

Ascending a rise from this (103) level (see plan) to the 63-feet level, I proceeded to the extreme end, where scarcely a vestige of vein stuff was exhibited. This was abandoned last week, and ought to have been so long ago, judging by the appearance. Again, proceeding up another rise to an intermediate level, which is extended south about 10 feet. I found that this also presented a very discouraging feature, and is I believe about abandoned.

In the 43-feet level just above this the lode in the end carries head and footwall branches, the former much broken up. I entertain no favorable opinion that any permanent results of a profitable nature will be here discovered.

A rise is extending above this level in a broken, disturbed quartzy matter, the duration of this, however, is of a very questionable nature, as old workings are surrounding it on the northern side. I consider the whole of these operations to be very precarious, and in the present financial position of the Company they should not be proceeded with.

Descending again to the 103-feet level, I proceeded north of No. 1 shaft to the extreme end which was abandoned last week; it would have been wiser if this had been done before. The end presents a series of little branches, but of a very uninviting nature, and the ground is hard and costly. A few fathoms behind this end is a tunnel going east proceeding towards the Maria Dama adit. The end is following a small fluccany course, and the time computed to communicate these points is about the end of the year, but seeing the difficulty they will have in ventilation, I query if it will not extend some months beyond the specified time, and when completed it will only drain the water to the present 103-feet level.

West of this tunnel there is a rise to test a very irregular vein of quartz, and a small branch or cross-course running at right angles. Immediately under this rise is a small drift commenced to further prove the vein in this direction, but until I examined it I could not have believed that any men pretending to be miners could have committed such folly.

Ascending two rises from 103-feet level north, I arrived at a drift below the 43-feet level driving north, where numerous trials have been made at great expense to the Company. I could scarcely have thought the managers could have been guilty of instituting such futile works. On the south side of the winze all the productive parts of the lode have been taken away, but Mr. F. White had directed these rises and drifts at the back of the 103-feet level, to prove his theory.

No. 1 or south shaft is sunk about 2 fathoms below the 150-feet level, on the lode, at an angle of about 35. The lode in bottom is about 2 feet wide, carrying a regular

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[illegible]vall. The mode of working is by resuing over the [illegible]e, and then blasting it down. It is sunk at present by four men working two cores or shifts up to 10 o'clock to as it should be sunk by nine of the best men in the mine, and the figure for sinking, as an engagement for pushing the work forward, should not be less than £20 per fathom. The present price is £7 per fathom, which is utterly absurd. The lode presents the usual quartzy character, and on the northern end some nice small patches of mineral ground occur, producing stones of visible gold.

The 150-feet level going south is extended about 13 fathoms, presenting a lode varying from 1 to 4 feet in width. Rubbish in the extreme end, intentionally I think, prevented my seeing that point. In places it has rather a favourable appearance, though it is not very mineralized, and had it been rich it would have been reduced under the stamp-head long before this. I concluded, from enquiries made of the chief native in charge, that the lode during the time of driving was of an unproductive character, but even had it been valuable it would not contain much stuff for the mill, as there is an intermediate level about 18 feet above it.

The 150-feet level north of shaft is extended between 4 and 5 fathoms, on a lode varying from 6 inches to 3 feet wide, more highly mineralized than any other portion of the mine that I had examined. Two men are only employed on this, one of the most important parts of the mine, at the present moment. There should not have been less than six men devoted to this work. The samples extracted from this level and the bottom of the shaft were not very satisfactory, showing only a few particles of gold, but nothing to appreciate.

In the intermediate level, between 103 and 150 going south, the lode is large in places, but as yet from No. 1 shaft to the end, the lode, as stated by the chief native in charge, has hitherto been unproductive for the entire length of nearly 20 fathoms, whilst the major part of it

has been driven through a pillar of ground. Beyond this a few fathoms the great cross-course occurs, and what the influence of that will be remains to be seen.

No. 3 or north shaft is about 31 fathoms from the No. 1 shaft, and is sunk about 18 feet below the 150-feet level. The lode averages from 15 to 18 inches wide, of a druzy, bleachy character, and does not appear to be of much value, and has not a promising appearance. The dip of the lode is about an angle of 35.

Going south from shaft a level is extended and communicated to the No. 1 shaft. Near the shaft for about 3 or 4 fathoms long the lode is about 15 inches wide, in places showing a few patches of mineral, but as it is only a thin pillar little value can be attached to this; behind this, going further south, the lode is pinched out by a hard bar of ground for about 20 fathoms long.

In the level going north of shaft the lode is from 1½ to 3 feet wide. Near the extreme end I should remark that the lode has changed its direction, and in the end where the No. 2 Skipway shaft is going down, is in a disordered state.

It seems that the mine above the bott[illegible] levels, with all its intermediate levels and drifts, has [illegible]out. I may say almost every portion of the [illegible] part of the lode, leaving only here and there [illegible] pillar of poor stuff to protect the shafts and

PITWORK.

The pitwork consists of 6-inch and 8-inch the buckets are square boxes lined with iron[illegible] ther on the edge and with two small valves on the stop. These bucket lifts, if they can be so called, vary in length from 40 to 60 feet, and the boxes require to be regeared nearly every day.

Reviewing the pitwork throughout, it is the most primitive and worthless that any man ever witnessed, in fact, a perfect disgrace to the founders of such a system when so many other better systems with materials on the ground might be improvised.

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Examined the Guanana Stream and El Salto with portion of the Dona Teresa water, which is conveyed ditch to No 4 stamping mill, which is supply

I next examined the Maria Dama adit. The country is composed of very hard crystalline granite rock diffused with particles of pyrites. the ground in the level is indurated considerably as it advances. It is now driven by six men on contract at $45 per fathom: at the present time the price seems rather inadequate, the men paying for their explosive and candles; were it not for the floors and heads of ground, which are of considerable advantage, the price would be a very bare one. The progress per month is from 3 to 4 fathoms, which I consider very fair indeed.

I observed the adit, however, has varied from a straight course in places as much as 5 to 20 degrees.

Mr. Argall continues his duties in measuring the several sand heaps, a duty of a very responsible kind from the nature of the ground underneath the heaps.

SILENCIO MINE.

PLANT.

Washing strakes; shed for animals used in horse whim; one horse whim; cage—40 feet diameter; horse and balance bar, 40 feet long; horse bar 2 feet (should be 4 feet); single shaft for horse; ⅞-inch wire rope (iron).

From the whim to the drawing or No. 2 skipway shaft is 288 feet or 48 fathoms. Between the two are vertical and horizontal rollers.

Pumping Wheel.—28 feet diameter, 3 feet breast, with two cranks of 18 inches set on the same line of sweep, and attached to which are two balance rods joined to two king posts or quadrants; over these quadrants are two chains connecting two balance boxes laden with iron, which work in two receiving pits lined with timber. Attached to the two aforesaid cranks are the two main rods, 26 feet 4 inches long, 6 inches by 6 inches, reduced

at each end to 5 inches by 5 inches, and slotted in the centre from 2½ inch to 1 inch. These rods are connected to a rocking frame or traveller, the axle beneath working in brasses from the connecting rods, thence to the shaft. Attached to the vertical timber of the rocking frame are 18 wood rods, 16 feet long, 4 inches square, and are connected by central strapping plate and cutter bolt.

The connection at the shaft consists of two king posts and two incline posts; the former contains the balances; at the head of the latter are the main rods, 4 inches square; these are connected at 14 feet to the main rods proper with an iron cheek and pin, and work near the upper end over two 9-inch rollers.

The pumping gear consists of two square columns 16 inches square externally, and 9 inches square inside, through which the bucket rod works; only one was at work when this inventory was taken.

Speed, 4 feet stroke in the shaft, and going 10 strokes per minute.

In the No. 3 or main pumping shaft the water is pumped to the 103-feet level by a 6-inch square lift about 12 feet in length; from thence it is lifted by a 9-inch square lift a distance of 65 feet, and from thence to surface by another lift 89 feet in length of the same dimensions.

The water from the No. 1 shaft is raised to the 103-feet level by a 6-inch square lift of 68 feet in length by means of flat rods from surface; the water is then passed through the level to the No. 3 shaft, and from thence pumped to surface by the big lift before mentioned.

Shed for cutting out frame setts for mine; timber shed with various small wheels; circular sieve made of leather, perforated for sifting the charcoal; lot of timber; two cart wheels and axle; dormitory for men overhead, and a considerable quantity of planks.

Adjoining are two other dormitories of a very squalid nature. Shed over footway: shaft with five square wood pumps 6½ inches square.

Carpenter's Shop.—5 benches; 13 wheel-barrows, complete; timber for skipway shaft; 2 working barrels

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for the square bucket lift strongly bolted together; small lot of new plank.

There are generally from 7 to 9 carpenters at work.

Fitting Shop.—1 Roots' boiler about 6 horse-power, driving a small 6-inch piston horizontal engine, 12-inch stroke, with pump complete: also one pendulum pump and Tangye's special pump: 1 drilling machine, 1¾-inch spindle, to drill up to 1 inch: and another large drilling and screwing machine; 1 Beverley's turning lathe, 7½-inch centre, with brake screw cutting, with change wheels complete; 8-feet bed, 2 face plates, and everything complete: 2 circular saws, 30 by 24-inch diameter respectively, worked by a belt from the engine; sundry grinding stones; wood turning lathe: small lot of tappets for stamp: forge and 30-inch bellows; number of truck wheels: small iron wagons and a number of cast-iron connections for same; 1 small iron sugar mill with rods of 6 and 8 inches, which has been returned with new brass cogs, &c., to be fixed at Cuturú

Overhead are 12 band wheels and shafting, one old cog wheel with shafting, and 2 cranks.

Outside Fitting Shop.—Iron plates for cupola furnace: 5 short pieces of pump, 21 inches long, 8¼-inch diameter, being part of the pitwork in former times; a quantity of tramway iron, say 1½ tons.

Horse whim, same dimensions as the other hauling stuff from No. 1 Skipway shaft.

Smith's Shop.—1 moulding and casting department, with the necessary patterns; 1 fitting department adjoining; 3 forges, with the usual smithery tools; small stock of iron and chain; tram wheels; 3 bellows working overhead.

Iron Store, containing a quantity of round, square, and sheet iron, not far short of 2 tons: number of new shovels, drills, or borers: copper grates for mills, new picks, sledges, hammers, small lot of nail rod iron, and small lot of long-neck screws: blocks and sheaves, single and double: number of brasses: 1 large iron gudgeon with fluted facings, 3 T gudgeons 2 T small gudgeons,

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3 small cranks; 3 bucket pumps; 1 small lot of new barrow head iron.

In an upper store are a number of small pumps and steam pipes, apparently belonging to the large steam engine brought out by Mr. Coxen; also 3 circular wood pumps, and some old wire rope and leather belting.

Sitterio dwelling-houses, occupied by chief carpenter and chief smith, with kitchen: dispenser's house and two foremen's houses: Fonda house, shop and kitchen: Mr. Argall's: chief native captain's and assistant inspector's house: two kitchens.

TIGRITO MINE.

PLANT.

The 6-head stamping mill is situated towards the upper end of the valley of Cunanna, with the village of Segovia about a quarter of a mile distant. The valley from the mill downwards is running about N. 25 W., and the village about north and south.

This mill, with all its appurtenances, concentration tables, &c., is in a most deplorable condition. It makes about 45 bags to the minute, and the quantity of ore got through in 24 hours is from 6 to 7 tons; the grates far too coarse in their delivery to extract all the fine gold disseminated through the pyrites and quartzy matter.

There are 13 hands employed in the mill, 11 others on surface, including smith and about 30 miners, including wheelers, consisting in all of 60 natives, under the orders of a young native of about 20 years of age (acting in absence of Captain). Not only has he this great responsibility, but he has also in his custody all the gold, and before the end of the month receives cash from Salada to pay his people, without giving any voucher or check whatever: this is unprecedented in all my experience of mining or any other industry, and this remark is applicable to all the mines and other establishments belonging to the Company.

TIGRITO MINE.

Commmencing at No. 4 tunnel, by the smith's shop, found ... this level was first extended by a cross-cut, ... fathenoms long, to the lode, and thence on its course to ... a short distan... r side of the hill, where ... cut 15 fathoms long. ... the side of the hill brings us to the mouth No. 5 ... level. All the mineral extracted from this level ... delivered and subsequently hoisted up a small incline ... horse ... whim at a depôt near No. 4, from which point ... the ores extracted from stopes, rises, &c., and in the ... intermediate levels between Nos. 4 and 5 are con- ... ed in ... wheelbarrows to the mouth of No. 4, or the ... th ... a distance of 160 fathoms, and from thence, ... filled ... into tram wagons holding 7 cwts., each to the ... mill, a ... istance of about 125 fathoms, costing by these ... processes of wheeling and tramming, exclusive of ... candles ... and other incidental expenses over 5s per ton, ... ich is ... very weighty consideration in the cost upon ... stuff ... the average of which is very ordinary (*see* ... rito ... returns for the past few months), but here ... should ... remark that the ores supplied during this period ... ve been ... selected from the richest portions of the lode, ... nilst, ... if it had been all fairly stoped away, I much ... question ... if it would pay cost. I would further remark ... that from ... beneath No. 4 level nearly all the productive ... part of ... the lode has been extracted, consequently the ... parts standing can scarcely be considered payable reserve ... ores. It ... therefore seems that the only prospect in No. 5 ... level proceeding north are the small shoots of ore that ... may occur ... periodically to its termination near the smith's ... shop and ... along the valley beyond, but which remains a ... problem ... to be solved. It is proposed by the managers ... at some ... future date, when the level shall have been ... driven, ... to sink a vertical shaft to prove the lode in ... depth ... as well as longitudinally by drivages under the flat.

... cannot here omit mentioning my entire disappro- ... bation of all these ... flat levels, as they are opposed ... to all regular and ... systematic mining, as well as adding ... doubly to the cost, more especially in such soft and ... treacherous ... ground as the objects hitherto sought for ... in those labyrinths of holes (for I cannot call them levels ... or rises) have been that as soon as a rather rich spot for ... gold has been discovered, all efforts, regardless of cost or ... the future injury of crushing the mine together, are ... directed towards extracting these points to swell the ... month's returns; that upon this basis no reliable average ... of the monthly produce of the mines can possibly be ... arrived at, as it is simply living from hand to mouth.

ROSARIO MINE.

PLANT.

This mine has a six-head stamping mill: four of the heads are completely worn out, and these four speechless machines going on as if nothing were the matter. The stamp-heads work almost on a level with the grates. The grates are two inches.

Before the mill are four strakes about 9 feet long, covered with blanketing with interval of 15 inches blank; these strakes discharged themselves into two catch pits, and from thence the stuff is tipped over the burrow. A sample taken did not appear to contain much gold. The samples washed from the head and second blankets, the former more so, presented a rather favorable show of gold. The principal gangue is fragile quartz easily reducible.

This mill is driven by a wheel of about 24 feet in diameter and 18 inches breast. But sadly neglected by having a quantity of slime and other muddy matter thickly coated over it.

Driven from the stamps' axle are two small arrastres of 18 and 19 inches in diameter respectively, more toys incapable of doing anything satisfactorily.

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From 6 to 9 tons of mineral are stamped every day contingent on the nature of the stuff.

The two small arrastres give about 1½ per month.

ROSARIO MINE.

I commenced at No. 1 cross-cut, which was driven a little over 14 fathoms before cutting the lode. The only operations south above this level consist of the following:—

A stope on a pillar of ground which will soon be exhausted. A drivage extending south on an incline containing a lodey matrix of 8 inches wide, since narrowed to a mere thread,—so much for the capricious character of these so-called lodes.

The quality from a sample taken at the mill scarcely showed a trace of gold, thus it would appear that no hopeful result may be anticipated. This operation is fast approaching the surface; therefore may soon come to an end. There is also a trial cross-cut driving east from a rise about 35 feet from the surface, the utility of which the managers can best explain; for my own part I cannot conceive what good can result from it,—but this is only one of a legion of similar projects.

In the end (No. 1) of ground or level, about 3 or 4 fathoms immediately below these workings, the lodey matter has disappeared, and leaves no promise of reforming.

The lode going north of No. 1 cross-cut was driven on for a few fathoms, and then completely dwindled away.

Below this level is an intermediate one with slanting winzes, communicating to the two levels. In examining these workings, there appears to be scarcely any lode existing, excepting a few insignificant pillars left to sustain the ground.

At the No. 2 level a cross-cut is extending east through decomposed granite without a symptom of any veiny matter.

There is a rise going up from this level, but it is of such an absurd character, and in such an insignificant pillar of ground, that I regret the expenditure incurred.

Between this last mentioned level and the No. 3 there is an intermediate one with flat winzes, but all the lode in this part has proved unproductive.

At the level of No. 3 a cross-cut is extending east, similar to the one before quoted, and with no better object: in fact, reviewing the mine as a whole, from its interior workings it seems to be thoroughly exhausted and of no value whatever to the Company; but in face of all this, your Managers will persist in making endless trials.

No. 4 cross-cut is driven over 30 fathoms, intersecting a large soft elvan or dyke, the intention being to cut the Córdoba lode, but not having done so it has been abandoned. A few fathoms below, a short cross-cut intersected a lode about 9 inches wide, but containing nothing to value.

CORDOBA MINE.

PLANT.

Eight-head stamping mill, with wood lifters, in very inferior condition, worked by a water-wheel of 24 feet diameter, 2 feet breast. There are 5 strakes in front of mill, about 12 feet long covered with blankets throughout, with two catch-pits below, and a set of concentrating tables about 12 feet long, followed by a single strake to another catch-pit.

The stamps are going at the rate of 46 blows to the minute, and the heads working about 3 inches below the grates, which are very coarse, losing, in consequence, considerable gold. From a sample, washed in my presence, from one of the head blankets, judging from the amount of gold on the batea, I should say it would give from ¼ to ½ of an oz. to the ton of mineral.

Taking the hard and soft lode stuff, the mill will on an average reduce from 7 to 8 tons of mineral per day.

Working from the axle is an arrastre 6 feet in [illegible]

[illegible]dressing apparatus, [illegible]
[illegible]d by a stream
[illegible] which [illegible]y contracted.

CÓRDOBA MINE.

A few fathoms east of No. 1 cross-cut another cross-cut is driven about 12 fathoms N. 50 W. to the intersection of the lode, on which it has advanced 2 fathoms. This lode is in a very decomposing state, consisting partly of small irregular veins of drusy quartz, but by far the greater portion is decomposed felspar; hitherto it has scarcely shown any traces of gold, though, judging from its appearance, this lode would in many auriferous regions produce very profitable results; one feature should, however, be noticed, that this trial level has but very little roof, nor will it have. While penning these lines, this end has intersected the timbers in No. 1 level, where all the payable lode is taken away.

In the 12 fathoms of cross-cut and 2 fathoms on the lode, the total cost of driving, timbering, &c, would not be less than £25, this is only a fraction of the futile trials, which in the aggregate throughout the year would show, if accurately kept, a large sum of money wasted to the Company.

No. 3 level is driven 74 fathoms north on the lode. In the extreme end the lode is 1½ feet wide, but not of a very promising character, not nearly enough to pay the expenses of driving.

In the roof over this level there is a rise extending in a rather productive part of the lode, which is but a pillar of ground standing between the No. 2 Rosario and this level. Advancing a short distance above there is a stope in operation.

Proceeding northerly in the level is a winze sunk 6 feet on the lode, which is 4 feet wide, said to produce

good results at the mill; this with the rise and stope adverted to are instituted for the special purpose of taking out all the rich patches of the lode, to compensate the material falling-off this month, I fear, in the Salada, Rosario, and Silencio, but the contribution of ore stuff from the No. 3 will be but a small drop in the bucket. This level, with the exception of a short distance near the entrance, is in a most lamentable state of decay. To place it in an efficient state with new timber, including all items of labour, &c., will involve a large outlay, much more than the lode in the extreme end warrants.

No. 4 cross-cut is proceeding under No. 3. In the extreme end the lode or branch is about 8 inches wide, but unproductive; it may be a branch of the main lode, which no doubt will sooner or later be proved. The vertical height between this cross-cut and the No. 3 is about 21 feet. The only opportunity afforded me of seeing the lode below the No. 3 was at the winze already referred to above, but I assume that had there been rich places in the bottom of the level there would have been more winze trials made.

No. 5 cross-cut is driven 45 [illegible] intersecting the lode; drivings were [illegible] of south.

The lode in the end going south varies [illegible] inches to 1 foot in width, at present it is disordered and abandoned, the reasons given for doing this are that the drivage is getting into poor ground. I am informed that the lode at this point proved productive, for after striking the lode it was very productive for about 7 fathoms long, and near the present end it was productive for 3 fathoms long, and it is to be lamented that no deep cross-cut has been brought in to intercept it at a deeper level, as without this, from the quantity of water it discharges, nothing effectual could be done to work it economically. Behind this end, a short distance, is a rise being extended on the lode about 3½ fathoms, which will shortly be communicated to the old workings above. The lode in the rise is producing fair average quality mineral, near

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which on the northern side are two primitive holes called stopes working on a pillar beneath the old workings.

The lode in the end going north is almost flat, and difficult to follow along the course of the level. It is about 15 inches wide, and not of a promising character. Near this a rise is prosecuted on the same lode that accompanies the level; its object being to ascertain if it was the same as in the level above, but it has been discovered that it is a distinct branch.

No. 6 cross-cut is situated about 80 fathoms south of No. 5, and is extended west about 27 fathoms through decomposed granite favorable for driving, but immensely heavy for the timber; and although it is a spacious level for this distance, the air has become very impure.

N.B.—The stoping in this and the other mines where the lodes are of a compact character is most grievous to see; such a trifling amount of ground being stoped per day by the natives, and the so-called native captains, who have high pay and their board, and are no wiser than the stopers themselves.

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NEW CECILIA MINE.

PLANT.

On the southern side of the valley a small six-head stamping mill is now occupied in reducing waste sand tailings. The water wheel is almost in pieces, and will soon either be substituted for a new one or stopped altogether, but as there are not much more tailings to treat, I should hardly suppose any new outlay would be made to reduce them. The strakes before the stamps, as well as the concentrating tables, are of a most primitive nature like others on the establishment that I have witnessed.

Reviewing this most defective stamps with its surroundings, I cannot but lament to see the expenditure going on and the tiny results attained. It plainly shows the desperate state of affairs to maintain the monthly produce at a great sacrifice, as recent losses clearly show.

NEW CECILIA MINE.

Near the head of the valley a new shaft 9 feet by 6 feet is in course of sinking, and has already been sunk to the depth of 20 feet. The shaft is sinking through a light schist of a very jointy nature containing carbonate of lime. A cross-cut is commenced at a depth of 24 feet, direction about N. 50 W., and it was anticipated to cut the Cecilia lode in about 5 fathoms from shaft, but it is extended 8 fathoms and no appearance of lode. It seems that this cross-cut at so shallow a depth is almost a folly, as however productive the lode may be that it intersects, it leaves only about 21 feet of stoping ground in height. There is a small hand-pump at present working in the shaft, but it is intended to erect a small water wheel to work a larger pump, the site for which is almost already prepared.

About 30 fathoms south and on the west bank No. 5 cross-cut intersected the lode after driving 27½ fathoms. This level is said to have produced a productive lode for 60 fathoms in length, with an average width of 11 feet. Continuing southward was plain the lode produced favorably throughout, hence the new shaft to test the value of the lode in depth.

At the present moment, in the No. 5 level, the men are engaged in extracting all the pillars which are computed to last about three months. The lode in the end is disordered and gone off almost to nothing. I would observe that the lode here is almost vertical, carrying with it several strings of clayey matter in places, and taking it as a whole with its dip and width, and longitudinal extent of grey ground, is decidedly the most promising of all the lodes enumerated in the foregoing pages, or *I may say of all the Company's mines that I have seen.*

In summing up I might say the mine is completely exhausted down to the level of *the surface* of the shaft, and in the extraction of the aforesaid pillars, one plainly

...s the desperate straits they have been driven to for the ...pply of mineral for the stamps.

The only new work of exploration in hand is the ...king of the new shaft.

The wid... of the valley is from 90 to 100 feet.

L... cross-cut, and pro- ... and turning south ... of it, brought me to a small tunnel and a trial ...ere I saw a lode about 1 foot wide, mineralized ...re or less throughout. This lode is about 15 fathoms ...orth-east of the main lode; it is discharging much water, ...t before expending any money on it, I would suggest the proving of the main lode in the new shaft first.

OLD CECILIA STAMPS.

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At this place a nine-head stamping mill is at work, ...-feet wheel in good condition reducing the pillars ...ought from the upper mine or New Cecilia, supplied by ...eans of a small tramroad 248 fathoms long. I found ... short strakes before the mill, concentrating boxes and ...r appendages connected therewith, of the usual ...aracter, but in better condition than some in the other ...ines. This mill produces gold which compared with ...e amount of daily cost, including all labour, &c., leaves a very slender margin of profit. Near to this mill is a large shed containing carpenters' shop, concentrating tables, &c., and immediately opposite, about 50 yards, is an 18-feet water wheel, 4-feet breast, driving two arrastres of 8-feet diameter respectively, with two miserably defective stones in each; considering the power applied the results of these arrastres are very unsatisfactory. Should not the new shaft in the upper mine develop any material value, so far as at present known, the supply from the old works will soon be exhausted, and then these extensive and costly works will soon be terminated.

With the exception of Salada and Silencio the old Cecilia works are the most extensive.

Close by the mill is a small Blake's stone breaker 6 inches by 4 inches; a toy, quite made-pate to be of any saving over manual labour, and a part of the old cylinder of the engine, a memento of the folly of the past, used as a small hand arrastre.

LA SALADA.

PLANT.

Wood shed: kitchen: men's quarters; captain and foremen's houses: carpenters' shop (extensive); kitchen for carpenters: blacksmith's shop; considerable stock of prepared and seasoned timber for mills and other purposes. Tramway and turntables from mine to mills; large spalling shed.

No. 1—12-head stamping mill with hoisting gear to No. 2 floors. No. 2—12-head stamping mill. No. 3.—12-head stamping mill immediately below. The sands of these three mills are conveyed in launders to a large set of concentrating tables in ... roofed-over ... driven ... by 2 ... hes —driving 4 arrastres 8 feet in diameter ... 31 arrastres, 4 feet diameter, each worked o... Nos. 2 and 3 mills; a circular box an... trating tables of five tables; two set... circular pits in construction and spare concentrator table. Adjacent to these are two circular pits and co... centrating tables. In connection with dressing house ar... two circular pits for treating the waste sands.

We now come to the concentrating tables which receive as before stated the pulverized ores from the three 12-head stamping mills, consisting of three boxes with discharges in front to 25 concentrating tables 16 feet long; two small sets of concentrating tables of three tables each, 12 feet long; two tie; three concentrating tables; three long strakes and catch-pits for receiving the sands from off the large concentrating tables named. All the machinery and plant is roofed in. Two kitchens.

LA SALADA MINE.

Main Lode.—Inspection commenced after passing a considerable distance through the main tunnel, which has a tramroad 29 inches in breadth. Leaving this, we entered No. 1 level. I could not see the extreme end, as it had been suspended for some time past, and owing to the ground being so heavy had been close timbered up. I was informed the lode was very small and worthless.

About 45 fathoms from main tunnel a rise was put up over the roof of this level (No. 1), where there is a short drivage on the course of the lode, but as old workings appear in the extreme bottom, it is evidently only a pillar; here the lode is large, but I should say not very productive. The rise is still being extended, and will soon be holed in a drift above. The lode is large, and said to give favorable results at the mill.

No. 1 North (revisited).—This end is suspended, and for good reasons, as there is but a mere thread of lodey matter visible; but I would here remark that as a rule in this as well as in all the other mines, excepting where stopes and levels are in operation, the remainder of the openings are so densely timbered that it is impossible to detect which is virgin ground of lode, or where the lode has been all taken away.

Behind the end a short distance is a rise 3½ fathoms on the lode, on the top of which are two drifts driven north and south. In the north one a small cross-head has intersected the lode; this has been discontinued for some time past. Proceeding south a rise is extended, and has communicated with old workings. Beneath the bottom of these two last drifts and the roof of No. 1 level are two small pillars of ground standing entire, and said to contain productive stuff for the mill.

No. 1 South.—The end has been breasted up, but was crushed together. A rise is put up close by it on the inclination of the lode, where it averaged about 2 feet

wide, of an unproductive quality. These operations have been abandoned for some time.

In a rise about 2 fathoms above this level an experimental drift extending south is driven about 5 or 6 fathoms; the lode is from 4 to 5 feet wide, of quartzy matter, and well defined; but from information from the chief native captain, the contents of it are of no value for commercial purposes, though a stranger would not have expected this from the appearance.

Above this last-mentioned drift, about 3 or 4 fathoms, an abandoned intermediate level south is closed up, a good portion of this lode has been taken away, leaving only a few insignificant pillars.

On this same horizon a level has been extended north about 14 fathoms, but for want of ventilation we could not reach the extreme end; means are, however, taken by other operations to ventilate it. This same rise is communicated to the No. 2 level, which was not accessible from this side owing to the rise being full of stuff, but it can be arrived at from a surface hospital; the chief native captain informed me the lode in the end was poor, and had been unproductive for gold, and has been abandoned.

Above the main tunnel (see plan) there is a level which traverses through the lode, which varies from 5 to 9 feet wide, of a ferruginous character, and is said by the native captain to contain in places ordinary ores for the mill, it is evidently, however, not of much value, or it would have met the fate of all other valuable points, and been long ago crushed by the mills.

Proceeding south the lode narrows very much at present a rise is in operation to communicate with an upper drift for ventilation.

Flat Lode.—On the north side of main tunnel, about 50 fathoms (see plan) from entrance, a winze is sunk 4 feet on the lode, which has but little inclination, the lode averaging from 2 to 3 feet wide, of by no means a promising character. All the payable lode above this has been taken away.

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Leaving the main tunnel and proceeding a short distance in No. 1 level south on this lode brought me to trial level, which is driven about 5 fathoms. The lode is small and of an uninviting nature, and abandoned behind this spot some distance in the opposite direction is another level, which is intended to communicate to an upper level: the lode is small and worthless. The lode in the end (No. 1) is small and disordered, and the drivage abandoned.

Leaving this I proceeded up a flat rise (see plan); the lode in this part is nearly all taken away. Near this, one small stope is in operation on a small pillar; the lode is small and of little value. Here we have another instance of the extremities resorted to to keep the mills supplied

In the No 2 level south, which is holed to the No. 5 level, are two drifts driving north and south on the lode.

The drift south is extended about 3 fathoms, with old workings on eastern side, whilst the drivage is believed to be in whole ground; the lode is large and then suddenly narrow to a mere thread, altogether very disordered in extreme end.

The drift north is extended 3 fathoms through a pillar of ground computed to be from 5 to 6 fathoms long to the No. 5 level. The lode in end is 3 feet wide, composed of white jointy quartz, and in places of a drusy character carrying little or no pyrites, which is the general characteristic of the lode in this mine.

No. 5 Level South.—The lode in the extreme end is giving fair results at the mill, and has done so for some distance, but it now seems to be taking a change at an incline dip, as well as on the eastern side, being disordered by a slide.

Above this there is a rise advanced about 12 fathoms. Here the lode is ascending at an angle of about 25. It is varying, as can be seen in the extreme end, from a few inches to 15 inches. This, as is usual in this mine, is approaching old workings.

Intersecting Nos. 2 and 5, a staff of natives are engaged filling up old workings and extracting odd pillars of lode, said to be of fair quality; but this section of lodey matter, like many other parts of the mine, is of limited duration.

At the extreme end of No. 2 north of main tunnel a rise is extended from 5 to 6 fathoms on the incline and vertical, the last 6 feet have been driven almost on the flat, the lode varying from a few inches to 1 foot wide, and by no means of a promising character. Throughout it is said to yield tolerably well at the mill. The heat in the latter part of this level and rise was almost insupportable, and the timbers throughout in the level are in the last stages of decay, to replace which would be an immensely costly affair.

Revisited winze, near main tunnel, sinking on this lode; it is varying from 3 to 4 feet wide, carrying on the foot-wall patches of pyrites. So far, this lode is yielding ordinary mill ores. Its very flat angle, 30, and underlying east, renders it, with its indurated character of rock and dipping from the point of advance, very expensive and slow.

To handle such a lode as this economically, a good vertical shaft carrying pitwork and hoisting gear should have long ago been instituted.

In the No. 1 level north a winze is in course of sinking, but was not accessible having much water in the bottom. The water is taken out by a pump employing several men. Above this, about 8 feet a drift is driving south through a pillar of ground said to produce favo[ra]ble at the mill; the object of this is to command the last-mentioned winze. Taking the works in [gen]eral it would be difficult to find two more costly operations.

The best selected timber in this mine [for] tunnel lasts from 15 to 18 months, and in all the branch levels on the lodes, taking the very extreme points with those of the tunnel, becomes useless in from 6 to 9 months and has to be replaced, this item of timber alone is a terrible incubus on the mine.

It will be seen from the foregoing that in the Salada mine on the flat lode there is very little more lode stuff

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to take away, and in the main lode also m[illegible] report gloomily pictures the unpromising nature of [illegible] lode, but irrespective of all this is the terrible state [illegible] the [illegible]r throughout the mine on both lod[illegible] would cost an enormous sum of [illegible] with the prospects presented, [illegible]

I venture to [illegible] other experimental trials are made to prove the value of the main lode in conjunction with the flat lode in depth, the better. Should these trials result favorably, by extending new galleries under the bottom of the present mine, the Company would be relieved from the enormous annual expenses incurred in labour and timber to keep the mine open. In the present aspect of the mine, entailed as it is with its immense cost inside and on the surface, I would urge that a very early decision be arrived at by the Company to save further serious losses.

In presenting the ground plan of the Salada mine, so frequently quoted in my Report, I would observe that a very large proportion of the transverse and oblique lines consist of either flat winzes or rises instituted either for ventilation or the extraction of mineral, and on the flat lode particularly, clearly demonstrating how very little virgin ground of a productive nature remains; and the lode which exists in their interstices of lines are burrowed in every conceivable direction of the last remnants of ores standing, frequently I fear at a serious loss to the Company, as I have often observed to your managers. In this I am confirmed by the inspection of the spalled ores sent to the mills and the low percentage obtained, whilst it would be noticed, in examining the plan of the main lode, the lines do not occur so often, the reason for which may clearly be assigned to the lode not being generally so productive as the former, for although I disagree with the mining as conducted by your managers, I would in justice give them credit for making endless trials at great expense and often without the shadow of a chance of discovering anything valuable.

PALMICHALA MINE.

Descending through continuous winzes intercepting the 34, 50, 80 and 95-feet levels, all the profitable portions above these levels are extracted.

Proceeding north from shaft, about 60 fathoms, brought me to the extreme end of the 95-feet level, where the lode is broken up into ferruginous branches, inclining more westerly in the direction and dipping east about 40, these branches are enclosed in decomposed granity matter, and presenting a more encouraging feature than any portion of the level since leaving the crosshead or fault.



This insignificant fault or disturbing matter has exerted an influence as observed in many instances in your mines. Behind the fault for about 9 fathoms the lode varied from 7 to 8 feet wide, but had been dwindling down in size up to the point of the fault. The level throughout is high and broad, and though the ground is very heavy for timber, it is in good condition, and is at present driven by four men on day work.

About midway between the shaft and the end is a winze sunk on the lode about 2 fathoms; the lode is large and over 6 feet wide, but only about 2 feet of the footwall part is productive, yielding, as the chief native captain affirmed, over 1½ ozs. per ton of mineral. The remainder of the lode is of a white quartzy character, of not so congenial a nature. North of this winze in this level the lode has been driven through for several fathoms from 7 to 9 feet wide, therefore we may reasonably expect that the lode in the winze will maintain for some distance its spacious character, though I must observe that, owing

to water, it is prosecuted under very disadvantageous circumstances; but the idea is as elsewhere in your mines, stuff must be had for the stamping mills, irrespective of the cost of obtaining the same. I had been long waiting to examine the bottom of the engine shaft, but I found by descending below the 95-feet level a very considerable amount of water was in the shaft. The native captain informed me that in consequence of the water being in he had never seen the bottom.

About 15 feet below the 95-feet level, a level is extended south about 12 fathoms, and throughout this distance scarcely any lodey matter is visible, mere threads and strings occurring with quartzy stuff here and there. In the extreme end a considerable quantity of water is issuing forth, and had the level been 10 fathoms deeper, I should suggest the extending of it for a short distance, to prove whether it is productive ahead or not, but in its present depth and excessive water, which they cannot keep under control, I should by no means touch it.

Ascending from here to the 90-feet level south of engine shaft, nothing is to be seen but the mere opening of the level, as the roof is close timbered; all to be seen are mere threads of veiny matter, but of no value.

All the productive ground that has hitherto been developed, excepting the bottom of the 95, has been extracted.

Samples taken from the 95-feet level extreme end showed scarcely a particle of gold, and from the winze moderately good.

ADIT LEVEL.

Juan Criollo cross-cut, as designated in the General Reports of the mine, but which is a misnomer, is an adit intended to communicate with the 95-feet level of the Palmichala driving north, now proceeding from the main shaft. These two are most costly operations, the former particularly so, costing for driving £9 per fathom.

The adit contains for the first 20 fathoms close heavy timber with very neat rubbing over the timbers at the

entrance, the remainder of this adit, about 80 fathoms, is through rather hard granite rock to the extreme end, where there is an aluminous string of clay, which facilitates the drivage, they have diverged from the original course and are now going about N. 50 W.

The only tangible object to be attained after all this delay and expenditure, will be the delivering the water from the shaft through the 95-feet level, hence it is obvious that what will be saved after so many thousands of pounds of expenditure, is the lifting of the water to surface, 150 feet.

I should also observe that in the event of the lode resulting favorably in the before-named winze and shaft, power would have to be provided for pumping and hoisting purposes. It would be very different, however, if this adit could drain the present mine 300 feet below its deepest point.

I never could recommend long and costly adits without giving a great depth of drainage.

PALMICHALA MINE.

PLANT.

One horizontal engine, 7-inch cylinder, driving by band-wheel on end of shaft, to a larger band-wheel and wood fly-wheel, to which are attached, on the end of the shafting carrying this, two cranks, attached to which are two sweep rods connected to two King posts working small pitwork in the main shaft.

The engine is driven by a small Howard safety-boiler. Apart from the little engine, the connections to the shaft are of the most flimsy and ricketty nature.

There are also carpenters' shop and carpenters' sleeping quarters, together with the native captain's office and foremen's dormitory. These are all covered in with palma or a species of palm leaf, a material of but short duration.

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Apart from this, there is a smiths' shop, kitchen for miners, miners sleeping quarters, captain's house and kitchen.

No. 1 Stamping Mill.—Six heads in a very neglected and defective state, and as usual four small strakes, 10 feet long, in front of stamps. All that escapes over these strakes is carried away below to a deposit and restamped.

The grates have three holes to the square inch, and the water supplying them is very much in excess. The loss of gold from this mill throughout the year's working must be very considerable; one small concentrating strake, together with a couple of washing boxes, copied, I should suppose, with all the other plant from the ancients, about 300 years ago.

No. 2 Stamping Mill.—Six heads worked by 24 feet diameter wheel, 18-inch breast, two strakes 9 feet long in front of the mill of the same primitive order as the others, so defective are these in every respect that it is almost a mystery they obtain any gold at all. This mill is at present idle for want of ore stuff.

No. 3 Stamping Mill.—Six heads worked by 24 feet water-wheel 18-inch breast, driving three heads at present, three arrastres of 6 feet diameter respectively, which are employed in reducing the pyrites from this and the upper mills.

Concentrating Tables.—Ten tables, 16 feet long, 14 inches wide. All the ores from the two upper mills are conducted to these tables. There are three other small concentrating tables confined chiefly to separating the pyrites from the siliceous sands.

No. 4 Stamping Mill.—Six heads worked by 24 feet wheel 20-inch breast, one arrastre is worked off the main axle by bevil gear. This is a cripple of a machine, and many of its parts are on their last legs. This mill, I am informed, is let out on tribute for one month to Señor Don Daniel Posada and partners. It has been chiefly used for stamping sands: but what the result has been, I am not prepared to say, more than I should conjecture, that it has not been a very profitable source to the Company.

FINAL INSPECTIONS.

Before I conclude I beg to add to the respective foregoing reports on your mines, as the result of my first inspections, the following particulars of each mine upon my subsequent and final examinations of the principal operations in progress, as well as others recommended.

CECILIA MINE.

The only work here to notice is the driving of a No. 4 level north-west from pumping shaft at 4 fathoms from the surface. This very shallow trial level had to be driven about 16 fathoms from the shaft before it revealed any true mineralized matrix, since which the lode has been improving both in size and value. I should add that the lode in this mine is large, varying from 1 to 15 feet in width, with an almost vertical dip, thus presenting conditions much more favorable than many of your other mines, and if it continues to improve as depth is attained, which there are substantial reasons to infer, it induces me to believe that when this lode is fully explored by deeper levels, at say 60 or 70 feet apart, it will open out a durable and valuable mine, excelling, I trust, its past history. I can but hope it will be so, seeing the present state of the mine without any supplies of ore to notice beyond that which is obtained, from the level above named. I had urged upon your managers here, shortly after my arrival, the necessity of sinking this shaft vigorously to 66 feet, and driving on the lode, instead of which they directed a 24-feet level, hence the unfavorable result met with. This deeper exploration should have commenced two years ago.

I cannot urge too strongly on your Board the carrying out of this sinking with all possible despatch, as the future of the mine depends on it.

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SAN JOAQUIN MINE.

This mine has had, since my first inspection, several [illegible] made in ventilating, and retimbering, the [illegible] level with other passages, with the object of taking away several pillars of ordinary ores for the mill, but which I fear will leave but a very small profit. The future supply of ores from this mine, as well as for a long time past, has been from pillars too inferior to give any appreciable gain to the Company. The stock of ores existing in the mine, so far as I could judge, may be sufficient to supply the mill for many months to come. There are, however, many blocks which should be rejected, but I doubt if this course will be followed as your managers have too long been accustomed to send all such stuff to the mill irrespective of its value.

No. 3 level on the north side of the hill (see plan), has been cleared and retimbered at great cost, to prove the Joaquin lode in depth under the upper old workings named, but this has resulted without discovering any lode of value. In the extreme end old workings were met with presenting a ferruginous quartzy lode 2½ feet wide, unproductive, with all its footwall or valuable part extracted. In viewing this point with all the other sections of this mine, internally as well as externally, it shows the mine to be worked out like a honey-comb.

I much deplore the present gloomy aspects of the mine, and to add that, unless something valuable is soon met with, this mine cannot for long continue to work to any advantage to the Company.

But were your managers allowed to follow their own inclinations, they would drive a tunnel from the No. 3 Salada to intercept the San Joaquin lode 10 fathoms deeper, and proceed from this point to the south side of Salada, a distance of some 260 fathoms, an operation which would involve an expenditure of many thousands of pounds, without the shadow of security of its refunding the outlay.

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San Joaquin is a fair type or example of the numerous mines in this region, in which the richest portions of the auriferous matter are met with in and near the surface, and which continues to lessen either gradually or suddenly as depth proceeds. Now this is an admitted axiom by all the native inteligent mining speculators, who from long experience and tradition abide by it in working their mines. Hence I would recommend that when the stoping ground referred to is exhausted, to abandon the mine under review.

SILENCIO MINE.

South shaft is sunk 26 feet below the 150-feet level, where the lode averages 2 feet wide, and inclining rather more steeply than it had. The ores produced from it are of fair average quality.

The shaft being sunk over the lode in which the rock is hard renders the progress slow. I advised them to sink under the lode, the ground favoring this change, and [illegible] to follow my advice.

The 150-feet level south extended [illegible] shaft 10 fathoms, the lode of good average size [illegible] last 3½ fathoms it has much narrowed and [illegible] Judging, however, from the conger[illegible] end and the veins interspersed, I have [illegible] a favorable opinion that it will ere long improve in [illegible]. This level had yielded richly for 6½ fathoms long from the shaft but it seemed to be confined to almost within the limits of the level itself.

The 150-feet level north is driven from shaft 12 fathoms the lode here is 4 feet wide composed of rusty quartz, yielding at the mills ordinary ores of fluctuating quality.

Intermediate level over the last-named. The lode varies from 3 to 4 feet wide, producing ordinary ores.

Close behind this end is a rise proceeding towards the 105-feet level, the lode is of good average size, but not of much value.

The 103-feet Adit North.—The direction of this important operation is altered to meet the adit level from the other side. I have my doubts if there will not be some serious errors committed here before the communication is effected, and also in the time that will be wasted.

The future of this mine, so far as present prospects present themselves are centred, or rather contingent, on the results met with in the further sinking of the north and south shafts, and also the extension of levels therefrom. I may here add that all the more extended shallow levels made on the lode both north and south have so far proved unproductive.

It will be seen on referring to the plans that most of the profitable portion of the lode had been met with from the 43 to the 103-feet levels, extending to a horizontal length of 70 fathoms; whilst in the workings shown below the 103-feet level comparatively little ground has been stoped, thus indicating a decline in the value of the lode.

In many gold regions this falling off in produce in so limited a distance as 47 feet on the inclination of the lode would not be considered a discouraging feature; I could but wish it were in my power to say the same of this mine, though at the same time I would observe that as long as the lodes in the two shafts named continue in deepening to retain their present width, strength and produce at the mills, no serious view need be entertained but that the mine will ere long improve, that is, provided it is skilfully, energetically and economically managed.

SALADA MINE.

In the trial winze No. 1 main lode, not yet fully cut through at present, it reveals the lode 3 feet thick, bearing 10° east of N. and dip E. of N., it is mineralized more or less throughout with ordinary ores. Its enclosing formation consists of decomposing granite rather soft and troublesome, requiring close timbering; this, with considerable water percolating out of the ground, renders sinking slow.

No. 1 winze on the flat lode is 4½ feet wide, and presenting an encouraging appearance; from here also several promising samples have been taken—direction of this lode 15° E. as noticed in my early report.

The works so far as instituted in these winzes have been with a view of testing the character and value prior to introducing more effectual operations to prove their value beneath the present points. It will be necessary to prove the value of the lode, however, before sinking a shaft in the southern side, at such distance as shall intersect the main lode, say 20 fathoms deeper than at the present point. To erect a pumping wheel with necessary pitwork is indispensable, being, in my opinion the most expeditious and economical plan to prove these lodes in depth. Whilst the Messrs. Whites' purpose is to drive a level to the Salada from the north side of San Joaquin; this plan would involve much more time and capital, to say nothing of the annual charge of re-timbering, say 260 fathoms, and which would only give, say 8 fathoms below the present Salada drainage.

I have now to notice an interc[illegible]n in No. 1 level main lode, where the latter an[illegible] almost united, but without, I regret to say, im[illegible] value of either. I should here also observe t[illegible]de throughout the mine (see plan) has so profitably, only occasionally has it yielded [illegible] ties of ordinary ores for the mills.

In *No. 1 Level North* flat lode a rise is in progress intended, when completed, to supersede an old rise in order to explore new ground. The lode here is [illegible] feet wide, producing ordinary ores. In reviewing these old workings, together with the rotten timbers surrounding them, it would be in my opinion far wiser to abandon than to attempt any further explorations in them, feeling assured that the gold obtained will not cover the cost.

No. 1 Level South-west.—The lode here is divided into two branches and otherwise disordered, united width 2 feet, which Mr. F. White informs me yields favorably at the mills. It is further asserted that this level is

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given in unwrought ground and should it continue to prove ... value, and it is believed it will. ... needed in supplying ... mills w... ... occurs, st... ... that never oc... to ma...

No. 2 ... South is proceeding on a branch lode 2 feet wide, this level is also presumed to be in virgin ground bearing ... W. of South, producing ordinary mill ores, but a short ... distance from the end the lode is 8 feet wide, containing very ordinary class ores, too poor with its present ... ly transport to pay.

No. ... South.—Here stoping is commenced on a lode from 2 to ... 3½ feet wide, yielding ordinary grade ores. The lode in this spot has taken a most singular circular form, coiling ... itself (see plan).

No. ... North Level Rise.—Lode from 1½ to 2½ feet wide, yielding occasionally rich ores, said to contain 2 oz. per ton: ... this lode has scarcely any inclination, which is a condition ... by no means favorable.

Rise ... No. 2, contiguous to the former, advancing 40° W. ... the lode here is 3 feet wide, disordered, but presenting ... indications of an early improvement.

This ... concludes the particulars of the mining operations now ... in progress for the further development of the lodes in this ... mine, and I would remark on what you have been already advised, that all the lode, or nearly so, of every grade has ... been extracted from east to west (see plan).

I cannot refrain from saying that it would have been much more ... to the interest of the Company, even during my stay ... inspection, had a very large percentage of the stuff sent ... to the mill been allowed to remain in the mine from the ... commencement, had this been done it would have saved ... the Company a very large sum, as also preserved the ... mine from its present condition.

In reviewing the present prospects of the mine it will be seen, both in the reports as also in the plans, that it is reduced to a mere shell, only a few worthless pieces of lode ... standing here and there.

As to its future results it rests mainly in five sections or points, namely: The two winzes proposed in the main adit, the intended new shaft south of entrance to the main adit, and the north-west and south-west exploration works; should these prove valuable, more particularly the two winzes, it would give the mine a new and durable lease of prosperity, and, in the meanwhile, it is possible, and even probable, that other important discoveries may be made.

It has been a great misfortune in this, as in others of your mines, that early development for future supplies of ores has been so utterly neglected. It is this omission of duty which has placed many of your mines in the unfortunate condition they are in at this time.

TIGRITO MINE.

The operations here are confined to the driving of an intermediate and No. 5 levels, both of these have improved of late, producing at the mill good average grade ores, and at intervals rich ores from a shoot of high class ores, the former level has nearly passed through it, and the latter has entered it some few feet.

The shoots have a diagonal dip of about 45° and their horizontal length on the plane of the level about 15 fathoms. The lode varies in width from 1½ feet to 2½ feet with a variable bearing from 30° to 45° N. of W. (see plan).

Beyond the present shoot no other is known to exist, though possibly in the unexplored ground north-west there will be others met with. It is this latter development in connection with the discoveries made by the two advancing levels that the future of the mine at its present depth hinges.

This mine has for a long time past laboured under great difficulties in the transmission of its crude ores to the mills, amounting at the lower level to fully 5s per ton, and this will continue until better means are devised for its conveyance. As a temporary measure a rise will be communicated from the roof of No. 4 level to the

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surface, and a small whim fixed which will draw the stuff from the No. 5 level to the No. 4 from whence it will be conveyed to the surface for selection to the mill. This will save the labour of four men over the present arrangement.

I have next to notice that the lode intervening the shoots alluded to, contains generally inferior ores leaving but little profit, and often I fear, none, as worthless parts of the lodes are too frequently extracted on the mere plea of keeping the mill at work, regardless of the extra loss incurred in the useless wear of the mill.

The past history of this mine compares favorably with many others of your mines, but I should remind you, in order that it may keep its former reputation, that some early measures should be commenced to obtain a deeper drainage under No. 5 level from the north-east by sinking a shaft for that purpose.

Before closing my remarks on this mine, I must inform you that here, like the mines preceding it, it is destitute of reserves of ore. Its existence depends, therefore, to a large extent, on its daily discoveries of ores to supply the mill.

This mine has some encouraging features, and in following the direction indicated it will probably develop larger resources of profitable ores than it has for some considerable time past.

CÓRDOBA MINE.

No. 5 Branch Level.—Here the men are straightening its course, direction of which is N. 10° E., and dip E. 25°, the lode varying in size from 1 foot to 15 inches wide and unproductive.

No. 5 Level bearing North-west dipping E. 35°.—Here the lode is 18 inches wide in the centre of end, but narrowing out in the east-north-east side to a small branch, forming at this point a splice from the west. This level has produced for the last 8 fathoms driven, superior average ores, but at present it is poor and the lode

disordered. It may soon recover itself to its former value, though it is difficult to say when, in such disorganized rock formation as occurs here, encasing the lode and which too frequently causes the capricious character of the lodes.

Rise No. 1 is opening out stoping ground behind the end 4½ fathoms long, the lode is flat 1 foot wide, yielding ordinary ores to the mill.

No. 6 cross-cut south or adit is now having a side level driven to drain the main level, and to avoid the running troublesome ground which the native miners for want of skill and practical experience are unable to cope with. Hence, whenever treacherous ground is met with, much waste of time and money is expended before the object is achieved. Whilst with thoroughly trained English timber-men, such work would be done for a fraction of the amount it costs here.

This adit, however, is very necessary to the intersection of the Córdoba lode south.

At 4 fathoms from end of No. 4 cross[illegible] rise is advancing west on a small vein, and minor [illegible] of a promising kind, and producing ore for the mi[illegible]

Above, on the hillside, are numerous sm[illegible]s believed to be connected with the Córdoba lo[illegible] withstanding various trials, nothing tangible [illegible] has yet been met with.

No. 3 Level.—Two back stopes are in operation he[illegible] producing average class mill ores from a lode about 1 foo[illegible] wide.

Beyond this a few fathoms a winze is being sunk o[illegible] a rich shoot of ore 3 fathoms long, and yielding, by computation, 2 ounces of gold per ton. The winze is now dry and will, it is thought, continue so for 4 fathoms deeper, when water will probably be met with; to provide against which a deeper level will have to be executed to drain it.

In addition to the foregoing details of operations there are other stopes confined to pillars which it is

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thought will last some considerable time in s[illegible]lving ich mill with ordinary average ores.

At present, however, there is not any [illegible] sion to provide ores for the mill when the [illegible] named, together with the stopes, shall have [illegible]ased to yield.

ROSARIO MINE

Is but a continuation north of Córdoba, inasmuch as the workings are communicated from one to the other.

No. 3 Level South is advancing on a lode 1 foot wide, with small irregular veins accompanying it, but neither of which contain any appreciable value, this is the only level driving throughout the mine.

The only other mining operations in progress are, [illegible]ven stopes, yielding various classes of ore for the mill. As the duration of these depends entirely on the result of value met with, any estimate made of them rests on too precarious ground to be reliable, having, not only [illegible]pricious lode ground to deal with, but, in addition, ground that has been riddled and burrowed so much, it would be impossible to define satisfactorily any limit.

It is very evident that unless some valuable discovery is soon made in this mine, or northern portion of Córdoba, it will, ere long, be exhausted of payable ores.

I should mention, in connection with Rosario, that the trials internally and externally have been begun, and, up to the very latest, they have been abortive of any good.

I should add, that throughout, with few exceptions, the rock formation of decomposed granite presents, in the shallow parts, as well as its deeper sections, great disturbance of contorted matter, thereby influencing the lodes most seriously in their continuity and yield of metal.

It is for these reasons I could not recommend deep tunnelling in this section under present workings impressed as I am that it would result in utter failure.

I know that Rosario has in the past, and even recent times, produced its rich pipes or pockets of gold ores, but these too clearly show their capricious nature or character, as not to justify any large expenditure in deep explorations.

On the plans and sections of the Rosario and Córdoba mines, a deep cross-cut or adit is shown, intersecting the lode 84 feet below the No. 3 level Rosario.

The ground, however, admits of a cross-cut being driven at a greater depth: 100 or 110 feet can be obtained without much difficulty.

A cross-cut intersecting the lode at a depth of 100 feet below No. 3 level Rosario should give backs on the incline of the lode of 24 fathoms under No. 5 level north, the present lowest level on the Córdoba lode.

The adit would command known ground of 250 fathoms, its length would be from 100 to 120 fathoms, and the cost per fathom should not be taken at less than £50 to cover contingences, exclusive of external ventilation in shafts, rises, &c

It would take say two years to comple[illegible] day and night, but the mines have an insuperable objection to working by night, and will not do it for a[illegible] of time. After its completion, as well as before, sum will have to be expended annually in re-tim[illegible]

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POCUNI WATER GAUGE IN "MARIA MAGRA."

Date	Depth of Water over Gauge	Cubic Feet per Minute	H.P. evolved on 30ft. Wheel	REMARKS.
1883				
Nov. 5	$2\frac{8}{16}$	81.5	2.6	
„ 16	4	136.5	4.0	
„ 23	$8\frac{4}{16}$	—	—	
1884				
Jan. 4	$3\frac{1}{16}$	118.5	3.5	Dry season commences.
March 4	$2\frac{6}{16}$	71	2.2	
„ 17	$2\frac{8}{16}$	72	2.2	Dry season.
„ 20	$2\frac{4}{16}$	64	1.9	
„ 22	$2\frac{8}{16}$	85	2.5	
„ 24	$2\frac{4}{16}$	64	1.9	
„ 29	2	48	1.4	
April 1	$1\frac{7}{16}$	45	1.3	
„ 4	$2\frac{6}{16}$	70	2.2	End of dry season.
„ 12	$4\frac{1}{16}$	144	4.1	
„ 18	4	137	4.1	
„ 26	$2\frac{6}{16}$	72	2.1	
May 12	$3\frac{5}{16}$	107	3.0	
„ 20	3	89	2.7	
June 15	$4\frac{8}{16}$	150	4.5	
„ 13	$4\frac{1}{16}$	178	5.3	
„ 19	$4\frac{4}{16}$	144	4.2	
„ 25	$3\frac{1}{16}$	122	3.6	
„ 30	4	137	4.1	
July 8	$4\frac{8}{16}$	150	4.5	
„ 18	$4\frac{8}{16}$	150	4.5	
„ 25	3	89	2.6	
Aug. 14	$3\frac{7}{16}$	132	3.9	
„ 22	4	137	4.1	

NOTE.—The Salcedo pumping wheel, 30 feet diameter, is supplied by the Pocuni dam, and receives in addition the water from the upper parts of the Salcda and Santa Ana Valleys. This is equal in the rainy season to about 1½ H.P., and in the dry season to ½ H.P. The Salcedo pumping wheel, therefore, may be considered as giving on an average during the rainy season to 6½ H.P., and in the dry season but 2½ H.P.

PALMICHALA MINE.

In the 95 feet end north the lode is divided into two branches of veiny matter 1 foot wide, of a very promising character, containing ordinary mill ores. Present direction of these branches is N. 10° E., it would much favor the direction to the adit outside were it course north of west.

This end presents easy ground for driving, and should this continue with a more favorable direction it would much accelerate its progress towards the adit which is proceeding slowly. I am very apprehensive that unless great attention is given to a close and accurate survey in keeping the drivages from the two sides in their proper course that great delay and expense will be incurred. Recurring to the 95 feet end at 4 fathoms behind it a rise is advanced 8 feet, yielding some rich ores on the footwall of the lode, 15 inches wide. Further south behind the above-named 10 fathoms, another rise is extended 2½ fathoms, the lode here is [illegible] producing only inferior mill ores.

No. 1 winze (see plan) is sunk bel[ow] level 3½ fathoms, exhibiting throughout a str[ong] lode from 2½ to 3 feet wide and dipping E. 6 almost north magnetic.

One lode is accompanied by a grey color[ed] of a congenial character, having chloritic and alumin[ous] matter in its lines of division.

This winze has from its commencement produced, it is said, good quality ores beyond the average, sometimes as much as 1½ ounces per ton; but this figure has, I think, been of short duration.

These particulars contain all the operations wrought on the lode; and, consequently, the extraction of ores for some very considerable time past has not kept more than one mill at work.

Palmichala adit has on its centre of end two aluminous lines encased in hard jointed granite over and under, thus

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...using the progress to be very slow and co... $8\frac{1}{2}$ per ton.

In reviewing the past prospects of this ... the deep adit was commenced, I s... were not such as to justify such ... ex... add to this the decline in the mines' value since the adit was [illegible] and the time and large expenditure that will yet have to be expended ere it is completed, it confirms my views of the great error committed in instituting it. I should further remark that when the adit is completed, it will not relieve the bottom of the mine of its drainage, but steam will have to be employed as at present.

To meet this increasing cost some important and valuable discovery of a durable nature is absolutely necessary; but I am glad to say that a few days after last visit a material improvement occurred.

Even Silencio adit with all its burdens of cost, &c., as not absolutely required, as many schemes might be devised to carry the mine down considerably deeper than it is, without resorting to costly adits; but I presume it will be said that they are unavoidable evils, and must therefore be continued.

The future prospects of this mine judging from what now presents, depends on the further explorations of the ... end north, the two rises and the two winzes, one of which is just commenced; should these result favorably it would enhance the value of the mine materially, and thereby I trust, make it once more profitable, but ere this can be realized, some time must elapse in making further exploratory extensions, and also in opening out stoping ground, of which at present it has not any appreciable quantity.

GENERAL REMARKS.

It will be seen in perusing the eight foregoing reports of your mines that neither separately nor collectively do they present any very rich points at the time of my last inspections.

But when the more vital points alluded to in the reports are further developed they will, I think, reveal substantial improvements over the present general aspects of the mines.

I am the more induced to adopt this opinion after the most careful examinations of all the conditions connected with the future developments.

I would, however, add to this that, all the works, in and out of the mines, should be conducted with the most rigid economy consistent with the Company's interest.

With these conditions fully carried out in their entirety, I have a strong conviction the mines will, at no remote date, result in profitable returns.

To insure this, however, the monthly expenditure will have to be reduced much below the present, but it should be done gradually, all round, in an unostentatious manner, thus avoiding any unpleasantries with the Natives.

NEW EXPLORATORY WORKS.

These were brought to my notice late, and to give the Messrs. White an ample opportunity to have the trials made and to allow me time to examine their progress and appearance, I intimated to Mr Donagan in the beginning of August last that it would necessitate my remaining over at Salada another month. The number of promising places first announced by the Messrs. White were seventeen as per accompanying list, but these finally dwindled down to four. Notwithstanding my frequent urging them to have all the more promising places fully opened out in order that I might thoroughly investigate them.

No. 1 Garibaldi depression (situate on the line boundary of the old F. B. and the Garibaldi proper).—This occurs as a small round Indian pit about 15 feet deep from the bottom of which a small hole is extended near the footwall of the lode. I advised that the new cutting leading to it should be extended through the lode

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to ascertain the continuity of the lode in depth a sink should be made at the bottom.

But these works for some reason best known to managers were not done before the eve of our departure, when Messrs. Donagan and White and myself visited them, when I found the works instituted had been totally different to my advice, and the consequence was that from the open vertical cutting the rains had brought down the sides and covered all the bottom, thus preventing my seeing the most important point.

The lode composed of irony stained quartz containing in places traces of gold varies in width from 4 to 6 feet. This spot has unfortunately no water near it, and to convey the ores either to Córdoba or Rosario would entail a large outlay in deep tunnelling and tramway, to justify which valuable discoveries should be first made.

Near the forementioned spot, a second No. 2 small level has intersected the same lode, but it is not so large, nor so promising. I had consequently suggested its being driven further, to prove if any more lode existed beyond; this was not, I believe, complied with.

"*Rosario Brook*" (see plan).—Wending north and south, and on its eastern side are numerous blocks of lodey matter highly mineralized, containing traces of gold. Had this been in an elevated position, free from all interference by water, and on a level with the Salada mills, it would perhaps be of considerable importance to the Salada mine, but being in the bed of the brook, I attach little value to it; the width of the lode varies from 1 foot to 15 inches.

"*Coco Brook*."—Distant from Salada about half-a-mile (see plan), in a southerly direction, occurs a lode from 15 to 18 inches wide, with an almost vertical angle bearing north-west, presenting rather an inviting appearance near the surface, as though by deeper workings it would reveal something of tangible value, but by a level intersecting the lode about 20 feet deeper, the lode has narrowed out to a mere thread of clayey matter, mingled with a little

quartz of no value. Your managers, seeing this, discontinued the trial level.

In addition to the lode just noticed, is one in the bed of a tributary brook, from 9 to 15 inches wide, diffused with iron pyrites, with a dip of about 30° from the horizontal.

The appearance and conditions of this lode correspond almost identically with the Rosario Brook lode, and as both are in water, and when flooded, which frequently occurs by the mountain torrents, both lodes would be inaccessible. I, therefore, could not recommend your Board to expend any capital on them, only, if found very rich would it answer to work them.

Permit me to observe that, had the lodes in your mines an angle of 70° to 80° instead of 30° to 35° it would make a difference in your mining costs of, perhaps, 30 per cent., *i.e.*, conveying the stuff to surface, and the reduction in timber.

I examined the Garibaldi section, commencing on the road, numerous Indian pits and workings occur on either side of it. Numerous fragments of disintegrated lodey matter present themselves *in situ*, and scattered over the surface, but nowhere of an inviting character.

Digressing for a moment, I would here observe that, one cannot well omit to mention the intuition of the ancient Indian who seemed almost to have an inspiration in exploring the rich, as well as other lodes, over an area of great expanse. Perhaps no other Indian race has ever excelled them in seeking for auriferous lodes.

Though it is intended, at some early opportunity, to institute numerous inexpensive mining trials here, in which, however, I have little hope that they will develop anything rich.

Proceeding on the road occasional indications of veiny matter occur in a very broken and disturbed condition. Continuing brings us to the Garibaldi House and six-head stamping mill, all of the latter, however, is in utter ruin.

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About 40 yards from the mill is the shaft full of ... with fragments of inferior vein stuff seen in places. ... nessed nothing here to indicate that this mine ... laced anything of ... able value, and were ... a pl... spot its supp... er is too limited to be of a... ... as ... either for pumping or reducing the ores.

Seeing the general unpromising nature of this pro... rty it is scarcely needful for me to say more than it is ...uch that I have a very unfavorable opinion of it.

This mine has been idle for a considerable time, and very properly so I should say.

I now beg to submit these long and dry details of ...our property, regretting much that they are not of a ...hter nature, trusting that they will afford you all the ...rmation my mission required of me.

In mines so fluctuating as these I have described it would be impossible to furnish such a Report as I could have wished.

I have, however, throughout these reports adhered, ... far as my judgment guided me, within the bounds of ...s; and have ventured to predict the results of the ...ure, believing they will be realized.

With this reservation that many of your mines have now attained such depths that it would be beyond human intelligence to say positively what changes may occur in the further deepening of your mines, but I repeat that with reduced expenditure and skilful and economical working good results at no distant date may be anticipated.

FILIPINAS MINE.

I will now notice this mine which has from the commencement been worked on tribute in a very creditable manner.

This mine consists of four levels taken up on the side of a steep hill, in addition to these are ventilating rises to the several levels, as well as a rise communicated

to the surface, this presenting on the whole a much better condition than many of your mines.

This has been attained by the system employed by the tributer in extracting only the shoots and other profitable portions of the lode, leaving all other parts of the lode undisturbed as pillars to sustain the workings.

Had your managers followed this principle an enormous saving would have made in the annual consumption of timber, and your mines would not present the picture that some of them do this day, with rotten levels almost impassable.

To this must be added, that had the plan above indicated been adopted, much better results would have been obtained in the past and the mines worthy of further trials would have been at this time in a much sounder condition to work with economy.

In returning to Filipinas I should further notice that near the end of No. 1 level, and for some distance behind it the lode has produced some rich ores and in a small cavity in the roof it still exhibits much free gold.

The estimated amount of rough ores now standing available for stoping between Nos. 1 and 4 adit levels is computed to be 2,200 tons, after making due allowance for unproductive pieces of lode, pillars, &c. The lode wrought in averages 2 feet wide, sufficient to supply the 8-head mill 14 months.

For some months past this tributer has in preparation a new ten-head mill, which, when complete, will be devoted to the reduction of the ores of the Frontino and Bolivia Company, and the old mill to reduce the ores of the F. & B. Company.

I should inform you that the tributer has been working out of the Company's boundary, in consequence of which he will not pay the usual tribute of 20 per cent., as a portion of it will be paid to the New F. & B. Company.

Viewing this mixed business, much attention is needful to guard equitably the interests of the two companies, as also to compel the tributer to work honestly the

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F. & B.'s mine, through which he wheels all the ores from both mines.

POPALITAS FARM *(see plan)*

Consists of about 57 acres of grazing land, but in places bushy undergrowth presents itself, and if not checked will soon destroy the grass. A considerable quantity of the grass grown here is termed para, and it is considered a good class for fattening bullocks.

Through the valley, which is narrow, a sluggish stream of water flows; and on either side of it, in places it is too boggy for animals to feed on with safety.

Beyond, on both sides of the valley, on the steep hill sides, are rather extensive clearings of bushy pasture: when cleared these will add to the area of grazing land in the wet season very materially.

But unfortunately these elevated lands are capricious in their yield of grass, and in their duration are soon exhausted.

This farm being cleared out of the forest is consequently surrounded by it. It is distant from Salada about three miles, intervened by very steep undulations as it nears the farm.

The farm grazes about 30 oxen engaged in drawing timber to the several mines, and from its contiguity it is of great convenience in supplying the mines.

The supplying of timber for surface works and underground purposes, including all charges, is one of the most important factors in the monthly costs.

A new foreman's dwelling-house has recently been erected here.

CUTURÚ FARM

Is distant from Popalitas about 3 leagues, over a road cut through the forest, from 12 to 15 feet wide. In places the road is very difficult, particularly over the very steep mountain ridges.

The first section approached is the upper or Candelaria, planted in maize, rice, &c., but neither of these present any vigorous growth, as the soil, consisting of coarse, granulated quartz, imbedded in granite, affords but scanty nutrition to the plants.

Most of the rice is growing on the precipitous hill sides, and in small patches looks healthy and strong. This is rather a novel feature, as this plant is generally grown in rich, damp, alluvial soil.

The valley beneath these hills is very narrow, with a small brook flowing through it. Interspersed are clearings and extensive undergrowth from last and previous year's planting.

I may remark that all the steep hill sides having coarse, gravelly soil, will, with their exposed positions to the annual floods, soon be exhausted.

Contiguous to these lands in the several windings and curved hills are many patches of clearings, intercepted by small plots of inferior grass.

Following down La Candelaria stream a wood fence traverses the valley to the rising hills o[illegible]. Here commences expansion of the vall[illegible] pasturage and patches of clearings on t[illegible].

Below the fence the pasturage is o[illegible] quality of grama grass, natural to the soil, a[illegible] said to be very sustaining to domestic animals generally.

In and around the foreman's cottage a considerable area of average grazing land presents itself, in which are kept a number of cows and young stock as per accompanying list, and although these animals are constantly kept on the pasture they maintain a healthy appearance.

Proceeding a short distance down the valley from the house the Candelaria is joined by the Cuturú stream, forming at flood time quite a river.

Following down the river we have on either side on the hills new clearings, whilst in the intervening flat meadow land spreading out spaciously occurs, of good quality, and in the hills, mixed grasses, but only in the rainy season of any magnitude.

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From this last section to the extreme end of grazing land the grass is in most luxuriant condition, and in the ... I saw it, was capable of sustaining a much larger ... of stock than were then grazing on it.

... er part of the Cuturú "La Llam" is sown ... and a patch of castor oil plants.

In the course of erection is a small crushing mill with the necessary plant for boiling the cane juice, and converting it into sugar. Considering the very low rate sugar is sold at in Remedios and neighbourhood, much lower than the Company can make it for, I therefore do not hesitate to say the result will be a losing game.

It is also intended to erect a machine to husk the rice all of which to be worked by the same water-wheel erected for the purpose.

The clearing in "La Llam" consists of—

	Acres.
Ground planted with cane, nearly ripe	15
" " Indian corn and young cane	12½
" " " "	18½
" " plantain and yuca.....	1
	47
Cleared of wood for future cultivation	12½
Total.....	59½

Summary of the Candelaria clearing—

Ground sown in maize and part in rice	100
" with rice only	25
Undergrowth from last year	120
Total.....	245

Lower Candelaria—

Undergrowth nearly ready for converting into pasture.....	42½
The Candelaria meadows	65
The Home Meadows	65
Culture	50
The Lower Meadows in oxen.....	20
Upper Culture Meadows.....	20
Total.....	262½

Total of clearings of all descriptions ...	709½	acres.
Popolnas Farm in grass land	57	"
New clearing now begun.....	42½	"

I regret that with the foregoing array of figures and large expenditure, any real profit has not accrued to the Company, nor do I entertain any favorable opinion that they will. To make them pay, they must be managed in the native style.

CURANÁ FARM (*see plan*)

Distant from Salada about 4 leagues and within half-a-league from the public road.

The dwelling-house here contains four rather spacious rooms in a defective state, requiring early repairs ere it gets much worse; the kitchens are in a most dilapidated condition.

These buildings occupy a level plat about 35 feet above the main road. The pasture land gently slopes from the houses on all sides.

In the front of dwelling east, we have a pretty scene of broad undulating pasture of grama grass, computed to be 125 acres, with a brook of good water flowing on one side throughout. The surrounding woods give the farm a very panorama-like appearance.

This pasture is said to be very good ... mules when in low condition as well as fatte... and young stock. In a small valley south o... stream and on the lower hills and glens are 25 acres ... sugar cane in the course of cutting and crushing, whic... is estimated to occupy some four months from the date ... my visit.

It is only the canes in lower lands that will pay for reduction.

Surrounding these cane fields and the whole of the pasturage land is bushy wood of various stages, in proportion more or less to the time they were last planted.

Beyond this is the native forest with which the State is surrounded, numerous spots showing large areas that have been cultivated for maize, &c.

The bottom soil, so far as I could judge, is different to the Cuturú, inasmuch as it is more pebbly and sandy than the latter.

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The surface, however, is free from any stony or gravelly matter, and, viewed under all conditions, is best adapted for grazing purposes.

At the time of my visit the grass as a whole did not present a healthy appearance, which I attribute mainly to the want of sufficient stock to eat it down in proper time. The same defect has occurred at Cuturú from the same cause.

Cuturú being a much newer farm, it consequently exhibits more vigorous growth of herbage.

The sugar mill at Curaná consists of three small wood rollers, impelled by a wooden arm attached to the centre roller; this arm is drawn around at a swift pace by two ponies.

To the west of the house is a large flat valley equal in area perhaps to the entire pasturage and clearings of the present farm, say 125 acres; but to clear the wood and to make it into clean grazing land would cost about 30s an acre. This I could not recommend your Board to adopt.

Palmichala is the only mine it favors by keeping oxen employed there in drawing timber, and recruiting them when broken down.

Perhaps it were well if a suitable offer were made to dispose of this farm. I am informed that it contains some 15,000 acres.

In making numerous enquiries of the more intelligent natives, I could not learn that any of the reclaimed forest lands, even with the most industrious and thrifty natives, paid quite 5 per cent. on their outlay.

Now such an enterprise for an English Company, with all its extra expenses to meet, could only be justified by extreme emergency.

Stock on this farm at the time of my visit.

Working Oxen	47	Calves	2
Fattening do.	13	Rearers	6
Mules improving	14	Pigs	2
Horses	8		

I should also observe that the number of cattle, mules, horses, &c., kept on your farms are too few and fluctuating to make them a profitable source to the

Company, nor could I at present recommend any increase to be made.

POCUNÉ FARM

Consists of very steep hills slanting towards the Pocuné River. It is planted with maize, sugar cane, &c., and representing probably sixty acres more or less, exclusive of considerable areas of wood clearing.

It was only on the eve of my departure from Salada that it was named to me, and all I saw of it was accidentally passing through it on the 19th October last on my journey to Saragossa.

I was informed that it was farmed by Mr. R. White, and a native (Salvador)—further I do not know.

GENERAL ACCOUNT OF ANIMALS OF ALL CLASSES ON THE F. & R. COMPANY'S ESTATE.

Cuturú Farm	Cows and calves in good condition	161
	Oxen	36
Curaná Farm	Cows and calves	6
	Oxen	56
	Mules	14
	Horses (pack) for turning sugar mill	8
Salada Farm	Draught oxen	10
	Saddle and cargo mules	43
	Cargo mules unfit for hard work	3
	Ditto totally „ „	1
	Saddle horses in good condition	6
	Milch cows with their calves (9)	18
Silencio	Bullocks	6
	Horses for whims	6
Cecilia	Oxen	3
San Joaquin	Bullocks	3
Tigrito	Oxen	2
	Whim Horse	1
Rosario	Bullocks	2
Córdoba	„ „	6
Palmichala	Cargo oxen	14
Cecilia	Oxen	6
Popalitos Farm	„ arrastre	32
Palmichala	Bullocks	2
Pocuné	„	2
V. R.	Horses (in poor condition)	2
No. of pigs on the farms, &c.		41
		493

The number of animals kept on the various farms is continually changing.

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Sands.—Before closing this Report, I should draw the Board's attention to a very exhaustive tabulated statement of all the heaps of sands at the various mines, which, their quantity of about 25,000 tons, and value assays made in 1882-83, represent a very favor. I have brought with me two large s.s, duly labelled, and I would suggest that these samples should be assayed in London, as a check upon the assays made in Colombia, and should it be found that the contents of the sands are equal to what may be expected, it would be desirable for the Company to adapt some of the mills to their reduction.

Conclusion.—To carry out the recommendation contained in my Report, and to accumulate reserves in the mines necessary to equalise the profits, I would advise the Directors to raise a sum of £20,000 (say Twenty thousand pounds); of this sum £7,000 should be spent in economically developing the mines in the most intelligent, miner-like manner, and bringing them into a profitable position; £3,000 should be laid out in improving the machinery and erecting the necessary concentration works; the balance of £10,000 should be held in reserve for further development of the mines if required.

(Signed) Hy. CLEMES.

23rd *Dec.*, 1884.

There has been a falling off in the returns of 137 ounces, owing to the dry season, which has caused some of the Mills to do only half the usual duty, and the expenses during the month have been higher, owing chiefly to the heavy outlay at Salada Mine in laying down a tramway from the Mine to No. 1 Mill, and in further improving the gear for pumping at the shaft.

The dry weather has very much improved the condition of the roads, and provisions are somewhat lower in price.

By order,

J. JAMESON TRURAN,

Secretary.

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Tomado del archivo de la gerencia
F. G. H.
Libro: Informes de Gerencia
de los años: 1885

titulo: Informe ~~FIRST~~ Mr. Clemes

1885

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THE

PROVINCIAL AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company,

LIMITED.

DIRECTORS' REPORT AND BALANCE SHEET

FOR

ANNUAL MEETING OF SHAREHOLDERS

TO BE HELD AT THE

CITY TERMINUS HOTEL, CANNON STREET, E.C.,

On the 1st March, 1886,

At One o'Clock p.m.

NOTICE IS HEREBY GIVEN, that the next ANNUAL MEETING of the Shareholders of this Company will be held at the CITY TERMINUS HOTEL, Cannon Street, in the City of London, on Monday, the 1st day of March, 1886, at One o'Clock p.m., for the following purposes:—To receive the Report of the Directors, and the Audited Statement of Accounts of the Company for the Two Half-years ending the 31st December, 1881, and 30th June, 1885; to elect Directors; to elect an Auditor; and for other business.

By order of the Board,

J. JAMESON TEURAN,
Secretary.

182, GRESHAM HOUSE, OLD BROAD STREET,
LONDON, E.C., 12th February, 1886.

Directors.

RICHARD DONAGAN, Esq., *Chairman.*

HONOURABLE F. C. DRUMMOND.

GEORGE D. HARRIS, Esq.

C. FREDERICK LOWE, Esq.

R. P. D. MONYPENNY, Esq.

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TO THE SHAREHOLDERS

OF THE

Frontino and Bolivia (South American) Gold Mining Company, Limited.

184, GRESHAM HOUSE,
OLD BROAD STREET,
LONDON, E.C., *5th January, 1885.*

The Directors beg herewith to forward a print of Mr. Clemes' Report, detailing the results of his recent visit to the Mines.

It will be seen that it is practically divided into two parts—the first being a minute description of how he found the mines on his first inspection in July; the second being a description of how the mines stood at the time of his later inspection, and this latter part contains his recommendations for the future working of the mines.

It was originally supposed that the result of Mr. Clemes' visit would have been to effect an almost immediate reduction in the expenses, by lessening the number of men employed, and otherwise effecting promptly important reforms; but he found that the managers, although doubtless well aware that their mode of pro-

ceeding had brought the mines to their present condition, yet vigorously contended that it was the only right one, and that any enforced changes would be prejudicial to the interests of the Company.

In addition to this it was found that to inaugurate a new programme the immediate command of further capital would be absolutely required.

It was evident that had Mr. Clemes laid down a new programme, and had the Director who accompanied him ordered it to have been carried out, a serious derangement in nearly all the mines would have taken place.

Accordingly it was determined to stop certain injudicious and expensive works in the centre of the Salada Mine, and in the upper levels of Silencio, and to carry out all other reforms from England after full consideration.

Mr. Clemes recommends that all the mills shall be altered and improved—their present construction being wasteful of the gold contained in the ores. Also that in future the mineral to be extracted from the mines shall be reduced in quantity, and that only selected mineral shall be taken out—the effect of this would be, firstly, to save the cost of milling ore too poor to pay, and to save waste of gold out of the richer ore, caused by the poorer ore in being passed through carrying away gold with it, and secondly to reduce the cost of timbering, as the poor ore so left in the mines would help to support the levels, in places which must be supported by timber, if it be taken out.

In Cecilia Mr. Clemes recommends the vigorous sinking of the shaft and the driving of levels at a proper depth, and at a sufficient distance apart, to open in a

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miner-like way the splendid lode of this property. In order to provide the pumping wheel now in action for this shaft, one of the stamps of Cecilia has been abolished, but it should be mentioned that when the above works are executed and a good lode opened, it would doubtless be profitable to construct a tramway to the late V. R. mine, where works have been stopped for want of mineral, but where there is ample water power, and the V. R. 12 heads now driving small arrastres for Cecilia sulphurets could then be run on ores to be obtained from such new and deeper levels.

In San Joaquin Mr. Clemes does not approve of the proposed extension of the No. 3 level on Salada lode to drain the Salada mine. The distance, about 260 fathoms, is too great, and the depth at which it would come in is too little, to render it desirable.

The work going on at San Joaquin consists of taking out the remaining stopes from one level, and exploring in another. Mr. Clemes is of opinion that so soon as the stopes referred to are exhausted, this mine should be stopped, unless in the meantime the exploratory level should disclose good ground. The Directors, however, having regard to the general tenour of Mr. Clemes' report, and seeing that monthly losses have for a long time been going on, considered it expedient to stop work at the mine, and accordingly instructions to that effect went out by the last mail.

In the Silencio Mine Mr. Clemes is of opinion that the 150-feet level south affords good prospects of improving, and he advises the further sinking of the north

and south shafts and the driving of levels therefrom. He considers that profitable results will attend these operations, provided they are skilfully, energetically and economically managed. The adit driven from the Maria Dama Valley and the adit driving off from the 103-feet level may not be made to communicate so soon as the managers anticipate, but when it is effected it will drain the mine to the 103-feet level and require the water from below to be raised to that level only, instead of to surface. The inferior plywerk with which the mine is supplied may then suffice for a time to drain the mine to the increased depth involved in sinking the shafts further.

In the SALADA MINE besides the abandoning of a number of useless levels, Mr. Clemes recommends some trials to discover how the lode goes down, and immediately thereupon to start the sinking of a shaft. This would require a pumping wheel, which can be readily supplied by the abolition of No. 1 stamps. The remaining 24 heads of Nos. 2 and 3 stamps would afford ample stamping power for the mine.

In the TIGRITO MINE some works are already in progress for reducing the cost of extraction. Measures will have to be taken to drain the mine below the No. 5 level, and before long a shaft must be sunk. Whenever this is begun means will have to be devised for supplying pumping power.

In CÓRDOBA there are numerous places where ore may be expected to be got out for some time to come. In the immediate future the No. 6 cross cut is relied upon

a poc de arrabre, galeria de ctracio's

to drain the main level and intersect the Córdoba lode south, for more remote operations a deeper level will have to be driven. The Managers have prepared and submitted plans for such deeper level, by means of a tunnel or cross-cut from the Tigré Valley. Mr. Clemes, however, is of opinion that the work is too onerous to be undertaken under the present limited information as to the lode, and has verbally stated that some shorter level calculated to intersect the lode at a less depth should be first constructed.

In the ROSARIO MINE Mr. Clemes is of opinion that deep tunnelling would not be attended with success. He then describes at length the operations before referred to as being contemplated by the Managers for the development in depth of Córdoba.

In PALMICHALA MINE Mr. Clemes points out that the future prospects depend upon further explorations at the end of the 95 level north, and in two rises proceeding upwards from such level, and two winzes sinking below it. Since his inspection the end of the level has materially improved, and later advices announce that the yield has been satisfactory. Mr. Clemes does not approve of the construction of an adit having been resorted to in this mine, but as it will be seen that the pumping power of the machinery erected is not sufficient to keep the bottom of the shaft free of water, and a great expense had been gone to for the adit before Mr. Clemes' visit, there is now no alternative but to complete it. When completed it will have the effect of draining the mine down to the 65-feet level, and of necessitating the raising of the water below to

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the 95 feet only instead of to surface, the effect of which will be to relieve so far the pressure upon the machinery, and enable the shaft to be sunk deeper should it be deemed expedient.

Unfavorable as Mr. Clemes' report is in many particulars, it will be seen that he is of opinion that the different points shortly alluded to above, will prove profitable, provided rigid economy is exercised: and that he is quite clear that the present rate of expenditure can be greatly reduced.

The Directors desire to take this opportunity of announcing to the Shareholders that after full consideration of Mr. Donagan's statements and Mr. Clemes' written and verbal reports, the Board have accepted the resignation of Mr. Robert B. White and Mr. Franklin White, which they tendered conditionally to Mr. Donagan before he left the mines. This will take effect in May next, and the Board are now directing their attention to providing new management for the mines.

The Annual Report of the Directors will now be prepared without delay, with a view to a General Meeting of the Shareholders about the end of the present month.

By order,

J. JAMESON TRURAN,
Secretary.

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Tomado del Archivo de la F. G. M.
Libro: Informe de Gerencia.
De los Años 1884 Dic. Hasta
Enero de 1888.

Titulo: informe de los Años 1883-84-85

Informe de Mr. Gifford
1883 - 1885

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THE

FRONTINO AND BOLIVIA

SOUTH AMERICAN

Gold Mining Company, Limited.

84, Gresham House,
Old Broad Street,
London, E.C., *29th January, 1886.*

The Directors have received a letter from the Mines dated the 4th December last, and a letter from Messrs. Restrepo dated 12th December. The detailed Accounts for October, of which only a Summary was to hand at the date of the last circular, have now arrived, and they confirm the figures contained in the summary.

For the month of November a summary of the Accounts has been forwarded, the detailed Accounts being similarly delayed, and the Gold has arrived. From such Summary the following statement has been prepared for the month of November:—

1,241 ozs. 13 dwts. valued at (including Exchange)		£4,362 0 0
Cost at the Mines, at Medellin, and in London	£4,517 0 0	
Gold bought of Tributers	627 18 7	
Allowances for sundry fluctuating items not immediately ascertainable	75 0 0	
		5,219 18 7
Estimated Loss.....		857 18 7

This result is partly attributable to a large sum which appears in the Summary to the Account of General Agency, the particulars of which, when ascertained, will be found to be chargeable, in part only, to the month under review.

It should be noted that, although Mr. GIFFORD arrived on the 2nd of November, he did not take over the management, which was continued by Mr. FRANKLIN WHITE, at Mr. GIFFORD'S request, during the whole period covered by the above Accounts.

The Board have received a Preliminary Report from Mr. GIFFORD as to the general state of the Mines, which is, on the whole, favorable as to future prospects, and confirms, to a considerable extent, the Report of Mr. CLEMES.

Mr. GIFFORD'S Report is now under the consideration of the Board, and the details, with the opinion of the Board thereupon, will be embodied in the Annual Report to be laid before the Shareholders at the General Meeting, which it is intended to hold shortly after the arrival of the next mail.

By order of the Board,

J. JAMESON TRURAN,

Secretary.

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DIRECTORS' REPORT.

84, GRESHAM HOUSE, OLD BROAD STREET.

LONDON, E.C., *17th February*, 1886.

The Directors beg leave to submit to the Shareholders their Report, together with the Accounts duly audited for the two half-years, ending respectively the 31st December, 1884, and the 30th June, 1885.

In July when the Half-yearly Meeting would, in the ordinary course have been held, the Board were without any but the most meagre advices, owing to the occurrence of a revolution in Colombia, so that even the Accounts to 31st December, 1884, could not have been submitted, and as it was not until the end of November last that regular communications were restored, the advices arrived too late to allow of any Half-yearly Meeting being held.

The following is a Table of the returns of the Mines during the three years which have elapsed since the Directors' Report of January, 1883, that being the last occasion when information of that kind was given by way of tabular statement :—

	12 months to June, 1885.		18 months to June, 1884.		12 months to June, 1883.
Tons of mineral stamped... ...	22,080	...	34,577	...	32,195
Produce—Ounces of gold ...	17,619	...	23,715	...	29,603
Average yield per ton	16 dwts.	...	13½ dwts.	...	18½ dwts.
Ounces bought from Tribuners	1,190	...	1,579	...	2,519
Value of total gold with profit on Exchange	£55,356	...	£69,184	...	£84,373
Total expenses, including depreciation	£58,663	...	£71,368	...	£73,083
Expended on Capital Account*	Nil.	...	£521	...	£5,157

It will be seen from the annexed accounts that for the six

months ending the 31st December, 1884, there was a loss of £215 11s 8d, and that for the six months ending 30th June, 1885, there was a loss of £2,465 4s 1d. Showing a total loss for the year of £2,680 15s 9d. These amounts, however, include the sums written off for Depreciation, and they amount together, for the two half-years, to £2,773 4s 6d. In addition to the item of Depreciation some special items of expenditure have occurred during the half-year, to the 30th June, viz., £835 10s 5d for travelling expenses of the new Managers, and for their salaries from the 2nd March, the time of their engagement, to the end of the half-year; £79 for interest on Loans in England (since paid off); and £797 for interest to Messrs Restrepo. The greater portion of these items are attributable to the Revolution, especially the item of interest to Messrs. Restrepo, which is wholly in consequence of it, inasmuch as if the gold had been remitted month by month as in time of peace no interest whatever would have been payable in Medellin.

The value of the gold, including that raised by tributers, exclusive of profit on Exchange, amounted to £28,090 for the six months ending December 1884, being an increase of £2,981 over the value of that of the previous half-year, but showing a decrease of £4,094 from that of the corresponding half-year.

The like value of the gold for these months ending June, 1885, amounted to £16,116, being a decrease from that of the previous half-year of £11,943 and showing a decrease of £8,962 from that of the corresponding half-year.

Such decrease of the gold for the six months ending June, was chiefly attributable to the Revolution which broke out on the 2nd January, 1884, and was in progress during the whole of the half-year.

The like value of the gold for the twelve months ending June, 1885, was £44,175, showing a decrease of £13,056 from that of the previous year, of which, as above stated £4,094 occurred in the first half, and £8,962 in the second half of the twelve months now under review.

It is satisfactory to state that the Revolution which has thus interferred with the produce of the Mines, and in a variety of other ways has militated against the Company, came to an end in August last, and that by October the country had become so far settled as that the gold accumulated during the Revolution was sent down to the coast and safely reached England in November.

During the Revolution, work at the Mines was never actually stopped, as has been the case on some previous occasions, but during the whole time the business of the Company was much hampered, owing to the departure of many of the captains and men, the unsettled state of many of those who remained, and the interruption of the ordinary means of communication in the country.

The usual statements as to work done in the Mines have been suspended since December, 1884, and the only information on the subject is that derived from Mr. F. White's short reports of January, February, and October, 1885, which have been published. The most important matter therein mentioned, was in the October report to the effect that the Adit to the Silencio Mine had reached the level from the shaft.

Advices which have been received since indicate that owing to interrupted work, a great deal that would have been done month by month on the Mines was necessarily postponed, and that these works with the addition of repairs of the damage resulting from the postponement have now to be carried into execution.

In the last Annual Report, it was mentioned that the resignations of the Messrs. R. B. and F. White, had been accepted. As their notices expired on the 27th of May last, the Board engaged the services of Mr. Samuel Gifford, as superintendent, who with his assistant sailed for Colombia on the 2nd March.

On their arrival at Barranquilla, they found themselves unable to proceed further owing to the war, and after spending ten weeks in fruitless endeavours to get on, they returned to England. On the 10th September they sailed again, and Mr. Gifford after paying a visit to Medellin, to confer with Messrs. Restrepo, arrived at the Mines on the 2nd November. In the meantime

Adit – galería de extracción
Shaft – trenera, pique

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the Messrs. Restrepo, acting under power of the Company, had placed Mr. Franklin White in the position of Temporary Superintendent from the expiry of his notice until the arrival of the new Superintendent. The last letters received mention that Mr. F. White departed from Salada on the 6th December.

The last Annual Report, after referring to the Report of Mr. Clemes upon his inspection of the property, also mentioned that funds would be required, in order that the engagement of a new Manager might be made upon the basis of there being a limited capital at command wherewith to carry out the work of re-organization and development which would devolve upon him, and at the General Meeting the subject of the creation of a mortgage for any sum up to £20,000, and the raising thereunder of £10,000 on a first issue of Mortgage Debentures was explained. A circular, inviting subscriptions for such debentures, was directly afterwards sent out.

In response to such circulars the Directors subscribed £750 and the general body of shareholders £2,270: total £3,020. This sum has been of the greatest possible service to the Company by enabling the Board to meet all claims in this country as they arose, pending the non-arrival of any gold for a period of ten months, and also to pay the expenses incident to the change of management, increased as they were by the delay and the double journeys of the two officers, and to pay the claim of Messrs. Restrepo amounting, in the whole to £1,007, for interest on advances made by them to carry on the Mines pending the detention of the gold, but the amount remaining, after defraying the two last-mentioned items, and paying for stores now being despatched, is infinitesimal.

The money required to carry out the work of re-organization and development has still to be subscribed, and it devolves upon those shareholders who have not yet subscribed anything to give the matter their immediate attention.

Shareholders, instead of subscribing when first invited to do so upon the report of Mr. Clemes, seem to have preferred to await

the arrival of advices from the new Superintendent himself, stating what work he found to be necessary at the Mines. His report on the subject has now arrived, and is subjoined, and though it is necessarily not quite exhaustive, owing to the short time he had been upon the property when he wrote it, yet it indicates with great clearness what the work is that has to be done, and he gives an estimate of what funds are required to carry it out, and that they amount to about 60,500 dollars, and which will be wanted during the next twelve months. The above sum in dollars having regard to the rate of premium of exchange now ruling and that which may be confidently expected to rule during the forthcoming twelve months, is equal to a sum of about £9,000 sterling.

This amount is exclusive of the returns of gold in the meantime, indeed, on the contrary, some money will doubtless be wanted for current cost, inasmuch as Mr. Gifford unhesitatingly says that until the Mines are put into a proper working condition their produce cannot be relied on to produce the amount which will have to be expended as working cost.

When, however, the works to which he refers, and which he describes as absolutely necessary to put the Mines in fair condition, have been executed great economy in working will be established. It will be observed that in the case of the Silencio Mine Mr. Gifford says that the alterations he proposes to make will, he believes, reduce the cost fully 50 per cent., and that in the case of Salada savings in the ordinary cost of working will compensate for the unavoidable extra expense of working below water level. This latter remark may probably be taken as applying equally to all cases where working below water level has become a necessity.

One of such alterations is to lay down tramroads in the Mine to supersede the expensive system of transport by wheelbarrow, and it will be observed from the statement of the estimated cost of the contemplated reforms, that the putting of tramroads into all the Mines and in some cases from a Mine to

lay down: tramroads

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its stamps with the object of reducing the wheeling cost forms a large portion of the estimated outlay.

Proceeding to examine Mr. Gifford's report it will be seen that at present he proposes to confine his new work at SALADA to the sinking of two winzes. These would be sunk below the main tunnel, from the side of the cross-cut, and one of them would prove the main lode, the other the flat lode. They would in the course of their extension open out and develop a virgin mine under the old workings, and so relieve the Company from the expense which has pressed heavily upon it for some years of keeping such old workings open, and they would prepare the way for the sinking of a shaft at a future time in order to go deeper than the winzes would allow of.

At SILENCIO, as the pay ore has been taken away as fast as developed it will be necessary to sink the engine shaft 20 fathoms deeper and drive a level therefrom. It appears that the Adit driven from the Maria Diana Valley to the 103 feet level was commenced 8 feet too high, and hence that it will be necessary to raise the 103 feet level to that extent to furnish a continuous floor for draining and for taking out the ore by means of the adit.

At CECILIA the shaft has to be sunk 20 fathoms and a level driven. At this Mine it is proposed to construct the tramroad to the stamps of the V. R. abandoned Mine, which has for some time been regarded as most desirable, so soon as a sufficient supply of ore should be assured, and as this work is one marked with an asterisk, indicating it as an immediate requirement, it is evident that the extension of stamping power is not to be delayed till the shaft has been sunk and the level driven, but that Mr. Gifford sees his way to obtaining in the meantime from the shallow level already driven sufficient ore to keep both the Cecilia stamps and the V. R. stamps supplied until the proposed deeper level shall begin to yield.

At CÓRDOBA and ROSARIO the condition of each of the Mines is such that deeper explorations must at once be made to enable the returns to be kept up in the future. Mr. Gifford,

clearly, has not yet determined whether the plan of sinking a shaft in each, or of driving a deep cross-cut common to both would be the better course. He is, no doubt, studying the subject further before deciding, and the shareholders may rest satisfied that he will ultimately decide upon that course which full consideration and good judgment may cause him to regard as the better. There are, of course, many things to weigh carefully in arriving at an opinion. The advantages of a cross-cut are that it secures natural drainage down to the lowest point, and an outlet for the ore—the disadvantages are that it involves a long distance of driving, and a long distance of horizontal tunnel to keep in repair; the advantages of a shaft are that it goes direct down to the spot required with only that length of vertical opening to keep in repair; the disadvantage is that there is no natural drainage, and hence the water has to be removed by pumping, and the ore raised to surface by hoisting. Where power is not abundant and continuous the balance of advantage may be in favour of a cross-cut, though that again would depend upon the length necessary for it to go in at the level required, and the nature of the ground through which it would have to pass. All these points are doubtless being investigated by Mr. Gifford, and hence his election of the two modes open to him has not yet been made.

At TIGRITO deeper workings are also required to enable the returns to be kept up in the future, and here again Mr. Gifford has not decided upon the relative advantages of a cross-cut or a shaft. Having regard to the different amount of power to be obtained in the dry and wet seasons on the Mines, Mr. Gifford's ultimate decision will probably be arrived at after his experience of the dry season, which must now be prevailing at the Mines. Mr. Gifford evidently would prefer to resort to the deep cross-cuts in each case, if practicable, in order to concentrate in the Tigré Valley the stamping mills of Córdoba, Rosario, and Tigrito for the reason that a separate mill at each of these Mines is at present a source of great cost to the Company.

At PALMICHALA the asterisk shows that the first work to be

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done here is to finish the adit, so as to obtain natural drainage to the 95-fms. level. Mr. Gifford proposes then to make changes in the engine so as to sink the shaft for 10 fathoms and drive a level, and at the same time to make changes in the position of the Stamps, so as to take out the ore by means of the Adit and stamp in Mills to be erected near its mouth, instead of, as hitherto hoisting the ore to surface by means of the shaft and carrying the ore to the stamps in barrows.

Upon reviewing Mr. Gifford's statement of the several works contained in his estimate of their cost it appears that they may be briefly summarised as follows:—To finish the Silencio adit. To finish the Palmichala adit. To sink winzes at Soledad, the engine shaft at Silencio and the shafts at Cecilia and Palmichala. To sink a shaft at Córdoba and Rosario, or else to drive a deep cross-cut common to both. To sink a shaft at Tigrito or else to drive a deep cross-cut there. To drive a level at the bottom of each of the above-mentioned sinkings. To put tramroads inside the Mines, and in the cases of Córdoba and Rosario to extend such tramroads to the stamps, and in the case of Cecilia to extend the tramroad to the V.R. stamps. To make changes at Palmichala for the efficient draining of the Mine below the adit and for bringing stamps to the mouth of the adit. These works Mr. Gifford estimates at a total of 48,500 dollars, to which has to be added 12,000 dollars for timber for these works, which charge for timber will be required at the rate of 1,000 dollars a month for twelve months.

The Directors forbear to predicate what may be the result if funds for these works be not provided, but earnestly urge that an amount of Debentures sufficient to authorise the execution of the works recommended by Mr. Gifford should be immediately taken up.

Having regard to the very large amount of gold which has been raised from the property, and that none of the Mines have as yet been sunk to any considerable depth, and seeing that Mr. Gifford points out that all the Mines have fair sized lodes

with the usual proportion of gold holding down to the lowest point reached, there can be no doubt that further prosecution of the Mines will be productive of satisfactory returns. The Mines have hitherto been under the control of Managers who have proved themselves to be incompetent to develop Mines upon correct principles, or to execute the work which they directed in such a way as to carry it out with economy. The Board are satisfied that the operations of the Company will now be directed in a manner to secure proper development at the lowest possible cost; but, at the same time, that the Manager must have money at his disposal to correct the errors of the past, and to provide the appliances necessary for economical working. These preliminary conditions being fulfilled, by means of money to be raised on Debentures, the Board feel assured that the Mines will be brought into a profitable condition, and they look forward with confidence to the Debentures already existing, and still remaining to be issued, being discharged out of profits, and to profits thereupon becoming available for distribution among the Shareholders.

The Directors regret to have to refer to the occurrence of a storm on the 22nd November, mentioned at the close of Mr. Gifford's Report. A later letter from him states that the damages were being repaired at a cost estimated at $2,800 (£560).

The two Directors who, in accordance with the Articles, retire are The Hon. F. C. Drummond and Mr. R. P. D. Monypenny. They are both duly qualified and offer themselves for re-election.

Mr. J. H. Tilly, the Auditor appointed by the Shareholders, retires from office, and he offers himself for re-election.

Enclosed is a Proxy, which the Directors hope may be entrusted to them by any Shareholder who may not be able to attend the meeting. Proxies must be deposited at the Company's office not later than Thursday, the 25th instant.

By order of the Board.

J. JAMESON TRURAN,
Secretary.

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THE FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY, LIMITED.

Dr. *Balance Sheet 31st December, 1884.* **Cr.**

To	£ s. d.	£ s. d.	By	£ s. d.	£ s. d.
Nominal Capital: 72,000 Shares at £2 per Share £144,000					
„ **Capital Account, viz.:**					
Issue of 70,805 Shares—					
Received on 70,730 Shares at £2	140,160 0 5				
Do. on 405 Shares surrendered	556 13 5				
70,805	140,716 13 1				
Less—Calls in arrear	15 8 0				
	140,701 5 1				
Premium on Issue of *New* Shares	7,710 2 6				
		148,411 7 7			
Sundry Creditors		2,709 5 10			
Bills Payable		343 0 0			
Amount of Unclaimed Dividends		122 17 11			
Balance from Profit and Loss Account		18,538 0 5			
Bank—Imperial Bank..		1,000 0 0			
		£169,113 12 0			£169,113 12 0

Examined with the Books and Vouchers of the Company, and found correct.

18th *December*, 1885. (Signed) JNO. F. YELF, F.C.A., *Auditor*, 37, Queen Victoria Street, E.C.

THE FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY, LIMITED.

Dr. *Profit and Loss Account for Six Months ending 31st December*, 1884. **Cr.**

To	£ s. d.	£ s. d.	By	£ s. d.	£ s. d.
Expenditure in *England*:					
Auditor's Fees	10 10 0		By Gold Sales Account	29,030 17 11	
Freight, &c., on Gold	384 11 2		„ Profit on Exchange..	6,477 0 11	
Do. Machinery and Stores	75 6 5		„ Transfer Fees	7 11 6	
Commission on Gold Sales	318 3 3				34,544 10 4
General Expenses	83 18 7				
Insurance Account	158 3 3				
Stationery and Printing	23 3 0				
Management Account, including Directors' Fees, Secretary and Clerks' Salaries, Rent of Office, &c. ..	700 0 0				
Interest on Loans	22 2 7				
		1,755 18 3			
„ **Expenditure—*Bolivia Mines*:**					
Labor, Cost and Materials	30,438 13 7				
Gold Purchased from Tributers ..	1,032 5 1				
Sundry Expenses at Medellin, including Bankers' Commission, Expenses of Assays, Transit of Gold, Law Expenses, &c.	93 2 11				
		31,564 1 7			
„ Depreciation of Plant	901 8 9				
Do. on Amount expended on Capital Account	508 13 5				
		1,410 2 2			
		£34,760 2 0			£34,760 2 0
To Balance, Loss Six Months		£215 11 8	By Balance 30th June, 1884		£19,918 12 5
„ Inspection of Mines (balance paid to date)		1,165 0 4			
„ Balance carried to Balance Sheet		18,538 0 5			
		£19,918 12 5			£19,918 12 5

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THE FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY, LIMITED.

Balance Sheet, 30th June, 1885.

Dr. **Cr.**

	£ s. d.	£ s. d.
To Nominal Capital: 72,000 Shares at £1 each, £111,600		
„ Capital Account: Issue of 70,795 Shares, viz.—		
Received on 70,795 Shares at £2	140,490 0 0	
Do. on 695 „ surrendered	256 13 4	
70,795	140,746 13 4	
Less—Calls in Arrear	15 8 0	
	140,731 5 4	
Premium on Issue of New Shares	5,720 3 6	146,451 9 10
„ Mortgage Debentures subscribed .. £3,150		
Received thereon to date	3,150 0 0	
„ Sundry Creditors	2,631 8 6	
„ Bills Payable	867 0 0	
„ Amount of Unclaimed Dividend	121 10 11	
„ Loan from Imperial Bank	500 0 0	
	152,251 18 3	
„ Balance from Profit and Loss Account	16,049 14 4	
	£168,301 12 7	

	£ s. d.	£ s. d.
By Purchase of Mine and Expenditure in developing the Property, viz.:		
Purchase Money as per last Balance Sheet ..	41,276 13 8	
Expenditure in excess of Income from commencement of the Company, as per previous Balance Sheets ..	68,826 12 4	
	110,103 5 8	
Less—Realised by Sale of Frontino Mine .. .. „	23,358 3 11	
	86,745 1 9	
„ Balance of Amount expended on Capital Account (including expenditure on Plant during the year to 1st January, 1885, to the Shareholders, £93, after deducting proceeds realised on, as per last Balance Sheet £109,577 2 3		
Less Amount written off	456 19 1	
	19,321 4 2	
„ Plant, Machinery and Tramway at Mines ..	17,383 4 7	
Less—Depreciation	867 3 3	
	16,516 1 4	
„ 10,000 Shares fully paid up, Antioquia Company ..	10,000 0 0	
„ Advances to Shareholders on Debentures	10,000 0 0	
„ Debtors:		
Antioquia (Frontino)	5,389 15 10	
Do. Debenture Account	1,000 0 0	
Bullion in Transit, sold in August	2,000 18 10	
Do. do. 1885	272 11 7	
Sundry Debit of Manager's Account	6,339 1 11	
Do. for Debtors	1,091 11 5	
	305 16 11	
„ Cash at Imperial Bank	127 16 11	
„ „ on hand	33 7 11	
„ „ in Bond		
	£168,301 12 7	

17th February, 1886.

Examined with the Books and Vouchers of the Company and found correct.

(Signed) JNO. B. TILLY, F.C.A., Auditor, 37, Queen Victoria Street, E.C.

THE FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY, LIMITED.

Profit and Loss Account for Six Months ending 30th June, 1885.

Dr. **Cr.**

	£ s. d.	£ s. d.
To Expenditure in *England*:		
Auditor's Fees	10 10 0	
Freight on Gold	215 4 9	
Commission on Gold Sales	114 9 8	
General Expenses	58 18 2	
Insurance Account	46 10 0	
Stationery and Printing	61 11 8	
Management Account, including Directors' Fees, Secretary and Clerks' Salaries, Rent of Office, &c.	637 10 0	
Travelling Expenses of Officers to the Mines	208 0 5	
Income Tax on Profits	200 4 0	
Interest on Loans, &c.	79 6 9	
	1,781 5 5	
„ Expenditure at *Bolivia Mines*:		
Labor, Cost and Materials	17,091 11 4	
Gold Purchased	1,345 3 3	
Sundry Expenses at Medellin ..	203 7 2	
Interest on Advances made by Restrepo	707 14 10	
	20,127 16 7	
„ Depreciation of Plant	867 3 3	
Do. Amount expended on Capital Acct.	495 19 1	
	1,363 2 4	
	£23,272 4 4	

	£ s. d.	£ s. d.
By Gold Sales Account	16,116 16 6	
„ Profit on Exchange	4,683 16 3	
„ Transfer Fees	7 2 0	
	20,807 0 3	
„ Loss Six Months	2,465 4 1	
	£23,272 4 4	

To Balance down	£2,465 4 1	By Balance 31st December, 1884	£18,538 0 5
„ Debenture Interest Account	53 2 0		
„ Balance carried to Balance Sheet	16,049 14 4		
	£18,538 0 5		£18,538 0 5

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MR. GIFFORD'S REPORT.

LA SALADA.

4th December, 1855.

The Directors of the

FRONTINO AND BOLIVIA MINING COMPANY,
London.

GENTLEMEN,

Having now visited all the mines you are working on several occasions and examined superficially some of those leased to tributers, I am able to give some ideas respecting their condition, needs, and prospects, but I would preface the remarks with the observation that with seven mines in active operation to inspect, understand, and plan work for, besides studying and directing the other multitudinous affairs that have to be attended to, in taking over the charge and management of a large enterprise like this, my report on such matters, made in such a short space of time must, of necessity, be very imperfect.

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LA SALADA.

I commence with this mine as being one of the largest and lying around the central establishment. Incops a few unimportant blocks of ore ground in and about No. 2 gallery and a short piece at or near north end of No. 3 gallery north on flat lode, all the remunerative mineral open in the mine has been extracted and consequently future supplies are dependent upon what may be developed in extending No. 1 gallery on present bottom beyond the present ends north and south and in laying open the mine at a deeper point.

The lodes at the present bottom are reached by an adit cross-cut, and the main lode has been driven on north from this some 410 feet. The first 200 feet went through ore ground apparently, as all the lode above is extavated. The next 100 feet appears to have been in disordered rock, when the flat lode came in to the main lode from the west, and ore again made to near end. In the last 20 feet the level has shown a small vein of poor-class mineral only, and it cannot now be far from old excavations made in the time of the New Granada Company. The hope, therefore, of discovering more ore in this direction is small. On the north side of cross-cut the main lode has been proved by a drivage 220 feet long. This showed the lode 4 feet thick in places, but of an unremunerative character generally, whilst latterly the lode dwindled

to a mere division, and with no inducement for further exploration. A winze was sunk under the bottom level, on the main lode near cross-cut, some 25 feet, showing ore of fair quality 3 to 4 feet thick to bottom, and it is here explorations must be pushed. Sinking the winze deeper is very difficult on account of water, and it is thought advisable to come out in the cross-cut some distance, put in an opening in the side, and sink a perpendicular winze in the country rock to reach the lode at a proper depth, to drive out a level from, and prove the lode at this new bottom.

The flat lode has been opened on north at the No. 1, or bottom level, some 300 feet to its intersection with the main lode, developing good ore, nearly all the distance which has been excavated. A winze sunk below this 30 feet went down on the vein, showing 3 to 4 feet thick of fair stamping ore. Here, too, sinking was abandoned, though having too much water, and a new exploration in depth started by a perpendicular winze in the side of the cross-cut, intended to cut the lode at a sufficiently lower depth for a new deep level. The winze is now down 10 feet, and passing through decomposed felspathic granite.

South, the flat lode has been explored at the No. 1 level 350 feet and the end is now beyond any of the upper workings in that direction. The first 200 feet appear to have yielded but little ore, whilst in the remaining 150 the lode has given a fair return of paying mineral, and the stamps now are almost wholly supplied from this section. The end is still in ore and may continue so for some time, but is getting under Zanbullijallo Valley, and the height to surface is small. The driving of this level may be said to be the only real exploration made in this mine since Mr. Clemes' visit, and with his report before you, the present exhausted character of the mine down to its lowest level will be clearly manifested. The future, therefore, as you will at once perceive, in this mine rests upon exploring its lodes at a deeper point. The results of the trials in the winzes already sunk are very encouraging, but the trials are too limited to say anything more positive, and the first object with us must be to extend the explorations as rapidly as possible. The present reserve of ore in the mine will be long exhausted before returns can be made from new sections laid open, as even if the trials result favourably, much work must be done in putting down a shaft from surface with hoisting and pumping apparatus for carrying on the operations below water-level, previous to extracting any ore that may be developed there.

Both lodes operated on here have given pay ore over large areas holding down to the lowest level, and I see no reason why they should not continue to do so at much greater depths. The costs of working under water-level must naturally be proportionately higher, but I have seen enough of the work here now to

feel assured that this will be fully covered by improvements to be introduced into the system of mining.

San Joaquin.

Since the decision to suspend operations at this mine, it has been leased to a tributer for two years at 10 per cent. and 15 per cent. royalty until the first expenses have been paid, and 20 per cent. after. The latter will come into force next month, and the tributer asks that the lease be extended to three years. This I am inclined to grant, as he is a good man, but have postponed it until having time to examine the question properly. I defer giving a report, also having only inspected the mine superficially as yet.

Silencio.

In this mine operations have been carried on over a length of 1,200 feet, and all the pay ore developed has been excavated down to the 150 feet level. Four working shafts have been sunk—two for hoisting and two for pumping—the latter are in course of sinking, having reached 50 feet below the 150, and it might be thought driving from the bottom would soon develop lode to excavate, but an intermediate level has already been put out 27 feet, and the ore opened is already being extensively taken away at great cost. The returns for some time have in fact depended upon this source. The lode, as seen here and in the other levels to the 103, shows generally large, some 3 feet thick and of a favourable character. The paying portions of it are not so continuous as in the upper regions of the mine, and the ore has also fallen off in quality in depth, but being systematically laid out the mine could be worked cheaply, and should ore hold down I believe it would leave a profit. Except through the first 12 feet, the lode has been driven from the intermediate or 173 level to bottom of shaft, where it shows large, with good walls and favourable matrix. An improvement may be looked for any day in sinking, but much has to be done before any discoveries, however valuable, could be made profitably available.

At the 103 level a long adit cross-cut was brought in from the Marin Dama Valley in front of the stamping depôt to drain the mine and avoid pumping to that depth. This cross-cut was lately communicated and is found now to have been started 8 feet too high, the mouth being 2 feet higher than the bottom of the 103 level at No. 2 pumping shaft, when it should have been 6 feet lower to allow for fall in drainage. To make the cross-cut of practical service now the roof of the 103 has to be raised 8 feet at the shaft and gradually diminishing to zero at the point of

intersection with cross-cut and the bottom filled up in a corresponding manner; when this is done—it is already in progress—arrangements can easily be made to hoist all the ore, &c., to a little above the 103 only, discharge in a shoot deposit there, and take out thence by tramroad through level and cross-cut, direct to stamps for which the height is very suitable. This would lessen the hoisting height, as also the distance for carriage to stamps more than one-half, and extinguish the present clumsy and costly method of transport at surface.

Instead of sinking four shafts, as now, with innumerable winzes, levels, rises, &c., only one shaft will be used, (No. 2 pumping ditto) in which a skiproad will be placed from the 103 with good pumps adequate to any emergency. Levels will be put out and communications for ventilation made at conveniently economical distances and tramroads laid down to avoid the most expensive system of transport by wheelbarrow in use here. These, with other changes, I believe, would reduce the mining cost fully 50 per cent.

Cecilia.

This is an important and interesting mine from the lode differing entirely from all the others of the district, the ordinary characteristics of lodes here being that generally they are of small or moderate thickness only, with flat underlie in semi-decomposed granite, and carrying earthy matter and ferruginous quartz as gangue, whilst that of Cecilia is very large—fully 20 feet wide—encased in aluminous schist going down perpendicular and composed of bands of bluish, hackly quartz with talcose faces and a large band of steatic shale in the centre. The lode has been worked through a small hill, and the whole excavated down to the valley level on both sides. On the south a shaft has been sunk 26 feet and a gallery driven out north some 300 feet. No lode was seen for the first 80, when it was found small but spreading out rapidly to the size seen above, and this it carries to the present end, with every likelihood of its holding to the other side of the valley as in the upper levels. The water is now kept by a wheel working a small pump, and the ore is hoisted by a hand-windlass. The pumps will have to be changed and a whim put in for hoisting before the mine can be proved deeper. Over-hand stoping will have to be adopted also with continuous filling as the work advances to economise in timber and work with more safety. To exploit this mine with advantage the output of ore should be increased to at least 400 tons per month; this cannot be done except by increasing the stamping power in taking part of the ore to the old V. R. mill, and for this a tramroad must be laid. The ores from

the Cecilia are now generally of low quality, probably 4 oz. per ton yield at the stamps, when at their best, but as they can be got cheaply, working on a larger scale, they should leave a fair profit. The ores contain much pyrites with some rich galena. This will probably increase in depth, and apparatus will have to be devised to deal with it. Conical and percussion tables are being tried for concentrating, and they appear successful, especially the latter for collecting the galena and richer pyrites.

Córdoba.

Here a lode some 3 feet wide has been exploited over a length of 1,200 feet, and the lowest gallery has a vertical height to the crest of the hill of some 70 feet. This level No. 5 is open on the lode some 570 feet at south end of mine, and being just under Indian workings for half the distance, it has little ore above it there, but going north it gets into good mineral, holding £ feet to the level above. Farther south, under another ridge and from another little valley, a cross-cut called No. 6 has been put in and the lode cut and driven on north towards south end of No. 5. This is developing ore, and although the vein is small, 1 foot thick, it gives a good yield of gold, and promises improvement. South from Córdoba No. 6 is a piece of unwrought ground (except by the Indians), and it is probable something profitable may be found there. At the northern extremity No. 3 level is the deepest, and it is now being communicated with No. 5 on the same line. There are workings at present about this point showing rich ore. In the back of No. 3 north, reaching to No. 2, there is also ground being worked that carries a lode 3 feet wide with good ore, the lode, being broken up with cross-courses and running in parallel bands some distance apart, is difficult to follow, but altogether the mine looks very favourable, and had there been height of lode open proportionately to the length, the future of this place might be viewed with much complacency. Some scheme for exploring deeper will have to be decided upon early, and this must take the form of a new deep adit in the Tigré valley or shafts with pumps and hoist. I have examined the first scheme somewhat, but need to see more of it before deciding. An important and pressing work in this mine, both outside and in, is the laying of tramroads to facilitate and lessen the cost of transport of ores, &c.; more than half-a-mile should be laid at once.

Rosario

Is a continuation of workings on the same lodes as Córdoba. It has two principal galleries open, Nos. 2 and 3, the first corresponding in height nearly with Córdoba No. 3, and communicated with it, and whilst the latter is about on the same level as No. 5 of that mine. There are still small patches of remunerative ground to excavate between No. 2 and the workings above, but practically the ore to work lies under this gallery to No. 3, and even this has already been considerably operated on. The lode where seen shows from 2 to 5 feet wide, composed of drusy quartz and ferruginous earths—most favourable characteristics for containing good quantities of gold. There are several parallel bands of mineral in places, which render it puzzling to recognise the true lode, but as the most of them give ore enough to pay for excavating, on doing this in all the parent stock is eventually picked up. In this mine too, means of extending operations below the present bottom must be quickly found, or the reserves above it will be exhausted before new sources for keeping up the returns can be developed.

Tramroads are a crying want here too, and great lengths are required.

Tigrito.

This mine lies north of Rosario, but is on quite a distinct lode. It has two levels in operation. No. 4, which is entered from the valley on west side, and continues through a hill to another valley on the east, and No. 5, which starts from the latter valley by a cross-cut, picks up the lode and continues some 450 feet west. The lode is also driven back upon east from this cross-cut some 200 feet, where the ground is intact to ancient excavations, and the level extending into unexplored fields. In the west section there is an intermediate driving between Nos. 4 and 5, and from this to surface all the available ore has been extracted, the reserve to draw upon, therefore, is restricted to the small piece standing below the intermediate to No. 5, and what may be laid open in extending the latter beyond the present ends. The system of getting out the ore and débris from this mine is most defective and costly, and means for remedying this as well as for working below No. 5 must be applied at once. The first is already being attended to, by making a continuous line for hoisting from No. 5 to No. 4, and taking the stuff out the latter by tram direct to the stamps. The last can only be done by sinking a shaft, and providing hoisting and pumping power, or bringing up a deeper adit under No. 5 in the Tigré valley. One great source of cost in these properties is the innumerable multiplication of small establishments with their chiefs and fixed expenses, rendered necessary by the limited and scattered supply of power for stamping, and any scheme that would concentrate these establishments would make a great economy, and give opportunity for laying out suitable

apparatus to improve the present most primitive method of treating the ores. I think I see a means of doing this in providing for deep working in, the Tigrito, Rosario, and Córdoba raises from the Tigré valley, but the matter will have to be well studied before presenting it to you in form. A large area of lode has been excavated in Tigrito, holding down to the present bottom, the character of the lode is good, and there is every prospect of a prosperous future there, once the mine can be put into proper working order.

PALMICHALA.

Here, at South end of workings, the engine shaft goes down perpendicular 90 feet, where it intersects the lode and continues on it very flatly for 30 feet more. The bottom level called the 95 is driven out north some 600 feet, passing through ore ground some 200 feet to a winze sunk 30 feet on an average character lode. From the winze the 95 continues 150 feet through a disturbed zone with broken bands of good ore to a cross-course, where the lode appears to have a fault. Getting through this, a vein is taken up, and the driving continued on it to end. This vein has given ore in places, and possibly patches of it will pay for stoping, though, broadly speaking, it is not considered of value, and except this, all ore ground above the 95 has been extracted. New ground below must be opened therefore to begin making returns from again. The plans of the mine indicate that the ore held with constancy through a good length and depth; the lode also shows well along the present bottom. These form the best and only safe data for forming our opinion as to the future. The comparative expences of working are high: first, because lying at a greater distance than the others, control is more difficult, and, next, because having much water, steam-power has to be used. A cross-cut adit (Juan Criollo) has been driven to communicate with the 95 and take off the water at that point, and when completed, the cost of pumping will be reduced very much. Unfortunately errors have been made as to finding the line of lode in the cross-cut, and the latter has been driven 400 feet too far. Lately the proper line has been found, and it is hoped the communication will be made within 2½ months. Driving the cross-cut and the 95 is being pushed night and day, and dialling and levelling at this place have just been done with great care to make certain about the work. All endeavours are concentrated upon these two points of work to relieve us of the cost of the engine, and once completed, attention can be directed with calmness to the question as to what is best to do with the mine. Before attempting to extract ore, or of going below the 95, the engine must be changed to the other side of the shaft, a new boiler put in, connecting gear reconstructed, and the pumps arranged for sinking on the flat incline of the lode. A site must be fixed also above Juan Criollo for a hoisting shaft, and tram roads put in for carriage of ore to the stamps which will have to be changed over to this side and placed directly under the watercourse where there is fall for two or three setts. These things would provide for working the mine on a larger scale, which, I believe, is the only hope of making it profitable. It is clear from accounts and statements collected here that the mine, in spite of making good returns at intervals, has been working at loss during the past two years, and possibly before then, and unless some radical change, (such as that pointed out) be made, this loss must continue.

FILIPINAS.

I have made a hurried visit to this place and can only say the tributer is working well and that there appears to be a good quantity of ore opened. I have made inquiries as to the question of ore taken from the New Frontino and Bolivia Company here, and I must confess to not understanding how the matter came about, upon what principle it was arranged, nor who represented this Company's interest in the affair. Upon having more time I will endeavour to see into it further.

GARIBALDI AND ASTILLERO.

I have not been able to attend to the letting of these mines on tribute yet, but hope to soon.

RESUMEN AS TO THE MINES.

It will be noted from what I have written that the position of the mines at present is a critical one. Last year, as you were informed, the reserves were very low, now they may be said not to exist. The revolution drawing off the men and stopping many of the works almost compelled the suspension of exploratory works, whilst as returns were made the ore opened got gradually consumed. We have now reached a period when this can be carried no farther. Hitherto also many of the mines have not needed hoisting or pumping apparatus, now they are absolutely essential to farther prosecution. In others, deeper adits that ought to have reached the lodes long since have yet to be commenced, whilst the comparatively low cost of working above the water-level has to be changed for the heavier expense of deep mining. This is the dark side of the picture to which we have the following set-offs. The

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property is very large, and has numerous unwrought lodes on it known to contain considerable quantities of gold. All of the mines prosecuted have fair size lodes, with the usual proportion of gold holding down to the lowest point yet reached: and in none have the lodes given out in any way, although in some they have become poorer perhaps. The system of mining hitherto employed has certainly been most defective and costly, and the whole thing cannot be characterised better than by saying, it has been a large attempt to carry on mining without any practical knowledge whatever in the direction: the Superintendent having too many other important matters claiming his time and attention, and the captains and overseers being ignorant of the first principles even. The experience gained from the results, and even the errors of the past must be counted as advantages of much importance. Looking, therefore, at the prospect as a whole, I feel there is considerable room for hope. With time and money, to put the mines into a reasonable working state, I feel assured the actual mining cost on the quantity of ground excavated, and taking the ores to the mills can be reduced one-half, and as already indicated there is every reason to believe the ore will continue: we have thus a base to start from. Much can be done, I hope, also, in introducing economy in other departments, but I have been too much occupied to give them serious attention yet.

To give you a clear idea as to the relative value of the mines, I enclose a statement showing the actual results of the operations in each for the past year, and the ten months completed of this, as taken from the stamps and gold returns and cost sheets, the cost being calculated upon the totals for each mine, with their several proportions of the general expenses.

This statement demonstrates clearly that the mines Tigrito, Rosario and Córdoba, have made profits whilst the others have made losses or only just paid expenses. La Salada would have shown worse this year but for having suspended most of the exploratory work. Silencio is a serious question, as the loss is high, and has been an increasing one. The same may be said of Palmichala, though after communicating the 95 with Juan Criollo this may be changed. At Cecilia—unless the ore falls off in yield—I think the way is clear to changing the results into a profit.

From the absence of ground open in many of the mines, and the diversion of labour in new works for improvement, as also in repairs for securing the principal levels and shafts, (this work having fallen behind very much through necessity during the revolution,) it will be impossible to maintain the late returns or meet the costs with the gold extracted for some time, and I beg of you therefore to take prompt measures in providing for this contingency and

advising Messrs. Restrepo accordingly. I do not purpose increasing the cost until hearing from you, but would advise you that the returns will not cover that we are going to.

The works absolutely necessary for putting the various mines in operation into fair going condition, with their costs, I estimate as follows, adverting first that those marked * require immediate attention, and that the whole must be considered as having to be provided for outside of the returns of gold.

La Salada—	
* Sink two winzes 10 fathoms each and open 50 fathoms of level from bottom from same	£ 4,000
* Putting in tramroads in do with wagons, &c.	500
Silencio—	
* Sink engine shaft 10 fathoms, put in skiproad and change pumps, &c., under 103	2,000
Drive new level at bottom 50 fathoms with rise for ventilation	1,500
* Put in 200 fathoms tramroad inside the mine at 87	1,400
* Cut down Maria Dama cross-cut roof and ditto of 103 level, and make arrangements for hoisting to 103 and taking ore to stamps through Maria Dama	1,500
Cecilia—	
* Sink shaft 10 fathoms and put in pumping and hoisting gear	1,500
Drive level at bottom 50 fathoms with tramroad	1,500
* Lay tramroad to V. R. Mine, with wagons for same, and fitting up stamps, &c., there	2,500
Córdoba—	
* Put in tramroads to stamps and in mine 500 fathoms	3,500
* Sinking shaft with hoist and pumping gear and opening levels 50 fathoms under present bottom, or proportion of driving deep cross-cut 120 fathoms and 50 fathoms of level	5,500

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ROSARIO—

* Put in tramroad to stamps and inside 600 fathoms	4,200
* Sink shaft, &c., as at Córdoba or proportion of cross-cut and level on lode from it 50 fathoms	3,500

TIGRITO—

* Either deeper cross-cut 100 fathoms and level from it on lode 50 fathoms, or shaft with hoist, pump, &c., and 50 fathoms of level at bottom, ventilation rises, &c.	4,500
* Put in tramroads 200 fathoms	1,400
	39,000

PALMICHALA—

Sinking shaft 10 fathoms	1,000
Change over engine, arrange shaft, pit-work, &c. ...	1,000
Drive new bottom level 50 fathoms	1,500
* Finishing Juan Criollo adit and let out water at 95	1,000
Putting in tramroads 300 fathoms	2,100
Changing stamps, lay out wash floors, &c., with road, &c.	1,000
Putting down hoisting shaft and skiproad, &c. ...	2,000
Timber for these works, say 1 year at $1,000 ...	12,000
	$60,500

PROVISIONING.

There being no men of capital in the district of reliable character to enter into contracts for supplying the men with food, and as nine-tenths of the workmen come from a distance and live at the mines, if the Company did not give them food they would get none, and soon would abandon the works. The present system has faults, but I scarcely see how it can be altered. As I get experience the question shall have every attention.

PAYING OF MEN BY CAPTAINS, KEEPING GOLD, &c. ✓

On the last pay-day an officer was sent to each mine with instructions to observe all that took place as the pay was made,

and to offer assistance, but not to interfere in any way without being solicited to do so. It was then seen generally that there were many anomalies and some little confusion and much delay, but upon the whole there was little doubt of any want of honesty. Many of the Captains are not competent to be trusted with such important duty, and in some cases they actually incur losses through it. We have now decided that the Captains' books shall be made up at Salada office after he has written up and checked the work and put in the prices, deductions to be made, &c. Each man's account will then be put into an envelope with the balance due, and three centres of payment will be made, Salada, Silencio, and Rosario, to which an officer will be sent with the envelopes to hand over to the men in the presence of the Captains interested. This will most likely be tried next pay, and I have little doubt of its being received with satisfaction.

Cheques or advances on wages have been stopped, it being considered that to men fed by the Company they are not needed. Boletes or orders to pay off workmen have also been checked. They could not be abolished, as when men are discharged or if they insist on leaving they must be paid, but the order is now given in such a form that it cannot be sold to an outsider as heretofore, and it has to be accompanied with an explanation as the motive of discharge or leaving.

The gold is now brought in weekly by the Captains and I believe every one is satisfied. In justice to the Captains I must confess to being impressed with their general honesty and believing that few of them would take gold or money, but most of them will take advantage of their position to make money out of the men, and frequently to the direct prejudice of the Company, and it is this we think to correct in taking the accounts and pay from them.

HOSPITAL.

This is a very necessary establishment on such a large property, and it appears to fulfil the object desired. There are generally some eight or ten patients under treatment there. I have seen that the contributions towards the expenses of the place are very irregularly collected, and attention shall be given to it, as also to seeing whether the contribution cannot be increased. After this year the doctor's salary shall be charged to the hospital fund.

WATER-COURSES.

I am sorry to have to report a sad disaster on these. On the night of the 22nd ult., a frightful rainstorm broke over this

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district and brought down scores of landslips into the Pocuné ditches and large numbers of them of a serious nature. La Salada, Silencio, and Cecilia mines suffered most. We had some 180 men working 10 days to clear the ditches for these three mines, and no work was done in the mines or at the stamps during that time. Silencio is still pumping out its water and clearing away its roads, with no one working on mineral inside. The other mines had much extra cost, but they lost only a few days, whilst Salada only commenced to have a return again yesterday. This will tell heavy upon the month's Gold Return.

I am, Gentlemen,

Yours very obediently,

SAMUEL GIFFORD.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,
OLD BROAD STREET,
LONDON, E.C., *5th March, 1887.*

The Directors have just received from Mr. Gifford a report of his operations for the half-year ending 25th December, 1886, and they have much pleasure in forwarding copies to the Shareholders.

From it will be seen the large amount of steady development which has been going on, not only during the half-year under review, but during the previous half of the year 1886, and this notwithstanding the uncertainty which existed as to the amount of capital which would be provided for the works. It was only during the last month of the period that Mr. Gifford was aware that the full amount of capital required had been provided.

Mr. Gifford's operations at Salada have enabled him to abandon all the old galleries and openings down to the adit, and by means of the new shaft which he has sunk he has already gained reserves estimated at 3,200 tons on the main lode, and 3,800 tons on the flat lode, total estimated at 7,000 tons. The mineral is rather poor, but Mr. Gifford contemplates making up in quantity for lowness of quality, and with this object has repaired the No. 1 mill, and improved the approach to it, and he anticipates very soon having ore enough available to keep all three mills at work.

The pumping gear fitted up for the commencement of the sinking operations is too light to be thoroughly effective, but stronger gear has already been sent out, and other appliances have been ordered and are about to be shipped, which, it is hoped, will make the draining by horse-power effective for a long time to come.

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Tomado del Archivo de la F.C.N.2

Libro: Informes de Gerencia
De los Años: Dic 1884 Hasta
En. 1888.

Titulo: informe GIFFORD. (2).
a Dic. 25 1886

The attention of the Shareholders is called to the report of San Joaquin under the head of "Leased Mines," from which it will be seen that it is in contemplation to pay the Tributer to extend one of his levels far enough to take off the water from Salada.

At Cecilia it will be seen that Mr. Gifford has no doubt that the grade of the ore in the No. 7 level will improve soon, and that then, with the arrangements made, success will be assured.

At Tigrito there is a reserve of 1,500 tons between No. 4 and No. 5 levels, and plenty of ground in part of No. 5 north of the lode holds. South of No. 5 arrangements are being made for going deeper by means of draining into a ravine.

At Rosario arrangements are also being made for draining and working on the main lode deeper.

At Silencio, pending the decision as to providing further capital, but little has been done, but a branch has widened into a 3 feet lode of good character, carrying gold. The Shareholders are aware that instructions to carry on the works of development vigorously here were sent out in December, these should reach Mr. Gifford in about a fortnight after the dispatch of his report which left Salada on the 23rd January.

The plates for amalgamation, asked for by Mr. Gifford, have been despatched.

The statement of work done referred to at page 7, and the comparison sheet of detailed cost mentioned at page 13, together with plans of the mines brought up to the date of the Report are at the office, and are open to the inspection of the Shareholders.

By order of the Board,

J. JAMESON TRURAN,

Secretary.

LA SALADA,

1st January, 1887.

To the Directors,

GENTLEMEN,

I beg to submit to you the following Report for the Half-year ending 25th December, 1886.

MINING.

SALADA.—Systematic development below the old bottom of this mine has been steadily pursued, and it is now so far advanced that all the previous galleries and openings down to the deep adit have been abandoned, and soon also the drivings at this level, except the cross-cut, can be treated in the same way.

The new or main shaft was carried down to 21 fathoms 4 feet, striking the adit at 13½ fathoms and the main lode at 18½ fathoms.

I should like to have sunk it some 6 fathoms more to intersect the flat lode also, but the influx of water was too much for the pumps used; levels have been extended from the shaft on main lode 33 fathoms, and a cross-cut at north end 10½ fathoms, now holed, puts this lode in communication with the flat lode galleries from winze, the works in the latter will thus soon be open directly to the shaft, and the hoisting and pumping from them concentrated at this point.

The levels show the main lode tolerably regular in size and character, being friable ferruginous quartz, averaging 3½ feet thick. In the north end though, it is larger and of better quality at present.

Stopes have been opened from which 250 tons have been extracted, and some 3,200 more are counted as developed, the heights on lode line being about 11 fathoms.

On the flat lode the levels at No. 1 have been extended to a total length of some 63 fathoms, having an average height of 11 fathoms on the angle of dip. Here, too, the lode shows a good deal of regularity, and averages fully 3½ feet, but the quartz is harder and more massive, with a burnt-like appearance, and carrying patches of soft black pyrites. The lode is poor and course in places, there is no localisation of these, however, and they cannot be left unwrought, all the lode must, therefore, be extracted to avoid the risk of losing good sections, and it is estimated a reserve has been accumulated here of some 3,800 tons.

Ventilation is made direct to surface from the extreme ends of the mine, and this is now in the best condition. At north end a rise put up for this on flat lode has discovered a large middle lode, which will be extended on shortly, and driving generally

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northwards now will be very interesting as the galleries will go out under the large open excavations of the old New Granada Company, and past the points where the lodes of this section are presumed to form a junction.

The water met with in sinking is much more than anticipated, and pumping is a troublesome and difficult matter at present with the inadequate machine used, we have two 6-inch (plunger and bucket) pumps attached to horse-gear, and the latter gear of very light make is continually breaking down, and another 6-inch pump now worked by manual labour must soon come upon it. There should be water power or a steam engine for this work, but to get the first the mill power must be taken, which is relied upon to get through the increased output of ore so necessary to success here, whilst using an engine would entail much extra cost, and beget a great difficulty in procuring firewood, for although surrounded by forest but little timber fit for fuel is found. This question will have to be grappled with soon, and I only wait to see a little more clearly what the mine can fairly do before coming to some resolution upon it.

A horse-whim and skip-road have been erected, and a large shed put up over this and the pumping gear. Tramroads are laid with screens and shoots for economically moving and handling the ore, and soon the mine will be in good working condition.

No. 1 mill has been repaired, and an inclined plane laid to it, to take ores direct from the mine, and if the pumping appliances were equal to the requirements the increased output of ore to keep this mill running could be got very shortly.

SILENCIO.—In this mine, pending the raising of further capital, the work has been confined to driving the bottom, or 220 feet galleries, and bringing forward the level of the Maria Dama adit.

The drivages have been extended to 10 fathoms south and 11 fathoms north of shaft. In the former a division line followed, developed into a regular vein of flookan, and pyrites of a promising appearance, whilst north a small branch of quartz gradually widened to a 3 feet lode of good character and carrying gold, which is a very encouraging result after the sterile ground sunk through in shaft.

As shown in the Special Report on this mine of October 23rd, its resuscitation depends upon the discoveries that may be made in going to greater depths. As pointed out, also, such operation should be looked upon as a purely speculative one, only having the risk of a loss of say £3,000, but the large returns of the past, the present appearance at bottom, the fact of no mine having been proved in depth here, with the extensive interest the Company have in the district, and the facilities this mine affords above all others for making deep sinkings, are the

strongest inducements for incurring the risk and pushing the trials to a considerable depth.

All our late work has been towards this object, and positive instructions only are waited for, to carry it forward with activity.

The raising of the Maria Dama has been brought forth close to north hoist shaft, and arrangements for hoisting and landing there are in preparation previous to changing pumps, fixing skip-road, &c., in north engine shaft, which will be the one to be sunk.

Trial explorations have been made on the Saragotita and Bolivia lodes to keep the mills at work, and whilst the tributers making these have earned wages, and given a little profit to the Company, no discoveries of value have been met with.

CECILIA.—The main shaft has been sunk to 12 fathoms 5 feet below No. 6, and the No. 7 level driven from it north 10 fathoms. The lode was met with at 5 fathoms, and there showed 2 feet thick of dark hackly quartz, with pyrites that proved by assay and mill trial, to be of low grade and very hard to reduce.

At No. 6 over this point the lode was also poor and small, so there is every reason for believing in an early change for the better, as occurred there.

The No. 6 on western branch has been extended 25 fathoms and all through it has yielded well, averaging over 6 feet in width of comparatively good grade ore. This ore only 10 feet high to No. 5 has supplied the mill up to the present, and there is every appearance of its continuance.

An air shaft from top of hill has been straightened and secured to No. 5, and No. 6, being now nearly forth to it, will be soon communicated, securing good ventilation throughout.

The great destruction of timber from the large lode, and heavy pressure of the sides causes great expense here, and keeping the Adit open is a work of considerable difficulty. Tramroads have been laid, and with the reforms effected in the first half-year, the mine has been put into a most satisfactory working condition. We only wait an improvement in the grade of the ore in No. 7 level, which no doubt will come soon, to be able to supply the V. R. mill. At present this mill is doing very well on sands and river washings worked on tribute.

On reaching the air shaft with No. 6, it is intended to put out a cross-cut west to search for another lode seen at surface and believed to be of value.

TIGRITO.—At this mine a shaft has been sunk from the high ridge to No. 4, 23½ fathoms, giving abundant ventilation and good means for hoisting. No. 4 level has been straightened and re-timbered and put into good condition, with a tramroad from hoist shaft direct to mill. No. 5 level has been driven to 27 fathoms north of shaft opening a small lode, 1½ feet thick, of good grade

ore, and letting out a considerable quantity of water. The ore is nearly intact to No. 4, and it is calculated the reserve developed is 1,500 tons.

There is plenty of ground in front of No. 5 north to Guarana flat to continue the present output for a long time if the lode holds.

South, No. 5 is being communicated on lode to a ravine, and when this is accomplished, some three months hence, the old cross-cut will be abandoned and search will be made for the lode in another ravine 90 feet lower in order to bring up another adit on it, as with the absence of power and the excessive quantity of water to deal with, sinking is out of the question. A new cooking house has been erected, having store room, &c., annexed, later a quarter must be added, and this, with a tramroad in No. 5, will complete the requirements under existing circumstances, the mill of 9 heads having been finished and set to work in August last. The propriety of adding the three heads has been fully verified by the whole number being kept going at full speed from the starting.

Rosario.—The No. 3 south was opened south of old cross-cut, and nothing but irregular branches found, a cross-cut west was then tried 12 fathoms, which struck the continuation of main lode. This is now being followed backwards with 3 feet of ordinary grade ore, the end being left for Córdoba No. 5, which is a little deeper, to come up. At No. 3 north the lode has not been found beyond the fault which cut it off. In the stopes above No. 3 and against the fault, several overlying local seams of ore have been found, and are now being wrought, giving fair grade ore to the mill.

Above No. 2 patches of ore with Indian excavations have been followed till reaching the surface.

In the winze under No. 3, to test the lode in bottom, the water became too much for a 6-inch pump at 5½ fathoms, and sinking had to be suspended. A cross-cut was then put out 5½ fathoms s. and intersected the lode. Unfortunately, however, it proved to be only a small branch of mineralised rock, and there is reason to fear this is its general character going down. Investigations around No. 3 new cross-cut have lately discovered a counter or transversal lode, which has been followed 15 fathoms east, where it strikes the main lode and disappears against the fault also. This counter has now been taken up much further east, outside of old No. 3 cross-cut, and it is being driven on into the mine to open ore, and eventually supersede the cross cut. The finding of this lode with a flat dip north enables us to take up another adit, 90 feet perpendicular below No. 3, with only 20 fathoms of cross-cut, and driving then on the counter will reach the main lode to prove it some 200 feet deeper on the line of dip. This adit has just been commenced and will be pushed forward vigorously.

Córdoba.—No. 6, or deepest level, has been extended north of cross-course 70 fathoms, and it now overlaps No. 5 south. It has opened a large lode in places, but nowhere rich enough to mill. The end at present is nearing the ore shoots worked in No. 5, and it is hoped these will be found to hold down. No. 5 level has been driven north 23 fathoms during the half-year, giving patches of good ore a few feet high to level above. The lode in end is 3 feet wide of good milling ore now, and being 20 fathoms from Rosario No. 3 south, where the lode is about the same, with the ground whole to some 40 feet of height, it is anticipated a good block will be developed between the two points.

The main lode south of turn has been holed back to old level, and a rise put up on it 10 fathoms shows a good width of low-grade mill stuff. A sink from side of hill, on opposite dip, putting the mine in communication with surface, intersected other broken masses of quartz that will receive attention later.

Several trial drivages have been made at various points to investigate side veins and branches met with, but none have led to any good result as yet. If the mine were more promising the mill should be renewed, and long lengths of trams laid at once, but under the present aspect of affairs the expense is too heavy to be incurred.

A detailed statement of the work done in the mines for both half-years is annexed, of which the following is a resumen:—

Mines.		Cross-cuts.	Rises.	Shafts and Winzes.	Drivages on lodes.	Stopings.	Total excavations on lode
		fms. ft. in.	fms. ft. in.	fms. ft. in.	fms. ft. in.	fms. ft. in.	fms. ft. in.
Salada	1st half	31 4 0	24 0 0	24 1 0	67 0 0	46 0 0	412 0 0
	2nd ,,	24 3 6	6 6 0	23 4 0	68 2 9	200 1 0	
Silencio	1st ,,	4 3 6	1 4 0	9 3 9	83 1 0	132 0 0	,,
	2nd ,,	,,	,,	,,	22 4 0	16 1 0	,,
Cecilia	1st ,,	,,	,,	1 0 0	29 4 9	21 3 9	
	2nd ,,	3 3 7	7 4 0	9 3 6	34 3 11	64 1 11	137 0 0
Tigrito	1st ,,	,,	13 2 3	,,	9 5 6	24 0 0	
	2nd ,,	,,	18 3 3	,,	38 0 3	136 3 0	231 0 0
Rosario	1st ,,	21 1 0	9 0 0	3 2 0	36 1 0	109 3 0	
	2nd ,,	13 4 1	9 0 0	4 1 9	36 2 4	109 0 0	308 0 0
Córdoba	1st ,,	0 0 9	,,	,,	31 0 6	34 3 6	
	2nd ,,	9 0 0	18 0 0	,,	90 2 9	49 3 8	268 4 0
Paleichula	1st ,,	10 0 0	3 1 9	,,	,,	,,	,,
Total	1st half	58 5 0	30 2 3	44 0 0	363 2 3	378 3 6	,,
	2nd ,,	61 3 11	39 3 6	53 0 3	420 3 8	518 0 1	,,
Total for year		120 2 11	69 5 9	97 0 3	3[illegible] 5 11	[illegible] 3 8	,,

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Comparing the ground excavated on lode with the ore extracted, it is seen that about the following quantities were yielded per fathom: at Salada, 12.6 tons; Cecilia, 11 tons; Tigrito, 6 tons; Rosario, 10 tons; and at Ciruela, 7.6 tons (Silencio and Palmichain are omitted as not furnishing sufficient data). The calculation shows that though the lodes are generally large the bodies are of medium size, but when considering the quantity of ground excavated in steps with the tonnage taken out in galleries and other openings for developments and exploration it is noted they are nearly equal which is far too high a proportion for the latter to have cheap workings. It is partly brought about by the old system of making galleries within very short distances and this is being remedied wherever practicable.

There were no reserves of ore at the beginning of the year, and now there are some 7,000 tons in Salada, and 1,500 tons in Tigrito, whilst Cecilia is in a position to lay open considerable quantities within a short period. The other mines as yet show no ore beyond the ordinary development to maintain the monthly output.

OTHER MINES.

SAN JOAQUIN.—The chief work of importance here has been the driving of a deep adit (No. 4) on Salada lode. This shows small and poor white opaline having here, beside granite for enclosing rock.

A crosscut is now being put on from end of No. 3 to cut the San Joaquin lode 30 feet deeper than the old workings on it. This end is now nearly out to the Salada side of the hill, and being deeper than the bottom of that mine, it is a question for consideration whether the tributer should not be paid to extend it far enough to take off the water. The deep adit would be better being 30 feet lower, but it would probably take too much time to bring up to be of service. Either level would be a long one to keep open with timber, and the matter requires careful study.

MARIANA.—A large extent of shallow drivings have been made here and small veins of mineral have been met, nothing however of a continuous nature has been found, and the prospects of the mine are not very cheering.

PALMICHAIN.—During the year the Juan Criollo Adit has gone on in an unsatisfactory slow manner, and the tributers have been called upon repeatedly to improve the work. The difficulty first occurred in taking the level out of the lode to find easier ground, and then letting the 95 fathoms level cave in, cutting off ventilation. A large proportion of the gold obtained has been got from sands and surface washings, the remainder being from arches left about the shaft at the 65 and 80 feet levels. A small vein has lately been discovered in the ravine below the engine, which promises to yield fair milling ore.

FILIPINAS.—Here the tributer has been working well, bringing up the deep adit under much difficulty. This is now getting into ore ground, and as it has a good height to the level above, it is hoped quantities will soon be laid open. Many explorations have been made on other veins around, but all have proved abortive hitherto.

OTHER MINES.

A little desultory work has been done at El Cristo, Los Chorros, El Coco, and various other portions of the Company's property, which, though tending to prove the several points, has led to no practical result. Prospecting is encouraged in every way, as also is stream washing, but it is difficult to secure the whole of the gold found, unless we purchase it at market prices.

Connected with mining is the important question of

TIMBER.

This is a source of great expense here, the lodes having very soft enclosing rock, requiring close support, and the timber being of little duration, whilst the increasing distances over which it has to be transported, and the absence of anything like roads, renders the carriage very costly. During the past year the short road made by the Company has been lightly macadamized, and utilized largely for using timber wagons, drawn by oxen, and the extending of this road towards Popales lands is of much importance. There is a difficulty in crossing the Doña Ana valley and getting up the northern slope, but it will have to be surmounted sooner or later, and early steps will be taken to explore the ground and make estimates of the cost of labour required. To show the importance of the timber department, the following figures are given of the material received from it through the past six months:—

Setts or frames for levels, shafts, stopes, &c. ...	2,570
Beams and squared timber for construction ...	1,391 pieces
Poles and split timber for lining frames, &c ...	20,232
Sawn plank boards, &c.	68,490 feet
Charcoal 1,212 cwt., palm roofing 1,912 mule loads.	

The prices paid gradually tend higher as the distances increase, and every care is taken now to improve the system of working by keeping up close filling, in order to reduce the consumption to a minimum.

REDUCTION WORKS.—The detailed account of the work done in this department is remitted herewith, and from it will be seen that nearly 2,400 tons more mineral were reduced in this half year than in the previous one, although the 21 heads of Silencio

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included. The quantity of sands stamped cannot be com-
as the Silencio and V. R. Mills have been run on them by
who have also made trials on lode stuff and kept no
The increase of ore milled has been in all of the
that chiefly at Fazenda, where two mills of 10 heads each
been kept constantly going, there having been a full water
through the whole period. It will be noticed that with
increased quantities of ore there has been a tendency to decline
the yield, all the mines showing lower grade except Cecilia, the
decline on the whole being a little over 1 dwt. per ton.

At Tigrito amalgamation on copper plates has been in
operation five months. There was a little difficulty at first from
the process being unknown to the workpeople, but now the work
goes on with regularity and success, and plates will be laid down
at the other mines as they are received. An improvement in the
stamps at the same mine has also been introduced which has
given satisfaction, and this will likewise be extended as oppor-
tunity offers.

No regular test of the results of amalgamation as against
cyaniding has yet been made, but it is estimated that 10 per cent.
more gold will be saved by the former.

Increased attention is being given to sulphurets, and later it
is hoped larger proportions may be concentrated for exportation.
There will always remain though, considerable quantities of a
grade too poor for this, and for which up to the present no other
treatment has been discovered than letting them oxidize by
exposure, and then washing out the gold set free.

It is probable that much of the decline in the yield of the
mines now experienced is due to the increase of these sulphurets as
the mines are deepened.

Re-treatment of old sands goes on at the mills where
however practicable, and some profit is being derived from it.
The sands, however, show too poor to be worked again at
present.

FARMS.

From the detailed accounts of these now forwarded it will
be seen that Cururu made a profit of $663.55 and Cocalinho $737.10,
which makes the former $50 and the latter $67 to the good for the
whole year, a most satisfactory result when the [illegible] work
going here are taken into account.

Cururu.—Cane cultivation has been continued here, and
during the great scarcity of sugar that has prevailed in the district
since it has been of considerable service, but the past years ex-
perience demonstrates that sugar cannot be produced on this farm
at the ordinary prices ruling here, the soil being very wet and poor.
A small advance upon average selling rates may cover the working

expenses, and with some outlay in draining, the crops might be
increased, which, with the certain loss that must ensue in aban-
doning the cultivation, are sufficient inducements for persevering
with it for the present.

Cattle breeding has progressed very favourably this season,
there having been no disease among the stock, and under such
conditions the speculation will leave a margin for profit, the risk
though is great, and such industry, as also cane planting, not
being a necessity and of but doubtful benefit to the Company,
would be better left to others who understand and can attend to
them. Should a favourable opportunity present itself of retiring
from this farm it should be embraced, as it gives much work and
anxiety, whilst the highest result to be expected is to have no loss.

Working the cane plantation requires a stock of 10 oxen and
6 mules, and in the breeding department there are 93 cows, 49
heifers and steers, 86 calves and 4 bulls. 12 cattle have been
killed for the provision department, and 16 young oxen trained to
mine work during the six months. There have also been 33 births
and 1 death, whilst a good breed bull has been added by purchase
to improve the stock, degeneracy from in-breeding having appeared
in the younger cattle.

Curuna.—This farm is now dedicated entirely to the resting
and renovation of land, sick and thin working cattle, and young
erected for the purpose it pays its expenses, 1 working hand
with the [illegible] for the preservation of fences and
[illegible]

Salada Farm.—Under this heading come all the lands
[illegible] aside the above mentioned.

Pocuné.—This place is let to a [illegible], who gives
half the cacao produce as rent. This however is very little, and
all that can be said is that the grounds are kept open with it
expense.

Calcinha.—This is a small place adjoining, with cacao and
plantain trees, held under similar conditions, and giving little or
no benefit to the Company.

Portaria.—The timber supply for Cecilia, Cecilia and
Silencio is now almost wholly drawn from this section, and the
pasturage there being of importance for the cattle employed in
the transport work, [illegible] have to be gone to in
search of it. Planting grass sown here has served
to keep stock off [illegible] but it dies out quickly in the
struggle against the natural coarse grass of the district which
[illegible] exhausting.

[illegible] for killing are kept and some
[illegible] of late to improve the returns. Cane
[illegible] being laid down for the working mules at
[illegible]

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GUANANÁ.—Wire fencing has had to be put up here to preserve the rights of the Company against the village of Sopetrán, and to maintain a good run for the Salada cattle.

CLEARINGS AT SALADA.—The increased number of mules and oxen now employed for hoisting and pumping has required a much larger extension of grama-pole, grass and cane for their keep, and plantings of these are gradually being made.

All working cattle are now being treated as Salada Farm Stock, and each mine and department is debited with its proportionate share of cost for the work done. The stock employed consists of 135 oxen (of which 9 old ones have now to be taken off to fatten for killing), 10 saddle mules, and 28 mules and 6 horses for transport and other work. Experience has shown that oxen are not suitable for the long transport from Sopetrán, and 100 mules will have to be bought for this work, the oxen being retained for carriage of timber and provisions, &c. Many of these have already been broken in for the pumping gear.

Nine horses and mules and 8 oxen have died during the half-year, and although the number of the former is large, we have been fortunate comparatively, as disease has been very prevalent amongst these beasts through the whole State of Antioquia.

PROVISIONS.—These continue scarce and dear, and constant vigilance is necessary to make purchases at lowest rates for the ordinary consumption. The customary prices of the principal articles are—Sugar $8, beans $14, rice $12, and maize $7, the carga of 200 lbs.; they are now selling at 6 [illegible] sugar $16, beans $26, rice $17 and maize $16. Meat fortunately which forms some two-fifths of the food cost remains at the old rates. Hitherto the Company have not suffered so severely as others from the great rise in prices through having made good contracts, and getting sugar from Cunard: the contractors, however, have just heavily. With the dry season, which apparently has now set in, the roads will improve, and provisions will be brought in more readily, but we must wait for the new harvests in August to relieve us of the scarcity.

In the press of other work the provision store has not been rebuilt, but it will be taken in hand shortly.

LIGHTING.—The manufacture of candles has had considerable attention without arriving at any improvement. Clearly tallow is not the best illuminating material for these climates, but except for such purpose the large quantity got from the cattle killed (four-fifths of the consumption) could not be utilised, the carriage to a market absorbing all the value. If the tallow could be kept liquified to use in lamps, it would be much more useful and economical, and experiments have been made for this but without success.

COST AND PRODUCE.—The accounts forwarded which are very full, show that our cost for the six months on this side has been some $2,497 more than in the previous half-year, whilst the value of the produce has increased by $11,105, this refers to the mines worked direct by the Company only and to the figures shown in the books here, but on making the deduction for premium on exchange on money drawn for, and reducing thus the cost to a value of $5 per £ as shown for the produce, the result is still better, the cost showing $2,500 less, and the produce as before $11,105 more, or a total improvement of some £2,725. The result on the mines leased and stream-washing shows £75 less than in the previous half-year.

The statement of profit and loss forwarded is made out on the cost incurred on this side, and this with all values reduced uniformly to $5 per £ shows the comparative results from the various mines. It will be observed from this calculation that of the two mines which presented a profit in the last account, Rosario has fallen one-half whilst Córdoba has made a small loss. Cecilia on the contrary has changed its previous loss of £452 into a profit now of £675. All the other mines show reduced losses, and taking the both accounts together the net loss shows only some £3,218, which cannot but be considered a most satisfactory outcome of the year's work in the exhausted condition of the mines, and the large outlay made for their resuscitation and for the putting them into a decent working state.

The following are some of the principal operations that come under the latter head: sinking Silencio shaft, driving bottom levels there and bringing forth ore in level of Maria Dama adit; sinking Cecilia shaft, driving bottom level, straightening air shaft, putting up whim, skip-roads, and trams, reforming pumping and repairing mills there and at V. R.; sinking shaft at Salada, and driving bottom levels, erecting hoisting and pumping gear with sheds, repairing No. 1 mill and laying inclined plane to it; erecting new mill with annexes at Tigrito, sinking shaft, re-timbering the mine throughout, and straightening hoist winzes, &c., the purely mining work at nearly all the points being operations that ought to have been executed long before. A large outlay has been made also in renewing the long aqueduct, and several of the minor ones on the Pocuné ditch, and, but for all such extraordinary expenses, it is obvious the profit and loss would have shown a very different result.

A comparison sheet of detailed cost for the two half-years is given that something may be seen of how the work and expenses progress. On analysing this, however, it is seen the comparison cannot be fairly adjusted. Timber and timbering is an example of this. The last only represents the work done in replacing old timber, whilst the labour in securing ground in the regular course

of excavation figures under exploration and extraction, so that with an excess of retimbering and lessened extraction, there will be high timbering cost and low timber account, and when exploration is active and the mine in good condition, the reverse will occur. Again, in carpenter and smith's accounts, the material used is charged; and thus with new apparatus the cost is high although the labour may be less than with ordinary repairs. Provisions and cooking too depend upon the number of hands employed and the prices of the former. Broadly the two accounts may be compared thus: There has been about the same amount of exploration and extra work performed with nearly 2,400 tons more ore raised, transported and treated in the last half, at only $2,500 more cost. The treatment of ore has been reduced from $0.83 to $0.73 per ton.

HEALTH.—The Doctor's statement of the number of patients treated and days lost is enclosed, and although the figures for both are large, it is satisfactory to be able to say there have been no deaths. Fevers are very prevalent at certain seasons, but they are not of a malignant kind, and they readily yield to treatment. Generally they are on the decrease, and chiefly, it is believed, through the extensions of clearings and drainage of the lands.

Better ventilation in the mines has also decreased sickness somewhat, and it is a curious fact that there are many more patients proportionately from the farms than from the mines.

GENERAL REMARKS.

At Salada it will be noted we have an entirely new mine with two lodes of good thickness, developed over a length of nearly 100 fathoms, and the ore holding forth in all of the ends.

Facilities for working and transporting the ores economically are being introduced, and the mine is fast being brought into a condition to pay its working expenses. The ore, however, is of low grade, the extracted value being only £1 3s per ton, and profits must depend upon increased output and better gold saving apparatus.

At Silencio the future is purely speculative, but the prospects well warrant the risk. With the discovery of ore in depth the mine would be quickly resuscitated, there being good means of expansion and economical working.

In Cecilia a large amount of lode that can be wrought cheaply is being laid open, and if the bottom level develop ores of the past six months' average extracted value, viz., £1 18s per ton, with a tramroad to V. R. and two mills there, success will be assured.

The result at Tigrito for the last half-year, although an improvement upon the first, is not as good as anticipated, the ore

having declined from £2 12s to £2 2s 5d per ton. The small lode and hard rock are heavy drawbacks also, and little improvement can be expected without a change in these conditions.

At Rosario there is little ore developed, and the ends appear to have reached the limits of the ore-bearing zone there, but branches and veins are constantly being lighted on that may be expected to feed the mill for some time yet, and there are considerable hopes that the new deep adit will make discoveries of ore on the counter and main lodes that will give the mine a new lease of life.

In Córdoba the prospects are not very bright, the bottom levels having traversed long distances on the lodes without finding any deposits of value holding down to them, and the ores worked having fallen within the two half-years from a value of £1 17s 2d to £1 4s. The deep adit at Rosario may lead to something better as drivings are put out from it into the Córdoba section.

In the Leased mines at present there is little to expect but a continuance of the small profits made from them.

In conclusion, it may be added that the operations here, although large on the whole, are made up of an agglomeration of small undertakings, which from the limited motive power to be obtained and other peculiar circumstances of the country, are capable of little expansion. All have to be worked separately, thus requiring excessive supervition, and the mines and mills being generally at a distance aggravates this. Conditions such as these, therefore, render any concerted action or scheme for the general amelioration of the concern almost impossible, and improvement must be looked for rather in distinct economies and a more efficient mode of working, to which all energy and attention is turned now. With low-grade ores increased output is the most effectual remedy; but, as indicated, with a small and limited motive power, there is little scope for this. Larger, i.e., broader wheels for the mills to utilise the extra water of the long rainy seasons would effect something, a rearrangement of the force in some of the mines, and better constructed mills would also assist. Here, at La Salada, a fine opportunity was lost on bringing in the Pocuné Water in not erecting a turbine with a good modern mill instead of the four small wheels and imperfect native stamps scattered over the hillside as now. The conditions were most favorable, viz., clear fall over a good height with small supply of water: all loss of fall would have been avoided, more power obtained, and the force would have been concentrated at a central point, where good extracting apparatus could have been laid out at less cost than was incurred with the present disseminated inferior plant. Possibly this will have to be resorted to later when the present mills and wheels come to be renewed. At present the great

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point is to prove what the actual capabilities of the mines are, and to this all our energies are turned.

The average number of people employed by the Company is about 600, distributed in the following manner:—In cutting and transport of timber 70; on farms 35; on transport, distribution, and preparing provisions, with manufacture of candles 45, and in the mines 450. These figures refer only to the persons directly dependent upon the Company.

(Signed) SAMUEL GIFFORD.

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Tomado del Archivo de la
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Libro: informe de gerencia
De los años: 1884 dic. hasta
ENERO 1888
Folleto 4:
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Fecha: de julio a dic 1887

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited

184, GRESHAM HOUSE,
OLD BROAD STREET,
LONDON, E.C., *12th March, 1888.*

The Directors have received from Mr. Gifford a report of his operations for the half-year ending 25th Dec., 1887 and have much pleasure in forwarding copies to the Share holders.

The half-yearly report to December, 1886, was circulated among the Shareholders in March of last year, and that to June, 1887, was annexed to the Directors' Report of 6th December, 1887, issued previous to the General Meeting held on the 29th December.

It will be observed that at Salada the reserves are estimated at 3,000 tons, to which may be added the quantity that will be opened in driving south on main lode. Further that some 6 feet more of sinking the shaft will make it deep enough for a new level, and in the resumen towards the close of the report, Mr. Gifford says :—" This level will be in more solid ground, requiring less timber, it will strike the lodes where they form a junction, having high backs on both, and, judging from the results of No. 1, ores of higher grade will be found there."

At Silencio it will be seen that Mr. Gifford is of opinion that the ground in the 103 and 220 levels will pay the cost of working the mine and testing it to a good depth, and that any discovery in sinking will be clear gain.

At Cecilia the reserve of ore actually developed at No. 7 is computed at 8,300 tons, and it is calculated that

driving No. 7 level as far as No. 6 is already driven should develop some 5,000 tons more. With this large quantity of ore in existence, the erection of a mill of modern type and better works for the treatment of sulphurets are in contemplation.

At Tigrito the reserve of ore is estimated at 2,000 tons, and there are about 600 tons of low grade ore to be counted on at the southern end.

At Rosario the deep adit cross-cut is progressing. The cost is charged half to Rosario and half to Córdoba, as it will open up both mines in depth. There is ample ore in the various places in the mine to keep the mill running till the lode can be proved by the cross-cut.

At Córdoba the reserve of ore is estimated at 1,740 tons, and there are 320 square fathoms in front of No. 6 level, from which much more mineral will be gained as the level extends.

The account given by Mr. Gifford of the mines let on tribute is worthy of careful perusal, especially San Joaquin, where a level is progressing to Salada, and Palmichala, where the tributers are doing well.

The tabulated statements alluded to in the report are at the office and open to the inspection of Shareholders.

By order of the Board,

J. JAMESON TRURAN,
Secretary.

HALF-YEARLY REPORT.

LA SALADA, PUERTO BERRIO, BARRANQUILLA,
REPUBLIC OF COLOMBIA,
13th January, 1888.

The Directors of the Frontino and Bolivia Mining Co., London.

GENTLEMEN,

In pursuance of the usual course, I herewith beg to remit you a Report on the work done here, and the results for the past Half-year to Dec. 25.

MINING.

SALADA.—On the main lode 8½ fathoms of drivages have been made at No. 1 south lately, through which the lode gradually increased in size to 6 feet, with an improved appearance, having pockets of soft unctuous pyrites with gossan in massive quartz. The yield in gold, however, although a decided increase upon the lode further back and above, has not been as high as the appearance would indicate. There is a large piece of ground in front of the end, intact to the adit, that may be counted upon to yield considerable quantities of ore.

The driving north on the main lode has not been prosecuted beyond the wedging-out point reported in June last. Other drivages on the lode have been mostly intermediate, and have, therefore, not told upon the development much. Some 115 fathoms of ground have been stoped in the back of No. 1, over which the lode has yielded about 10 tons per fathom.

On the flat lode some 17 fathoms have been driven at No. 1 north, and the lode held large and good till within the last 7 fathoms, when the ground became very broken and disorganised by faults and cross-courses, and little ore made through it. At present the end is in wet decomposed granite lying on a flat band of argillaceous shale, which forms the line of lode, and this now being under the adit end where the lode disappeared, and also under the southern extremity of the works of the New Granada Company, decreases the hope that existed as to meeting with more ore ground in this direction. The end giving only sterile rock cannot be driven just now, whilst the shaft is being sunk, as it interferes with the hoisting and keeping up the output of ore; it should, however, be resumed later, and pushed under the Granada workings as far as possible. A rise has lately been put up reaching one of the old levels, and from adit little ore was discovered.

The lode driven on in the north end appears to be a limb thrown off the main lode, crossing over to touch the flat lode, and then continuing on as a middle lode. The flat lode proper, on being joined by this middle vein, seems to swing off rapidly west, and a cross-cut will have to be put out soon to prove it beyond the point of junction. On stoping up the middle vein other overlying bands of ore have been discovered, and are now being wrought. These can be counted upon to give good quantities of ore on the east side and down to the level of No. 1 gallery.

South, the new level with tramroad has been carried back 16½ fathoms to winze, and is being extended to the southern extremity of No. 1 on flat lode, where there is a good piece of ore ground being stoped, to provide for future ventilation in this direction. The ore ground excavated on the flat and middle lodes for the six months was nearly 180 fathoms, which yielded some 12 tons per fathom, and the reserve of ore developed at all points at No. 1 is estimated at 3,000 tons, which, with the quantity

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that will be opened in driving south on the main lode, will be sufficient to maintain the present output until a new bottom level be advanced far enough to draw future supplies from.

The engine shaft, after being retimbered, and having its skip-road and ladderway straightened and refitted, has been sunk 2 fathoms 4 feet, passing through the flat lode at 3 fathoms below No. 1 level. This lode where struck is a little disorganised and thrown up by a fault, but its appearance is promising. Underneath the lode stiff granite is met with, and is likely to continue, as seen in the adit winze. This enables the shaft above to be taken up, on a firm bottom, and a stop put to the persistent sinking of the timbers on the west side which has prevailed to a serious extent lately, and is due to the flatness of the lodes and the large excavations made on them. Some 6 feet more of sinking will make the shaft deep enough for the new bottom level. It will then be carried down for a tip-plat and fork some 15 feet farther, the level being opened in the meantime. From shaft the level will be a cross-cut for 8 fathoms, and it should then strike the flat lode where the main lode falls into it, having backs to No. 1 of 30 fathoms on the former and 14 fathoms on the latter, which, with a continuance of the ore as in No. 1, will sustain the mine for several years.

Since starting the pumping wheel the water has increased considerably, and during the rains two 8-inch pumps, a plunger and bucket lift, working together some seven strokes per minute, are required to keep the drainage. Later these will be changed for a plunger of 12 inches, to have an excess of power. The hoisting force when thrown upon the new bottom level, with the facilities of tip-plat and shoots for the skips, should be equal to the output for the three 12-head mills, and this output is necessary to make the mine a paying one. Taking the water from No. 1 mill for the pumping wheel does not prevent that mill working its full number of heads during the wet season, and with a wider wheel and spur gearing the twelve heads could be kept going during a greater part of the dry season.

Some changes have been made to facilitate the transport of ore, &c, on the surface tramways, and a re-organisation of work for taking away the sands has been carried out.

Silencio.—The chief work here has been the renovation of the pitwork. It has been a long and tedious operation, from frequent interruptions through loss of pumping power and consequent flooding of the mines, from having to change and maintain the old pumps whilst putting in the new, and from having to widen the shaft at various points. But, happily, all this is concluded now, a good 12-inch plunger has been fixed at the 220, and a new 8-inch sinking lift under, new 6-inch rods with pulleys to surface, and a balance and angle-bob at top of shaft with new rods and travellers from this to wheel. The whole is very complete and effective, and as greater strength is given to everything, there is ample margin of power throughout to carry

the mine to a considerable depth. A new shed has been put up over the shaft, and only a new whim with shed near is required to complete the original programme for re-organising the whole method of working this mine.

Sinking was resumed in the last week of December, and the bottom is now in congenial felspathic granite, with a dividing band of argillaceous matter carrying occasional strings of rich quartz representing the lode. The shaft is 9 fathoms below the level. The 220 level north has been driven 10 fathoms 4 feet with a variable lode holding through it. At times the lode was 2 feet thick of rich ore, and then a cross-course disorganised it; but lately the ore has made again, and in present end it is as good as yet seen, with every appearance of holding forth.

A good stope held up against the cross-course to the 150 level, in which some 64 fathoms of lode were extracted. This discovered that the lode formerly lost in the 150 lay under or west of the old level and hoist shaft, and having opened the level into it driving the end was taken up and 4½ fathoms made. The lode now shows 1 foot thick, composed of flookan and quartz, with a promising appearance. North of the 150 and 220 ends the ground is intact to the 103, and there is little doubt now that good shoots of ore will be met with in exploring this section.

South no further driving has been done at the 220, but the opportunity is arrived when the work may be continued. The lode there is represented by a band of argillaceous matter 1 foot thick, enclosed in felspathic granite.

The continuance of the Maria Dana adit over the 103 south from the main shaft has been started to take up all the surface water percolating through the old workings. This is rendered necessary through the error of height in the adit; but it is probable that arches of ore ground will be found along the line to pay for the driving.

No. 2 mill has been thoroughly renovated and amalgamated, plates laid down, the latter being most successful with these ores. A new arrastre of the Tigrito type has been added also, and the tramroad laid direct to the mill, with preparations for screen shoot, &c.

On completing No. 2 mill, No. 1 was handed back to a tributer to work the outcrops of Saragosita lode at 20 per cent. royalty, and he has been doing very well up to the present.

Cecilia.—No. 7 level has been driven 17½ fathoms till reaching the point where the lode takes horse, the driving having imperceptibly passed from the western to the eastern branch. Massive ore of a good quality was carried throughout to near end, when it narrowed to a small band of ferruginous quartz in soft schistose rock. A winze put down at this point from No. 6 is wholly in the western branch, which shows good ore 6 feet wide. Stopes are now being opened on this, and the driving is started below to communicate with them, and to continue the development of the branch north. The new system of stoping with

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earth filling from surface and leaving arches in back of level below and bottom of the one above, works most satisfactorily, giving much security to the mine and great economy in timbering. These arches will be all available for extraction as the levels are regularly abandoned.

Some 122 cubic fathoms of stopings have been made in back of No. 7, in which the lode has shown 20 feet wide going north from No. 1 winze, and wedged to 2 feet at the end of the pay ore south, the average yield being some 15½ tons of ore per fathom. It will be interesting some day to prove whether the lode dies out south, as it appears to do, or whether the wedging there is only a local squeeze.

The eastern branch picked up at end of No. 6 north was opened on 2 fathoms, and shows a continuance of ore of good quality, 4 feet wide. It is not known how high this extends, but there is a strong probability of its being intact to surface. Leaving this out of the calculation, the reserve of ore actually developed in No. 7 is computed at 8,300 tons, of which, after deducting arches to be left temporarily for security of the galleries, &c., some 6,000 tons are immediately available for extraction, giving one-and-a-half years' work with the present output. It is calculated that driving the No. 7 level to the extremity of No. 6, should develop a further quantity of some 5,000 tons.

The V. R. mill has been kept going continuously, and with the tramroad laid down to it, the transport of ore has been easy and cheap. This mill will have to be renewed at no distant date, and with the stability given to the mine and the extra power to be obtained by a more effectual mode of utilising the water here it is a matter for serious consideration whether the time has not arrived for erecting a mill of modern type, and for laying out other better works for the treatment of the increasing quantities of sulphurets. Special conditions will have to be considered and great care exercised, to avoid erecting machinery beyond the proportions of the mine, and not to load the concern with a heavier capital than it can reasonably bear. Material for a round buddle at V. R. has been prepared, and the arrastres there require early renovations.

Tigrito.—During the half-year No. 5 level has been opened completely through on lode from the surface to the junction with the old cross cut, and the latter is now dispensed with. The lode throughout this section is very regular, showing from 1½ to 2 feet wide of hard block quartz of low grade that will about pay for extraction, the quantity of ore to be counted upon being about 600 tons. At the northern end No. 5 has been extended 6 fathoms, and through the lode has increased in thickness to 3 feet with more congenial enclosing rock. Within 25 fathoms more this end will reach under the mouth of No. 4 on the Guanaré flats where a shaft can be put down and whim erected to facilitate and economise the hoisting still more.

A peculiar junction of cross veins dipping in opposite directions traverse the main lode some fathoms behind No. 5 end, one

of which has been opened on a few fathoms and shows gold in an interesting formation of ferruginous granitic rock. Both veins merit further exploration as circumstances permit.

Some 147 fathoms of lode have been excavated, from which the average yield of ore has been about 6 tons per fathom. The reserve of ore developed is estimated at 2,000 tons, not including the low class laid open at the southern end.

Rosario.—In this mine the deep adit cross-cut, not having met the caunter as expected, was turned direct for the main lode, and it has been lengthened by 18¾ fathoms. The rock passed through has been generally stiff sienitic granite, but lately the hornblende has given way, and the character is more felspathic. All the rock is mineralised with impregnations and faces of pyrites, whilst the faces have been interestingly varied at times with coatings of molybdenum. A small vein of quartz has been intersected carrying gold, and during the past month a band of silico-calcareous rock was passed through with the stiff granite making inside it again. The end is now about 28 fathoms from the probable line of lode, and this will require some months more to drive through. Córdoba bears a moiety of the cost here as the advantage is for both mines.

On the main lode 18¾ fathoms have been driven on east side of No. 3 level to pick up and extract the overlying bands of ore there, and to communicate with the adit on caunter to dispense with the old cross-cut. A good piece of ore ground has been thrown open in this, which is now being worked. Rises have been put up southwards to prove the ground above No. 3 towards Córdoba, and in places the lode shows large and of payable character. Further investigation may develop considerable quantities of ore here. Stopes have been opened also on the Córdoba boundary that are now yielding good ore. Desultory trials go on near the surface also, and remunerative stuff is continuously being met with. On the caunter line, south from mouth of No. 3 cross-cut, 14½ fathoms have been driven on a flat branch of low-grade quartz that gradually dwindled to a mere string. The total stopings reached 100 fathoms, and the average yield from all workings was a little over 8 tons per fathom. There is a considerable quantity of ore to be excavated southwards above No. 3 yet, which will keep the mill running till the lode can be fully proved from the deep cross-cut.

Córdoba.—No. 6 level has been extended north some 14½ fathoms, and a rise put up to No. 5 near where struck by the cross-cut. The lode has been variable through this, but generally it has been large and of fair average quality. The last few fathoms show an improvement, and it is anticipated, a good shoot worked in No. 5 above is holding down. Some 59 fathoms of lode have been excavated in stopes, in which the lode has been large, often 12 feet thick, but the quality was much inferior to that anticipated from the drivage below the stopes. The average yield of the whole was over 17 tons per fathom. Some work has been done

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in straitening No. 6 for a tramway, and the sleepers and rails are provided on the spot for laying road from end to No. 1 dump. The laying is in progress, and when completed will lighten the transport very much.

The reserve of ore opened in the mine is computed to be some 1,740 tons, and there remain some 320 square fathoms of ground in front of No. 6 end, from which much more will be drawn.

The mill here is in a dilapidated state, and it would have been renewed on an improved principle ere this, but for the difficulty of selecting a suitable site in view of the water question raised by the re-opening of the Providencia Mine of the Sucre Company, which precludes the erection of the mill in the Tigré valley to meet the future working of Córdoba from the Rosario deep adit as always intended.

An arrangement having now been come to with respect to the water, putting up the mill on the old site has been determined on and the work is actively in progress, the wheel and the chief timbers having been already provided. The ores from the deep adit can be conveyed to this site and the line for the tramway is surveyed, the only drawback being the distance, which is about 2,000 yards, or some 1¼ miles.

A digest of all the mining work done by the Company for the half-year is appended, and it will be seen from this that the proportions of stopings to developments or drivages continue to increase, thus showing that the new system of placing the levels further apart is coming fully into operation.

TRIBUTE MINES.

San Joaquin.—The cross-cut from No. 3 on Salada lode to San Joaquin lode has been completed and met only small divided mineral veins.

A rise on the best of these led up to the regular lode, but it proved poor. The rise was then continued to surface through the country rock to the Salada side of the hill for ventilation preparatory to making further explorations on the lode.

No. 4 deep adit on Salada lode has been extended to 90 fathoms. It was hard and sterile for some distance, and as the tributer was losing money and the adit might become important for the drainage of Salada, assistance was given to push the drivage. This was continued till lately, when small shoots of ore met with enabled the tributer to do the work alone. The lode since meeting with ore has varied from 1 to 2 feet wide, being mostly drusy quartz enclosed in coarse grained ferruginous granite. Although not holding up very high, the ore has given fair profits on being extracted, and there is every appearance of its holding forth. The end is now nearing the Salada ravine, where the New Granada Company's workings commence north, and it is important to push it forward to prove the bottoms of these as also to communicate eventually with No. 1 north from Salada, which

is now 150 fathoms distant, and allowing for rise of level, should be met 22 feet higher.

Marmajon and Marmajito.—The tributer has made numerous explorations of importance at various points in these mines, but they have discovered nothing of value and the enterprise is now in a languishing state.

Garibaldi.—Similar remarks to the above apply to this mine, lodes of good size have been opened, but they have hitherto proved too low in yield to pay for working.

Palmichala.—The Juan Criollo adit has been driven forth to the junction of the Colon lode, and separate driving is being started on it. This lode is but little known; it has a good appearance, and it may prove to be of much importance. Lately communication with the 95 has been re-established and thorough ventilation secured. The water is now brought down to 2 feet deep at the shaft, and retimbering the 95 to it is being proceeded with. Near the present end of the Juan Criollo payable ore has been met with, and rises are being put up to explore and extract it, the ore being taken out of the adit and raised by an incline plane to the level of the mills, to which it is carried by barrow track over the watercourse. The driving towards shaft is being continued, and a sink in bottom with hand pump is about to be started. During the last three months the tributers have been doing fairly well, and it is expected they will continue to do so for some time. The shaft has been re-timbered throughout now.

Filipinas.—The driving of deep adit here has shown a rising of hard sterile hornblendic granite, which wedges out the lode or cuts off the ore. At first it appeared the rise of this rock would hold to the boundary, but in an intermediate level above the adit it now goes off flat and ore is making on it there, so that possibly the rise may prove a local undulation of the bed rock only. There is a good block of pay ground open between Nos. 4 and 5 levels that should yield fair returns for a good period.

Italia.—This mine has recently been let to the Filipinas tributer, and he is putting up a 6-head mill there, many lodes have been laid bare, and one or two of them have a promising appearance, there are drawbacks, however, in the facts of most of them having been explored before and there being but little water power. The only water available is that now used by the Pugidos mine, and as this mine has been in possession of it for upwards of ten years there was some difficulty about taking it. After some negotiation, however, an amicable arrangement was entered into by which the Italia can have the first use of the water, and then pass it to the Pugidos leat by a short aqueduct. A document has been drawn up embodying the arrangement, the chief clause being that the action now taken shall not in any way affect the legal rights that either Company may have to the water in question.

Mining at other points have been of a desultory character in trials that have produced little or no result.

The surveys of the mines have been brought up to date, and tracings of all will be handed to you.

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TREATMENT OF ORE.

The usual summary of the Reduction Works Sheet for the half-year accompany this, and it will be observed that the total quantity of ore milled exceeded that of the previous half-year by 1,425 tons, there being an increase of 246 tons at Tigrito, 1,194 tons at Silencio, 326 tons at Cecilia, 352 tons at Córdoba, and 35 tons at Rosario, whilst Salada shows a decrease of 728 tons, this latter being due chiefly to the ends driven giving little ore, to the exhaustion of the main shoot reserve on the flat lode at No. 1, and to delays in hoisting whilst re-timbering shaft and preparing for sinking. The extracted value of the ores improved a little all round (except at Córdoba), and of this part may be attributed to a better means of treatment, and part to higher grade ores. The value per oz. of bar gold produced is a shade better than for the previous half, viz., £2 7s 7½d, against £2 7s 6d.

Amalgamation on copper plates having proved successful at Tigrito, and the electro-silvered plates having reached us, the latter have been laid down at all the mines except Cecilia and Córdoba, and having now educated a good many of the people to the use of them, the plates will be introduced in the latter mine also. At Cecilia the ores being very pyritous, one battery was supplied with plates tentatively to test against the blanket process, and, although at first they seemed a great improvement, the silvered surface soon got destroyed, then the copper was attacked, and the trial had to be abandoned. It would appear that acid is set free from the excess of sulphurets in stamping, and this acts as a solvent on the plates and mercury, causing loss and preventing amalgamation. Something of this is also seen at some of the other mines having pyritous ores, as at Salada, but here only the surface of silver is attacked, whilst the copper underneath gradually becomes amalgamated in the usual way, though the patches thus formed acquire a film that has to be continuously removed by rubbing.

Several exhaustive trials have been made to test the relative quantities of gold extracted by the old and new methods, and the conclusion come to is that the blankets and batea yield about 50 per cent. and the plates 60 per cent., the figures varying as the ores are more or less pyritous. The first trial with the copper plates only gave 4½ per cent. advantage over the blankets; but on taking out the plates and scraping them, the gold collected spread over the whole of the ore treated and the trial given its proportion, brought the advantage up to fully 10 per cent.

More attention is now paid to collecting and concentrating the sulphurets for exportation, and the importance of this is seen on comparing the values shipped in the present half against those of the previous one, the former showing $10,718·60, and the latter $5,870, most of the increase being from Cecilia.

Sands have been re-treated systematically at Salada, Tigrito, and Cecilia, and a value of $3,645·70 extracted, the cost being equal to $1,364, the profit was therefore $2,281, or £456. The amounts figuring in the lists against Silencio, being costs and products of trials on Saragosita and Bolivia lodes, are omitted from this account. The sands accumulating at all the mines are much in excess of the quantities re-treated, but they are possibly of lower value, as the greater improvement made in the first treatment of the ore the less the sands will contain.

Pyrites, too poor for exportation, is accumulating at Salada and Cecilia, and it is being left to decompose by exposure to be again rewashed when the decomposition has sufficiently advanced to set payable quantities of gold free.

Material is now prepared for erecting two new arrastres of the Tigrito type at Salada for the better treatment of these ores also, and a similar change will be made at Cecilia and V. R., as opportunities offer.

FARMS.

CUTURÉ.—Sugar planting and cattle breeding have gone on here without interruption. As anticipated in the last report, the balance for this half is on the debit side to the extent of $354 80, but against this, the sum of $157·90 was spent on improvement of roads, and another of $150 in extending the cane and making an addition to the house. The account for the whole year stands as follows:—After spending $400 on roads, $150 on houses, and $100 on extending the cane, a net profit of $555·25 was made; but this was arrived at by crediting the sugar produced at $10 per carga, and had the ruling prices of the district been charged, a further profit at least $1,509 would have been made. The total quantity of sugar produced for the year was 503 cargas or 50¼ tons.

Cattle breeding is shown to barely pay its cost, and it would not do so if not worked in conjunction with the cane fields; but having the farm on our hands with the cattle, and a need of all the oxen that can be produced, it is convenient to carry on the work. The present stock consists of 132 cows, 40 calves, 26 heifers, 25 steers, 4 bulls, 16 oxen and 4 mules. The deaths for the half-year have been 3 cows and 6 calves, and the births 13 calves. The new bull introduced for improving the breed has not done well, and it is feared that it is unsuitable to the place. Other animals will have to be tried, as it is seen inbreeding produces degeneration. The effect of the climate is strongly shown in the fact that with the large number of cows in stock, it is very difficult to maintain some 14 on the mines to supply the works with milk. At present the pasturage is in good condition, and more cattle could be kept on it.

CURUNÁ.—There has been no change in the work here, about 100 head of cattle, oxen, and mules, are kept on the places, recruiting strength, recovering from sickness, &c. Grass is more abundant than the requirements, and a few outside cattle are

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admitted occasionally on payment. The little rice and maize sown did well, and as the first seems a suitable grain for the land, it will be extended a little this year.

SALADA.—The various openings around the mines have been maintained, and a little more cane planted in the Bitumen and Zanbulligallo hollows, near Salada mine. Small patches of cane and grass are also gradually being laid out at most of the other centres of work. The stock on Salada has done good service in carriage of timber, stores, provisions, sulphurets, &c., and there have been few losses, the total being 5 oxen and 3 mules. The inventory now taken shows 120 oxen and 87 mules.

A total cost of $6,958·50 has been incurred in this department for the half-year, and of this the sum of $5,201·35 has been debited to other departments for work done, leaving a balance of $1,707·15 as representing the actual cost on lands, maintenance of saddle beasts, and other general work.

POCUNÉ.—A few cargas of sugar only have been produced here, and the lands having been neglected by the old tenant, he has had to be replaced by another. It being necessary to renew the fences, and this falling heavy on the incoming man, assistance has been given for it. A little cacao seems to be coming on now, but the trees look blighted or sickly. The new road to Saragosa has nearly reached the farm, and when the route is thoroughly opened (the Government has now shut down the work for want of funds), some value may be added to this farm.

POPALITOS.—This place has been periodically cleaned and the pasturage sustained for the benefit of cattle working on timber, the cost going to Salada farm that receives credit also for the hauling. The Para grass laid down for fattening has nearly all given way to the domination of the Grama or natural grass of the country.

TIMBER.

This department has received some attention in the improvements of roads beyond Popalitos, and a beginning has been made by the Company to extending the wagon road towards that point, the first piece, from the Doña Teresa stream to the top of the hill, having just been opened, although requiring some work to complete.

In spite of a tendency to higher prices from scarcity and greater distances for haulage, the total value of the timber for the mines in the half-year (£10,020) is less by $2,000 than that for the previous six months, this being due to greater economy in the consumption from more systematic working, and further results are hoped for in this direction.

PROVISIONS.

The harvest commenced in August and there was a fall in maize, rice and beans for a short period, but it was soon found the crops were comparatively short and the prices quickly went

up again. The high rate of exchange ruling had its effect on this also, and we are now back to rates of scarcity again, the prices all round being not less than 60 per cent. above those of normal times. Cattle, which have hitherto resisted the rise, are going up also.

A tabulated statement of the principal articles consumed, with their values and the total cost, is forwarded, and from this it will be seen there is little difference between the figures for this and the previous six months, and that the average cost of feeding the workpeople is $0.346 per man per day, which, reduced to the average exchange, gives a value of 9¼*d*. The great importance of this department is shown in the fact that the whole value of the provisions consumed forms rather more than one-third of our total cost outside of the tributer's accounts. Contracts for the principal articles of consumption have been entered into for 1888 at slightly lower rates, though meat is likely to cost more. Making these contracts has caused some anxiety, as it is most difficult to gauge the future march of exchange, extent of sowings, &c.

BUILDINGS.

The new general workshop erected was unfortunately burnt down by accident soon after being completed, and the larger portion of it had to be rebuilt. The candle factory has been re-roofed and extensively repaired, and the officers' quarters rebuilt. A small extension, with repairs, has also been made to the laboratory, and renovation of the buildings for the Salada farm-work will now shortly come on. Rapid decay of wood here renders house renovation and repairs an endless and wearisome task.

COSTS.

The summary of accounts forwarded will show that the total cost on the mines was only some $1,500 higher in this half than in the previous one, although the output of ore was so much larger. A comparison of the details present a few variations, notably pumping in Salada is $1,400 less from substitution of water for horse-power and general charges are some $4,400 higher through costs on buildings, roads, transport of sulphurets, and having a debit instead of a credit balance at Cuturú. The totals for the different mines present greater contrasts:—Tigrito, with 246 tons of ore increase, cost $980 more; Silencio, with 1,194 tons, $4,625—but this mine is exceptional from having tributers and extra works; Cecilia, with 326 tons increase, had $1,322 more cost; Córdoba, with 352 tons, only $84 more; and Rosario, with 35 tons, had $875 more, due chiefly to extra cost of deep cross-cut; whilst Salada, with 728 tons decrease, cost less by £6,309. The working cost per ton is difficult to compare, from the great difference in exchange in the two periods; but,

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calculating on the gross sum in dollars, the figures stand as follows :—

Mines.	1st Half.	2nd Half.
Tigrito	$15·81	$12·14
Cecilia	9·46	8·78
La Salada ...	10·56	10·93
Córdoba	9·18	6·64
Rosario	6·67	7·21

The value of the dollar being about 2s 8d in the first period, and 2s 2½d in the latter.

The amounts paid to tributers show a large excess over the previous half, the total being $41,617·15 against $24,177·35. This arises from two causes, a greater quantity of gold produced (738·85 ozs.), and a rise in the exchange from 150 to 181 approximately.

RETURNS.

As the mines are now producing considerable quantities of sulphurets of variable yield, it is necessary to deal with the values extracted rather than with the quantities only. A comparison on these, with the dollar at 5 to the £, shows the returns increased this half by $10,628·10 on gold, and $4,947·95 on sulphurets, being a total of $15,576·05, or £3,515 8s 2d. These figures are according to the assay values here, and do not include the return from the mines tributed, the amounts realised will be a little different—most likely a little more—as due allowance is made for drawbacks. All the mines share in the increase except Salada and Córdoba as follows :—

Mines.	1st Half.	2nd Half.
Tigrito ...	$5,627·25	$11,067·30
Silencio ...	4,616·00	10,511·80
Cecilia ...	14,477·35	23,280·70
Salada ...	23,898·25	21,172·60
Córdoba ...	14,010·50	11,679·80
Rosario ...	5,811·30	6,204·50
	68,440·65	83,916·70
Tributers, &c.	19,228·60	29,045·60
$5 = £ ...	$87,669·25	$112,962·30

To have a clear idea of the relative results from the different mines, a profit and loss account has been made out on the costs charged on this side as heretofore, but in this a difficulty is met with through the high exchange ruling lately, and our having taken advantage of it to make a good balance at our bankers. The extra premium received on the drawings over cost goes to swell the profits, and to make the comparison fair this

should be omitted, which would leave the account standing as follows :—

Mines.	1st Half. Profit. £ s. d.	1st Half. Loss. £ s. d.	2nd Half. Profit. £ s. d.	2nd Half. Loss. £ s. d.
Tigrito	...	357 10 2	766 4 0	...
Silencio	...	965 16 9	...	144 2 6
Cecilia	310 0 0	...	2179 4 2	...
Salada	...	1414 9 8	...	569 2 0
Córdoba	1641 13 11	...	1305 6 0	...
Rosario	137 12 0	...	217 6 6	...
	2089 5 11	2737 16 7	4468 0 8	713 4 6
Tributers &c.	700 5 2	...	1029 14 11	...
	2789 11 1	2737 16 7	5497 15 7	713 4 6
Net Profit	£51 14 6		£4784 11 1	

This account embraces all the costs on this side, but lacks the charges on gold and sulphurets in England, portions of travelling expenses paid there, the London expenses and other sundry accounts of an unimportant character.

RESUMEN.

It will be seen from the foregoing that the position of the mines has very much improved, and that they are beginning to reap the benefit of the outlays made in 1886 and the early part of 1887. Much has been done in developing the properties in putting them into a systematic and decent working condition and in improving the plant. With regard to the latter, there is still room for much to be done, as renovation is needed, and the development of the mines warrant it, but much care and prudence is required to keep this work within the limits that a due consideration of all the conditions will prescribe.

Salada appears to have reached the limits of the ore shoots on both lodes northwards and on the flat lode south. A large width of ore still holds on the main lode south and the opening up of this with the reserve will sustain the present output till the new level for which the shaft is now deep enough comes into work. This level will be in more solid ground requiring less timber, it will strike the lodes where they form a junction having high backs on both, and judging from the results of No. 1, ores of higher grade will be found there, all of which tend to a promise of better results than hitherto obtained.

Silencio has now been completely reorganised, sinking can go on with regularity, and the appearances in the bottom warrant the expectation of early meeting with ore. Pockets of rich quartz have been met with in the 220 underneath a long piece of sterile ground passed through in the 103, and there is now a better lode in the end than yet seen that promises to hold forth with a good height of virgin ground ahead. Late stopings on this section have

proved that a small vein of this ore will pay the cost of the mine, and there is now every reason for believing that the further outlays needed for testing this mine to a good depth will be met by the ore to be extracted from the 220, whilst any discovery in sinking will be a clear gain.

Cecilia has steadily progressed, and is now in a good position, with large reserves developed and the mining work well ahead. Further expansion can be made by increasing the power of reduction, and as at the V. R. there are means of doing this, advantage should be taken of the circumstance when renewing the mill there, care only is required in arranging for the new plant, to economically meet the output, that the conditions of the mine will allow, without unduly forcing the work.

Tigrito begins to show profits and should continue them, as there is a good reserve and the work has been simplified to a low limit, with the prospect of a good piece of ground to develop in front of the present working heading. Were it possible to increase the milling power, the mine could do much better, but there seems no chance of this at present.

The future of Rosario depends upon meeting with pay ore in the deep adit. There is a long piece of ground south to Córdoba line, known to contain shoots of ore, and these should keep the mine going for a considerable time, but the ore content is uncertain, and therefore no figures for reserves have been set down.

At Córdoba, the ore developed and left to open out in the No. 6, is considerable, and as the tramway, being laid down, will reduce the cost, profits will continue to be made for a long time, and in the meantime the Rosario shaft will be proving the ore at a much greater depth. The new mill now being put up will, when completed, allow of larger quantities of ore being treated, which will be an additional aid to the returns. Some of the tributed mines have been improving lately, notably Filipinas, Palmichala, and San Joaquin, and altogether the outlook is of a cheering character.

I am, Gentlemen,
Your very obedient servant,
SAMUEL GIFFORD.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,
LONDON, E.C., *21st March, 1888.*

The Directors have received advices from the Mines dated 23rd January and 6th February, 1888. Also a letter from Messrs. Restrepo, dated 12th January.

In submitting the statement of profit and loss for the month of January, 1888, the Directors have to announce a still further rise in the rate of exchange since the month of September last, when, in consequence of the extent to which exchange had then risen, it had to be treated as a deduction from cost, instead of an addition to receipts, through such an addition having become misleading.

The further rise now renders it equally misleading to express the expenditure of dollars in English currency, at the old par value of five to the £ sterling, and the statement now submitted accordingly gives the estimated value of the gold on the one side, and the actual estimated expenses on the other, without showing the calculation by which the results are arrived at.

The profit and loss account for the month of January is, therefore, as follows:—

Bullion from General Mines produced.....	1,019 ozs.
Tributers' gold.....	470 "
	1,489 ozs.

Also 1,835 lbs. of sulphurets estimated to contain 101 ozs. of bullion.

Estimated value of the gold and sulphurets			£3,690 12 0
Cost at the Mines, Medellin, and in London	£2,159 9 2		
Paid for gold bought of Tributers	903 13 4		
		3,063 2 6	
Estimated Excess of Returns.....			£627 9 6

Mr. Gifford's half-yearly Report has been received, and a copy accompanies this Circular. Mr. Gifford has arrived in England.

By order of the Board,
J. JAMESON TRURAN,
Secretary.

Mine Report of the Frontino and Bolivia Mines and Particulars of Work Done for the Month of January, 1883.

La Salada.

Description of Work.	Average No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. $	Average Yield. Tons per fm.	Oz. per ton.	Remarks.
Sinking main shaft	6	0 5 0	120	—	—	Is now down at a sufficient depth for cross-cutting towards junction of the two lodes, which will at once be proceeded with. In the meantime sinking will be continued for skip shoot and sump. Rock in bottom of shaft is still of a hard felspathic granite with faces of ferruginous matter.
Main Lode.						
No. 1 level south of shaft	4	4 0 0	18	12	½	Shows 4 feet of ferruginous quartz carrying pockets of soft pyrites.
Stope south of shaft	5	8 0 0	9	12	½	Lode slightly improved both in width and quality of mineral.
Flat Lode.						
Level north of shaft at the No. 1	2	1 1 0	16	18	½	Is being driven east of north ventilating shaft for the purpose of facilitating the stoping of overlapping branch of lode.
Stopes north of north ventilation shaft	7	11 14 2	12'50	12	½	Have a lode averaging in width 4 feet and composed of a white quartz, carrying a little pyrites.
Stope above No. 1 south of winze	5	6 0 0	16	10	½	Shows a lode 5 feet wide, but is much mixed with country rock.

Silencio.

Description of Work.	Average No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. $	Average Yield. Tons per fm.	Oz. per ton.	Remarks.
The 220 end north	2	2 1 0	30	6	2	The lode still maintains its size, average 2½ feet, and is stronger in bottom of level, apparently the shoots of ore are dipping west. I like the appearance of the quartz, also the formation around the lode very much. This point is very encouraging.
The stope over the 220 level north	1	4 0 0	12	3	1	The lode has not made up, everything is apparently dipping north. At places the two walls nearly meet, but still retains its regular course of a true fissure lode.
Sinking the main shaft	2	0 3 6	95	—	—	The shaft is sunk on the angle of lode, and is in hard country rock that does not require timbering, except occasionally, as has occurred this month, a cross-course coming through, which cuts up the rock and leaves slippery walls.

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Cecilia.

Description of Work.	Average No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average cost per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton	Remarks.
Driving the No. 7 end north	1	0 5 6	20	—	—	Work suspended here on the 16th inst., this portion of the lode (eastern branch) is pinched to about 6 inches in width.
Driving to cut the western branch No. 7 level	1	0 1 0	20	—	—	Have made a turn in the level about 6 feet from end, in order to cut the western branch; the turn will be gradual so as not to be inconvenient in bringing the car around, for the level will be continued on the eastern branch as at No. 6.
Stope north of No. 1 winze in back of No. 7 level	4	(cubic) 10 0 5	16	(cubic) 18	1½	Here the lode is divided by a horse of ground at present 5 feet wide, the eastern portion is 10 feet wide of good ferruginous quartz with sulphurets disseminated throughout. The western portion is 3 feet wide, and has a regular branch on the footwall 10 inches wide.
Stopes south of No. 1 winze above the No. 7 level.....	1	2 5 1	7.70	15	½	The lode is strong and regular, 7 feet wide, but low grade; have suspended work at present on account of having a large supply of low-grade ore broken; will be resumed again during the month.
Stope north of No. 1 winze in bottom of No. 6 level	3	3 3 1	9	12	½	The lode here is 10 feet wide, and on the footwall it carries about 3 feet of good strong quartz, but very much crystallized, and looks hungry; all stoping here is stopped until the stopes below are in advance.
Stope south of No. 2 winze over No. 7 level..	4	4 4 0	26.50	15	½	The lode is 6 feet wide, "Western branch" good looking quartz and mills moderately well.
Stope north of No. 2 winze over the No. 7 level	4	10 0 5	16	18	1½	The lode is 4 feet wide, "Western branch" well defined and heavily charged with sulphurets, this is by far the best point of operation in the mine.

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Tigrito.

Description of Work.	Average No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton	Remarks.
No. 5 level north	2	3 4 6	20	4½	½	Lode 1½ feet thick of an iron-stained quartz, enclosed in a semi-decomposed felspathic rock.
Stopes above No. 5 level north of hoist winze	10	18 2 3	11.50	6	½	Afford good grade ore from a lode averaging in thickness about 2 feet.

Rosario.

No. 4 cross-cut	4	2 5 0	25	—	—	Is in indurated granite, and progress slow.
No. 3 level north of cross-cut	3	6 2 0	10	6	½	Is going forth in good milling ore.
Stope behind No. 3 end north ...	2	4 3 3	14	12	½	Shows about 4 feet of fair laminated quartz.
Stope above No. 3 south of boundary line.....	5	11 0 0	9	6	3	Has a lode of rich drusy quartz varying in thickness from 1 to 3 feet.
Open cutting stope	1	3 0 0	2.	6	½	Is producing decomposed quartz from a lode about 2 feet wide.

Córdoba.

Driving No. 6 end north	1	2 5 0	13.50	10	½	The lode is 3½ feet wide, hard quartz, the best part of the lode is on the foot-wall, about 10 inches well charged with pyrites. On the whole is low-grade rock.
Stope in back of No. 6 level north	2	7 0 0	7	12	½	The stope looks a little better, the quartz is not so crystallised as that in the end, and gives better results at the mill.
Straightening No. 6 level..	1	1 1 0	28	—	—	This work was completed early in the month.

Silencio.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton.	Remarks.
285 end north	1	1 0 0	40	18	1	The lode is a little disturbed and has been heaved a little to the east, and dips nearly flat. Below the foot-wall part of the mineral the rock is permeated with mineral matter accumulated in thin veins, which is sent to the mill as ore.
Rise No. 1 above 285 level	1	1 0 6	36	9	2	Lode in breast of rise 3 feet wide, is very regular and yields good-grade ore.
220 drift north	2	1 5 6	45	7¾	3	Lode 2½ feet wide, 1 foot of which near the hanging-wall is a mass of pyrites and galena of good quality, surrounding rock very hard.
No. 5 rise above 220 level	2	1 0 4	36	6	1	Lode improved during the month in size and quality.
Stopes above 220 level	5	12 4 0	13	12	¾	North of No. 3 rise lode averages 4 feet wide, and produces good-grade ore near the "fault." South of No. 2 rise near the 150 level the lode is split up and divided into several branches—quality of ore has fallen off a little.
No. 3 rise above 220 level	1	2 0 0	18	—	—	Re-started in order to communicate with the 150 level.
150 drift north	2	2 4 0	26	—	—	Continued on the strike of the "fault" to the No. 5 rise from the 220 level.

Cecilia.

Description of Work.	No. of Men	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton.	Remarks.
No. 7 end north	2	2 2 0	22	3	¼	The lode has improved in width and is now 3 feet, is composed of white quartz and very light pyrites of very low quality.
Stopes No. 1 north of No. 2 winze	2	1 5 0	22	18	1	Lode 6 feet wide and produces good-grade ore, holed through to the No. 3 winze.
Stopes No. 2 east portion of lode	2	1 2 6 cubic	22 cubic	18	½	Carries 6 feet of mineral composed of crystalline quartz and yellow pyrites.
Stopes No. 3 south of junction	2	5 3 0	22	18	½	Lode 9 feet wide, 6 feet of mineral and 3 feet of low-class mineralised rock, which is extracted as waste rock and used for refilling stopes. The lode is heavily charged with pyrites and impregnated with galena.

Tigress.

Driving No. 5 level north	2	1 4 9	20	6	—	The lode is 3 feet wide, of hard crystalline quartz, intermixed with country rock. Very low-grade ore.
Rise above No. 5 level	2	2 0 9	22	1¼	½	Lode 5 inches wide, of hard white quartz of low grade, similar to the end.

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Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Oz. per ton	Remarks.
Driving No. 6 level north	4	3 1 3	20	3	1	Lode 3 feet wide; on the hanging-wall is a branch of quartz 8 inches wide, carrying a little pyrites, and of a promising character. The remainder of lode being disembowed.
Cross-cut east No. 6 level	3	3 0 0	12·50	—	—	Was driven to prove whether part of the lode had not gone off east, so far nothing has been met with.
Rise No. 6 level north	3	2 3 0	9	—	—	To communicate with No. 5 level for ventilation, a shoot having been put in will serve for the purpose of passing mineral from No. 5 level to the mill.
Stope above No. 5 north	3	5 1 0	8.50	4½	1	The lode in stopes averaged 1½ feet wide during the month, and is now nearly worked out.
Stopes above No. 5 south of boundary line.....	3	3 0 6	8	—	1	Part of the stope suspended, the mineral being of low grade.
Pillar above No. 5 level, south of No. 5 cross-cut	2	2 0 0	Contract's sic 6	—	2	Left by old workers, pays working cost and leaves moderate profit.
No. 4 cross-cut	6	3 1 6	150	—	—	The hard granite has been cut through, it gave way to a band of schist, which was found to be 3 feet wide, on the western side of it the cross-cut was driven through a soft decomposed granite, which requires strong timbering, a branch of mineral passed through proves of low-grade ore. A stream of water is issuing from the breast of end.

R. C. JONES.
GEORGE LAWS.

MR. HODGES REPORTS ON THE MINES.

23rd March, 1889.

LA SALADA STOPPED.

I am sorry to inform you that the latest trials on and below the junction at the No. 2 level are most unsatisfactory. A vertical winze 10½ feet was sunk 17 feet south of cross-cut, where the main and flat lodes joined, through three distinct *horses* in the main lode as shown on plan forwarded. After being thoroughly satisfied that nothing passed under the level we began to sink a winze on the lode below the junction, and continued it to a depth of 21 feet with most discouraging results, the lode gradually diminishing in width and value. Lode at No. 2 level 1 foot 6 inches wide, 1 foot of white hungry looking quartz, and 6 inches of low mineralized rock, with barely a sign of pyrites, width of lode in bottom of winze 8 inches—4 inches of white quartz, and about 4 inches of low mineralized rock. My previous report is now completely confirmed, that the main and flat lodes began to diminish in width and value from the No. 1 level, down, and I cannot understand why present widows should continue to [illegible] of the Company. I am acting justly to the Company.

TRIBUTERS.

Who are contracted to explore and work other lodes adjoining Salada, are employing many men to push several trials. One tributer begins to mill in two days from now.

SILENCIO.

MAIN SHAFT.—Three new sets are put in position in bottom of shaft, two more are required. Previous to sinking these will be put in as quickly as possible, a few to month of shaft several sets have been replaced.

185 LEVEL NORTH.—The lode in end has been slightly disturbed, making a sharp turn to the east, the width of level being almost entirely in the footwall, which is mixed with several small strings of pyrites which pay to mill. The drift is being turned in order to cut through more to the hanging portion of the lode.

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RISE ABOVE THIS LEVEL.—Lode 3 feet wide of rich ore, and continues regular in dip and strike.

220 LEVEL NORTH.—Lode about 2½ wide, near the hanging-wall, it is very heavily charged with pyrites and galena, giving good results at mill.

No. 5 RISE ABOVE THIS LEVEL.—The lode has improved much. This is very encouraging, as we shall soon have to stope at this point.

STOPES NORTH OF No. 3 RISE.—Average width of lode about 4 feet close to fault. It has yielded well.

220 LEVEL SOUTH.—Shall start to drive south to communicate with the centre shaft, to prove the lode and for ventilation; the latter is very necessary owing to bad air at times in the mine.

150 LEVEL NORTH.—This is being continued to communicate with the No. 3 rise, above the 220 level north.

The winze sunk by former workers below the 103 level, has been cleaned of waste rock, and opened up for ventilation in connection with No. 2 rise.

The duck machine, which has given such good results at La Salada, is being fixed in shaft to further improve the ventilation.

MILL.

Water increased a little through a few showers which have fallen of late.

CECILIA.

No. 7 LEVEL NORTH.—Lode in end has opened out to 3 feet wide. It has been of low-grade ore, but the present indications are more favourable. The mineral is taken to a separate floor for some future treatment.

THE STOPE NORTH OF No. 2 WINZE has been holed through to the No. 3 winze, has yielded lower class mineral, especially on the eastern portion of lode or stope. No. 2 contains crystalline quartz and yellow pyrites.

No. 3 STOPE widens as it advanced south of junction, and carries more galena.

MAIN SHAFT.—Two complete setts of timber have been put in position above No 6 level, with new linings. The skip has consequently been much delayed during the month, the mills being supplied from the mineral deposits. Timbering rather heavy of late. New iron skips are being made for shaft-hoist; two streng pulleys are ready to be fixed over shaft for hauling wire. These new works are being executed previous to sinking.

PUMPS are working much better lately, owing to fall of rain.

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THE NEW MILL.

The house will be complete in two weeks from date, after which we shall begin to make headways. Over 3,000 tons of earth have been taken away to form the floor for mill, puddle and catch pits. A large portion of mill has arrived. I have a lot of mules on the road down and up, to take advantage of low rates; when I am advanced a little more with "V.R." "Silencio" site will be taken in hand. It will be so arranged, so as to receive the "Guanana," "Pocuno" and "Nemeheme" waters. My object for so doing is to ensure a continued supply in the driest of seasons, and ensuring every probability of increasing the number of batteries if required at any future date.

TIGRITO.

No. 5 LEVEL NORTH.—No change in lode since last report, still continues low-grade ore. We have very little further to drive before we start on the vertical shaft.

RISE ABOVE No. 5 LEVEL.—The lode is pinched and very poor-class ore.

SANDS are being washed at a profit, as in previous months.

MILL.—The few showers of late have not made any difference as yet.

CÓRDOBA AND ROSARIO (AMALGAMATED).

No. 6 LEVEL NORTH.—Lode about 3 feet wide. It is improving a little of late and looks more encouraging; we are getting close to the other pay shoot (or centre shoot).

A SHORT CROSS CUT was driven to prove if the lode was thrown to the east. Several slides have been passed through in the level; nothing was met with.

MINERAL FROM ROSARIO is being brought through the No. 3 and No. 5 levels to be milled in Córdoba. STOPES, Rosario side above No. 3 are of rather low grade lately.

No. 4 CROSS CUT ROSARIO SIDE.—The hard granite we have had for several months gave way to a compact schist of from 3 feet to 3 feet 6 inches wide; after passing through this band we came into a soft running decomposed granite. Heavy setts of good timber are being put in. We passed through a branch of mineral about 8 to 12 inches wide, which only gave traces of precious metal. The water issuing from the end no doubt indicates that the lode is slightly ahead of us.

WATER.—Very short for the mills as yet.

8th April, 1889.

Since writing my last there has been a slight change for the better in Silencio, Cecilia, Córdoba, and Rosario. Tigrito, I am sorry to say, still continues poor. I have been to the main river to make arrangements for the transit of cargoes, and am pleased to report that the most important parts of the mills are here and at Regla; the wheel shafting is at Regla for both mills, and they will be brought up in a few days. The house at V. R. will be finished next week, when the heavy timbers will be taken in hand for the frame work. The wheel will also be finished in a few days ready for the ironwork. Shall soon be making a show.

SILENCIO.

285 LEVEL NORTH.—The lode in end seems to be settled now to its regular width of 3 feet of rich ore.

RISE ALOVE 285 looks well, it is regular and of good quality.

220 LEVEL NORTH.—Lode in end has still improved, almost equal in quality to the 285.

No. 5 RISE above this level has also improved.

220 LEVEL SOUTH is being prepared for tramroad. Contracts will be set for the driving of the end on the 20th of this month.

MAIN SHAFT.—Two more setts are ready to put in position before the 20th.

CECILIA.

The lode in No. 7 end continues without change, still low-grade ore.

Stope south has fallen off in quality. A new stope will be commenced south of No. 3 rise, which is much better quality ore.

CÓRDOBA.

No. 6 END.—Lode improved both in size and quality. My opinion is we are close on centre pay shoot.

No. 4 CROSS-CUT.—We have cut through another branch. There is little doubt but what the main lode is close in front.

MILL stopped—no water.

ARTHUR HODGE.

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No. 6 LEVEL NORTH.—The lode has pinched somewhat the last few days as expected.

STOPES.—We are getting good mineral from stopes over No 6 level through cross-cut east.

WINZE.—This is being sunk with all possible speed to prove the shoot, and hole down to meet No. 7 Level south when sufficiently advanced. It looks splendid, and is good, about 4 feet wide, carrying immense quantities of pyrites.

Winze below No. 5 level north, close to boundary line, will, I feel sure, hole through to-night or to-morrow. A great relief to the lower workings.

MILL is giving good results. We shall have better results now the buddle is finished. The timber is in for the extension of the mill house.

TIGRITO.

I stopped two cross-cuts No. 1 and No. 2 to continue the No. 3, which is being driven on a lode close to Rosario Mill. The lode in No. 3 drift is about 18 inches wide of good-looking quartz, but am sorry to say it is not so good as it looks. I hope for improvement as we get under the hill.

ARTHUR HODGE.

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Folleto 11.

Libro: Informes De Gerencia
Año: Ene 1886 hasta Jun 1890
Título: Informe General. Mr. Hodge Hasta el 20 Junio de 1890.

THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

MR. HODGE'S HALF-YEARLY REPORT.

LA SALADA,
July 23rd, 1890.

To the Directors of the Company.

GENTLEMEN,

In pursuance of the usual course, I beg herewith to submit you a Report on the work done and the results for the past Six Months to June 20th, 1890.

The labour competition still continues, and is likely to have a marked effect on wages of all classes.

MINING DEPARTMENT.

SILENCIO.

MAIN SHAFT.—Sinking main shaft in the beginning of the half-year was slow and disappointing, owing to the hardness of the rock and want of men accustomed to hard driving or sinking. At present we have good men and are paying a good price to encourage them. Water has increased but very little so that sinking can be continued with the 6-inch lift pump for a considerable depth. Therefore, instead of fixing the 10-inch force pump as I originally intended, I consider it advisable to wait and put it close to the next level, thus avoiding detention. Two-thirds of the water comes from above the 220 level, and on this point I have a scheme which I will explain on my return to England. The depth of shaft below 286 level, for the present level,

should be 60 feet, and that can without doubt be accomplished before the end of the year.

The borers which I have had made here from the stems of worn-out steel stamp-heads have proved to be very effective for the work, a hint to any manager who uses the ordinary steel stamp-heads.

286 Level North.—Drivage on lode 68 feet 3 inches, a slight increase on the previous half-year. Average width of lode from 2 feet 6 inches to 3 feet. The lode has been with one or two exceptions regular, but the last three months not quite so good in quality. We are now between two shoots, therefore we are not surprised at the local drop in returns. At time of writing we are pushing with all speed the drift to meet the fault. The lode this last few days has improved much. On the foot-wall there are several small veins of pyrites. The waste rock between walls is much more favourable, and there is a slight increase of water in forebreast of level.

286 Level South.—Drivage on lode 20 feet; when we had driven 15 feet we met a string or feeder of the lode, and a few days after the lode opened out to 3 feet wide of white but healthy-looking quartz, with several small pockets of pyrites and blend. The walls are the most favourable I have seen in the Mine, and augur well for the future prospects on this side of Mine, where in former years so much gold was extracted close to surface.

Stopes above 286 Level North.—We have stoped 53 fathoms during the half-year. The result from same has been most satisfactory at Mill, where the mineral was mixed with ore from all points of operation throughout the mine. At time of writing the lode is about three feet wide of very fair looking ore, not poor in quality. Care is being taken to fill in stopes to prevent crushing, and danger to the men.

220 Level North.—Drivage on lode 88 feet, almost double that of the previous half-year. The lode has varied considerably during the six months, at times pinching to a few inches, then opening out to a foot wide. It is my intention to continue this drift, for reasons of great importance to the mine, which I intend to explain at the next Meeting of Shareholders. I have hopes, and to me they are most reasonable, that we shall find mineral of value at this point.

Stopes above 220 Level N.—We have stoped 27 fathoms north of No. 5 Rise during the six months, and most of it has given exceedingly good results at mill. The lode has varied much, as will be seen by my monthly reports,—pinched at several points, and at other points bunchy. The walls have been very hard indeed, breaking badly when fired. The ventilation is much better now. The lode found while sinking from the 150 level

down to meet No. 5 rise has improved the last few days. I had the ore milled separately, and the lode is being examined with all possible speed that I may report on it. I believe it to be only a swelling locally of the lode, a peculiar character of this mine.

150 Level North.—We have been driving through hard country to meet the No. 5 rise. It is now stopped. The rise will be continued to hole into the 103 or adit level, to ensure good ventilation at all times, and an easy method of filling stopes from surface if required.

Timbering.—There is very little timbering done in this mine except the main shaft above the 220 level, and the 103 or adit level. The shaft is now in real good order, opened out and well timbered, with skip-road to surface.

Ventilation Shaft is in good order.

Mill has given good results during this six months, having crushed 1230 tons, about equal to that of the previous half-year. Owing to theft among those employed in the mills, I was obliged to discontinue the amalgam plates, and our returns have certainly been better. Produce 2,930 oz., a little under the previous half-yearly return, but the value per ton of ore rose from £6 6s 8d to £6 9s 3d.

The New Mill.—I am getting the site ready, and have workman's house and kitchen erected, and am now putting up a shed for the mechanics to work under. Timber is being brought in for the mill. This mill will have to be constructed differently from Cecilia mill, because the ore of Silencio is not to be treated in the same way as that of Cecilia.

The site is in a most convenient position both for water and mineral, also the treating of sands, after they have been exposed for years to atmospheric action, freeing the gold from the pyrites by decomposition.

Tramroads.—Inside and out of mine are extended up to all points of working and are in good order, as also horse-whim and skip-road in shaft.

Buildings.—A new store and pumpman's house, a provision store and women-cooks' house have been erected, workshop altered, mill roof repaired, captain's house finished.

The mine has a good future before it. It is the deepest mine in Colombia, and without boasting is the best worked. Health of workmen better.

CÓRDOBA.

No. 6 Level North.—Drivage on lode 90 feet. The lode held good for several fathoms, then pinched to about a foot,

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again opening out to 5 feet 6 inches of good-looking quartz, carrying on foot of lode 1 foot of small veins of pyrites, at times showing free gold. A richer lode I believe it impossible to see anywhere in this country. Its size, character and healthy formation, with regular walls, give most decided hope of its holding down some distance. I am pushing a winze night and day to prove it in depth.

CROSS-CUT EAST.—This cross-cut was driven to cut the lode as before mentioned, and then continued north and south on lode, which opened out to 6 feet and at places 7 feet wide of rich mineral. The same is being stoped at time of writing this report, and no doubt will give us mineral for two months more.

STOPES ABOVE No. 6 LEVEL NORTH.—We have stoped about 53 fathoms 3 feet. It can be seen by plan that we are near the boundary line between the two mines, Córdoba and Rosario. The returns have been the greatest on record, never in the history of this Company have 23½ lbs. of clean gold been taken out of the battery boxes at one clean up, and this without picking out the ore of the mine, but leaving behind even greater riches below the No. 6 level. The fine portion of mineral which contained large quantities of pyrites was taken to the mill in sacks to avoid loss in transit. A portion of the lode which passed under the No. 5 level did not continue up further than about 4 to 6 feet. It became pinched and poor.

RISE.—A rise will be begun this month close to end to ventilate and prove the backs further north.

No. 7 LEVEL NORTH.—Drivage on lode 18 feet. I stopped this to facilitate the continuance of South drift, which is of much more importance, as reported in my monthly reports.

No. 7 LEVEL SOUTH.—Drivage on lode 70 feet. The lode has varied much in size, quality and direction. The most peculiar feature at this level has been the several faults met with; a large quantity of water is coming from the forebreast of level. The lode in the end at time of writing is about 15 inches wide of similar looking quartz to that in the present end of No. 6 level north. Ventilation very good in all lower workings.

No. 1 CROSS-CUT WEST.—I considered it advisable after what happened in the No. 5 level to drive a cross-cut to prove our actual position at what is called the boundary line. The mineral and country rocks of Rosario are almost entirely different to those of Córdoba. Therefore I considered it necessary to know if such change continues in depth. I am positive that such does occur, and as far as has been seen it had a detrimental effect on the lode, for at this point the lode was not only cut, but thrown west 28 feet and reduced both in quality and size. Drivage through soft country and small veins, 34 feet.

CROSS-CUT No. 2 WEST.—Drivage 34 feet in similar ground to the above-mentioned, and with the same object.

No. 3 CROSS-CUT EAST.—Drivage 18 feet with the same object.

RISE ABOVE No. 7 LEVEL NORTH.—This rise was holed through into No. 5 level on July 8th, much to the relief of all workers in the mine. The ventilation is now exceedingly good all through the mine. It is my intention to widen and re-timber the rise, so that mineral may be passed down to No. 7 for conveyance to mill by new tram-road.

Total height of rise 135 feet.

MILL.—It has given great satisfaction, and would have given greater, had not the Sucre Company caused us serious and constant delays by turning off the water without any legal right whatever. I was obliged to make constant complaints to Mr. Crosley. The mill is now fitted with a round huddle 15 feet 6 inches diameter, and an arrastre of 6 feet diameter, for the treatment of sulphurets, &c. The house is being extended for the covering of same.

TRAM-ROAD.—The road is now finished with water ditch to convey the water from No. 7 level to the mill. Total distance 4,800 feet. Another heavy piece of dead-work executed. I have also cut down the brushwood around the mine to reduce sickness. Tram-roads are continued up to all points of operation.

PRODUCE.—Total tons crushed 1,451 tons, produce 3,625 oz., an increase of over 200 tons crushed, and an increase in the returns for this half-year of 2,027 oz. The value per ton of ore has risen from £3 10s 8d to £6 10s 2½d, an increase over last half-year of £2 19s 6½d, such returns speak for themselves. The improvement in this mine since my arrival is most visible, and in place of an old mill of 8 heads we have a 16-head mill, working with the same amount of water. Tramroads are now extended to all points of workings, and the mine is being proved to a further depth of 180 feet on the angle of lode. Practically speaking, the dead-work is finished for many years to come, and two of the richest shoots of mineral on the Company's property to work on explored, ensuring a safe and profitable future, for which I am thankful.

HEALTH.—Clearing away the bush for grass to grow has had a noticeable effect on the health of the workmen. The Captain and men are much more contented than before.

Roads to mine opened and levelled.

TIGRITO.

No. 5 LEVEL NORTH.—Drivage on lode 6 feet. We

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encountered several difficulties in driving this level. The water increased considerably as we proceeded under the Guanana flat, so much so that very close timbering and 3-inch plank lagging had to be used. The walls became a slimy decomposed granite. Seeing these difficulties I considered it advisable to stop the driving until we had some means of paying our cost. Hence my endeavour to find mineral in the Virgin Hill close by.

Cross-cuts were driven.

THE No. 1 is driven 19 fathoms 2 feet 6 inches through country rock with the object of cutting the lode in the centre of the hill. This will be continued and about 25 fathoms more will have to be driven before we can cut the lode.

THE No. 2 CROSS-CUT was driven to cut a lode which runs parallel to Tigrito lode. The vein was small and poor quality, and the cross-cut was stopped.

No. 3 DRIFT.—We have driven on the lode 4 fathoms 3 feet. It is about 15 inches wide of very favourable looking quartz. At first it gave very unsatisfactory results at mill. I continued driving with the firm belief that it would improve as we got under the hill. My hopes are about to be realized. This last week we have met with mineral containing free gold in large grains. This is most satisfactory indeed. I am pleased and thankful that my earnest endeavours have not been in vain.

CECILIA.

MAIN SHAFT.—Sinking main shaft this half-year was slower an I expected. Progress 4 fathoms 3 inches. The surrounding ground is firm and easy to break, our principal drawbacks have been the bad water, the pumps getting out of order, the hauling of mineral in shaft, and the lowering of heavy setts for No. 7 evel. Total depth of shaft at time of writing 161 feet vertical. The water did not increase as might have been expected, considering that the shaft and workings are so close to Doña Teresa stream and a large swamp. It is necessary, however, in future to have a reserve of pumping power, in case a mineral vein or fault, which at present is acting as a dam to the mine on the south side, should be cut.

No. 8 LEVEL NORTH.—This was begun on June 20th, and should be continued for 100 feet on the lode, then gradually turned to the east for about 30 feet, and then driven north in parallel direction to the lode. Experience has impressed on me the vital necessity of a separate or independent level to secure the uninterrupted working of the mine, because of the walls of lode being greasy, the lode being vertical, the water acid and

injurious to the workmen (destroying the ironwork of waggons and rails), the cost of the immense amount of timber crushed, and the labour of re-timbering every few weeks, and also the detention in transit of mineral through the same.

I firmly believe that the No. 8 level will prove that the horse between the eastern and western branches will pinch out, and that the eastern branch will be the one lode, if so we may expect the lode to be better in quality and easier to work.

No. 7 LEVEL NORTH.—The costly timbering of this level is now finished. Setts averaging from 20 inches to 2 feet in diameter are put in this level, the very best timber to be had in the forest. We are now putting in setts in No. 3 winze, so that in a few weeks this mine will be in a better state than it has ever been before.

STOPES.—Ground stoped above No 7 level, total 62 fathoms 2 feet. The greater portion of mineral was stoped north and south of No. 2 winze on eastern branch. The western branch pinched to about 2 feet wide of low grade ore driving north. Stopes north and south of No. 3 winze look well, and our returns will no doubt increase very soon.

VENTILATION SHAFT.—Total depth at time of writing, 100 feet. We shall have to sink about 20 feet more before we hole through to No. 6 level north. I hope to accomplish this in two months. It will be a splendid thing for the mine. It should undoubtedly be continued down to the No. 7 and 8 levels.

SHAFT No. 2.—I have been most desirous to begin the above, but was hampered with too much dead-work, viz.: the new mill, water-courses, tramroads and buildings, the sinking of main shaft and the timbering No. 7 level. I saw the impossibility of doing all at the same time, so left this to be done later.

V. R. MILL.

I am pleased to report that I am satisfied with the crushing power and smooth working of this mill. I introduced several improvements and am pleased with the results. The self-feeding gear (automatic) which I made here, has answered well, it is simple and effective. I have so arranged the tables, that experiments can be made (and are being made) to avoid the heavy loss of float gold, and the millman has everything under his eye at a glance. The water wheel is 32 feet diameter. There are 4 buddles 16 feet diameter and 4 arrastres of 6 feet. These are concentrating very satisfactorily. The water wheel is sufficiently powerful with the addition of the Doña Ana water to work the 16 heads at ful speed—70 to 75 blows per minute. A Blake and Marsden crusher

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of 5 tons per day, and 4 Frue Vanners, I have asked, may be furnished. I will explain more fully as to these on my arrival in England.

TRIBUTERS' MINES.

FILIPINAS.

The returns during the half-year have been from pillars left in the various levels. As reported in my last half-yearly report, this Mine is drawing to a close, as the lode did not hold down. The two lodes mentioned in previous report have not proved satisfactory, and work has been stopped. Having gathered from previous workers of an old mine near, that there still existed payable mineral there, I proposed to him to try it. He is willing to do so for a term.

I examined the position of this old mine in company with the old Tributer and Don Felipe Hernandez, the present Tributer. The lower mill would have to be moved closer to the old mine. Total produce for this six months 365 oz., 1 oz. more than previous half-year.

ITALIA.

The old workings close to mill have been abandoned for some time. The present workings are close to the Molato stream some distance up the San Pedro, on a lode which passes the Molato stream and rises again on the hill, which is being worked as the continuation of Italia Mine. The last named portion of the lode is by far the most favourable looking, a plan of which will be forwarded. Total produce for the half-year 136 oz., against previous half-year 273 oz. (a drop of 137 oz.)

PALMICHALA.

The principal work done here is the completion of the new native 6-head mill, with water-course and tram-road to same. The adit level has been driven and the tributers cut a portion of the main lode left by former workers. The lode in forebreast of level is about 6 feet wide of favourable looking quartz, mixed with waste rock; near the hanging-wall there is a small vein carrying free and visible gold. A rise was put up on the lode 42 feet. When I inspected the mine last the lode was disordered and rather poor, but I advised the Captain to continue the rise. The lode stuff in rise

was about 3 feet wide of dark carmen earth and iron-stained quartz, with two or three small veins of dark pyrites, a favourable sign in this mine.

Still as to the future of this mine I see nothing to build any great hopes on. It is not practicable to drive a level lower than the present one, and if it were, it would be absurd to spend money on such a costly undertaking, when we know that the only pay shoot in the mine becomes smaller and poorer in depth. I have endeavoured to impress on the tributers the advisability of exploring other lodes, and I have no doubt they will. The assistance I have given to the tributers has had an effect on the returns. Produce for this half-year, 535 ounces, against 138 ounces in the previous half-year.

LA SALADA.

The same tributers are working the outcrops of this mine, which were put on one side by the old workers of many years ago. Two drifts have been put in hill on same side. No. 1 drift cut a lode which was worked by former workers of San Joaquin. The results show a small profit. The other portion of the mine lately worked by Hermogenes Sanmiguel is stopped, his term having expired. The other tributers are now working the mill. The total produce for this half-year, 793 oz., against 630 oz. in the previous half-year; increase of 163 oz.

SAN JOAQUIN.

There are several works of importance here at present, including the bringing up a deep drain from the Guanana flats to drain the ground around mill and assist the driving of a level on the San Estephen lode, which has a different direction to the San Joaquin lode.

SHAFT.—This shaft is close to the candle factory just under Salada hill. Total depth, 90 feet. It is used for ventilation and the lowering of mine timber. I selected the position myself, as upon the future working of San Joaquin or Salada in depth, this would be the main shaft. The Pocuné water can be brought to work a pump wheel and return to No. 2 mill, as previously used at Salada.

A new workman's house, cookhouse and other improvements have been made during the half-year. Although the returns have lowered considerably, the tributer has not flinched in repairing the property, putting up new buildings, besides making several exploratory trials of importance; not the slightest doubt but what he has lost close on $6,000 dollars this half-year. Produce for this half-year 407 oz., previous half-year 1,486 oz.—a considerable reduction.

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MARMAJON.

This mine has given returns only from the sands from Córdoba, produce 32 ounces, same as last half-year. The main level left by Señor Monsalve has been continued with the hope of cutting a lode which I call No. 2 Cogote. A lot of money has been spent here up to the present but with very little results. Both mills have been repaired. The tributer deserves good luck for the liberal manner in which he conducts the works.

GARIBALDI.

I am very sorry indeed that the tributer Don Nacianceno Arango has not met with better luck, he has spent money on exploratory trials in a plucky and consistent manner. His total loss as per book was over $2,000 for the half-year. 12 oz. produce for half-year.

EL SALTO.

This mine has done better this half-year. Produce 261 oz., against 124 oz. in previous half-year, being more than double.

The principal works are on the upper side of the mine, close to the side of the stream, and in the hill which lies between the Guanana stream and Segovia. The tributer is very unwell and has been for some time.

TREATMENT OF ORE.

The total quantity of ore crushed by the Company during the half-year was 3,873 tons, a decrease on the previous half-year of 1,289 tons, but the returns of gold have considerably increased, and will be further increased when the stopes in Córdoba and Cecilia are in full swing. The mines were never more encouraging than they are at present.

SANDS

Are being treated systematically in all four mines, both by the Company and contractors. The rich sands are not being treated, but will be reserved for improved machinery, which I have asked the Board to order in due course.

TIMBER.

A large quantity of timber has been used in the finishing of the Victoria mill and in the Córdoba and Silencio mills, and in the timbering of No. 7 level Cecilia, with especial setts. Also a

quantity of planks and square timbers have been prepared, and lie on the Pocuné watercourse to dry, in readiness for any emergency.

CANDLE FACTORY.

Total number used for the half-year, June 20th, 1890, was 91,435. We have used 8,912 less than the previous half. On Stock, 27,078.

PROVISIONS.

Provisions have been more abundant and the crops better. Our farms have provided the mines with the greater portion of raw sugar and yuca, and will continue to do so for some time to come.

FARMS.

CUTURÚ.—During the half-year this farm has produced 14 tons of raw sugar, about the same as last half-year. Our present stock consists of: cows, 82; heifers, 61; oxen, 21; steers, 38; calves, 46; bulls, 5; mules, 4. I have increased our sugar plantations to double what they were.

The profit on this farm is $603. The total value of stock, $7,422, an increase on the previous. The cattle are in much better condition. The pasture lands are clean and in good order.

CURUÑA.—Shows a loss of $99. The rice sown in April will show a good profit for the coming half-year. We can with safety calculate on 9 to 10 tons of rice, which at the time of writing is being gathered. This farm is kept as usual for beasts to rest and also to fatten. Stock: cows, 9; heifers, 8; steers, 14; calves, 3; mules, 1; total value, $780. A new house and kitchen have been built.

LA SALADA.—The usual work in keeping roads and farms in order. The usual work of carriage of timber, stores, provisions, sulphurets, &c. Stock: 109 oxen, 77 mules, 7 horses. Deaths, 3. Total value of stock $11,103.

MANON.—Produce of raw sugar for the half-year 6 tons 15 cwt.; it is of much better quality than Cuturú. Produce of yuca 11 tons 14 cwt.; we have a lot more to be dug up yet. Profit for this six months $223. During the next six months a larger profit will be shown because of the large quantity of sugar-cane ready to be milled. Stock: mules 2, horses 8, oxen 2. Value of same $467. Cattle also are sent to this farm to rest and fatten.

POPALITOS.—This farm is kept to sustain cattle engaged in training oxen to employ for timber purposes.

PAPALES MEJIA.—This farm is used to supply food and housing to several mules, which work on the mines.

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Roads to Cuturú and mines have been opened. The part of main road from Alto de Ruda to Salada has also been repaired. Cost of same $429.50; several openings have been made to improve the health of the workmen.

SUMMARY.

SILENCIO.—This mine has given a profit estimated at £4,740, an increase on the previous half-year of £176. The mineral has given good results, and I am pleased to say that at the present moment the 286 level south is improving much. Our reserves in this mine in sight are much over 6,000 tons of good and payable mineral, and as the 286 level north proceeds so will our reserves. The No. 2 pay shoot is intact, from which much may be expected. Actually speaking we have at the time of writing 12,000 tons. The just hopes for another 12 months mentioned in my last half-yearly report can be doubled with safety. 40 tons of mineral broken on floor.

CÓRDOBA.—The profit for this half-year is estimated at £6,667, an increase on the previous half-year of £5,195. I now express myself in much stronger terms as to the future of this mine than I did in last report, and can vouch for there being mineral of far better quality than we have as yet taken out. The reserves of rich mineral at time of writing are 4,500 tons, something for my successor to continue the splendid profits lately given. About 50 tons on floors.

CECILIA.—This mine shows a loss. The reasons are as follows: The new V. R. Mill, water courses, and the unfortunate breaking down of the old V.R. mill before the new one was completed. The amount of tons crushed was about half that of the previous half-year. The present reserves are a little over 4,700 tons, more than sufficient until the No. 8 level is advanced enough to give a large amount of, I hope, payable mineral.

TIGRITO.—We are only working on hope here as yet, and nothing can be foreshadowed with any certainty.

TRIBUTERS' MINES.—Some of them look well enough to hope for better results, but others are anything but encouraging.

HEALTH.—This was better up to April, when sickness increased in all the mines, in June and July especially. I am pleased to say I have received marked assistance from Mr. Laws, Mr. Hocking and Mr. Fernandez, and beg that the same may be made known in my published report for this half-year.

I am, Gentlemen,
Your obedient Servant,
ARTHUR HODGE.

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- Título: Folleto 7.
Informe mensual mar-10/89.

1887 - 1889

como sobre los mismos de Mr. Hodge, 1889

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

164, Gresham House,
Old Broad Street,
London, E.C., *14th May, 1889.*

The Directors have received advices from the Mines dated 23rd March and 8th April. Also a letter from Messrs. Restrepo dated 12th March, 1889.

The statement of profit and loss for the month of March is as follows, viz.:

507 tons from General Mines produced		487 ozs
Tributers' Gold		236 "
		723 ozs.

Also 2,240 lbs. of sulphurets containing 58 ozs. of bullion.

Estimated value of the gold and sulphurets		£1,615 10 10
Cost at the Mines, Medellin, and in London	£1,969 12 6	
Paid for gold bought of Tributers	361 13 4	
		2,331 5 10
Estimated Excess of Expenditure		£715 15 0

The dry weather continued during nearly the whole of the month. Towards its close a few showers fell, but these were not sufficient to affect the returns, which show a further reduction of 105 tons. In his letter of 8th April

Mr. Hodge says: We had a few showers but they again fell off. While writing this the sky looks full of rain. The rainy season is close at hand. May it come and continue. If so, I am sure we shall, all round, have good cause to be satisfied."

In his reports of 14th January and 8th February, Mr. Hodge stated that he had stopped all points in Salada Mine except the works necessary to prove the ground at the junction of the main and flat lodes, as the best of such points would not pay cost. He now reports that there is nothing of value at the junction, and has stopped the Salada Mine altogether. The expense of the explorations for the month are included in the month's cost, without any returns against it. This outlay, which has been considerable, will now cease.

At Silencio the lode in the 285, which had become disturbed, had settled again, and in the latest letter the lode in the 220 is stated to have improved, and to be nearly equal in quality to that at the 285.

At Córdoba the explorations which have lately been going on seem to be on the eve of giving good results, but the mill is standing still for want of water. The Mines Córdoba and Rosario are now amalgamated.

By order of the Board,

J. JAMESON TRURAN,

Secretary.

MINE REPORT OF THE FIGURES AND PARTICULARS OF WORK DONE FOR THE MONTH OF MARCH, 1889.

LA SALADA.

Description of Work.	No. of Men employed on the Month.	Tons raised during the Month.	Average Yield. Tons. cwts. qrs. lbs.	Remarks.
Winze, Eastward, sinking, hole and before No. 4 level	4	4	6	Completed.
Winze sunk on Lady Hollow Shaft	4	3	0	

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1891

Contiene el Informe de Mr. Eustice

1891

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,
OLD BROAD STREET,
LONDON, E.C., *14th October, 1891.*

The Directors have received advices from the Mines dated 22nd August and 6th September, also a letter from Messrs. Restrepo, dated 12th August.

The statement for the month of August is as follows :—

427 tons of ore produced—Bar gold.....	2,186	ozs.
Tributers' gold produced " "	197	"
Bar gold	2,383	ozs.
Also 4,800 lbs. of sulphurets, valued at	£523	11 9
Estimated value of the gold and sulphurets...	£3,387	13 4
Cost at the Mines, Medellin, and in London, and paid for gold bought of Tributers	£3,805	2 7
Estimated Excess of Returns	£1,781	10 9

By order of the Board,

J. JAMESON TURAN,
Secretary.

Mine Report of the Frontino and Bolivia Mines and Particulars of Work Done for the Month of August, 1891.

Silencio.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton.	Remarks.
Sinking Main Shaft	8	0 2 6	Co.'s a/c.	—	—	Sinking was resumed on the 5th inst., the progress made has been good. The rock is an extremely hard, fine grained granite, with numerous bright mineralised points, an indication that we are nearing the vein.
Driving 330 level south	4	1 3 3	80	1	1	No change has taken place.
Driving 286 level south	4	2 2 0	62	21	3	Has been productive throughout the month and will continues in a productive and rich lode.
Rise above 286	2	1 4 0	30	12	2	A satisfactory communication has been effected between these points. This has opened out two valuable sections of stoping ground.
No. 1 winze below 220	4	2 1 6	35	19	3	
Stopes in back of 286	12	17 5 6	15	16	2	A regular output has been maintained from these points of operation, and crushing results have been extremely satisfactory. Both stopes have large bodies highly charged with antimonite, pyrites and galena.
Stopes in bottom of 220	6	10 4 0	Co.'s a/c	15	2	
Stopes in back of 220	2	2 2 9	18	18	1	Carries a lode 6 feet wide of hard granite impregnated with a little gold bearing matter.

Silencio—*continued.*

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton.	Remarks.
Driving 286 north (from No. 2 winze)	2	1 2 6	Co.'s a/c.	16	2	This end is not so rich as formerly, but still exhibits a good-sized lode of very congenial ore.
Driving 286 north (from No. 2 winze)	2	1 0 6	Co.'s a/c.	—	—	Has been suspended for fully half the month, the men being required in the various stopes.
Driving 150 level north	4	7 1 6	Co.'s a/c	12	2	Lode is about 4 feet wide, 3 feet of which is rich ore. The portion of the vein immediately contiguous to the footwall consists of poor quartzose matter mixed with soft granite.
Rise in back of 150 (from 220 Ft.)	2	1 2 0	50	6	1	This was previously known as "Rise above 220." The lode is small, and of medium quality ore.
Driving adit level south	4	8 2 0	12	9	2	Advanced through a pillar of rich soft mineral, and also through old workings.
Cross-cut west from adit level	4	2 4 0	38	—	—	This is being driven through a stiff granite to communicate with the rise in back of 150 level for ventilation purposes.
Cross-cut east of Main Drive	2	1 2 6	Co.'s a/c.	—	—	The object of this cross-cut is to intersect the Main Drive lode; it will give us about 60 feet of backs.

Examined, GEO. W. RUSTICE.

JAMES HOCKING.

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CECILIA.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton	Remarks.
Driving No. 8 level north	4	2 4 9	45	15	[illegible]	Lode is somewhat smaller, but the quality of the ore has improved. A large quantity of water is issuing from the bottom owing to the proximity of No. 1 winze.
Stope in back of No. 7 north of No. 2 winze	6	5 2 0	35	20	[illegible]	Has yielded good supply of medium grade ore throughout month.
Stope in back of No. 7 south of No. 4 winze	4	4 0 6	25	20	[illegible]	This point has been fairly productive, the lode-matter is iron-stained, pyritic mineral being of a decidedly better nature, softer than usual and darker in colour.
Stope in back of No. 7 north of No. 3 winze	4	2 3 3	10	25	[illegible]	Lode is large and likely looking, this stope will shortly hole to that south of No. 4.
Stope in bottom of No. 7 north of No. 4 winze	4	4 3 3	20	20	[illegible]	Has sustained fairly good ore, lode at present is "squeezed"; we hope, however, to shortly meet the rich ore seen in the No. 7 level and which is all appearances was a strong and permanent flood.

Examined, GEO. W. EUSTICE. JAMES HOCKING.

CÓRDOBA.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton	Remarks.
Driving No. 7 level south	5	3 1 3	30	10	11	A decided improvement has taken place at this point; the end now has a most favourable appearance, pyrites and galena being freely distributed throughout the whole formation.
Driving No. 7 level north	4	2 4 0	30	3	½	Has fallen off in width; lode at present is about 1 foot wide of fair milling ore.
Stope in back of No. 7.....	2	1 3 6	15	10	2	Has yielded 3 feet of rich pyritic mineral.
Stope No. 1 south of No. 3	4	4 1 9	10	20	1	Both these points carry a compact and strong-looking lode of rich ore.
Stope No. 2 south of No. 3.....	3	2 3 9	18	20	2	
Stope north of No. 4.....	2	1 3 6	20	6	1	The vein here is about 2 feet wide of healthy-looking mineral, and has every indication of further opening out.
Stope south of No. 2	4	4 0 0	Co.'s a/c	20	¾	Large lode of friable quartz, iron stained, and carrying a small quantity of pyrites.
Sinking No. 2 winze.....	4	1 3 6	55	20	½	This lode is still large and comparatively poor, consisting of an unfavourable quartz mixed with granite.

TIERTO.

Driving Exploratory Level south .	5	11 1 0	8	—	—	Occasional indications of improvement have been seen, but as nothing of a permanent nature has been encountered, operations at this point are suspended for the time being.

Examined, GEO. W. EUSTICE. JAMES HOCKING.

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TOMADO: Informes de Silencio.
Años: oct 1890 Hasta.
Dic 1893.

Folleto 14

BALANCE 30 Junio 1891.
titulo: informe mensual de Mr. Eustice
fecha: Agosto 1891

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MR. EUSTICE'S REPORT ON THE MINES.

LA SALADA.

22nd August, 1891.

SILENCIO.

The sinking of the shaft was commenced about the middle of the month, and fairly good progress has been made. The ground is exceedingly hard, and apparently gets more so as the sinking proceeds. When we break through to the lode the sinking will go on more rapidly.

In the 340 level north the vein is still about 2 feet wide. Small veins of granite intervene with the regular lode formation, and have to be broken with it, consequently making the mineral for a while rather poor.

The 286 level north has yielded well, and the lode is large. Rise above this level is in good ore. As this is now communicated with No. 1 winze below the 220 level north, stopes are open north and south of the winze—at the point of communication there is a lode of rich ore 3 feet thick. The stopes in back of 286 level north are giving better mineral, and the lode is larger than last reported. Stopes below 220 feet level north show no change to note. Stopes in back of this level in large lode not particularly rich—very "patchy" in pyrites and galena. In this last particular there is nothing noticeable of a change as it has been much the same for some time past.

In the 286 level north of No. 2 winze the lode is somewhat smaller but very good. In this level south the air has been bad for some time and the work suspended temporarily, the miners that were at this work having been put in the stopes above. This drivage will be again resumed shortly. The 150 feet level north is in a good lode, 4 feet wide and rich in pyrites. It has improved very considerably since last reported on, which shows well for the stopes below. The rise back of this level (reported previously as the rise above 220 feet level) is in a fairly size lode and the ore good. In driving the adit level south a pillar of rich ore has been driven through, which although yielding very little mineral has paid very much more than its expense in extraction.

The cross-cut west of Maria Dama adit, of which mention has before been made of its being driven for the purpose of ventilation, is now in very hard granite.

Cross-cut east at Maria Dama in hard granite. This drivage, when the lode is cut, will open up 60 feet of back stopes, and will be a very great acquisition to the raising of mineral for Silencio mill if it proves to be worth while.

CÓRDOBA.

The No. 7 level south: The drivage for the month is good and the end has improved in quality, carrying more pyrites. This level north yields fairly good ore, but the lode is much smaller, is now about one foot of mineral.

Winze in bottom of same level has been stopped for the time being. Stope in back of same level (No. 7), lode 4 feet wide and yielding good ore. No. 2 winze below No. 6 level is in poor ore; lode is very large.

Stope south of No. 3 winze: No. 1 stope has fallen off, but the lode is large and of good appearance. No. 2 stope is in large lode, which is rich and carries a quantity of galena. Stope south of No. 2, large lode of very friable quartz, very iron-stained. Stopes north of No. 4 improving slightly, lode about 18 inches thick.

TIGRITO.

The exploratory drift is for the time being suspended, the lode having split into two branches and of very little value. This work may be resumed after awhile, but being sufficiently satisfied for the present, and not being willing to expend very much in exploring just now, I have stopped it. In the hill above this mine, but on the other side of the valley, some few explorations are now going on, and have thus far shown to be worth the examination at least.

CECILIA.

No. 8 level: Within the past few days the breast of the end has been letting out a quantity of water, and as the level is advancing towards the winzes below the No. 7 level, which have been left unworked on account of the water, it is probable that this water is percolating through the lode to this level. The lode in the end is 4 feet thick, and much the same quality as it has been during a long length of drivage. If all goes well this level will be reported next month as being under No. 1 winze, and therefore opening new stoping ground.

Very little change has occurred in any of the stopes.

SILENCIO.

The sinking of the shaft proceeds very slowly—the ground is extremely hard and difficult to sink in. The 342 feet level north is progressing favourably but the lode is small. The 286 feet north looks well and the stopes above are yielding good milling ore. The levels below 200 feet north and south from No. 2 winze are much the same as last reported. Stopes back of 200 feet level are in a good lode. Stope above 150 feet level in good lode but it is split with a seam of granite. This rather reduces the value of the ore but, as it is all actual lode matter and must be broken, there is no other help for it but to take it to the mill and crush it. The lode in the 150 feet level north has very much improved and is now one of the best points in the mine. The rise above towards the Maria Dama adit proceeds well but the lode is poor and changed in dip—being very much flatter.

All other points in the mine are much the same as when last reported.

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CÓRDOBA.

Several points in this mine have fallen off very considerably in the past fortnight. The No. 7 end south is very much poorer, but the change appears to be only temporary, the level is still going forward with the usual speed in drivage. The stopes above are in a large lode, but poor generally. About 200 yards from the mouth of the No. 6 level a lode has been discovered which apparently is a continuation of the Córdoba lode. The quality of the ore sufficiently guarantees the expense of opening a drift on it, and I have now a few men at work to find out whether it will last. Up to time of writing it gives every sign of being something worth while prospecting. This point is just above the mill, and should it prove to be worth mining, it can be done with very little cost.

CECILIA.

This mine has produced very poor mineral in the past fortnight, and the dillies are very small. The water that works the pumping wheel has fallen off very considerably, so that no attempt has been made to commence sinking the shaft further. I have now decided to put the plunger down to the No. 8 level.



TIGRITO.

Some explorations are being made on the back of the Tigrito lode, and thus far have resulted in giving very fair samples. In some workings which were worked by a tributer, some ore has been found which I think can be worked at a profit.

I am further convinced from these explorations that it is worth the expenditure which I recommended in the half yearly report on this matter. It is rather premature to give any figure of what this would cost.

SILENCIO NEW MILL.

This work goes on fairly well, and I hope to have 20 stamps running before the end of the month.

GENERAL.

Up to date the mines are yielding a proportionate amount from the mills as in the last month, and it may be expected that the next remittance will equal the last month's. The costs of the erection of the new mill at Silencio must necessarily be made, as I hope you have gathered from my previous letters. The old mills are in such state, that at any time we may be obliged to close them down. Should this happen our returns would be very far behind, and it was to avoid this that I have made such large expenses in pushing forward the new mill. As far as can be judged at the present time, the mines throughout will equal, perhaps exceed, the returns of this month for some time in the future.

GEO. W. EUSTICE.

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THE PUNTINO AND BOLIVIA SOUTH AMERICAN GOLD MINING COMPANY, LIMITED.

Profit and Loss Account, 30th June, 1891.

Dr.

	£ s. d.	£ s. d.
To Working Mines, viz.:		
Material, Charcoal, Materials	27,691 10 11	
Labour Account	15,588 17 10	
	43,280 8 9	
To Commission on Exchange	16,089 18 8	
		21,100 10 6
To Expenses, viz.:		
Head Office Account, including Directors' Fees, Secretary and Clerks' Salaries, Rent of Offices, &c.	3,911 1 8	
Auditor's Fees	10 10 0	
Insurance	253 0 2	
Expenses of realising auriferous Copper bars	269 0 2	
Freight on Gold, &c.	174 16 11	
Law Charges	1 1 0	
Travelling and Passage Expenses of Officers and Men to and from the Mines ..	181 1 6	
	4,799 16 5	
To Depreciation on Plant and Development	299 0 0	
	26,199 6 11	
To Balance, Profit for Half-Year	13,172 6 9	
	£39,371 13 8	

	£ s. d.	£ s. d.
Dividends—		
1s per share paid 12th March, 1891 ..	3,163 2 0	
5d per share paid 12th June, 1891.. ..	4,324 16 6	
Bonus of 6d per share paid 12th June, 1891 ..	5,216 11 0	
	12,704 9 6	
To Amount carried to Reserve Fund	1,000 0 0	
	13,704 9 6	
To Balance carried to Balance Sheet	14,124 17 8	
	£27,829 7 2	

Cr.

	£ s. d.	£ s. d.
By Proceeds of Gold Sales	35,740 15 6	
„ Do. Auriferous Copper bars	1,351 4 6	
		39,092 0 0
„ Transfer Fees		31 7 0
„ Interest Account		51 6 6
		£39,371 13 8

	£ s. d.	£ s. d.
By Balance from 31st December, 1890 ..	15,157 0 3	
„ Do. Profit as above, 6 months.. ..	13,172 6 9	
	£28,329 7 2	

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UNIVERSIDAD DRAFT

THE PUNTINO AND BOLIVIA SOUTH AMERICAN GOLD MINING COMPANY, LIMITED.

Balance Sheet, 30th June, 1891.

Cr.

	£ s. d.	£ s. d.	£ s. d.
By Purchase of Mines, as per last Balance Sheet			82,280 10 9
„ Buildings and Plant and Machinery	3,613 15 7		
„ Do. purchased during the half-year ..	460 11 0		
		4,074 6 7	
„ Less Depreciation		299 0 0	3,775 6 7
„ Furniture, Utensils, and Horses	212 15 7		
„ Do. purchased during the half-year ..	206 2 8		
„ Cattle	118 12 10		
„ Stores	11,240 7 3		
„ Bullion in Transit	1,963 16 6		
„ Sundry Debtors	104 4 6		
„ Bullion in Hand	1,861 8 6		
„ Cash in hand, Account at the Bank ..	369 18 9		
			17,289 5 1
„ Shares in Puntino and Bolivia Gold Mining Company, Limited, held in the Antofagasta Company, Limited, and sold during the half-year			5,228 0 0
„ Shares in Puntino and Bolivia Gold Mining Company, Limited, held in the Antofagasta Company, Limited, and sold during the half-year (Proceeds)			0 0 0
„ Amount owing to Bondholders	3,000 0 0		
„ Do. for Interest	281 4 0		
„ Less Overpayments			3,281 4 0
„ Sundry Creditors in England	4 10 0		
„ „ „ Chile	1,673 5 4		
			1,677 15 4
„ Value of Bullion in Transit	1,815 19 5		
„ „ „ Gold	3,161 18 8		
			4,977 18 1
„ Shares in Antofagasta Company, Limited ..			1,418 11 5
„ Interest accrued between Balance Sheet and 30th June, 1891			2,266 18 5
„ Profit and Loss Account			339 8 4
„ Cash, viz.:			
At the Mines	1,021 3 8		
With Messrs. [illegible]	1,775 12 1		
[illegible]	300 13 11		
[illegible]	100 0 0		
In hand	14 13 6		
Do. [illegible]			3,164 13 6
			£130,300 7 2

MINADO: Informe Mr Eustice
Fin: OCT 1890. Vols
Vol 1893.

Folleto 16
Titulo: Informe DE Mr Eustice
Fecha: 20 ~~Julio~~ de 1892.
Junio

THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,
OLD BROAD STREET,
LONDON, E.C., *5th September, 1892.*

The Half-yearly Report of Mr. Eustice to the 20th June, 1892, has arrived, and a copy is subjoined.

By order of the Board,

J. JAMESON TRURAN,
Secretary.

LA SALADA, *20th July*, 1892.

To the Directors,
THE FRONTINO & BOLIVIA (S.A.)
GOLD MINING COMPANY, LIMITED.

GENTLEMEN,

I herewith submit my Half-yearly Report of these mines from December 20th, 1891, to 20th June, 1892.

THE MINES.

Regular development in sinking the shafts and winzes driving and opening levels, and rising in the several parts of the mines, have been carried on without any very serious interruption during the whole half-year.

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The plans and sections, with the tabulated statistics of the work done are enclosed, and by reference to these it will be found that a very considerable increase in the work has been made, compared with the previous six months. This is especially notable at Silencio and Córdoba. In the former the demand for mineral for the mill at that mine caused more than usual attention. At Córdoba the mine is sufficiently well opened to supply a larger number of stamps than there is at present water for.

Cecilia is just now opening out for a sufficient supply for an increased number of stamps, and Tigrito will shortly be in a similar position.

SILENCIO.

The sinking of the main shaft has been regular but very slow, the principal cause being the excessively hard ground.

The amount sunk is 17½ feet, but as the hard granite in which the shaft has been sunk through for a considerable distance has changed very much, it has aided the sinking very materially in the past month. I hope to be able to start the 400 feet level north and south from the shaft in about two months.

The shaft is now below the 340 feet level, 45½ feet. The 340 feet level north has been driven 101 feet. Every effort is made to push forward this drivage, although the lode has been variable in quality and size. Above this level a rise has been put up to communicate with the level above (Section G. F. Q. 16). This opens up two stopes north and south of it of over 50 feet in height on the lode, and the ore is fairly good.

The 286 feet level north has been driven, north 81 feet, south 18 feet (Sections F. Q. 25, 26 and G. 12). A rise above this level south has been started to communicate with the level above (Section F. 13).

In the north end the lode has been very broken lately, probably from some local effect, but apparently of no importance.

In the south end the lode is small but of a good quality and indicates an opening out shortly.

The walls of the lode in these ends are firm, and it is quite apparent that the ground at this level is in what is locally termed "solid country rock."

The stopes above this level have been in good ore, and still continue so. The 220 feet level north has not been driven, as it was considered that the best method of proving the ground between the 286 feet level and the 150 feet level, was to continue these two drivages rapidly forward, and afterwards to sink and rise through the lode in what would be "new ground."

In the 150 feet level, the drivage is 67½ feet, mostly into very

broken ground, and its character has been such, that in the past month I considered it judicious to cross-cut into the walls of the lode, in order to have a better knowledge of it, as it advances forward (Sections C. O. 27 and 28).

The stopes above this level are in a very large lode, split into branches of from 1 foot to 3 feet, and the granite between the branches is, for the most part, rich enough to mill. This disturbance in the lode formation will probably settle as the drivage advances northward. The rise mentioned in my last six-monthly report, has communicated this level with the cross-cut in Maria Dama adit (Section C. O. 23), and has proved very beneficial for the ventilation of the north workings.

On the south part of the mine above the 100 feet level, some little mining has been done, but nothing of any particular interest. A cross-cut in the Maria Dama adit has also been made on a branch which is probably part of the Silencio lode.

CÓRDOBA.

At this mine a very considerable amount of steping ground has been laid open, but although the drivage of the No. 7 level has been pushed forward as much as possible, the advance made has not been sufficient to work the ground above it.

Most of the stopes are opened below the No. 6 level in localities too far distant from the No. 7 end to unwater them. (Sections D. C. 10, 11 and 14, 15). As this No. 7 is at present the most important part of the mine, every attention is given to it, and the work of driving is paid for at a considerable higher price in consequence.

The stoping ground at present available is rather poor, and the "diarios" from the mill are behind just now. However, I think that in about two months the No. 7 will be sufficiently advanced to count on the stoping of the good mineral in the back of it.

The new cross-cut No. 8 (Section S. 24) has been driven 93 feet since started, but has been in very hard porphyry for the greater part of this distance, and, as yet, shows no signs of changing. This kind of rock is very unusual in the district, and appears to be a large dyke crossing the country, and if so, there is hope of soon getting through it and meeting with a granite formation. There is the advantage of its not requiring timber, and for the future it may be considered that there is no fear of having any costs in this respect.

A new tramway has been put from the mouth of the No. 7 cross-cut to the mill, which is now used to transport all the mineral broken in the mine, thus avoiding the expense of hoisting it from any parts below the No. 6, as was formerly done. This

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has occasioned a large cost at this mine, but as most of the ground above the No. 6 level has been worked out, the expense of hoisting all the mineral from below has now ceased.

The No. 6 level will, therefore, only be kept open up to the vicinity of the air-shaft (Section P. 14), or a little way north beyond it, and the No. 7 practically takes all the work of the No. 6.

The work, south of the No. 6 cross-cut, mentioned in my fortnightly reports, is for the present closed down, but is not finally abandoned.

A few explorations have been made on the surface, but have proved of no interest to the enterprise.

CECILIA.

In the six months, all work in the old mine has been abandoned, also the exploratory works on the north side of the Cecilia Valley, on account of the non-productiveness of the mineral.

The operations are now very scattered, the principal work being done near the old mine.

The mineral extracted is on the whole poor, but there is a very great advantage in mining it, the lode being large, easy to break and easily milled. From the monthly return sheets you will notice the large crushings with eighty (80) heads of stamps, the greatest trouble is the transportation from the mine to the mill.

It is a difficult matter to give a detailed description of the several workings, as none of them are sufficiently established, however, the continued works are in such a condition as to put on another four (4) heads of stamps shortly.

A new cross-cut has been started opposite the old mine shaft, and should the new mineral, which it will intersect, be of no lesser value than that now worked at Victoria Reina, I consider that it would be worth while to erect a small mill to be run with the water of the Cecilia brook, which comes through the "Restaurador" property.

I have found that the project which I mentioned in some of my previous letters with regard to this latter property must be for the present abandoned, and I have in consequence started the work of this cross-cut. This will be known as Restaurador Workings, although properly within the Cecilia lines.

TIGRITO.

The exploration tunnel west, which has been driven 168 feet into the hill, has proved nothing worth its being continued, and the work has in consequence been stopped. The mill is now

supplied with croppings of the lode. A new cross-cut has been started on the south side of the Tigrito hill which is intended to be the opening up of the Tigrito mine about 100 feet below the No. 5 level. This cross-cut is placed in such a position as to enable the erection of a mill below it, about 250 yards, and with the mine water and the water now used at Rosario Mill, about nine heads of stamps might be kept running.

FARMS.

There has been a loss in the working of these establishments, during the six months, of about £165, which is mainly attributable to the deaths of animals on La Salada farm.

The total number of animals of all kinds is 465, and their value is placed, according to the inventory for the half-year, at £22,718.

At the present time there is a superabundance of pasturage everywhere. The planting of yucas, rice and plantains has been more or less successful.

At Cururú, the lower fields have been abandoned, for the reason that the other farms having been enlarged and being nearer are without costs of maintenance of roads, &c.

At Cururú the fields are now divided into two divisions, one is intended for the use of breeding cattle and the other for the fattening of the old ones.

At Mahon and Chimborazo there are large patches of yuca and rice planted, which will not be ready until September, but the crops will, in all probability, pay the expenses of the estates in the next half-year.

The grazing lands around La Salada are being gradually enlarged, and there will soon be sufficient pasturage for all the working animals necessary to be kept on the farm.

We shall thus avoid so much exchanging of beasts and loss of time in their transport from the work to any other of the farms for their recruit.

MACHINERY.

The machinery throughout is in good order. At Silencio Mill the six Frue Vanners have been erected, and their work has been very satisfactory. The auxiliary wheel of which mention has been made in the fortnightly letters, is now completed and ready to work.

This wheel will, in a certain sense, be equal to the present one, and it is arranged with shafting to run the whole machinery of the mill.

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I have not yet been able to erect the arrastres, but as soon as possible the work will be commenced, and in connection with the main shafting of the auxiliary wheel, there are parts arranged to drive all the machinery of the machine shop.

Already temporary arrangements are made to do all the fitting work at this place, for the reasons stated in my last report.

At Victoria Reina the mill has been increased to eight stamps, and another four stamps will shortly be received. These will be quite adequate for all milling purposes at this place just now.

At Córdoba one new arrastre has been erected, also two small native grinding pans. These latter are giving very great satisfaction, and it is now apparent that the suggestion of grinding the sulphurets from the reconcentration of sands, is sufficiently proved at both Silencio and Córdoba.

The necessary repairs to the Córdoba Mill have been made as required, as also additions to the houses for the convenience of millmen.

At Tigrito the mill has been completely renovated for the crushings of the ore of this mine.

At Silencio Mine the pumping machinery has been increased as the sinking goes on. At this time a new drawing lift is being put in, and everything necessary for the shaft-pumps is now underway. Bad air has prevented the sinking, and to remedy this a small water-wheel has been put up at the 350 foot level to work an air machine. This has proved to be very effective, and the sinking has very much improved in consequence.

The outside mills are kept in a fairly good condition throughout.

BUILDINGS.

A very considerable amount has been spent in buildings, renovations and repairs, and additions to buildings in every department. In Silencio a large addition has been made to the hoisting works, house, with an addition to the carpenter's shop, a large new kitchen, and a store room for the mine use.

At Maria Dana a new addition is now in course of erection to the mill house for another Vanner, and also another addition for a wash-up room and deposit for sulphurets.

The mill building itself is to be continued to cover the shafting and belting of the auxiliary wheel. At Córdoba two new houses have been put up, with kitchen and rooms for stores for the mine.

At Victoria Reina the old house formerly used as a workshop has been now made into a house for the "encargado" of the mill, and the old houses renovated for workmen at that place.

A large stable has been built in the La Salada, and the old one has been converted into a large repairing room and deposit of saddlery, &c. The timbers for a sulphuret drying room and deposit are now being brought in, and the house will be commenced at once.

Under this head there may also be entered the additions to the houses on the farms, also several small houses for the convenience of the workmen on exploratory work.

The new work of starting the La Salada Mine will necessitate some more houses for miscellaneous uses, and for this object some contracts for the erection of these have already been arranged.

WATERCOURSES.

Throughout the half-year there has been but one serious breakdown, which occasioned a loss of sinking, in the Silencio shaft, of several days. The mills, however, were fully supplied with water, and only a few hours were lost at Maria Dana, by the accumulation of loose material into a new work, which is now in hand, for the discharge of the mill water into the flumes below.

The Doña Teresa water is now at the Silencio Mill and has proved a very valuable addition to the former waters. There is now available, the water of the Pocané Ditch, the water from the combined streams of Tigrito, Guañana, Salada Mine, and several small streams which enter the Guañana and the Doña Teresa waters.

These are more than sufficient for the treatment of the mineral from Silencio Mine, but as the concentration of the sands command an extraordinary attention, unusual in the working of the minerals in this district, I found that having a large quantity of water at hand would permit of any manual appliance for the re-concentration of sands from time to time.

Of this there has already been sufficient proof, as our re-concentration has very much increased the daily produce of the mill, not only in the increased amount of sulphurets, but also in the free gold obtained.

With regard to the water for Córdoba, there are no means of obtaining more than we have at present, every small stream is conducted towards and enters into the water-courses to this mine.

At Cecilia the small stream known as "Cecilita" enters into the Cecilia stream and both are more than sufficient for the Victoria Reina Mill. The Doña Ana water, which is used for the arrastres at this mill, is also used, when required on the mill wheel.

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At Tigrito there is lately enough water for six heads of stamps in the dry season, but as the future of this mine is on that part on the east side of the hill, the water we now have is sufficient for all requirements.

TIMBER.

This item becomes more and more expensive each month, not altogether for that required at the mines, but also for the new work on hand.

The timbers can now only be had from distant localities, and, as in the last six months many of the mines have been opened up considerably, the pressure on this department has been unusual.

New roads have been opened up with the object of better access to the timber lands, and these, being at a considerable distance from the old roads, have caused an expense which at first sight is not apparent.

The extraordinary costs in this work are not likely to occur every six months, as the positions of these new roads are such that the timbers are easily accessible, and will be sufficient for the requirements of the mines for a long time.

Thus, in this department extra animals are required, as the distance to haul timbers is increased. This means also their maintenance and the extra amount of attention and labour it demands.

TRIBUTE MINES.

SAN JOAQUIN.

This mine has very much improved in every point, the lode maintaining its size and quality in all the workings, which is apparently likely to continue. The water is a very considerable expense to the Tributer and in the wet season he is almost unable to cope with it as the only means he has are hand pumps. This is costing nearly $2,000 monthly, but as the produce from the mines is excessively beyond any ordinary mineral in the district, it pays the Tributer to maintain these heavy pumping costs.

LA SALADA.

This mine has been rather neglected in the past half-year, and little or no mining has been done.

On the 25th of this month the Company will receive this property from the Tributer and the works will be resuscitated immediately afterwards.

From investigations made, it is probable that extensive explorations will be made, and as it is projected to work this property in conjunction with San Joaquin Mine, the latter will probably induce a thorough working of both mines as one concern.

ROSARIO.

This mine has given small regular returns throughout the half-year. In the month of May it fell back a little on account of difficulties in the mining operations, but the Tributers are working in a satisfactory manner.

The cross-cut mentioned in my last report has proved some mineral, which I consider is the continuation of Córdoba lode north, but it is very poor.

PALMICHALA.

The returns from this mine have considerably increased in the past two months, but the mine itself shows no signs of its continuing to do so. Through some previous arrangements this property has changed lessees, and I have made a provisional agreement with the present lessee to work on the Old Mine until about the end of the year, after which time should there be no improvement in the mineral, I advise closing down the old workings, and accept a proposition made by the present Tributer to again lease the property and to open up some ground which has not yet been worked, and which has indications of a fair future.

There are lands and houses on the spot which are in a fairly good state, and adjoin our lands in Remedios, and therefore it would be advantageous for the Company to make suitable terms to a Tributer, with the obligation of taking charge of and keeping these lands and houses in good repair.

FILIPINAS.

The works on this property have somewhat revived, occasioned by the better produce of mineral. In my last report it was mentioned that the works here were almost wholly abandoned for the reason of the poverty of the mineral.

Conditional arrangements with the Tributer, and not altogether confining his operations, account for the increase in the produce.

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ITALIA.

There is little change to note in this mine. The Tributer has permission to move the mills to a more central position for the workings of the minerals in this property.

There are several veins which will pay to work on a small scale, but although there has been a good deal of attention given to the development of the superficial works, the assays show the minerals to be very poor everywhere.

GARIBALDI.

This mine has been delivered over to the Company by the Tributer, apparently from its non-productiveness. In order to give some action and to maintain the work of the place, I have handed it over to an old workman to get whatever he can out of it — but only on "provisional terms" He, too, has notified that he will soon discontinue his work there, and as it would occasion the cost of an extra establishment if explored by the Company, I propose leaving it for the present.

There are some places which contain gold, and could be worked easily, but with the works now on hand these places must remain without explorations of any kind until the present works are further established.

EL SALTO.

This mine improved a little in the last month, and now shows indications of continuing. The mineral continues small but is rich in pyrites, and produces a quantity of concentrates every month, which are moderately rich.

MARMAJON AND MARMAJITO.

Most of the operations at this mine have gone on much the same.

The mining work is done chiefly on the main level known as the "Marmajon Level" which is sufficiently opened to supply both the mills.

ZARAGOCITA.

Within the past two months the Tributer of this mine has been working on a small branch of mineral which gives a fair assay, and in consequence of this, the No. 2 mill at Silencio is being renovated for milling the ore.

Should this continue, it might encourage some further explorations on the "Old Bolivia" lode, which seems to be a part of, or a continuation of, this mineral.

The machinery and buildings on these leased properties are in a fairly good state, but a general depreciation is everywhere noted.

As this, with other mines within the easy reach of the management might be taken into the direct superintendence, I recommend that on the termination of the leases, they shall not be re-leased, especially as the Company has now a staff sufficient to attend to these works. At the same time, most of the work would be so concentrated that it might come under the direct management of any one of the mines which may be in the vicinity.

SULPHURETS.

Throughout the half-year there has been a steady increase in the produce of the sulphurets, especially from Silencio mill. In the month of February the amount shipped was less than for some previous months, but their value was considerably more, they being more highly concentrated.

The working of the Vanners has to a very great extent increased the quantity, and has lessened the amount of labour in re-concentration. The amount produced during the six months is 78·42 tons which have been estimated to contain 2,203·65 ounces of gold and 2,844·54 ounces of silver and valued at $43,227·60 or £8,645 9s 11d. Of this amount Silencio Mill produced 63·84 tons which are valued at $36,112·20 or £7,222 8s 10d. This large amount from the Silencio ores is mainly due to the extraordinary quantity which they contain, and to the advantage of the good work of the Vanners.

Under the heading of "Watercourses," I have mentioned that the benefit of a large amount of water at Silencio Mill was the means of being able to re-concentrate the sands, and in doing so a large quantity of free gold is always obtained besides a quantity of partly concentrated sulphurets.

These are afterwards treated by the Vanners for further re-concentration, a little more free gold being caught and a clean sulphuret obtained.

ORE RESERVES.

Although the mines are a great deal more opened up, it is very difficult to make a safe calculation of what ore reserves we have available. To make an approximation according to some measurements of the stopes at Silencio, I have thought it a fair

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calculation to estimate the reserves at about 25,000 tons available, and which may be counted on as ore to be eventually broken up for the mill.

In Cecilia there are approximately about 5,000 tons, which can be readily mined, and of about the same value as the ore milled during the last six months.

In Córdoba we have about 4,000 tons, which are easily accessible above the No. 7 level.

In making these calculations, it must be understood that any change which may take place in the value of the ore is *not* taken into consideration.

COSTS.

The costs for the half-year have somewhat varied each month according to the rate of exchange. The expenditure in the working of the mines has been more or less the same each month.

At Silencio the expenditure on the Concentration Works and on the new auxiliary wheel, have added very considerably to extraordinary cost, in which is comprised stores for additional machinery, &c.

At Córdoba an extra cost has been incurred each month at the mine for the laying down of the new tramway from the No. 7 level around to the mill.

On the Farm an expense has also been made in enlarging the grazing lands, fencing, and in planting patches of yucas, rice, &c.

RETURNS.

The amount of bullion realized from the mines during the half-year was as follows:—

	ozs.	Value $	£	s.	d.
Company's mines	14,929·28	158,106·10	31,021	4	6
Tributers' „	5,430·49	61,769·90	12,353	19	7
Total	20,359·77	219,876·00	43,975	4	1

The amount crushed from the different mines was as follows:—

From Silencio	...	6,896 tons.
„ Córdoba	...	2,377 „
„ Cecilia	...	2,122 „
„ Tigrito	...	163 „
Which makes a total of	...	11,558 „

This ore produced 78·42 tons of sulphurets.

GENERAL.

The prospects of the coming half-year are very encouraging. Very shortly I hope to open the 400 feet level north and south in Silencio mine, which, after a few months, will open up stopes on both sides of the shaft.

In Salada there are projected works for the opening of the Old Salada Mine, in conjunction with the present works at San Joaquin. Already there is on hand the work of a new wheel for the pumping gear at this place, for which we have two lifts now being got ready to place in the shaft as soon as ever we strike water.

At Cecilia, a new cross-cut is being made with the object of cutting the lode on which we are at present working, further to the west.

The No. 8 cross cut in Córdoba being likely to intersect the "Córdoba" lode within the distance of 600 feet, sooner than was anticipated, I propose building a mill just below the mouth of the cross-cut in the "Marmajito" Brook.

This mill would be worked by the combined streams of Tigrito and Rosario, and by the Córdoba mine water.

It is also my intention to bring in the water of "Los Choros" to Tigrito, and should the west workings at the mine not be continued, this water could be passed on through the No. 5 level to the new mill at Córdoba.

Comparatively, during the past six months the mines have been very prosperous and, from all appearances, this prosperity is likely to continue.

HEALTH.

The general health of the staff has been fairly good, as has also that of the workmen.

The usual half-yearly accounts are enclosed.

I have the honour to remain,

GENTLEMEN,

Yours obediently,

GEO. W. EUSTICE.

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- titulo: informe mensual
fecha: January/93

- titulo: Informe Mr. Eustice
a Diciembre 31/1892

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,
OLD BROAD STREET,
LONDON, E.C., *27th March, 1893.*

The Directors have received advices from the Mines dated 22nd January, and 7th February, 1893, also a letter from Messrs. Restrepo, dated 12th January.

The particulars of the produce for December, 1892, which were not to hand when the last circular was issued, were as follows :—

3,490 tons produced—Bar gold.....	3,898	ozs.
Tributers' gold produced—Bar gold.....	192	„
	4,090	ozs.

Also 38,058 lbs. of sulphurets, valued at £1,175 1 7

The statement for the month of January, 1893, is as follows :

3,225 tons produced—Bar gold.....	3,748	ozs.
Tributers' gold produced—Bar gold	188	„
	3,936	ozs.

Also 33,395 lbs. of sulphurets, valued at £891 16 5

Estimated value of the gold and sulphurets.... £7,867 13 2
Cost at the Mines, Medellin, and in London 6,734 19 2

Estimated Excess of Returns £1,097 14 0

Mr. Eustice's Half-yearly Report to December, 1892, has arrived, and a copy is subjoined.

By order of the Board.

J. JAMESON TRURAN,
Secretary.

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MINE REPORT OF THE FRONTINO AND BOLIVIA MINES AND PAYT[illegible]

MONTH OF JANUARY, 1893.

SILESIG.

	Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Ozs. per ton.	Remarks.
✓	Driving 286 end south	4	1 3 9	Cub's s/c	15	2	This end has again improved, and is now very promising.
✓	400 cross-cut south	4	4 2 6	60	10	1	The lode here has been cut with diamond by a shaft, but is now nothing much better. We have sunk the level south and will commence the level south about immediately.
✓	No. 1 winze below 340 south	4	2 1 0	Cub's s/c	12	2	The lode here, as in the one above below, has been discovered considerably, no doubt by the same cause, consequently it has fallen off very much in value.
✓	Driving 340 end south	4	3 2 6	55	6	1	Not so good, lode very small.
✓	Driving to meet 340 north	4	2 1 3	50	10	1½	This drivage has been commenced from the No. 4 winze to meet the 340 level. Lode fairly good.
✓	Driving 286 end north	3	1 2 6	50	3	½	Not as good as last reported, very small lode.
	Rise in adit level	5	7 2 0	25	12	1½	This rise has gradually fallen off during the month.
	Surface level "Maria Dama"	3	9 3 6	12	—	—	Nothing having been met with, this end has been stopped and the men put to rise.
	Rise in surface level	2	4 1 0	6	4	½	This rise has gone up on a quartz lode, but at present shows little mineral.
	Stope No. 1 in back of 340 north Stope No. 2 in back of 340 north Stope No. 1 in back of 286 north Stope No. 2 in back of 286 north Stope No. 3 in back of 286 north Stope No. 1 in bottom of 220 north Stope No. 2 in bottom of 220 north Stope No. 1 in back of 150 north Stope in adit level	36	92 2 0	—	14	1½	The stopes this month have improved on the whole. Stopes No. 1 and 2 in the back of the 286 north have been very rich, and so far continue so. The stope in the adit level having become poor has been stopped, and the men put to drive levels from the rise.

Examined, GEO. W. EUSTICE.

WILLIAM TRURAN.

Cecilia.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Oz. per ton	Remarks.
Stope south from Rise in No. 2 level north	2	3 0 6	14	12	½	Lode rather small, containing a little mineral.
Stope north from Rise in No. 2 level north	2	1 2 6	14	12	½	Much the same as last reported.
Stope No. 1 N. below No. 1 level Stope No. 2 N. below No. 1 level Stope No. 3 N. below No. 1 level Stope south below No. 1 level	10	16 2 0	5	12	½	These stopes having become poor, and the ground very shifty and dangerous for working, they have been stopped, as we intend to confine ourselves principally to the work at V. R.
V.R. Shaft	8	1 1 6	Co.'s a/c.	20	1½	There is a little change for the better in the bottom of the shaft; still mixed and a fair lode.
No. 2 level south	4	2 5 9	30	14	½	Same as last reported.
No. 2 level north	4	6 0 0	20	20	1½	This level has been driven on a fairly good lode. On the east side we have holed through to old workings.
No. 1 level south	16	2 5 0	25	15	½	During the past month this level has fallen off in value, and the lode is split up considerably.

We intend now putting up a rise in the west side, as the ventilation has become somewhat bad. This rise will be started on a fairly good lode.

Examined, GEO. W. EUSTICE.

WILLIAM TRURAN

Córdoba.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Oz. per ton	Remarks.
No. 8 cross-cut	6	3 3 0	80	—	—	Fair progress has been made here during the month, the ground having changed considerably, and good driving may be expected here monthly.
No. 3 rise back of No. 7 level south	2	3 5 6	18	12	½	This has not been holed during the month as expected, having had to place the men on other works in the mine.
Stopes south of No. 3 rise	5	6 5 2	16	12	½	This stope has fallen off during the month.
Stopes south of No. 1 rise and north of No. 2 winze, back of No. 7 level	5	8 1 6	14	18	½	These stopes are finished, the hole having been stoped from level to level in this section.
Cross-cut No. 7 level, driven on lode do.	2 —	3 3 6 2 0 6	Co.'s a/c. —	— 4	½	This is a short cross-cut driven to intersect a part of the lode in the hanging-wall; the hole has been cut into, it is about 1 foot wide, of fair quality ore.

Tigrito.

"La Humedad" cross-cut	4	5 5 6	30	—	—	The ground has become easier for driving. Total distance driven from mouth, 220 feet.

Examined, GEO. W. EUSTICE.

JAMES S. GILBERT.
FRANK OWEN.

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Mayflower

Description of Work	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton.	Remarks.
Stopes back of No. 1 or main level	2	5 3 3	Co.'s a/c.			The ground back in these stopes would not be [illegible] so small, and work has been temporarily stopped for want of ventilation. We hope to resume operations here in a few days.
Winze No. 1 in bottom of No. 1 level	4	4 3 0	35	0	2	The winze has been started during the month, the hole is about 24 feet wide, giving indications of good ground.
No. 2 [illegible]	2	4 3 0	Co.'s a/c.	—		The survey has been completed, and work [illegible] length of crosscut will be about as follows: [illegible] should open up a considerable amount of [illegible] ore, which we anticipate will be of a fair average quality. The nature of the ground is decomposed granite, and we expect good progress will be made during [illegible] this work has been conducted we expect to be in a position to supply both mills full time with ore.

Examined, GEO. W. EUSTICE.

JAMES S. GILBERT.
FRANK OWEN.

La Salada

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton.	Remarks.
New shaft	9	0 5 0	Co.'s a/c.	—		The new pump is working well and we hope sinking will be increased during the coming month.
Crosscut in No. 6 level south	5	1 2 4	60		—	The ground here has become harder, and our driving has not been so fast as we expected.
No. 6 end south	—	2 0 6	Co.'s a/c.	18	11	Same as last reported.
Rise above the No. 6 level south	3	2 2 6	35	18	14	This has been started during the month to lay open the rich ore for stoping passed through in the level below.
Stope in bottom of No. 6 level, south of No. 3 winze	3	7 3 2	14	18	15	This stope is the same as last reported.
Stoping and sinking No. 3 winze	2	2 3 0	Co.'s a/c.	18	17	This being the bottom of the mine our work in sinking has been retarded by the influx of water from the different parts of the mine. The hole here is nearly 6 feet wide of good quality ore, and we hope to make more progress in sinking here during the coming month.

Examined, GEO. W. EUSTICE.

JAMES S. GILBERT.
FRANK OWEN.

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SAN JOAQUIN.

Description of Work.	No. of men employed this Month.	Ground broken this month. Ft.	In.	Average prod. per ton.	Average yield. Ozs.	dwts.	grs. per ton.	Remarks
Stopes on bottom of No. 6 level north of No. 3 winze	7	3	6	14	13	4		Lode about 4 feet wide. We are uncovering here the rich shoot which was discovered in the sinking of the No. 6 level north of main winze.
No. 5 end south	4	3	0	Contract	8			The lode here is about 2½ feet wide, producing ore of a low quality, with no material height change as to quality of such ore.
Stope above No. 5 end south	14	2	6	—	8	15		The stope is above end in vicinity of the ends. During the month under report good ore has been extracted in the stoping. The best ore seems to be the upper ore in the ore bodies, being, at present, it is not so good as last reported.

Sinking and stoping has been commenced in the bottom of the No. 6 level. The class of rich mineral discovered in the sinking of the level is digging as we advance south; the same is being uncovered in the stope in the bottom of the No. 6 level between Nos. 2 and 3 winzes. After sufficient ground shall have been taken down in the sinking, we shall be directing blocks for No. 2 winze, and sinking will be immediately commenced in the bottom of the stope to prove this rich shoot ore. The best is about 4 feet wide, and we have every confidence that this will prove a rich piece of ground for future working.

JAMES S. GILBERT.
FRANK OWEN.

Examined, GEO. W. EUSTICE.

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Mr. EUSTICE'S REPORT ON THE MINES.

LA SALADA, *7th February*, 1893.

SILENCIO.

The shaft sinking has fairly progressed, but the ground has become harder. The 400 feet level north, is in good mineral, but the hanging-wall is soily and requires timbering. This change is only from the effect of the broken condition of the lode in this part. This level has not yet been started south of the main shaft, the water mentioned in previous reports having only been holed through during the past few days. We shall now be able to drive south and the sinking proceeds steadily.

In the 340 feet level north the lode is large and a drivage is started southwards, which shows good mineral. The 286 feet level south is much the same, and the north drivage is still in a small vein of mineral. The stopes are in much the same class of mineral. The openings on the "counter" or cross-lode in Maria Diana continue to show well, and the trial crushings have been satisfactory. All other points in the mine are without any change, and as soon as more miners can be had the work in the 150 feet level north, also the 100 feet level north, will be resumed.

CECILIA.

At Victoria Reina we have almost reached the lowest workings of the old mine, and find that the lode portion which was left in the hanging-wall pays well to mill. The drivages south, with some little mineral from the sinking and a little from the old north workings, keep the mill supplied full time. Should this lode continue good south, and the water not increase, we shall be able to advance rapidly towards the old Bolivia mine, where I hope to have a very large piece of ground.

SAN JOAQUIN.

Since my last report there has been very little change in any part. The "dumps" from the mill are much about as last month, the stopes having improved in the lower parts of the mine. The development of the north part is having special

show that neither the nature of the lode, nor its quality, have changed, and the stopes which are opening up will be quite as productive as those above. The drivage of the 280 feet level north has been in poor ground, the lode very small (Sec. F. Q. 25, 26, 27, 28) and enclosing rock of extraordinary hard granite. This work is being forced, with the object of passing the poor section of ground to open stopes on the north side of it. The level south has improved considerably in size and quality, and is sufficiently advanced to open stoping ground above. A rise is started to communicate with the south engine shaft (Sec. F. P. 11) and another will be started shortly to communicate with the south hoist shaft (Sec. F. Q. 9.)

The south part of the mine will then be in a position to supply a good quantity of mineral monthly, and to help the explorations northward. The mineral is much the same in quality, and although the quartz portion is not wide, the granite portion between it and the walls is sufficiently mineralized to be extracted and sent to the mill. The 220 feet level north has not been driven. The 150 feet level north has been driven 45 feet (Sec. F. O. 28, 29), but during the last month was stopped through lack of miners. This will be re-started as soon as an opportunity offers itself. The 100 feet level north has been driven 165 feet (Sec. E. O. 29). This work has also been temporarily suspended from lack of miners, or rather, these were put in the stopes to break mineral. A rise above the adit level, to prove the lode, which appears to be a "caunter" lode, has been put up, and a level driven westward on the mineral met with (Sec. D. N. 29). A little stoping ground has been laid open on it (Sec. O. 29) which has given good mineral occasionally; the work as yet is not established to any extent.

The stopes throughout are producing fairly good mineral, and through the half-year, it will be seen by the summaries, that there has been a considerable quantity mined. You will note that a large amount of stoping ground has been opened up around and above the 340 feet level north. The object of this has been to prove the bottom of the mine for further sinking, and thus far it has given us good results. The stoping in other parts has been done as the demands from the mills necessitated it, but the object of the workings of the lower parts of the mine have claimed sufficient attention to make it worth while to further investigate, especially as the increase in the sulphurets is now so much larger as to warrant additional machinery for its treatment. In exploratory work a level has been driven on a branch of mineral on the surface, which has been denominated in a monthly report as "The Level above the Water-course." The object of this is to prove the Silencio lode on the Maria Dama side, but all these explorations have proved futile thus far. If possible, I shall

continue towards the "caunter" lode mentioned, to prove whether the surface indications in the parts now worked are portions of that mineral, or if not, whether they are parts of the Silencio lode.

CÓRDOBA.

The principal working at this mine has been the driving of the No. 7 level south (Sec. D. E. K. 15, 16, 17), and the stoping above of its immediate drivages monthly (Sec. K. 14, 15, 16, 19, 20). Below the No. 6 level (in Sec. R. 9, 10, 11, 12) some stoping ground has been opened, but the mineral has been poor generally, and the yield has been considerably less. In my last half-yearly report, I noted that it might be expected that we should meet with a long piece of poor ground in the sections mentioned above, and as the No. 7 level had to be driven forward to get under good ore (the mineral from this drivage being unusually poor, and the stoping ground also poorer) it has affected the yield from the mine, which has been unusually low during the half-year. The No. 8 cross-cut has had a very favourable change, and the drivage monthly may be considered good. The ground is still hard, but this favours its maintenance for the future, and as this cross-cut will be the principal entrance and outlet to the mine, if the new mills are put up in the Tigré Valley, there will be little risk of having much cost of timbering in this class of ground. The "porphyry" having been passed through, the usual country rock is now well established, and a fair drivage monthly may be expected. Preparatory work has been made for the erection of the new mill, and the line of water-course cut, which will be sufficiently wide to permit of a tramway on the same bank. No timbers are yet brought for the new work at the mills, as it will be best to postpone this for a short time, in order to have a further knowledge of what may be expected in the Humedad cross-cut. The mill sites are fixed, and the bush will be cleared in a few days. Also preparations are now being made to collect into one stream all the available water from the creeks above. As regards this latter, I think there is no fear of an insufficient supply for 12 stamps during any dry season, but a part of the mine water, or, perhaps, the whole of it, will be required.

TIGRITO.

At this mine the Humedad cross-cut has been the only important mining work done during the past half-year. Fairly good progress has been made, and the rock has been, throughout, in a moderately soft granite, but it has not yet required any quantity of timbering. Much before the new mills are erected, this mine should be in a position to supply 12 stamps, more especially as this cross-cut has the advantage of opening on the vein north and outh a good height of stoping ground.

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CECILIA.

The mining at the old mine has been almost abandoned, and the Victoria Reina is now the principal point of operations. In old Cecilia there are a few places which will be worked, but only when mineral should be short at the Victoria Reina. The latter place shows every sign of becoming a valuable property, especially in the lower workings, and the produce from the mine, when running full time, has been very satisfactory. I cannot indicate any particular point or section yet, as everything is only just commenced, but the plan will show the state of the mine workings as they were in December last.

There are now two shafts, one used as pump shaft (formerly the old Victoria Reina Shaft), and one as a hauling shaft. The latter contains the principal works at present, and the drivages north and south of it, in each level below the former workings, show a lode, and the yield from the crushings prove the advisability of continuing the mining as rapidly as possible. At the old Cecilia mine some exploratory work is now in hand, and it is intended to work on a branch of the old Cecilia lode shortly, but as the mill on the mine is in such a bad state, and would require immediate repairs, I have thought it best to only work on gradually, until we are further advanced in the Victoria Reina mine work.

SAN JOAQUIN.

From my monthly reports you will have gathered that this mine, from the very wretched condition of its working when taken over from the Tributer, has caused a very considerable amount of expense and attention. New pumps have been placed in the main shaft, but are still worked by hand labour, and until the cross cut is cut through to La Salada new shaft, no other way is possible, to keep the lower workings dry. I consider, according to the present state of the mine, especially in its lower levels, that the Company should be amply satisfied with the work done in the short time it has had possession of it, and also as to its increased value as a mine, and the rich discoveries which are being made, especially as depth is attained. You will have noticed that there are now six points being worked, and all in rich mineral, and the yields have been good, but as levels had to be cleaned up, and put into a condition to facilitate the transport of more ore, and the exploration of the mine further in the north ground, and also to keep the sinking going, a large quantity milled has been mixed with débris and poorer lode matter, from points not at present in actual mining. The richest part of the mine is below the No. 6 level, and the shoot in the main shaft seems to be extending north and south of it, and

consequently, as the Salada Mine deepens, it may be hoped that this mineral will be met with.

LA SALADA.

This mine has been worked in conjunction with the operations of the San Joaquin mine, and it is intended that both the sections shall be united after the new shaft has been communicated with the latter. The part now known as La Salada, and which actually provides the mineral for the twenty stamps at work at San Esteban, is equally kept in development with San Joaquin for the opening up of ground for the contemplated new mill at La Salada. In the plan a divisional line marks where both the properties join (F. G. H., 10), but this is only for reference until the new work is completed. The new shaft fairly progresses, but the placing of the new pumping gear and the pitwork has retarded the work very much. Now that this is finished, the monthly sinkings will be regular in the shaft, as also the drivages in the cross cut. Some preparations are being made for the commencement of the new mill, but until the communication from the San Joaquin mine is completed, it is not necessary to hurry the work. The site selected for the new mill is very near the shaft, and the cost of the transportation of the mineral will be very little. However, the work of mounting efficient plant will cost very considerably, for the demands of such a mill as is necessary for these two mines.

MARMAJON AND MARMAJITO.

These mines, since the Tributer has handed them over to the Company, have been worked but in a tentative way, but it is intended to repair the mills, and to open up the mines by a new cross-cut between the two mines. The survey for this has been made, but the pressure of work on hand has not admitted of the attention it will require, nor do I expect to be able to do much until after the end of this half-year. The mineral in the mine, although abundant, is poor generally, but as the section of the ground is very extensive, and a fair amount of water is always at command, it could be worked profitably.

GARIBALDI.

Some few explorations have been made, but as the necessary attention could not be given them they were abandoned, but only temporarily. The mill at this place as also the buildings have been so neglected by the Tributer, that they are now almost worthless, and to commence to work on the mineral of this property would mean some considerable cost, which at present is not worth the while. The water-courses are also broken down, and will need repairing throughout.

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TRIBUTE MINES.

During the half-year the most important of these have been taken over, and are now being worked by the Company. Very little change in any of the others is to be reported.

PALMICHALA.

The lease of this mine having expired, and the prospects for the future of the old mine being very precarious, without some outlay, I have thought it best to release the mine as an exploratory concern, with only a light tribute, and with conditional provisions concerning the lands around the premises. As the Tributer has been some time on the Company's works, and has knowledge of the surroundings of this mine, he may very likely be able to benefit the Company as well as himself.

The maintenance of the Juan Criollo adit under these circumstances is not to be exacted, as the contract ruled, nor is it necessary, the old shaft being the only point which deserves any attention. This will enter into the contract to have a special care, but the repairs are to be paid for by the Company, should they be required.

FILIPINAS.

The lessee of this Company has kept this property in a fairly good condition, but his workings on the mineral have been anything but encouraging, and the work has been carried on but perfunctorily. The arrangements made during the past half-year have only been successful in keeping the property in a moderately decent condition, and the care of the lessee has been for his benefit for carrying on the mining he has done, the usual exactions being made of course.

ITALIA.

The work on this mine is still carried on on much the same scale as formerly. The Tributer has expressed a wish to remove the mill nearer the mine, to save the cost in transporting the mineral. This he will do without any alteration in the present contract, and without prejudice to land and waters. This he will have permission to do, provided the work be done within a stipulated period. A privilege is given to make trials of minerals in the neighbourhood on the Company's lands, limiting explorations.

ZARAGOZITA.

The work done at this mine has been very little during the half-year, and the Tributer having been very unsuccessful, has given but little attention to the work lately. It is probable that he will abandon all mining work, and will be willing to release himself of the lease he holds soon afterwards.

EL SALTO.

This mine has changed very much in all its workings, and as it is of no particular interest, at present, to the Company, I have added to the lease a portion of land known as the "Montañita," to encourage the Tributer to continue his explorations, with the object of getting to know some mineral which has been found near El Salto Mine, and which could be milled at that place easily.

ORE RESERVES.

It is a difficult matter to make any calculation of the ore reserves there may be at any of the mines. At Silencio, the south part promises, from the present drivage, a good piece of stoping ground which could be laid open quickly, above the 286 feet level, and should the south ground in the 400 feet level continue good, there can be no estimate of the amount of mineral available. At present, all lode matter is sent to the mills. Its yield has been very good, and does not change very much. The general development has been increased, and more stoping, driving, rising, and sinking, has been done. This shows that a large amount of ground is laid open, and can be calculated on for breaking as the mills demand it. Approximately, I have calculated that there is ground sufficiently opened up, with the size of the vein, to venture on an ample supply for two years, which would mean over 20,000 tons, with the present milling capacity.

At Córdoba, there is sufficient ground opened to supply the mill for some time, but the ore is poor generally. It may be calculated that about 600 tons are available for stoping, but the extent of the best part of the mine is dependent on the depth it may attain below the No. 7 level.

As described in this report, the San Joaquin and La Salada mines are not yet sufficiently opened up to definitely give any idea of what may be expected as sinking goes on, but I have made an estimate from the Agent's measurements that there are about 4,000 tons of mineral available now, and to become available with the present developments in hand. This would mean that, although this amount is not available at once for stoping, and could not be sent immediately to the mills, still it would be ready in a very short time.

At Cecilia, the old mine has little to count on, and the Victoria Reina section is yet in embryo. However, the latter may be counted on to have open ground for 12 stamps being kept constantly running, and the lode is large. I cannot make any estimate whatever yet of the amount of mineral that may be considered as reserves, although at sight there is a large quantity which would pay to crush in the mill.

Lambrión

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After this mine is "forked," and the old workings better known, it may be possible to give an idea as to what extent of mineral there may be. In the summary of reduction works, there is mention of a number of sands treated. These are from tailings at Cecilia, and there is occasionally mixed with them some mineral from explorations round the place. The sands are now almost exhausted.

MACHINERY.

Throughout the mines the machinery is working well. At Silencio Mill, the No. 2 Mill of 12 stamps has been added for the crushing of mineral, and several new parts and conveniences for the concentration and washing have been put up.

A wire rope of about 200 feet long has also been put up, from the counter shafting of the auxiliary wheel, to work the Frue Vanners, whenever it may be required to help the belting worked from the main wheel. The new axle agent has been placed, and there is now no fear of a stoppage of the mill at any time.

At La Salada the No. 2 mill at San Esteban has been thoroughly renovated. This has 12 stamps, but as the water of the Pocuné stream has to be divided, only 8 stamps can now be run. The whole of this stream, with the water from the new shaft, will however be used in the No. 3 mill and afterwards for the arrastres. At present there are three arrastres at work, and another is being erected. A new pumping gear which is intended to be adequate for the San Joaquin and La Salada mines, was started on the 24th December, and is working well. There are two sinking lifts attached to the gear, and these will be sufficient until the San Joaquin water is brought back to the Salada new shaft by the cross-cut shown in the plan, and which is now being driven.

At Victoria Reina a new pumping wheel and its fixtures have also been put to drain the old Victoria Reina shaft, and to explore northward with the object of working the Bolivia property. As the mill is so very close to this mine the mineral will be easily and cheaply transported to it. The number of stamps now crushing in all the mills is 120. A wheel has been erected at the machine shop to work the machinery there.

BUILDINGS.

Necessary repairs have been made in all the departments. Temporary buildings have been put up at La Salada for the new shaft work, viz., shed over new shaft, carpenter's and blacksmith's shops. The mill buildings at La Salada mills have also been renovated, and are now almost as good as new. At Maria Dama

an addition to the mill has been made for the auxiliary wheel, as also an addition to the No. 2 Silencio mill. In the Californian mill a large concentration room has been added to the building. A new house is being constructed at Silencio for the mine captain, and an office for that department, also an addition to the workmen's quarters. At San Joaquin a new house is being constructed as a residence for the captain and office of that department, and general necessary repairs and additions have been made to the other houses. For the convenience of the workmen on the farms some few additions and alterations have been made as required.

WATERCOURSES.

There have been occasional damages to the Pocuné ditch, but nothing to impede the work for any length of time. There are now dependent on this water, 20 stamps at La Salada, 4 arrastres, and the pumping gear at this mine, San Joaquin mill, and the Silencio pumping gear. The maintenance of this ditch is so costly, and the seasons so very precarious, that it would be necessary, in the event of the mines being worked to a greater depth, to consider the use of other conveniences, for the pumping and the hoisting of mineral. In case of any breakdown, which might occur from any heavy rains, there would be three mills without any water, besides the stoppage in the lower part of the Silencio mine.

A new ditch has been made from the Pocuné stream to bring a part of its water to the pumping wheel at La Salada, and another to return the same water with the mine water to the No. 3 Salada mill. These combined streams will be sufficient for the 12 stamps and part of the Pocuné stream above for the eight stamps in the No. 2 mill.

FARMS.

All these departments have had the necessary attention required for their maintenance. There has been an extraordinary amount of deaths amongst the cattle, through a pestilence which it appears periodically occurs here. This has caused some difficulty in providing animals for the work, more especially as more than double the number are required than hitherto. The total number of beasts on the farms and in work at the different establishments is 500, and their value, according to the Inventory, is £2,900. For the convenience of providing for a further lot of beasts, we have been clearing more bush and turning it into grazing land, at La Salada, Curuná, Mañon, and Ponos Farms. Most of this land is at present planted in yucas, cane, and grass, but in another half-year should be right for pasture. At Cafuré the cane fields have been let on lease for six months, the lessor

to clean and replant the cane. During that period he will have the use of the mill for himself. Rice is planted as the waste land can be used, but as yet it has never been profitable as a crop.

ROADS.

As circumstances required it, these have been lengthened and widened, especially for the transportation of timbers from the forests. Around La Salada new roads have been made for the better transportation and communication to the San Joaquin and La Salada Mines and Mills.

TIMBER.

The largest item in any one department has been in the commencement and erection of the new machinery at La Salada New Shaft. This work being considered as permanent, has had the best class of timbers obtainable from these forests, which have been brought from some considerable distance. The shaft timbers have been the greatest expense, as the "sets" put in are extra heavy, the ground requiring all the precaution possible near the surface. Now that the sinking shows firmer rock, the timbers required will not be wanted so large. In the other mines there has been a large quantity used, and as more ground is opened up where débris cannot be made use of in stoping, the demand will be larger. There has also been a lot required for buildings, and the new addition to the mines has created unusual expenses in this department. The mills at La Salada and San Joaquin are almost entirely rebuilt, and almost all of new timber.

PROVISIONS.

The additions to the mines of San Joaquin, Marmajon, Tarmillo and Cecilia Sands, and the extra work at these, with La Salada new work, effected a sudden extra demand on the contractor. An arrangement has now been made by which he shall now receive 25% extra on the additional amount of goods delivered at the store. Otherwise, the existing contract remains the same as before, but this extra being an unforeseen circumstance which was not calculated for, as all supplies were stipulated on a basis of what amount of provisions had been consumed during the past few years, I considered it judicious to encourage the contractor, rather than to depend on the market. Just now it is very doubtful what prices these may go to, on account of the starting of the Antioquia Railway Company, and as their works are in the centre of the most agricultural neighbourhood nearest the Remedios district, they will naturally have the best chances to obtain what they will require, without any respect whatsoever to the mines here. The contract now in existence will expire at the end of this year, but I have already made a preliminary arrangement for its prolongation for another year, with a slight increase in the

prices of maize, rice and sugar. The effect of this, if carried through, will be to establish the prices of provisions for at least some time to come with our present method, and being in the same hands, it will be safe not to make any notable increase in this department.

COSTS.

The costs during the past half-year have very much exceeded the previous one. The principal extra items are as follows:—The construction of the pumping gear at the new shaft at La Salada; the new pumping gear at Victoria Reina Mine.

The opening of lands around the premises lately taken over from Tributers, repairs, and new buildings for the conveniences of these establishments, additions to stores, and to animals on the farms.

The new mines lately taken over have almost doubled the work, and are still demanding more attention than the older established concerns. This cannot be avoided, but their development is in part paid for, as the mines are in an actual state of production. The two mills at San Esteban are almost as good as new now, the four arrastres have been thoroughly renovated. For repairs I put the following items as being items during the past six months of an extraordinary kind:—

The No. 2 Mill at La Salada	$1,500.00	
" No. 3 " "	1,500.00	
Arrastres " " ...	1,200.00	
		$4,200.00
New Work—		
Pumping gear at La Salada new shaft	6,000.00	
Timbering and sinking " ...	2,500.00	
		8,500.00
New Pumping gear at Victoria Reina...	800.00	
New Buildings, say	3,000.00	
Lands purchased and opened up, and additional Leases	2,800.00	
		6,600.00
Making a total of...		$19,300.00

Of this amount I should consider that to machinery and plant account might be carried about $12,000, and the balance to lands and farms account. This estimate I give from a valuation only, as it is very difficult to give anything very near an approximation.

The extraordinary costs in each month show very many items, but many of them are actual renovations of plant and machinery.

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RETURNS.

The amount of bullion realized from the mines has been :

	Ozs.		Dollars.	£	s.	d.
Company's mines	17,697·03	... value	209,162·80	41,832	11	2
Tributers' "	4,639·78	... "	49,176·10	9,835	4	3
Total.....	22,336·81	... "	$258,338·90	£51,667	15	5

The amount of ore crushed was 16,435 tons, which shows an increase of 4,880 tons during the half year. The following is the crushings from each mine :—

	Tons.
Silencio	8,387
Cicilola	2,262
Cecilia	3,451 with sands
Tigrito	219
Marmajon and Marmajito	660
San Joaquin...	827
La Salada	729
Total	16,435

This ore has produced	...	97 tons of Sulphurets
The Tributers'	...	11 "
Total	108	"

This will give the value per ton *en bloc* at £2 10 10, and the value per ounce of bullion extracted at £1 18s 2d, showing an average of 1·09 bullion, and ·43 fine gold per ton crushed.

GENERAL.

The state of the mines throughout is good, and gives every prospect for a much better half-year. The costs of the mines of San Joaquin, La Salada, Marmajon and Marmajito and Cecilia sands, which have been incurred in their exploration, and their appliances for future work have been considerable. They will now soon be established concerns, and as every effort is made to be able soon to make use of the Salada pumping machinery to relieve the heavy pumping expenses at San Joaquin, more extra costs have been incurred to carry out the design of this work. At Silencio the sinking of the main shaft has caused some extra expense, as also the extension and power of the pumping gear. The greatest difficulty is the maintenance of the hoisting of the

mineral, and as greater depths are attained it becomes more severe. The mine supplies monthly, more than 1,500 tons, which have to be hoisted by animal power, and as the mine deepens, the more force in the hoisting is required. I hope to reach the 500 feet level within this year, and as the shaft sinking will be forced on, the hoisting will be increased.

At Cicilola the mine throughout is in better ground than it has been during the past few months, but it is dependent more on the workings which the No. 8 cross-cut will open up, than the driving of the south ground by the No. 7 level.

At Tigrito the Hunstead cross-cut will soon open up the mine, and there will be a long piece of ground which has yet been untouched, from the level of this cross-cut to the surface.

At San Joaquin and La Salada mines, the work has been done with the object of development, and at the same time to keep up the demands for mineral.

These enormous expenses in repairs, renovations, additions to buildings and machinery, have caused such expenses, that the monthly costs in labour and provisions account have increased very considerably.

There are about 1,200 hands employed in all the establishments.

HEALTH.

This has been generally good. There have been a few serious cases, but none from mine accidents. The usual medical report was sent by last mail. From this will be seen the number of cases treated, and the gradual increase of this department.

GEO. W. EUSTICE.

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Tomado del Archivo de la F.L.M.

Libro: Informes de Gerencia
De los años:

título: Informe JAMES Hocking
Junio 1893

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,
OLD BROAD STREET,
LONDON, E.C., *13th September, 1893.*

The Directors have received advices from the Mines dated 22nd July and 6th August, also a letter from Messrs. Restrepo, dated 11th July.

The statement for the month of July is as follows:—

2,911 tons produced—Bar gold.....	3,051	ozs.	
Tributers' gold produced—Bar gold.....	97	"	
	3,148	ozs.	
Also 57,868 lbs. of sulphurets, valued at	£1,735	15	7
Estimated value of the gold and sulphurets...	£8,370	1	7
Cost at the Mines, Medellin, and in London	5,432	6	6
Estimated Excess of Returns	£2,937	15	1

Mr. Hocking's half-yearly report has arrived, and a copy of it is subjoined.

By order of the Board,

J. JAMESON TRURAN,
Secretary.

Mine Report of the Frontino and Bolivia Mines and Particulars of Work Done for the Month of July, 1893.

Silencio.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton.	Remarks.
Sinking main shaft	14	0 4 0	per ft. 45 cents.	—	—	The sinking in the shaft has again been impeded somewhat owing to water.
Driving 286 end south	4	1 2 0	65	6	—	This end has improved a little during the month, the hole is now split in two veins, after the junction of which we anticipate a further improvement.
No. 2 rise above 286 south	2	2 2 0	35	3	2	The hole here has opened out during the month and now yields fair mineral.
Driving 400 end north	4	2 0 0	40	5	3	During the month we have met with a slide, which has temporarily affected the hole considerably.
Driving 400 end south	4	4 2 0	30	10	1	Little or no change since last reported.
Driving 340 end north	4	4 1 0	45	9	1	Hole a little smaller than last month, but still showing fair mineral.
Driving 340 end south	4	5 0 3½	35	18	1	Large hole containing fair mineral.

Silencio—*continued.*

Description of Work	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. £	Average Yield. Tons per fm.	Average Yield. Oz. per ton.	Remarks
No. 5 winze below 286 north	5	0 5 3	80	5	1	Having reached the point where the cross-course cuts the hole, we have temporarily suspended this winze, the mineral being poor, and pumping charges heavy.
Stopes.						
No. 1 above 286 south	36	103 0 0	—	13	1½	The No. 1 stope above 340 south has been temporarily suspended, hole having become poor and small.
No. 1 above 400 north						
No. 1 above 340 south						
No. 2 above 340 south						
No. 3 above 340 north						
No. 5 above 340 north						
No. 1 above 286 north						
No. 4 above 286 north						Stope below 220 not so good.
No. 1 below 286 north						
No. 2 below 286 north						The No. 2 stope below 340 north temporarily suspended, being poor.
Stope from No. 5 winze north						
Stope below 220 north						
Stope above 150 north						

Examined, JAS. HOCKING.

WILLIAM TRURAN.

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CÓRDOBA.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. $	Average Yield. Tons per fm.	Oz. per ton.	Remarks.
No. 8 cross-cut	6	10 3 0	90	—	—	No change since last reported.
No. 7 level south	4	6 0 0	24	10	½	
No. 7 level north	1	1 5 0	16	8	—	This has been resumed during the month; the lode is about 2½ feet wide, producing mineral containing pyrites.
Stopes in back of No. 7 level north of air shaft	7	18 5 0	12	10	½	The stopes have shown a slight decrease in yield during the month.
Stopes back of No. 7 south of air shaft	3	5 3 3	15	10	½	
Stopes back of No. 6 north of air shaft	10	16 0 0	18	8	½	

Examined, JAMES HOCKING.

JAMES S. GILBERT.
FRANK OWEN.

MARMAJON.

Description of Work.	No. of Men.	Ground excavated for the Month. Fms. ft. in.	Average price per fm. $	Average Yield. Tons per fm.	Oz. per ton.	Remarks.
Stopes in bottom of old cross-cut No. 1	12	13 4 8	30	12	—	The mineral extracted from here is deposited; a little has been milled, but not sufficient to calculate the yield of gold per ton.

MARMAJITO.

Ventilation Rise back of No. 1 cross-cut	3	14 1 6	7	—	—	This has been holed to the surface, and clearing has been resumed in the cross-cut.
No. 2 cross-cut	2	0 5 9	25	—	—	The granite has become harder, and our driving has not been as much as we expected.

TIGRITO.

No. 6 cross-cut, "La Humedad"	5	2 4 0	30	—	—	During the month we cut into a small branch of lode, about 6 inches wide, containing good pyrites. The ground has become harder, and the driving has not been so much as last month.

Examined, JAMES HOCKING.

JAMES S. GILBERT.
FRANK OWEN.

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LA SALADA.

Description of Work.	No. of Men.	Ground excavated for the Month. Feet. ft. in.	Average price per foot. £	Average Yield. Tons per foot.	Oz. per ton.	Remarks.
New shaft	12	1 3 0	Contract	—	—	Both these are in very hard ground: we hope to commence to cross-cut from shaft during the coming month to intersect the cross-cut from the No. 6 level.
No. 6 cross-cut	4	0 5 0	125	—	—	
Stopes bottom of No. 6 level south of No. 3 or main winze	9	19 6 5	16	20	12	These stopes have improved since last report.
Main winze	2	0 3 3	Contract	40	12	Without change.
Stopes bottom of No. 6 level south of main winze	3	4 0 4	20	35	20	A bunch of mineral about 14 feet wide has fallen into the main lode, and has increased the quantity 40 tons per fathom; the quality is without change.

Examined, JAMES HOCKING.

JAMES S. GILBERT.
FRANK OWEN.

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MR. HOCKING'S REPORTS ON THE MINES.

LA SALADA, *22nd July*, 1893.

SILENCIO.

The Main Shaft sinking has been impeded owing to the necessity for changing a good many pumps of the drawing lift. These had been worn completely through by the constant motion of the bucket rod. In the 400 level north we have encountered a band of black argillaceous shale, which has completely disordered the lode. In the present end there is about 6 inches of soft friable quartz, this change, however, is unimportant, as the lode without doubt will open out again as we advance north. The 400 feet level south continues in a large productive lode. The 340 level south is not appreciably altered, the regularity of the deposit both here and in the 400 south being very satisfactory. The 340 north has fallen off slightly, inasmuch as it at present yields less mineral. The quality, however, continues good. The 286 level south is just now in a very promising condition, another branch has appeared in the footwall side, and is inclining rapidly towards the main portion of the lode, we are therefore hoping that the junction will result in a lasting deposit of ore. The rise above this level on the line of the south shaft proceeds satisfactorily, and exhibits about 1 foot of good ore. At the close of the current month we shall be at the point of holing with the Shaft below the 173, and shall then commence to strip down the rise to its required size. The ore seen here is of a most kindly nature, and well merits an exploratory drive south, after the communication is effected. The stopes have fallen somewhat during the month, and this has appreciably affected the returns. We are, however, doing our utmost to keep returns as regular as possible.

LA SALADA.

The new shaft has been sunk 9 feet for the month, and the cross-cut east from the No. 6 to meet it has been extended 5 feet. These points continue in the hard ground that has been for some time common to both. The condition of the main winze is unaltered, the uniformity which exists both in size and quality being very striking. The various stopes throughout the mine are yielding well.

CÓRDOBA.

The driving of the No. 7 south continues in poor unprofitable ground. The rise referred to in my last letter produces ore of a fair quality. This figures in the returned report as a stope. The driving of the No. 7 north has been resumed on a promising lode, this, however, is not the northern extremity of the No. 7, but is a cross lode in section 27 F. on plan. The level north under Rosario will be driven in the current month. The yield for the month so far as seen from the result to hand will be a little less than for June.

TIGRITO.

The ground in the cross-cut at La Humedad is harder, and less progress is shown. During the month a branch of good ore about 6 inches wide has been cut into. This is running very flat and in depth will no doubt fall into the main lode. This discovery in hard settled country is a good feature and indicates our approach to the Tigrito lode.

MARMAJON AND MARMAJITO.

The ventilation rise has been holed to surface. This has enabled us to resume the clearing of the old cross-cut. The advance in the No. 2 is little, the rock having appreciably hardened. The stope in the bottom of the old level at Marmajon produces ore of a similar nature to that last reported. The mill has been re-started, and the results to date show an approximate value of* ½ ounce per ton. The current month's milling will, however, give us a much better idea of the value of the ore.

LA SALADA, *6th August*, 1893.

SILENCIO.

The sinking of the main shaft has again been hindered owing to breakage on surface to the connecting gear from the pumping wheel. This is again in working order, and we hope to proceed without impediment with this important work. The 400 feet level north continues in the disordered condition last reported. The southern drive at this level has fallen off somewhat, the lode, however, is still well defined. This change is, we think, but

* This is not inclusive of what has remained in the batteries, usually an appreciable amount when a mill is newly started.

temporary, being merely a local falling off similar to what has twice so frequently met with in the various drivages north of the main shaft. The northern drive at the 340 level exhibits a small hole of medium grade ore, but that there is better mineral in advance of the present end, is already determined by winze No. 4, which has been sunk to the required depth below the 286, and a drive actually started south to meet the main level coming north. The condition of the 286 end south is now very satisfactory, the branch referred to in last letter having fallen into the main portion of the lode. The lode is now 2 feet wide, consisting of a congenial quartz with bands and patches of good pyrites. A stope has been started in the back of this level and produces good ore, the lode being about the same size as seen in the forebreast. All other operations call for no special mention. Results to date from the mill are about the same as last month, we hope however, an increase will be shortly shown.

LA SALADA.

The sinking of the new shaft goes on satisfactorily. We have commenced to cut in for the new cross-cut to meet that being driven from the No. 6 level. The shaft now being within 2 feet of the bottom of such level. The cross-cut east from No. 6 has been contracted on a different system, so much being paid for every foot of bore-hole drilled, with certain restrictions to prevent any indiscriminate and unminerlike placing of such holes. As a result of this arrangement far better progress is now being made. The sinking of the main winze proceeds as usual, without any material change in the size or value of the lode. The stopes throughout the mine have generally improved, results to-day being in advance of last month. The most southern stope below No. 6 is now producing very rich ore, and every indication exists of this making still further south under the old Salada mine and in unwrought ground. Immediately we are able to deal with the water other than by hand pumps, we shall resume the driving of the No. 6 south.

CÓRDOBA.

The No. 7 south is being extended on a large well-defined lode, but is still very poor. The No. 7 north under Rosario is being driven and exhibits two branches, together equal to about three feet of mineral. This ore contains seams and patches of pyrites, and to say the least, is of a very congenial and encouraging nature. Returns from the stopes are still unsatisfactory, everything possible, however, is being done to increase the yield and we hope that as we proceed north, under the Tributer's workings, to meet with mineral which will render this possible.

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TIGRITO.

The Humedad cross-cut proceeds as usual. The water has considerably increased, this is probably draining the No. 5 level. The excavation and preparation of the mill site is now completed, and the house will be erected forthwith. The necessary timbers for this work, and the heavy timbers for the mill are being collected from the immediate vicinity, and we hope to have the mill ready to crush by such time as the extraction of ore begins.

MARMAJON AND MARMAJITO.

At the former section, the point in operation continues to produce fairly good ore, the yield of gold has distinctly improved, and as this ore is heavily charged with pyrites this is being concentrated, and investigations are proceeding as to whether this is suitable for export or treatment in arrastres. The No. 1 cross-cut at Marmajito is being rapidly cleared, and in about a month we anticipate to be able to extract payable ore from this section. The driving of the No. 2 cross-cut proceeds slowly, two men only being employed there. The excavation for the tramroad from this point to the mill is finished, and the rails will be laid as necessity dictates. The erection of the mill proceeds satisfactorily. This should be ready by the time we are in a position to supply it with ore.

JAMES HOCKING.

Mr. HOCKING'S HALF-YEARLY REPORT ON THE MINES.

La Salada, *15th July*, 1893.

The Directors of the

Frontin & Bolivia (S.A.) Gold Mining Company, Limited,

189, Gresham House, London, E.C.

Gentlemen,

I have pleasure in submitting a report reviewing and recapitulating the work done during the six months ending 20th June, 1893, also tracings of plans posted up to date.

From the accompanying tabulated forms it will be seen that the excavatory work accomplished is considerably in excess of that of the half-year last reviewed, notwithstanding the cessation of work at the Cecilia section since April of this year.

THE MINES.

SILENCIO.

The main shaft has been sunk 23 feet 9 inches. During the first three months of the year this work was seriously impeded, the Pocuné water being inadequate to maintain the pumping gear at a speed sufficient to completely drain the bottom workings, and not until several small tributaries had been artificially brought into the main ditch, could sinking be resumed. The character of the ground passed through is most favourable, its nature and composition being identical with that in which the more important ore shoots have been discovered. Considerable difficulty has been experienced in the haulage of the waste rock, the whim being exclusively required for the winding of ore, the necessity therefore for additional and improved machinery for this purpose is being daily forced on us, particularly if the development work is to be kept well ahead (a matter of primary importance) of the ordinary sources of extraction. The shaft is now 24 feet below the 400 level, and at a depth of 450 feet new levels will be started north and south.

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Driving 400 feet level north (Sec. H. 16). This point has been advanced 136 feet 6 inches. For the whole of this distance the lode has been well defined and of more than average thickness, occasionally soft decomposed granite has occurred between the walls, but this also is gold bearing, and when milled, mixed with the pyritic quartz portions, most satisfactory results are obtained.

The 400 feet level south (Sec. 13, 14) started during the half-year has been extended 65 feet 9 inches. For the first half of this distance, the lode varied considerably in size and value, a marked improvement however set in, and productive ground has since been driven through. The lode is now about 4 feet wide, of most congenial quartz carrying pyrites and galena.

The 340 level north (Sec. H. 21) has advanced 133 feet, and although variations have occurred, the average yield cannot but be considered satisfactory. Towards the close of the period under review, the lode opened out considerably, the value of the lode stuff increasing proportionately. This level has recently been communicated with the No. 3 winze below the 286 feet level north, and has laid open two large stopes of average grade ore.

The 340 level south (Sec. G. 13) has been commenced within the half-year, and shows an advance of 163 feet. The lode was at first small and disordered, but it gradually assumed a more settled nature, and finally entered the pay shoot now being opened up. I would here call attention to the satisfactory condition of the deeper workings in this mine, and especially to the southern ends. The great difference between these and the 286 south is most striking and very satisfactory. Both this level and that immediately below (400 south) are now advancing on an ore body, previously unknown (a barren zone having intervened between this and the shoots so extensively exploited in the shallow levels) the importance of which is obvious, developing, as they are, rich ore reserves, and this in a part of the mine which has for a considerable time proved sterile.

The 286 level south (Sec. F. 9, 10) has been driven 53 feet 9 inches. This drive has been somewhat disappointing. The lode has been very small, consequently the yield has been below our expectations. The strata, however, has been most congenial, and the vein, although small, is well defined, and has a kindly appearance, we therefore think that an improvement will occur at this point. A rise has been put up in the back of this level (Sec. E. F. 11) to communicate with the old south shaft at the 173 level (Sec. E. 11). We shall then cut down the rise to the requisite size, and in this manner a second winding shaft will be quickly available to facilitate operations in the southern section and to relieve the high tension at the main shaft, which will then be exclusively used for the output of the northern part. The lode

in the 286 level north was so small and impoverished that it was deemed advisable to employ the miners elsewhere. This was carried out, and work here has since remained in abeyance. Several exploratory drivages from the rise above the Maria Dama cross-cut and at Maria Dama, amounting in the aggregate to 203 feet, have been executed, but they have not proved the existence of anything deemed worthy of permanent attention, and have therefore been suspended.

Rather more than 565 fathoms have been excavated in the various stopes throughout the mine, the results from the treatment of this ore have been excellent, showing an average produce of 1·44 ozs. of bar gold.

In no previous half-year has this output been equalled, but the resources of the mine have not by any means been unduly strained, on the contrary, the amount of ground laid open by the various drivages and now available for immediate removal, being considerably in excess of that excavated during the half-year.

CÓRDOBA.

The driving of the No. 8 cross-cut (Sec. Q. 27) has proceeded steadily, but with hand labour in the hard granite encountered, the progress will be but slow; an advance of 66 feet is shown for the half-year, the total distance driven being now 303 feet.

The No. 7 south (Sec. D. 17) has advanced satisfactorily, but I regret to add on a lode which although large is of a very poor nature. The desired communication has been effected with the air-shaft, and at this point a satisfactory improvement occurred, which was for the time very encouraging. This unfortunately was but temporary, the end continuing in this condition but for a few days, finally assuming its former impoverished condition, in which it still continues. Stoping has been carried on in the back of the No. 7 to the extent of 129 fathoms.

The yield of bullion from this ore shows a material decrease compared with the previous six months, and unless some discovery is made in the various drivages, an increase cannot be expected. Preparations are in hand for the driving of the No. 7 level north (Sec. D. 34) under the section formerly known as Rosario, and where a tributer has recently discovered a lode of good grade ore. Should this ore make to the level of the No. 7, the returns can be substantially augmented, and a large amount of ore (140 feet of backs approximately) would be laid open.

TIGRITO.

The only mining work carried out at this mine during the half-year has been the driving of the deep cross-cut at La Humedad

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which has been extended 193 feet in a moderately hard granite. It is very probable that before cutting the main lode, which event, calculating from the present rate of advance, should take place in the current half-year, some of the branches met with in the No. 5 level and followed for some distance, will be encountered.

CECILIA (WITH V. R. SECTION).

All attempts to discover payable ore by the numerous exploratory works in the vicinity of the old mine having proved futile, the mining operations were completely suspended, and the attention turned towards V. K. The old Cecilia mill, taken over last year from the tributer, has been treating debris from the ancient alluvial workings and the soft mineralized schist from the Cecilia dumps, with satisfactory results. The course of the Cecilia main lode across the flats was clearly ascertained, but the large vein seen in the old mine was so split up into small and uncongenial branches, that a further outlay was considered not to the interest of the Company, and the investigations were stopped. Operations were vigorously conducted at Victoria Reina until the month of April, when all mining work was suspended, until such time when the Board may decide to resume the work. For a period, apparently encouraging results were obtained, but the dust obtained lost so heavily on being melted into bars, and the standard of the gold was so excessively low, that the aspect of affairs was completely changed, and to obviate continual losses, all work was suspended. There is, however, one feature in connection with the work here which claims attention, and this is the superficial situation of the whole of the points wrought. Deep mining has proved so marked a success on the Company's property, notably in Silencio, San Joaquin and La Salada, and this in sections unproductive in their shallow works, that it would perhaps be prudent to sink say 20 fathoms deeper, and then extend pioneer levels as a final test. The cost of this work would not be heavy, as the pumping gear is already fixed, consequently the heaviest item would be the actual excavation. Should you decide however to lease the mine, this work could be made obligatory by a special clause in the Contract to that effect.

LA SALADA WITH SAN JOAQUIN.

The results obtained in these properties for the half-year have fully substantiated the favourable reports repeatedly submitted to you. The present condition of the both sections is excellent, the irregular methods adopted by the late tributer having been superseded by an organized system of extraction

consistent with the importance of the mine. The new shaft (Sec. L. 18) has been deepened 57 feet, being now 119 feet from surface. The rock is a hard syenitic granite similar in appearance and composition to that in the main shaft at Silencio. When a depth of 135 feet is attained a cross cut will be started to meet that being driven from the No. 6 level (Sec. I. J. 17). This communication is vital to the future of the new mine, and no effort must be spared to effect it, its accomplishment means a considerable reduction in our monthly cost, especially in the pumping charges. The dead work also at this section, now a heavy item, will then consist only of the shaft sinking. The driving of the No. 5 level north (Sec. I. 24, 25) has shown a continuance of the ore ground in that direction, but this, as well as all lateral extensions, have not yet had the attention which their importance demands, as it is not advisable to increase the area drained whilst the workings are being unwatered by hand pumps. The cross-cut east from the No. 6 level has advanced 40 feet towards the new shaft, the excessive hardness of the rock has retarded driving very considerably.

The main winze (Sec. I. 19) has been sunk 25 feet on a rich lode. This is well defined and of a settled character, and is in fact all that one could possibly desire to see in the deepest point of the mine.

214 fathoms have been removed by the stoping operations, the crushings of which have given splendid results, the yield per ton crushed for the half-year being 1.05 at San Joaquin and 1.07 at La Salada. A new tramway has been constructed from the hauling shaft to the mills at San Esteban. This has rendered the transport a much cheaper and easier matter.

MARMAJON AND MARMAJITO.

At the former section a short cross-cut (Sec. R. 30) driven by former workers, has been cleared, and a lode of medium grade ore, producing, in a short trial-crushing, ½-oz. gold to the ton, has been discovered. All mineral above this level has been removed; we are, therefore, sinking on the vein to prove its value, before commencing a cross-cut to intersect it at a deeper level, which there is an opportunity of doing. The old or No. 1 cross-cut (Sec. H. 11) at Marmajito has been cleared and thoroughly timbered for a considerable distance, the air, however, became so vitiated with the gases resulting from the decomposition of timbers, that a light could not possibly be maintained, and, in order to further proceed with the work, it was imperative to start a ventilation rise which should communicate with surface. This work is now approaching completion. The new or No. 2

cross-cut (Sec. G. 8) has been driven 195 feet. This will lay open a considerable quantity of backs for future stoping. About 34 fathoms have been excavated in the stoping, the mineral from which has been of a fair quality and congenial nature.

ORE RESERVES.

The southern developments at Silencio have increased very considerably the reserve ground, which can be relied on to yield good returns. Comparatively very little stoping has been done south of the main shaft, so that these sections may be considered to be practically intact. It should not be forgotten that at no distant date the 450 feet level will be commenced north and south, and if the indications in the bottom of the 400 mean anything, they predict a continuance of the rich ore at such level. Therefore when the south shaft is in working order, and the new level well on its way, additional crushing machinery can be erected here if desired. At La Salada about 4,000 tons can be counted on, that would produce per ton about the average yield of the half-year. Whenever it becomes possible to extend the various drivages in this mine, of course the amount of available ore ground will rapidly increase. At Córdoba there are about 6,000 tons which would probably produce at the present rate of yield.

There is at Marmajito a considerable quantity of payable ore ground, but owing to the collapse of the No. 1 cross-cut, no accurate idea can be given of the actual quantity.

TRIBUTE MINES.

El Salto.—Work has been confined to the section known as Montalito, and which was ceded to the tributer when he abandoned the works originally embraced in his lease. Two levels have been driven into the hill a long distance on a vein of hard unkindly looking quartz, varying from 6 to 9 inches thick. The yields from repeated and lengthened trial-crushings were so small that the tributer was compelled to abandon the works. He is now driving a cross-cut in hard granite on the opposite or western side of the valley, where evidences of ancient workings abound. His idea is to intersect a ramification from, or a continuation of the Silencio main lode. This is about the spot where its line of strike would pass. This point therefore is of interest as it will prove what superficial indications exist of an extension so far north of this lode.

Rosario.—Fair returns have been lately made from this mine. A winze has been sunk on the vein discovered in the No. 4

tributer's cross-cut, about 30 feet. On starting this work the lode was represented by several small branches of good-looking quartz separated by semi-decomposed granite, but at the depth now attained a compact lode of about 4 feet wide is seen, the nature and quality of which is decidedly good. This point is of more than usual interest as it is in advance of the No. 7 end north in the Córdoba Mine, the driving of which will shortly be resumed.

Italia.—The explorations made during the half-year and which have been carried out all over the property, have not resulted in the discovery of any payable ore. The tributer has requested permission to cede his contract to the Palmichala tributer for three months with the option of purchase. As this would in no way affect this Company such permission has been given. If he too fails to find anything of value, the lease will no doubt be surrendered.

Zaragozita.—All mining work was abandoned here, and the attention turned to washing the sands and débris which have for a long time been accumulating. This had little result, other than to render the water used below in the Californian mill unfit for battery purposes. His lease was subsequently taken over by the Company for a small consideration, and the mill has since been turned to successful account in crushing Silencio ore.

Filipinas.—The cross-cut driven here has intersected a small lode of about 4 inches in thickness. This has only recently been accomplished, and no returns have yet been made. This however is unimportant, the only advantage likely to accrue to the Company being a small amount of royalty.

Palmichala.—All workings in the old mine have been abandoned, the results obtained not being sufficient to pay working expenses. All the rails have been taken up from the Juan Criollo adit, and are being used in the various tram-road extensions in the Company's mines.

A cross-cut has been driven 45 fathoms with the object of intersecting an unworked portion of the outcrops, but without success. At a considerable distance north of the old shaft a continuation of the main lode has been found, but it has been so impoverished in traversing uncongenial strata, that a trial crushing of 48 hours in a six-head mill produced four castellanos, or rather more than half-an-ounce of gold. The intention of the tributer, however, is to drive south towards the old workings, and to thoroughly prove this long piece of unexplored ground. The

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results obtained during the half-year have been largely from the milling of sands, and the debris which has accumulated at the mouth of the adit.

The results which have figured in the monthly returns under the head of "Córdoba Sands" have been obtained from the milling of portions of the Córdoba "Dump," and auriferous earth taken from the hill-side, and unimportant excavations a few feet below surface. On this a royalty of 15 per cent. has been paid.

MACHINERY.

All machinery on the property is now in thoroughly good order. Considerable trouble and anxiety have been caused by the repeated breakdowns of the new axle at the Silencio mill, the repair executed on the 10th of June is still holding good, and promises to prove a lasting job. The Frue Concentrators have been thoroughly overhauled and many worn parts replaced. These are now doing good work. A new axle is about to be placed on the No. 3 native mill at Silencio, which will enable the additional heads to be worked. The mill at the San Joaquin Section has had a new axle and many important repairs which were urgently required. The No. 3 mill and the arrastres at San Esteban have been practically rebuilt, and two new puddles have been fixed for the concentration of sands.

At Córdoba mill a new axle and battery posts have been put in place, and the wheel, which was showing signs of decay, thoroughly renovated. At Marmajuel the new mill house has been made as good as new, a new axle and battery posts put into position. This mill will now have nine instead of eight heads. The new house has been built for the new mill at Marmajuel. The axle and battery posts are ready, as also the wheel—these as well as all heavy timbers required in its construction being all on the spot. In addition to the foregoing, the new 10-inch plunger lift is being prepared for fixing at the mouth of the cross-cut, where it will communicate with the new shaft at La Salada.

BUILDINGS.

In addition to the erections and renovations enumerated under "Machinery" new houses have been constructed at La Salada, Silencio, San Joaquin and Victoria Reina, and extensive repairs have been executed on almost all edifices in the various departments. To obviate the building of a new store house, two additional rooms have been assigned for this purpose, but even now it is very evident that more space will be required for this purpose. Permanent buildings have not yet been constructed at

the new shaft, pending the decision relative to hoisting gear. A large shed will be erected forthwith at Silencio to cover the whim which it is contemplated to move from the old Cecilia mine to the new south shaft at the former section.

WATERCOURSES.

No serious damage has occurred during the half-year on the Pocuné ditch, which of course, owing to its length, is the most liable to landslips, &c. This is now in exceptionally good order, various aqueducts have been replaced, and the most important of these, viz., that at San Antonio is being thoroughly overhauled and repaired. So much now depends on the Pocuné that extreme care must be taken that everything is in a good state, and although this entails considerable cost, there is no alternative. A new length of ditch is now in operation to return the water used at the new shaft to the No. 3 mill at La Salada. The other important watercourses, viz., the "Guañana" and the "Doña Teresa" have had constant attention and are in good order.

FARMS.

The total number of beasts on these properties and at work in the various departments is 538, of an estimated value of $29,360. For the last two months small profits have been shown at Curund and Cuturú. This is the result of a method introduced by Mr. Eustice in which the men in charge have been given a contract to take proper care of all animals belonging to the Company, and to attend to the farm work, receiving as compensation a fixed sum which covers salaries and provisions of themselves and assistants. It is found that this system works exceedingly well, the whole of the live stock being in good condition, whilst the state of the pasture lands, &c., compares favourably with any previous half-year. The clearings around La Salada and Silencio have been further extended to provide pasture for the mules and oxen employed here, and in view of a larger amount being required in the near future.

RETURNS.

The amount of ore crushed, (inclusive of sands from Cecilia and Tigrito) has been 19,635 tons for the half-year. This shows an increase over the amount treated in the preceding six months of 3,167 tons. This has been made up as follows, together with the different values and ounces produced.

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	Tons crushed.	Ozs.	Value.		
Silencio.....	9,405	13,547.27	£25,542	12	0
Cecilia	3,830	1,567.10	1,652	9	8
Córdoba ...	1,750	1,167.05	2,120	4	9
San Joaquin	1,295	2,527.60	5,665	11	7
La Salada ..	2,635	2,804.45	5,521	14	10
Marmajon ..	225	199 20	341	2	4
Tigrito.....	465	64.43	112	4	5
	19,635	21,957.10	£38,955	19	7

Sulphurets have also been produced as follows:

	Tons.	Value.		
Silencio.....	100.914	£5,326	16	0
Cecilia	.790	25	2	0
Córdoba	.142	52	7	2
San Joaquin	1.056	580	2	5
La Salada.....	1.955	580	1	3
	105.757	£6,564	8	10

From the Tribute Mines 967.31 ozs. have been produced, valued at £2,130 18s 0d.

This shows a production for the half-year amounting to £47,651 6s 5d.

The separate yields from the Company's mines are as follows:—

	Bar gold, per ton.	Total value, per ton.		
Silencio	1.44	£3	1	2
San Joaquin	1.95	4	16	5
La Salada	1.07	2	5	7
Córdoba.....	.66	1	4	10
Cecilia	.41	0	8	10
Marmajon	.88	1	10	2
Tigrito	.13	0	4	10
General Average	1.06	£2	6	2

The value per ton is rather less than for the preceding half-year, this is accounted for by the prevailing low standards. It will be seen that the quantity of sulphurets is gradually increasing, whilst the transportation to Zaragoza is becoming an

almost impossible matter, it therefore claims your serious attention to decide as soon as possible whether they can be successfully treated here by some modern process. The expenses connected with their exportation is the cost of making bags and boxes and various commissions and freights are now so heavy, as to appreciably affect our monthly cost. It is therefore quite clear that if such process could be introduced, even if the percentage extracted was somewhat below the yield in the present mode of treatment, it would be a decided advantage to the Company.

TIMBERS.

The total amount for timber used during the half-year is £3,783 7o, being an increase of £7,347.20.

The increasing distance at which suitable timber is found for mining purposes is constantly increasing its cost. The outlay in the various mills, repairs to and the erection of houses account for the increase shown.

COST.

The total expenditure shows a decrease in comparison with the last period under review, whilst the Mine cost has considerably increased. This however is owing to San Joaquin, La Salada and Marmajon being charged under Company's mines for the six months, only three months entering in the previous half-year. The repairs under "Machinery" have been very costly, but the outlay was imperative, if the operations were to be continued. Only those who actually saw the condition in which the various concerns were taken over from the tributer can form any idea of what their state was. Happily, however, this state of things is passed, the mills, millhouses, &c., being now in a thoroughly efficient state, but this could only be effected by a considerable outlay. The increased prices paid for provisions have also contributed largely to our monthly cost.

GENERAL.

The condition of the mines generally, and especially of those from which the yield is almost exclusively derived, ensures continued success. Developments in the deepest points at these mines have clearly demonstrated the continuance of their rich ores, and it therefore only remains for us to adequately equip the properties in such a manner as to prevent their future working being heavily handicapped. The new shaft at La Salada has now attained a depth, when some apparatus must be provided for winding, other than the ordinary windlass now in use. This,

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however, will be better explained to you by Mr. Eustice in his interviews. One matter which threatens to hamper us is the almost famine prices for all classes of provisions. These have already reached an almost unprecedented figure. Hopes are however entertained that the steps taken by the Government in conjunction with a Company of Merchants formed in Medellin will have the effect of considerably reducing these prices; free introduction of all provisions has been granted, and representatives have gone to the States to purchase. Our endeavours are being concentrated to reduce the costs, in conformity with your expressed wishes, and we have every hope of being able to show a reduction.

HEALTH.

With the exception of the epidemic of influenza in May, this has been most satisfactory, the staff have all been well, and have handled their respective departments with conspicuous ability.

I remain, GENTLEMEN,

Your obedient Servant,

JAMES HOCKING.

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SUMMARY OF WORK *from December 21st, 1892, to June 20th, 1893.*

SILENCIO MINE

Class of Work.	From where Executed.		TOTALS. Feet.	In.
Sinking	Main shaft		15	2 9
Driving	No. 1 winze below 340 level north		121	8 6
	No. 2 winze below 340 level north			
	No. 5 winze below 286 level north			
	400 feet level north			
	400 feet level south			
	340 feet level north			
	340 feet level south			
	286 feet level north			
	286 feet level south			
	Surface level, M. D.			
	No. 1 level from rise in adit level			
	No. 1 level west from rise in adit level			
	No. 2 level from rise in adit level			
	Level from rise in surface level, M. D.			
	Drivage from No. 4 winze, below 286 north, to meet 340 north			
Rising	No. 2 rise above 286 south		36	5 0
	Rise in adit level			
	Rise in surface level, M. D.			
Stoping	No. 1 above 400 north			
	No. 1 below 340 north			
	No. 1 above 340 north			
	No. 2 above 340 north			
	No. 3 above 340 north			
	No. 4 above 340 north			
	No. 1 above 340 south			
	No. 1 below 255 north			
	No. 2 below 286 north			
	No. 1 above 286 north			
	No. 2 above 286 north			
	No. 3 above 286 north			
	No. 4 above 286 north			
	No. 1 above 286 south			
	No. 1 below 286 south			
	Stope in adit level			
	Stope from No. 5 winze below 286 north		565	5 0

WILLIAM TRURAN.

Cecilia Mine.

Class of Work.	From where Excavated.	Fms.	ft.	in.	TOTALS. Fms.	ft.	in.
Stoping	Stope south from rise in No. 2 level north	6	0	6			
	Stope north from rise in No. 2 level north	2	4	3			
	Stope No. 1 north below No. 1 level						
	Stope No. 2 north below No. 1 level	16	2	0			
	Stope No. 3 north below No. 1 level						
	Stope south below No. 1 level				25	0	9

"V.R." Mine.

Sinking	Main shaft	4	0	3	4	0	3
Rising	No. 1 rise from No. 1 level south	6	5	0			
	No. 2 rise from No. 1 level south	6	1	3			
	Rise from No. 2 level south	1	5	6	14	5	9
Driving	No. 1 level south	13	5	9			
	No. 2 level south	6	0	0			
	No. 2 level north	24	4	6	44	4	3
Stoping	Stopes No. 1 and 2 below No. 2 level north	3	0	0			
	Stope above No. 1 level south	4	0	0			
	Various small stopes...	18	0	0	25	0	0

WILLIAM TRURAN.

San Joaquin Mine.

Class of Work.	From where Excavated.	Fms.	ft.	in.	TOTALS. Fms.	ft.	in.
Sinking	Main winze below No. 6 level	4	0	10	4	0	10
Driving	No. 5 level north	11	3	0	11	3	0
Stoping	Bottom of No. 6 level north	52	4	4			
	Back of No. 5 level north	28	3	10	81	2	2

La Salada Mine.

Sinking	New Shaft	9	2	10	9	2	10
Driving	Cross-cut east of No. 6 level	6	3	9			
	No. 6 level south	2	0	6	8	4	3
Rising and Stoping ...	Back of No. 6 level south	29	0	0			
Stoping	Bottom of No. 6 level south	103	3	0	132	3	0

Córdoba Mine.

Sinking	Air Shaft to No. 7 level	3	0	0	3	0	0
Driving	No. 8 cross-cut	11	4	0			
	No. 1 cross-cut east of No. 7 level...	5	4	0			
	No. 7 level south	21	1	9	38	3	9
Rising	No. 3 rise back of No. 7 level	3	5	6	3	5	6
Stoping	Back of No. 7 level between air shaft and No. 2 winze, 6 to 7	129	0	2	129	0	2

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Tigrito Mine.

Class of Work.	From where Excavated.	Fms.	ft.	in.	TOTALS. Fms.	ft.	in.
Driving	No. 6 cross-cut, La Humeclad	32	1	2	32	1	2

Marmajon Mine.

Clearing	No. 1 cross-cut and winze	11	4	0	11	4	0
Stoping	End of winze	3	0	0	3	0	0

Marmajito Mine.

Sinking	No. 1 winze bottom of north level	4	3	6	4	3	6
Driving	No. 2 cross-cut	32	3	6	32	3	6
Clearing	No. 1 cross-cut	50	5	0	50	5	0
Rising	Ventilation rise back of No. 1 cross-cut	5	2	0	5	2	0
Stoping	Back and bottom of No. 1 level	34	3	11	34	3	11

JAMES S. GILBERT.
FRANK OWEN.

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Informe semestral de Mr Eustice
a Junio 1894

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, Gresham House,
Old Broad Street,
London, E.C., *8th October, 1894.*

The Half-yearly Report of Mr. Eustice to the end of June has arrived, and a copy is subjoined.

By order of the Board,

J. JAMESON TRURAN,
Secretary.

La Salada, *August 23rd*, 1894.

HALF-YEARLY REPORT.

The Directors of the
Frontino and Bolivia (S.A.)
Gold Mining Company, Limited,
London, E.C.

Gentlemen,

I herewith submit my Half-yearly Report of these Mines, with tracings of plans and summary of work done during the period. General work has been carried on as usual, and sinking of the several shafts, driving of levels and stoping of ore for the demands of the several mills at work. No very serious interruptions have happened to deter the ordinary course of affairs at any of the mines, and consequently the mills have more or less been steadily at work the whole of the six months.

THE MINES.

The Mining work has been carried on with its usual activity, as will be observed by the large amount of ore extracted, and the dead work done in every department.

SILENCIO.—The main shaft has been sunk 22½ feet. As in previous half-years, there have been circumstances which impeded the work, but no serious drawbacks have occurred during the past half-year, and the work has gone on steadily, although in March and April the progress made was very little.

The ground is hard granite, and lately some few small strings of mineral have appeared, but are of no consequence. The 6-inch plunger lift mentioned in my last half-yearly Report has been placed, and new rods from the surface to the No. 6 level, which has greatly facilitated the sinking, besides saving the wear of the pumping parts as formerly.

The shaft which I have reported in my letters as the south engine shaft, has been timbered and holed to the No. 4 level, and a skip-road put in. A geared horse-whim is also erected, and at work. This is a great help to the present hoisting apparatus, relieving it from all the work of the south part of the mine down to No. 5, and it is intended to continue the road down to No. 6 as soon as possible.

The No. 6 south (Sec. I.S. 13) is in very rich mineral, but from the shaft, for several feet, the drivage opened up ground very interrupted and broken. This level north (J.S. 15) has been in disorganised ground since the lode was intersected; intervening veins have very much mixed it up.

The No. 5 level south (I.R. 17) is in rather poor ground, as is also this level north (Sec. H.R. 12).

The No. 4 level south (G.Q. 12) is in very promising ground, and the stopes above, back some distance from the breast of the end, are also good. In this level north (H.Q. 22) the lode is poor, and it has been but little worked of late. However, it is not abandoned, and full force will be resumed as soon as men can be spared from elsewhere.

In this level (Sec. F.Q. 24) is the commencement of the cross-cut on a cross-course (marked on plan "Fault") with the object of intersecting the Nemeleme lode to the west, and which runs almost parallel to the El Silencio. There has been a survey made of the distance at surface from outcrop to outcrop of both lodes, but this would probably be misleading. However, a distance within 400 feet should cut the lode.

It is intact from the surface, and therefore if anything is met with of value there will be no lack of ore.

I took advantage to drive through the cross-course, as it is very soft, and the enclosing walls hard and of a size sufficiently large that there is no need of touching the walls.

In this month 52 feet were driven in it, and it may be hoped that in six or seven months the lode should be cut. It is also intended to rise on it to surface for air and probably for other uses, but I wish to see what the lode is like before making any further explorations.

The débris from this cross-cut comes useful for filling the stopes below this level.

In No. 3 level north, the drivage has not been resumed, as it is hoped that the No. 5 and No. 6 will thoroughly prove this section of northern ground.

In this level south, a considerable amount of drivage and stoping has been done, ultimately presenting a large lode of very fair quality. (Later reports mention that it still increases in size.) (Sec. G. Q. 6.)

This is a very encouraging feature as it is all in new ground, and the stopes may be opened at any time. The adit level south has been re-timbered from the main shaft to the south engine shaft, and railroad laid for transporting the mineral drawn through the shaft to the mill. A large bin for ore has also been constructed, and the shaft put in thorough repair.

Stoping throughout the mine has been carried on as the demands of the mills required. All the levels are kept ahead of stoping ground, so much so, that there are sufficient stopes open for choice of mineral. Six hundred and ninety-eight cubic fathoms (698) have been stoped, somewhat more than any previous half-year.

LA SALADA.—The new shaft has been sunk and timbered 19 feet. No sinking was done during the first two months of the half-year, on account of not having completed the breaking through of the cross-cut, and passing the water from the San Joaquin Section of the mine to the main shaft.

This was effected in February, but in May it was found necessary to put the men to timber, and place the shaft in a general and good condition before sinking any further. This was done, and the sinking resumed in June.

Later reports mention that the shaft is deep enough to commence the cross-cut No. 2, which would intersect the lode at about 90 to 100 feet.

The No. 6 level south (Sec. I.S. 16) has been widened, and a tramway laid in it. The lode has been fairly good throughout the whole period of the half-year. About February, the

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lode made a junction with another branch, which at the time was considered the old well-known "flat lode" of La Salada; but, later on, by cross-cutting through it, it unfortunately appeared to be something else, and that the "flat lode" is further back in the foot-wall.

This will soon be positively determined, but at present nothing more can be said about it. Very little work has been done in No. 5 level north (Sec. H.S. 17), as it is in poor ground. This section of this mine it is intended to prove thoroughly after the lode is cut in the shaft.

The stoping ground has been fairly productive, and has yielded well in the mills. A very long stretch of the No. 4, or adit level has been re-timbered, also the air shaft, and a ladder-way put in, so, besides its use for ventilation, it can be used as an extra means for hauling, if found necessary.

The lode below the No. 6 has been unworked in the half-year, as it is practically under water Level, and the object is to hurry forward the No. 2 cross-cut to cut the lode, as the best ore is to be found there. In the meantime, the mining must be continued much as at present, and the returns will be low for a time.

A few more cubic fathoms have been extracted during the half-year than the previous one, as also driving and rising in ground. The mine throughout looks very promising, and in the current half-year better results may be expected.

Córdoba.—The No. 8 cross-cut has been driven fairly well during the half-year. At the time of writing its length is 430 feet, about, and water is issuing from the "end." This is an encouraging feature. The ground is softer and mineralized, and should it not change, the lode will be intersected soon.

With this hope in view, preparations are made to lay a tramway from the level of the cross-cut around to the Córdoba old mill, besides the tramway to the new mill; as, when the mine is open, there will be an abundance of ore, quite sufficient for both the mills.

The lode in the south end (Sec. D. S. 15) has continued poor all through the half-year, and is now abandoned. Short patches of fairly good ore have been met with during the drivage. This level north is in a small lode, but of good nature and quality. The stopes have also been poor; but later reports mention that there is an improvement, and the returns from the mills have consequently increased.

Tigrito.—The lode was cut in this mine in the Humedad cross-cut in May. At first it was broken, the largest seam being about 2 feet wide. After a continuance of the level east and

west, the lode improved, and is about 2½ to 3 feet wide. The east end is rather poor, but the west end is rich; probably it is nearing the locality where a large quantity of good ore was extracted above the No. 5 level. The lode is being proved as fast as possible, and worked on to keep ground open for the demand of the mill.

N.B.—I wish to explain here that amongst the Return Sheets you will not find a separate one for this mine for the following reason:—The new mill was finished, and working before the lode was cut, and was milling ore from Córdoba mine and outlying croppings on the Tigrito property, the results of the crushings being put in favour of Córdoba, as such a small quantity came from the Tigrito outcrops.

When the lode was cut, and was found to be small, the crediting to Córdoba was continued as the quantity was so little. This Mine's return will, in future, be kept separate like the others.

Marmajon and Marmajito.—At the former mine the lode has been cut and the exploration on it is commenced, but sufficient ground is not yet opened up to keep the mill going. It will be some time yet before everything is in good working state. In the latter mine, the cross-cut is still hard, but in the drivage a vein or branch has been cut about 1½ feet wide, which has the appearance of being worth a trial, and accordingly a level has been started east and west on it, but very little has yet been done, and therefore very little can yet be reported on it.

The cross-cut is, however, continued. The stopes are producing a fair quality of ore.

Tribute Mines.—These have produced about twice as much in the half-year as in the previous one, the results *in toto* being 914 ounces, valued at £2,156 3s 2d, the principal producers being Rosario and Palmichala. At the latter all the old mine has been abandoned, and the present works are some distance from the mill. The former has its workings above the No. 5 level, north of the dividing line of that property and Córdoba. I have let old Cecilia for a year, and the tributer has put up a small pump on it, as the water was increasing, and could not be kept down by hand power.

Filipinas is leased to our provision contractor, who will erect a small mill, and clean all the pasturage, and repair some of the houses, the former tributer having left things in a most ruinous condition. Of the other mines, Garibaldi and Italia, there is nothing to note, little or nothing having been done in them. A few ounces of gold have been obtained from streamers, for which see Returns.

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COSTS.

The total costs have amounted in sterling to considerably less than the previous half-year. This is not due to less work having been done, but to the higher rate of exchange which existed throughout the whole half-year.

Indeed, in proportion, much more work has been begun and finished, and there are at present on hand several important new works, part of the cost of which entered into the half-year, such as the La Salada new mill, preparations for the new hoisting works at El Silencio, the Tigrito mill, &c.

RETURNS.

The amount of ore crushed during the period is 17,992 tons, or an increase of 795 tons on the previous half-year. This quantity would have been considerably more, only that the cross-cut from La Salada new shaft to the San Joaquin section could not be communicated soon enough.

These tons produced 15,852 ounces of bullion and 134 tons of sulphurets. The bullion was estimated at £33,663 3s 7d, and the sulphurets at £7,265 11s 7d, the total value of the yield being estimated at £41,028 15s 2d. The average yield per ton is ·67 ounces, and its value is £1 7s 7d.

The crushings at the several mines are as follows :—

	Tons Crushed.	Fine Gold in ozs. produced.	Estimated Value. £	s.	d.
Silencio	11,193 ...	10,037.87 ...	22,663	7	7½
La Salada ...	2,782 ...	3,223.93 ...	6,049	8	9½
Córdoba ... } Tigrito ... }	3,637 ...	2,493.38 ...	4,726	12	4½
Marmajito } Marmajon }	410 ...	97.22 ...	223	14	9½

From the Tributers' mines 914 ounces of bullion have been produced, and are valued at £2,156 3s 2d, so that the total yield of bullion from the property is 16,766 ounces, and estimated at £43,184 18s 5d.

The separate yields per ton from the Company's mines are as follows :—

	Value per ton in ozs.	Value per ton in sterling. £	s.	d.
Silencio ...	... 0.90 ...	...	2	0	7½
La Salada ...	... 1.17 ...	...	2	4	8½
Córdoba ...	... 0.84 ...	...	1	11	10
Tigrito ...	... 0.21 ...	...	0	10	0
Marmajon ... } Marmajito ... }	0.23 ...	...	0	10	10

It will be noticed that the ore generally is poorer than formerly, but it contains more sulphurets everywhere as depth is attained.

The details of the produce of the tribute mines are as follows :—

	Ozs. Bullion produced	Value £	s.	d.
Cecilia ...	274.88 ...	565	8	4½
El Salto ...	37.72 ...	95	15	7½
Rosario ...	395.39 ...	958	2	9½
Garibaldi ...	4.47 ...	11	18	9½
Filipinas ...	20.86 ...	58	15	7½
Córdoba Sands	2.57 ...	4	12	9½
Palmichala ...	146.23 ...	406	16	9½
Italia	10.32 ...	22	15	2½
Steamers ...	12.57 ...	33	17	2
	914.01 ...	£2,156	3	2½

FARMS.

These departments have had all the necessary attention for their maintenance, and are in a good state, having abundance of pasturage everywhere.

More lands have been opened as animals have increased in number, but at present most of this new land is planted with yucas, rice and plantains.

Around La Salada, large patches of sugar-cane are planted for the use of animals at that place.

The produce during the half-year is as follows :—

Sugar	...	2½ tons
Yucas	...	28½ "

The plantains have been very little.

The number of animals of all kinds is 702, and their value is put at $39,320.

WATERCOURSES.

This is a very important item, as two large pieces of work have been done, viz. :—

A new aqueduct complete at San Antonio, and another at Pomos. The former is 363 feet long, all new timbers, masonry and roofs. This work was done without stopping the water, and no interruption whatever was experienced at any place where the water is used.

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At Pierce the gravel is piped across a valley by means of a long flume of galvanized iron. It is over 200 feet high and 1/4 of a mile long, and it cost $30,000.

The most costly of the mechanical contrivances are the two [illegible] The "Cable" is not yet working, nor are several [illegible] The "Bluff" plant is quite complete, however, and the [illegible] as much as the past six months. I have examined the machinery, and shall only make these remarks in the present report.

The second plant on this mine is the [illegible] The ditch at Pierce has been originally designed with [illegible] and [illegible]

A new ditch for the mine ready for the Police about at the 31 Mile.

TUNNEL

The tunnel [illegible] is now [illegible] In the Sun [illegible] [illegible] [illegible]

ELECTRIC LIGHT.

One dynamo has been placed at Silencio Mill, and runs 30 (thirty) lamps, giving thorough satisfaction. Other lamps will soon be hitched on (about 10 more) to illuminate the road leading to the mill and a part of the watercourse.

It is intended to erect the other dynamo near La Salada new shaft, the power to be used being the pumping wheel to run a wire rope connected on to the machine.

This is to illuminate the residences at La Salada, but its position is temporary, as it will be moved to the Salada new mill when that machinery is erected.

PROVISIONS.

These have been abnormally dear throughout the period of the half-year, but there were no possible means to do better than the terms of the arrangement with the former contractor, as stated in my last half-yearly report. However, I sent to the United States, and got a quantity of beans, rice, lard, &c., as an experiment, and this resulted in such a benefit, that it should be continued if prices here still did not lower.

Very fortunately, within the past few weeks, prices have gone down, and it may be hoped that they will remain in a normal state for some time, as the harvests, especially of corn, are very abundant.

The advantage of contracting for provisions is too well known, but at present, no arrangement in that respect could be entered into with anyone. However, it will be done as soon as possible.

The rise in the prices have made a difference of 29 centavos on each ration, the price now being 0.72.

AMALGAMATION AT SILENCIO MILL.

This operation has proved very successful, and the standard of the gold has risen in some cases to 1,000 fine.

The morters are, however, not adapted for the process, still, as they are frequently cleaned, the assays from the tables show a very small loss, and the sulphurets prove, by continual washings, to contain no free gold, only a trifling matter of mercury which may contain very small particles.

SULPHURETS.

Of late the accumulation of these has not been so rapid as at some former periods, still, we have on hand to June 172 tons valued at £8,534 18s 8d.

The Company has a great many more animals, and carriers from outside have come more frequently, so that the stock here does not increase much, but neither does it diminish.

At present, with the amount of new work on hand, I fear I must abandon, for a while, my ideas of treating them here by any process, and, therefore, the present state of things must continue, at least for a few months.

GENERAL.

The state of the mines is better than it ever has been, as regards the accommodation for raising ore, the number of places open, and the amount which can be mined. At Silencio, at present, about 2,000 tons are mined and raised monthly, and as soon as the No. 7 level is open north and south on the lode, 3,000 or more tons can be raised.

In the event of the Nonchome lode proving to be of any value, there will be no urgent necessity for the continuous sinking of the main shaft, but until this lode is thoroughly proved, the sinking will be kept in progress, with the usual activity.

My intention is to continue it on the No. 9 level, with 50 feet sinks, making it then 600 feet from surface. The ore is not so rich as at shallower depths, but the quantity of pyrites increases, and to some extent brings the ore up to about the same value as heretofore.

The amount sunk in the main shaft compares favourably with other half-years, although the ground is hard and much deeper to haul the débris from. The ends have at times been poor and small, but this being a characteristic in this lode at this depth, the change which is always expected, has, as in most cases, happened; that is, that it improves if the drivage is continued.

Singularly enough, the stopes above these points have in general been in fairly good ground, and their size comparatively large to other parts of the mine. A very considerable amount of stoping has been done during the half-year.

At La Salada the sinking of the main shaft has had all the attention possible, still it is not so deep as I had hoped to be able to report it. The hard ground, although at present a disadvantage, will avoid all necessity of timber, beyond that needed for skip-roads, &c.

Soon a steam hoist will be required on it with double cages, these to carry the waggons used in the mine, and the intention is to send them to the new mill, so that once handling the ore is all that will be required.

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Informe remachado de Mr. Penberthy
a Dic. 31, 1896

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company,

LIMITED.

184, Gresham House,
Old Broad Street,
London, E.C., 10th *May*, 1897.

Subjoined will be found the Half-yearly Report.

The Directors desire to add that since the Report was prepared, Mr. Penberthy has sent on a Report from Mr. Pardoe, the Company's Electrical and Water Power Engineer, detailing how the electric power referred to in the Half-yearly Report might be furnished to Silencio; but he mentions that some of the parts cannot be made in sections, and would be too heavy to be transported on mules, and that other parts, being delicate, would require very careful handling.

Mr. Pardoe has also made a Report fully describing the centrifugal steam pump which he recommends for raising the Pocuné water into the ditch. The result of all this is that Mr. Penberthy is disposed to think that he had better abandon for the present the idea of electric power and resort to other means for raising more water than the proposed pump could deal with.

The important question of additional power is therefore being exhaustively dealt with.

On the 24th April the Directors received a cablegram as follows:—"The rainy season has now begun.—PENBERTHY."

The Directors have this day received a cablegram to the following effect:—"Produce of gold for April, £5,900—produce of gold from old plates, £2,100—total, £8,000—cost, £4,430—excess of returns, £3,570."

By order of the Board,

J. JAMESON TRURAN,
Secretary.

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MR. PENBERTHY'S HALF-YEARLY REPORT

to 31st December, 1896.

LA SALADA, *January*, 1897.

The Directors of the

FRONTINO AND BOLIVIA (S.A.) GOLD MINING CO., LTD.,
184, Gresham House, London, E.C.

GENTLEMEN,

I beg to submit for your perusal the following remarks on your property, with a resumé of the most important work that has been accomplished during the half of the year that ended on December 31st, 1896.

Believing that a few observations on some of the most important branches, or details, of your Company's interests, and my own impressions regarding them after a six months' residence, will prove of interest, I have decided to do my best to supply you with some information on what I consider to be the most important items connected with the property, such as Workmen, Tributers, Sulphurets, Fuel, Water and other Power, Mills, Mines, Timber, Farms, Cattle, Provisions, Telephone, and Concession of land.

WORKMEN.

In the first place, the mining population is a nomad one, or nearly so, only a few of our people residing permanently on the property, and in the village near every inducement is held out to them to waste in riotous living the gains of a month in a day. A great deal of this sort of thing, which is undoubtedly detrimental to the interests of the Company, arises from the fact that our workmen have not even to think of where their daily bread is to be got; this causes them to be reckless beings, who look on the money received as so much money to be spent, they know that their food is safe as soon as they care to work for it, so when all is spent they come to work. When sober I have rarely met with a body of men more docile, or more easily managed, but when inflamed by drink they become veritable savages.

I have studied this question of rations, and the advisability of paying the men in coin and letting them shift for themselves, and I find the matter bristling with difficulties. It could be done, but such a length of time would elapse before matters could be got to run on new lines that without a doubt this Company would suffer serious injury, though after a lapse of a few months it would undoubtedly commence to reap the benefit. It would naturally take these thoughtless people some time to realise that, at the least, some part of the money received would have to be spent in food. It follows that, until they did realise this, little or no work would be done, and there would be a deal of trouble. Still, I should like to try the experiment, and if I once took the matter in hand, would carry it through. Probably you will say, better bear the ills we have than fly to others that we know not of.

At present a month's work per man costs us about $50, $20 of it for rations and $30 in cash, 90 per cent. of that $30 going into the pockets of the vampires, male and female, of the village. The labour, speaking generally, is of a most unskilled kind. Smiths and carpenters are well up to the average, but skilled labour in the mines is a thing I have not seen yet, neither have I seen any man who knows anything about breaking ground beyond the drilling of very shallow holes and the "bruising" out of small quantities of stuff at every blast. This state of affairs may arise from the fact that no one has ever cared to show these people how to mine, or that, seeing that they are here to-day and gone to-morrow, they have not cared to take the trouble to learn; be this as it may, if skilled labour and people with a knowledge of breaking ground could be obtained, more could be done than we are doing to-day. There is not the smallest shadow of a doubt of this, neither is there any doubt but that skilled labour in many countries I have visited costs less than the miserable sham that

is obtained here. Fortunately the ground generally is not hard; were it so, I fear we should find our milling power far and away in excess of our needs. The following statement of the number of people employed was taken on the 20th of December last, and when, owing to feasts and Christmas holidays, we were very short-handed :—

Pocuné and Tias Ditches	36		
		—	36
Head Food Deposit :			
Employés	3		
Abattoir	4		
Candle factory	2		
Postman, Remedios	1		
		—	10
Farms :			
Cowboys, La Salada	2		
Guards „	2		
Mule and ox men	15		
Pack saddle makers and repairers ...	2		
Cowherds	10		
Kitchens	4		
Cuturú Farm	3		
Mañon „	3		
Curuña „	6		
Repairing houses	1		
Sugar cane	3		
		—	51
Workshops :			
Smiths	7		
Fitting shop	9		
Carpenters	5		
Masons	6		
Kitchen	3		
		—	30
Maria Dama Mills :			
No. 1	40		
„ 2	14		
„ 3	8		
Arrastres	7		
Carpenters	3		
Sulphurets	3		
		—	
Carried forward	75		127

Brought forward ...	75		127
Maria Dama Mills—*continued.*			
Kitchen and food stores	11		
Tailings (sands)	4		
Ditches	4		
		—	94
La Salada :			
New Mill	20		
San Esteban Mill	6		
San Joaquin „	3		
Tailings (sands)	8		
		—	37
La Salada Mine :			
Management	4		
Miners	60		
Timbermen	10		
General work in mine	2		
„ „ outside	5		
Trammers	13		
Steam Hoist	4		
Carpenters	2		
Smiths	2		
Kitchen and various	21		
		—	123
El Silencio :			
Management	3		
Miners	67		
Trammers	38		
Various, in mine	12		
Timbermen and Masons	16		
Carpenters	2		
Smith and tool sharpeners	4		
Steam Hoist and pitwork	4		
Kitchens and food store	13		
Mule whim	4		
Surface labourers	8		
		—	171
Córdoba :			
Management	3		
Miners	24		
Trammers	3		
Carried forward	28		552

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Brought forward ...	28	552
CÓRDOBA—*continued.*		
Carpenters	2	
Tool sharpeners	2	
Timbermen	8	
Surface labourers	10	
Mill Men	8	
Kitchens	6	
—		64
NEW CALIFORNIAN MILL:		
Carpenters	17	
Smiths	4	
Masons	10	
Contracts	4	
Quarry men and labourers	32	
Kitchen	3	
—		70
TIGRITO:		
Management	1	
Miners	40	
Carpenters	1	
Smiths	2	
Trammers	4	
Timbermen	8	
Labourers	6	
Millmen	6	
Kitchen	4	
—		72
MARMAJITO:		
Management	1	
Miners	49	
Carpenters	2	
Smiths	2	
Masons	9	
Trammers	4	
Timbermen and Masons	8	
Outside Labourers	8	
No. 1 Mill	8	
„ 2 „	8	
Kitchen	8	
—		91
Carried forwafd	849	

Brought forward ...	849	
TIMBER:		
Employed in cutting, sawing and carrying	125	
		974
The total number working on the date mentioned would be about 20 % below the average, equal to ...		194
		1,168

Hence it may be safely calculated that on an average this Company feeds and pays, year in year out, nearly 1,200 souls per working day, and that this number will increase as our mines develop and our milling power augments.

TRIBUTERS

These are, practically speaking, no more nor less than they were in June last, though several attempts have been made to increase the number and the returns.

Numerous people have solicited and obtained permission to "stream" for gold, but the result has been far from satisfactory, there being no doubt that the greater portion of the small quantity obtained was sold to the merchants in Segovia, consequently the greater part of the permits have been withdrawn, the amount of gold realized from this source at the present time being insignificant. There are plenty of candidates for the streams that flow through our mills and places in their immediate vicinity, but considering that neighbours of this class would not tend to improve the morals of the men in the mills, I have preferred to let the gold that may be there remain for the time being.

Offers to mine on tribute have been made and accepted, but having a contract made with Florencio Piedrahita, re a part of the old Tigrito property, none have proved sufficiently valuable to warrant the tributers continuing. In some cases, perhaps, more capital than has been at their disposal might have led to more favourable results; but I have refused to supply money, or materials on credit: it being my aim, as far as possible, to prevent anything like bad debts, or giving people a chance to contract liabilities, which they may never be able to discharge. In my opinion our safest course is to carry out energetic developing operations ourselves—mine our own gold, mill our own gold, and get all the profit that may arise from the doing of it.

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At present we have the following mines let out:—

Garibaldi to Vargas; Cecilia and Victoria Reina to Piedrahita; Palmichala to Franco; and Filipinas to Orrego.

Vargas has a small mill put up, and is prospecting about the property. He manages to get a living out of the mine; as you will see by the returns his produce is about the average.

Piedrahita is mining on a small scale in Cecilia, and keeping the Victoria Reina mill going, once in a while, so as to preserve the right to the water that flows through it. He has not been very successful in his venture.

Franco is mining Palmichala in a more manlike manner, and of late has put in an adit that will intersect the lode at a greater depth than any previously attained. There is a possibility of an increase in the returns from here in the year 1897.

Orrego returns but very little gold from Filipinas, and is carrying on anything but energetic operations there.

As before stated, Piedrahita has taken an old part of the Tigrito property on tribute. His contract runs for three years, and has been framed in a way that will prevent him from extracting or working anywhere near the places on which we are carrying on active operations. He has six months in which to erect his mill, and at the expiration of that time will pay to us a royalty of 20 per cent.

The following is the produce of the mines mentioned, from June to 31st December:—

Mine.	Bar gold (est.).	Value. Gold dollars.
Palmichala ...	234.70 ...	2,775.90
Cecilia	232.20 ...	2,479.70
Garibaldi	237.06 ...	2,651.40
Filipinas	33.40 ...	297.30

SULPHURETS.

As you will see by tabulated statement, we hold for exportation and future treatment:—

From La Salada Mine,	216.750 tons worth	$21,345.75	gold
And from El Silencio	„ 360.346 „	„ 846,553.35	„
	577.096 =	$367,899.10	„
		£13,579 16 5	

£13,579 16s 5d is the amount that we have, to all intents and purposes, locked up here in 577.096 tons of sulphurets; of these 125.792 tons, representing a value of $16,850·80 = £3,370, will pay to export the remaining 451.304 tons, representing a value of $51,048·30 = £10,205, waiting to be treated here.

Our stock of sulphurets that will pay for exportation is slowly increasing in quantity, it being simply impossible to get the mineral taken away as fast as it is produced. Owners of mules call about in a most irregular manner seeking for freight, and generally with a small number of animals, it often happening that weeks elapse without a pound of pyrites being sent away. This absence of freight-seekers is often caused by the accumulation of merchandise in Puerto Berrio and other places, this causing the price of freights to rise considerably. It is then that we find ourselves without the means of exporting. To rid ourselves of the stock on hand, and of what may be realized in the future, it might be expedient to purchase a sufficient number of mules to enable us to send off all there is, and all there may be, on the backs of our own animals. With a sufficient number of these (say from fifty to a hundred) we should find ourselves in an independent position; the pyrites raised would go home regularly, and as our farms contain sufficient pasture to keep the number of mules necessary, we think it would be, in the long run, far cheaper to have our own beasts and use them than it could possibly be to avail ourselves of the erratic, and often expensive, services of out-riders.

TREATMENT OF LOW-GRADE SULPHURETS — Practically speaking, nothing has been done in this matter, our attention having been devoted during the last six months to things of more immediate importance to the Company's interests, many schemes and ideas for the treatment of these have been talked over and discussed, but nothing has been decided on or taken in hand, simply because we have been too busy organising work, repairing mills, erecting new ones, and paying daily attention to the development of the mines. A small quantity of pyrites was calcined and treated by the pan system, the result having been anything but satisfactory. Panning out by hand showed that the gold liberated was float gold, of which only a small percentage was saved. This result led us to fear that the gold would be lost if we passed the mineral, mixed with mine stuff, through the mill. We then thought of weathering the pyrites and treating them by arrastre process, but we now await further information from you as to the sending out of a small plant with which to try experiments by the oxygen process—this having been suggested in a favour of yours which reached our hands a little while ago.

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Maria Dama Mill.

List of Sulphurets which have been credited, and which will pay for exportation.

Date of Produce.		Qtarts.	Yield per Ton. Ozs.		Value at $5 per £1.	
Year.	Month.	Tons.	Gold.	Silver.	$	cents.
1895	September (part)	9.632	9.70	12.75	1.310	15
,,	October	21.305	8.00	10.64	2.435	05
1896	August	25.750	10.12	10.17	4.559	50
,,	September ...	10.806	7.50	9.50	2.050	20
,,	November... ...	21.964	10.60	8.30	3.684	50
,,	December... ...	24.285	8.20	5.90	2.810	60
	Total ...	125.702	8.97	9.17	16,850	80

Sulphurets credited, which will not pay for exportation.

1895	March	15.901	6.55	14.05	2.327	25
,,	November... ...	20.436	6.55	8.79	2.924	30
,,	December	24.017	5.00	6.50	2.634	45
1896	January	21.328	4.75	7.30	2.241	50
,,	February	23.302	4.95	6.65	2.[illegible]	10
,,	March	18.854	6.25	5.80	2.226	75
,,	April	26.771	5.19	5.74	3.082	45
,,	May	25.178	6.40	6.30	3.493	20
,,	June	19.597	5.80	7.00	2.497	15
,,	July	17.305	4.37	4.39	1.642	30
	Total ...	212.279	5.56	7.05	25.970	25

Sulphurets not credited, which will not pay for exportation.

1896	October	22.365	7.76	7.25	3.732	30

Resumen.

	Quantity.	Yield per Ton. Ozs.		Value at $5 per £1.	
	Tons.	Gold.	Silver.	$	cents.
Credited, exportable	125.702	8.97	9.17	16,850	80
,, not exportable ...	212.279	5.56	7.05	25.970	25
Not credited, not exportable	22.365	7.76	7.25	3.732	30
Total ...	360.346	6.88	7.80	46.553	35

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La Salada New Mill.

List of Sulphurets which have been credited, and which will not pay for exportation.

Date of Produce.		Quantity.	Yield per Ton. Ozs.		Value at $5 per £1	
Year.	Month.	Tons.	Gold.	Silver.	$	cents.
1895	November... ...	15.000	6.00	6.00	1,946	25
,,	December	16.500	4.40	5.40	1,580	30
1896	January	15.000	4.25	6.20	1,402	90
,,	February	14.000	6.05	5.55	1,832	30
,,	March	16.000	5.60	7.50	1,953	60
,,	April	20.000	5.25	5.25	2,268	00
,,	May	20.000	6.55	4.90	2,809	80
,,	June	12.000	5.40	4.40	1,147	70
,,	July	12.000	4.16	3.25	1,071	70
	Total ...	140.500	5.26	5.52	16,012	55

Sulphurets which have not been credited and which will not pay for exportation.

1896	August	12.000	3.59	5.06	941	10
,,	September	14.000	4.40	6.50	1,347	60
,,	October	15.250	4.40	6.50	965	20
,,	November... ...	15.000	2.50	3.80	821	70
,,	December	20.000	2.90	3.20	1,257	60
	Total ...	76.250	3.20	4.40	5,333	20

Resumen.

	Quantity.	Yield per Ton. Ozs.		Value at $5 per £1.	
	Tons.	Gold.	Silver.	$	cents.
Credited, not exportable ...	140.500	5.26	5.52	16,012	55
Not credited, not exportable	76.250	3.20	4.40	5,333	20
Total ...	216.750	4.53	5.13	21,745	75

CALCINING.—This would reduce the weight of the ore some 32½ per cent., and proportionally the cost of export. We intended putting up a calcining furnace at Maria Dama, but results obtained in our gold melting, shows our bricks to be totally unfit for the purpose, and there the matter stands *pro tem.* I would just mention that calcined ores can be sent from here to London in sacks without the slightest risk of loss through tear or rent. If we ever succeed in calcining, which we probably shall some day, I shall certainly ask you to remit me some sacks, feeling sure that 50 per cent. will be saved in the cost of preparing the ores for exportation.

FUEL.

Although this may not be a question of the first importance to-day, a lack of water or other power than steam, may cause it to become so, hence our wishes and endeavours to put its purchase, consumption and preservation on a proper and economical footing. Fuel is actually being supplied to our steam hoists and kitchens in two ways—one in a very destructive manner as far as the preservation of our timber goes—the other economical from every point of view, each system costing us 20 cents, equal to fourpence per 100 lbs. of wood delivered.

First Way.—The fuel is partially dragged and partly carried to the necessary place by oxen, who being unable to carry a big chunk of wood, or drag a full-grown tree, are laden with saplings from 6 to 12 feet in length, and from 3 to 8 inches in diameter; one end of these is lashed to the side of the ox, and the other rests on the ground. This seems to be the system that has always attained here, and one that is continually depriving the woods of what would be, in a few years, valuable timber for the mines.

Second Way.—This has been introduced during the last half of the year, and has proved a success. The clearings and woods are thickly studded with large trees, some standing and some lying on the ground, they being unfit for anything but fuel.

I have had one of these dry trees felled and weighed, and have counted the number in the clearing around this place, with the result that we have 63,600 qls., equal to 2,835 English tons of good dry fuel available from this source alone. The transport of this timber is open to all the women who care to earn a dollar, with the result that more hands than we want are eager to place it in any part of the Company's property for 20 cents—fourpence per quintal, and no rations; these women are paid every Saturday afternoon, some of them gaining as much as 8 dollars per week.

The following tabulated statement shows how we stood in the matter of fuel on the 20th December. I would mention that, had not this system been introduced, we should have been in dire straits, seeing that, when La Salada Mine became inundated, we ran our steam hoist day and night for some time, and that previous to the arrangements I have endeavoured to explain, it was a hand-to-mouth system.

	La Salada Bs.	El Silencio Bs.	Maria Dama Bs.	TOTAL Bs.
Stock on hand, Nov. 20th, 1896	1,650.00	1,260.00	223.75	3,133.75
Received during the month	1,173.12	1,848.00	1,201.75	4,222.87
Total	2,823.12	3,108.00	1,425.50	7,356.62
Consumed up to December 20th, 1896 ...	2,486.91	1,450.00	557.75	4,494.66
Stock in hand, Dec. 20th, 1896	336.21	1,658.00	867.75	2,861.96

I cannot vouch for the accuracy of this, seeing there has been the greatest difficulty in getting these people to look at anything like a system seriously. In some of the departments we have endeavoured to get at the consumption by using for a given time from a known quantity, and in others by calculation. Probably, and as time goes on, we may be able to convince those in charge that the proper running of the concern depends on something more than the extraction of gold; in the meantime I have kept the stock well within the mark, so you may be sure that there was, if anything, more than is shown in the above tabulated statement at the end of the last working month, since when it has been increased two-fold.

There is every probability of our soon being in a position to do away with the oxen altogether; the number of hands who bring wood to the hoists and kitchens are increasing and, I hope, will soon be able to supply all our wants. As stated in a former letter of mine, the easiest way of obtaining a supply of fuel for, practically speaking, all time, would be to lay a tramway the length of the Tias and Pocuné ditches. This could easily be done, seeing that the ground is already levelled.

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WATER AND OTHER POWER.

The water at our disposal is not sufficient for our needs, neither can you ever expect to see your mines developed or your mills run in the energetic way they ought to be, until we can have permanent command of a much larger and continuous supply, or other power to move or assist in moving our machinery. Had we a store in which to house the surplus water when there is an excess, the case would be different. We have not, with the result, that we have in the first place too much, in the second enough, and in the third too little. The Too-much stage brings its attendant landslips and breakdowns; the Enough stage makes us contented with ourselves and the world generally; and the Not-enough stage fills the bottom part of our mines with water, and puts our mills at half-speed; even as I write (January 11th) No. 8 in El Silencio is submerged, and we stand a fair chance of soon having to slow down every machine that is at work on the Company's property. Of course, if you were content to see decreased returns arising from this cause at certain times in the year, and a corresponding falling off in the profits, there would be nothing more to be said; but I take it you would rather see the present returns maintained, and they could be maintained had we the means to run our mills as they have been run for the last few months, and power that would enable us to keep our mines dry and enable us to prosecute sinking operations with anything like regularity. It seems also to be a fact that our supply of water decreases from causes other than drought, evaporation being one of the principal of these. At the head of the Pocuné ditch, and for some distance beyond it, a large area of ground has been deprived of timber, and the bed of the stream in many places filled with sand, causing the water to form in large pools, which can but materially assist evaporation. We are at present engaged in an endeavour to obviate this, as far as possible, by cleaning up the ditch, and cutting others at right angles to it, having obtained permission from the owner of the land to do so.

La Salada new mill and El Silencio mine are the places where a falling off in the supply is first felt, and where in times of drought we suffer most, and on these two mines anything like sinking operations are next to impossible in the dry season, and in the mills we crush about half the mineral that we can dispose of when we have a full supply.

We have about 25 miles of ditches cut through clay and decomposed granite, and of these 25 miles at the least seven are laundered or kept open by timber. We have also three large

aqueducts, and several others of minor importance, the launders timbering and supports of these last requiring continual attention, changing and repairs. In these we have spent during the last six months $14,252.45 a third of which, equal to $4,750.81, can be safely debited to the Tias ditch. This seems to be enormous, but although the number of men employed may have easy times when there is an absence of accidents, they are necessary and want help when serious breakdowns occur. There are several ways of overcoming the difficulty with which we are often face to face and from which we suffer whenever it fails to rain for a lengthened period.

STEAM.—I have already written of this and that an engine would be useful for La Salada mill. With its help we could run two more batteries, and keep the whole mill going continuously, but we could derive no help from this engine in La Salada or El Silencio themselves.

ELECTRICITY.—Water might be utilized to provide us with electric power that would be a valuable help to the hydraulic wheel in El Silencio, and this would ensure a dry mine, under any but exceptionally unfortunate and unexpected circumstances.

Given that the problem of La Salada mill and El Silencio mine would be solved by steam at the one, and electricity at the other, we still have La Salada mine to care for, and here I see no other means of getting rid of existing difficulties than that of increasing our supply of water—this can be done by erecting a powerful automatic ram, or other pumping machinery at the Pocuné Falls.

At the present time (dry weather) the volume of water that goes over those Falls is equal to 250 cubic feet per minute; the Fall has a vertical height of 80 feet, there being a perpendicular height of 141 feet from its foot to the edge of the Pocuné ditch. Here in my opinion we have the solution of the whole problem, for if by expending the force generated by the fall of 250 cubic feet of water per minute, we can raise 100 to the level required, then our troubles are ended.

I have decided to take no steps in the matter pending your advice, which I am sure, looking at the importance of the case, you will tender at an early date. Steam might possibly still be required for La Salada mill, and the additional batteries we propose to add to it; but, probably, the increased volume of water might be sufficient for both draining the mine and working the mill.

The fuel question I consider solved, you are aware of the amount available about this place alone, and the means adopted for getting it in. The virgin woods contain thousands of tons of

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the same kind of fuel, that with the aid of a railway along the embankments of our ditches could be made available for raising steam, whilst at the same time we should not be depriving our forests of a single tree that in the course of time might be of value for mining purposes.

OUR MILLS.

My monthly reports have kept you posted as to the general condition of these, speaking generally, they are in good working order, though the wheel of the Córdoba mill is a source of anxiety; it is in a bad state, some parts of the wood of which it is built being so rotten that they won't hold a nail. This fact, and our opinion regarding the future of the Córdoba district caused us to proceed at once with the erection of a Californian mill at the site previously decided on, and where some preparatory work had already been done. The mill now in course of construction formerly did service at the Victoria Reina mines; we have had to renew a large number of its parts, this having been done in a satisfactory manner in our own shops.

Thanks to the energy and practical knowledge of Mr Seccombe, we have made very good progress with the work, and hope to see the mill running some time in the month of March.

With regard to the at-one-time contemplated extension of Silencio 24-head mill to one of 40 heads, by the addition to it of the above-mentioned Victoria Reina mill, I would state that the water power available at the Maria Dama mill is fully taken up in the moving of the plant that is there, *i.e.*, mill, crusher, and electric light; in fact, were it not for the small water-wheel which is above the mill, we should lack the power sufficient for the successful working of the crusher and dynamo. Hence an increase in the number of heads is out of the question as long as we are confined to the power available to-day. Even were it not, results show that our returns from this mill are all out of proportion when compared to those realised by any of the others. This does not arise from any radical difference in the relative grade of the ores, but from the fact that we lack the milling power necessary in the Córdoba district that would enable us to treat a larger quantity of mineral. When once we have this, time will show that this is second to no other, and that from it we shall soon be in a position to assist in swelling our produce, and permanently so. As before stated, we find we can make all we want for the mill here. In fact, everything is made; the only thing we have had to order from abroad being the automatic feeders.

THE MINES

These, I am proud to state, and as results will have proved, are in a far better state, as far as their richness goes, than they were six months ago.

El Silencio.

In this mine, which to-day is the most important of the group, your steam hoist was put on a shaft, vertical until it passed through the lode, and then sunk on it to the No. 7 level, but without lines or any regard to the direction of the vein with the result that it rapidly gained to the north, and if continued would have ultimately run into the engine or old shaft. This error was discovered when the No. 6 level was reached, and an attempt was made to rectify it that ended in making matters worse, seeing that an angle was formed at No. 6 by the lift, from here to No. 7, having been sunk in a more southerly direction than the part above it. It became evident that to enable us to increase our depth a new shaft, that should join the existing one at the bottom of downright, was necessary, and we now have a certain number of men employed on this work. The cost of this work will not be heavy, seeing that in many places it will pass through excavations, and in others be made by the removal of lode that will pay to exploit. If from no other cause, the amount of fuel saved through decreased friction, would pay for the undertaking in course of time.

Mine Water.—The greater part of this issues from the Nos. 4 and 5 levels south, that pumped from the bottom of the mine being insignificant in quantity. At the 340 feet level there is a 10-inch plunger, to which the water is pumped by an 8-inch one. To keep this 10-inch plunger "solid," a stream of water is sent down from the adit south of shaft; this adit has been allowed to cave in; driving a new one was commenced and suspended, with the result that the water that goes down to feed the pole helps to fill the mine when the pumping gear is stopping. There you have the main cause of all our trouble, for when starting to work after a stop, we have about twice the water to deal with that we should have were we able to send this stream out through the adit whenever it became convenient to do so

We are now driving the new adit, and shall continue to do so until we have passed the run in the old (about 40 metres), when we shall endeavour to obtain command over this issue of water. This done, and a 10-inch plunger fixed at the bottom of the mine, there will be a hope of our being able to sink, even with our present power. Under existing circumstances it is out of the question.

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NIEBIEME LODE.—Has been cross-cutted for from two points in the mine, one from No. 4 north, and the other from No. 5 south, both these were suspended before supposed point of intersection was reached, for fear of an influx of water that our pumping gear would be unable to cope with. Though the cutting of this lode might have proved of value, I fail to see why the partial carrying out of the work (which at the most was of a speculative character) should have been undertaken, and the vigorous exploratory work of the El Silencio mine, to a certain extent, neglected. I should certainly have preferred arranging for sinking operations, and the opening up of the ground on a lode of known value, to the driving of cross-cuts into an unknown land. However, when once our pitwork is in order, we shall continue one or the both of those cross-cuts, and hope that we may be allowed to prove that the money spent has not been expended in vain. We calculated at one time to have carried out a series of investigations on this lode at or near the surface, but so far have been unable to do so, having found that an increase of hands and expenditure in El Silencio mine offered, in our opinion, speedier and more profitable results.

What we have seen of the lode at surface, compels us to come to the conclusion that no accurate idea can be formed as to the distance to be driven before it will be reached from the Nos. 4 and 5 levels of the El Silencio mine. It proves to be dislocated and thrown for considerable distances from its true strike, by cross courses which disturb it with great frequency.

The El Silencio lode north of engine shaft has proved to be irregular and scarcely worthy of the name of a lode in some of the levels, which have been abandoned in a hard and repulsive granite. During the last six months, however, a discovery has been made that may lead to important results, a winze having been sunk from the No. 5 to the No. 6 level on a fine lode averaging 3 feet wide and worth throughout 1½ ozs. to the ton; we shall now drive the No. 6 on this, and seeing that it is an apparent fact that the formation becomes more settled in depth, we feel that we have reason to hope that this will lead not only to the opening up of the northern part of the mine, but also to the finding of mineral that will increase our reserves and enhance the value of the property.

The theory of finding a more settled formation in depth is supported by the actual state of affairs in the deeper levels south of the engine shaft where the mine never looked as well as it does to-day. Wonderful are the changes that have taken place here during the last six months—from darkness to daylight—from gloom to glory—are words that can aptly be applied to the

change that has been experienced. With short intervals of poor ground we have gone through a shoot of ore in No. 5 south 140 feet long, averaging 3 feet wide and worth 4 oz. to the ton.

In No. 6 south, 150 feet behind the vertical of the point where we came on to the rich ore in No. 5, we have a lode to-day worth fully 30 ozs. to the ton and 2 feet wide, and in a winze behind this there is a lode, if anything, superior in quality to the one in the end.

No. 7 is still in disordered ground, which corresponds to the point above it in No. 6.

No. 8 is a most important point, which unfortunately is under water at the present moment. Here we have two well-formed lodes yielding, so far, mineral worth 1 ounce to the ton.

From what we can judge, the shoot of ore passed through in No. 5 continues down to No. 6, and will prove to be of a greater length than it did in the level above, at the same time the state of the winze sinking below the No. 6 level speaks well for the future of No. 7.

From what I have stated it will be seen that this mine looks well to-day, and that its prospects are brighter than for some time past.

We are now engaged in making the new shaft and driving adit, the latter with the object of taking up when necessary the water that flows to the pole. Unfortunately we are unable as yet to do anything in the bottom of shaft at No. 8, where we have to sink for fork, fix pole, and open plot. It is to be feared that some time will elapse before we can resume operations here, but be this as it may, you may rest assured that all the matters mentioned will be attended to and finished as fast as circumstances will allow.

LA SALADA MINE.

This contains an immense quantity of low-grade ores, and more water at all seasons than the pumping gear is able to cope with satisfactorily; much rain increases the speed of the water-wheel, but at the same time more than proportionately increases the amount of water to be pumped, while no rain slows down the machinery, and decreases the amount of water in the mine, but not sufficiently so to enable us to keep the shaft in fork. Had it not been for the water cars that have been introduced and worked successfully during the past six months, matters here would have been very serious indeed, the water, during the late rains having reached the No. 2 level. The most important works we have to do here are the sinking of shaft

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until it intersects the lode, and the erecting of the new pitwork How we are going to do this is a question that is ever to the fore. To sink, we want more water, or other power, that will run our pumping gear with a speed sufficient for our purpose. The bringing in of the 100 cubic feet mentioned under the head "Water and other power" would just meet the case, and would undoubtedly enable us to carry out our plans, speedily and successfully. Until this water or some other power is applied to the case, I fear that the present bottom of La Salada must remain so.

I would mention that neither here nor in El Silencio was the pitwork sufficiently large in the first place.

The only important piece of work being carried on in this mine to-day, is the cross-cut from the main adit to shaft; this done we shall be in a position to pump more water with a given power than we can to-day. This cross-cut still has to be driven 26 fathoms. The part already completed has been wrought in very hard ground, the present end being in a more favourable rock. Looking at the very ordinary class of labour that obtains here, there seems to be a fair chance of occupying the greater part of the year in making the desired communication.

There is little more of interest to write of re this portion of your property. We are extending our levels, north and south, in the hope of meeting with mineral of a higher grade, and to increase our reserves of low-class ore. Had we the necessary power for mine and mill, we could produce permanently 100 lbs. of amalgam per month, a quantity sufficient to yield a moderate profit.

Córdoba District.

Here we are exploiting mineral and carrying on exploratory work in the following places, Córdoba, Tigrito, Marmajito and Marmajon, there still remaining many lodes that it is to be hoped will in due time be opened on and investigated. This important zone does not seem to have received the attention it deserves in time past, there not being, in my opinion, the least doubt but that a judicious outlay will prove it to be of a value second to no other part of the Company's property.

Córdoba Mine.—During the last six months little has been done here beyond the exploiting of a moderate amount of mineral which has assisted in supplying the mill, and the sinking of a shaft from No. 7 adit to No. 8 for ventilation purposes. We are pleased to state that this is nearly completed, there being every probability of a communication being made during the present

month of January; when once this is accomplished, exploratory work of a vigorous nature will at once be commenced.

Tigrito is a compact little mine which, throughout the half-year has yielded a fair amount of good milling ore, and looks well to-day.

Our drivages east and west are being continued in a fair lode, some of the upper levels are also being cleared out and repaired with a view to improving ventilation and making further discoveries, we have a very respectable amount of reserves here.

Marmajito has yielded ores of a high class, and in sufficient quantities for the requirements of the mills, during the half-year, the mineral during the past two months having fallen off in quality. The changes from rich to low-grade stuff in this mine are very rapid, the former generally appearing in "pockets." The No. 2 adit has passed through and over several of these, the bottom having remained untouched.

Marmajon.—Here we are driving east on a lode that has proved unproductive so far, and have decided to commence a level west, or towards the Marmajito, at an early date and on the same vein.

At no distant period steps will have to be taken with a view to sinking below the adits in all these mines; there being no chance of putting in others that would strike the lodes at a depth sufficient to warrant the cost. Probably sinking will soon be commenced in the eastern part of Marmajito, where we propose erecting a pumping gear that will be worked by mules. To insure our new mill with a supply of ore, some will have to be transported to it from the Marmajito mine. This can only be accomplished by a railway that will occupy 900 feet of cutting, 284 feet of tunnel and pass over a bridge 18 feet high, and some 50 feet long. We are now engaged in this work, which will be completed in the shortest space of time possible.

We also intend putting in an adit from level of tramroad above Córdoba mill to the Garibaldi mine, and investigating the lodes it contains. Should we meet with mineral that will pay for milling, a supply would be insured for the old Córdoba mill already mentioned, which with a new wheel would continue to yield satisfactory results.

Before concluding my observations on your mines I would state that whilst keeping up our returns we aim at extensive and energetic development, which must be accompanied by a corresponding increase in their value.

TIMBER.

The cost of this has been considerably reduced when compared with that of the last half of the year 1895, and were it not for that necessary for the Córdoba mill, it would have been still less, the total for the half-year being $31,043.50 as against $40,000 in the same period of the preceding year. The consumption of this article will always be large owing, more than anything else, to its very inferior quality. In the mines we are using stone walls in certain places in lieu of this and should adopt this method of securing and keeping open the ground more extensively had we a sufficient number of men to carry out the work, and the right sort of stone at hand; unfortunately we are without this in some of our mines where the country rock is of a very friable nature.

FARMS.

These are all in their usual state, and in good order with the exception of Arenales—which in many places is completely overgrown. We intend clearing this during the year, and should have already done so, had our cost not been so heavy in other places. The cost respectively has been as follows:—

La Salada	...	...	$23,475.05
Cuturi	...	...	651.30
Curuña	...	...	735.05
Mañon	...	...	786.20
Total	...	...	$25,647.60

The following is the number of cattle, &c., on the farms:—

153 mules and horses.
653 cattle.
92 pigs.
12 goats.

CATTLE PURCHASED FOR FOOD.

The average price per head during the half-year was $98.50, and the average mortality, five bullocks monthly, or, as follows:—

July	...	...	11 died.
August	...	...	15 "
September	...	...	2 "
October	...	...	1 "
November	...	...	0 "
December	...	...	0 "
Total deaths	...		29

representing at $98.50 each, $2,856.50. You will remember my

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having stated in a former letter, that I had arranged that the cattle on their arrival should be removed to one of the farms, it having been evident that the excessive mortality arose from their drinking from stagnant pools of water that are to be found in the hollows in times of drought. The result speaks for itself, three months having passed without a single death.

The following is an account of the hides disposed of:—

369 hides sold for a total of $974.30.

PROVISIONS.

Maize has cost	$	10.90	per carga of	200	A. as against	$ 11.50	For Forces Pending Period of 1st year.
Rice	"	32.00	"	"	"	34.00	
Raw Sugar	"	12.60	"	"	"	14.00	
Beans	"	28.00	"	"	"	35.00	

TELEPHONE.

This will be erected in Córdoba and La Salada and not in Los Pomos as was first proposed. A breakdown in the ditches beyond Los Pomos is not felt here for six hours after it has happened, giving plenty of time for the news to be sent by a messenger who would occupy from one to two hours on the road, on the other hand the increasing importance of the Córdoba district requires some means of communication other than by messenger, hence our decision to place a wire between the two points as quickly as possible.

CONCESSION OF LAND.

I cannot say that much headway has been made with this, all the documents pertaining to the matter are now in Remedios waiting the formulating of the opposition raised by parties who had isolated patches of land within the boundaries of that asked for, we are doing our best to get this part of the business finished, so that we may return the papers to Medellin. Things of this nature move very slowly indeed.

MACHINERY.

This is all in good order and working well.

I remain, Gentlemen,

Your obedient Servant,

JOHN PENBERTHY.

Informe remitido de Mr. Penderthy
a Junio 30, 1897

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

MR. JOHN PENDERTHY'S HALF-YEARLY REPORT.

LA SALADA, *30th June*, 1897.

The Directors of the

FRONTINO AND BOLIVIA COMPANY, LIMITED,

184, Gresham House, London.

GENTLEMEN,

I have great pleasure in submitting for your perusal my Report on the half-year ending June 30th, in which I shall endeavour to give you all the details in my power as to what has been accomplished during the time mentioned, and to outline as far as possible our plans and projects for the future; I would mention that it is a source of pleasure and great satisfaction to me to know, and to have given you solid and substantial proofs that the optimistic view taken by me as to the future of your property has, up to date, been more than realised, and that the statements made in my Monthly Reports regarding its future have so far been in no wise exaggerated. Had we not been visited by the

terrible droughts that came pretty near totally paralyzing surface and subterranean operations for a period covering some ninety days, the results would have been far more favourable than they have actually proved to be, still I consider them satisfactory, inasmuch as that during that most depressing time when our mills were nearly idle and our richest mine full of water, so to speak, we were able to produce an amount of bullion that could only have been won from minerals of a high grade, or in other words, the produce given during that time was an emphatic and indisputable proof that our mines were looking well. Many Shareholders wonder whether it will last, I think that in spite of the fame that we mining men have acquired, to put it mildly, for excessive enthusiasm, that it will. We may not be in a position to give you a monthly profit of £6,000 continually, we may have to suffer reverses through droughts and revolutions, or we may at intervals and owing to causes unforeseen give now and again a very small profit, or none. Be all this as it may, of one thing I feel convinced, and that is that this property, as far as its value goes, is in its infancy, and that it will prove handsomely remunerative to its owners for many, many years. I wrote to this effect nearly a year ago, I have a better right to say to write and repeat that statement, and I do so, I might say in capital letters.

In my report for the last half of the year 1896, I dealt with many matters that it will only be necessary to refer to briefly to-day, such as number of men employed, customs and modes of living.

At the present moment we are full-handed, or should be, were there not so many people on the sick list; the total number of hands actually working in June being 1,020. It transpires that we can always count on a larger number of workmen in the middle of the year than at the end of it, when Christmas and New Year with their accompanying festivities, induce those who have the means to leave for their homes, and to absent themselves from this place for periods varying from fifteen days to a month. I am pleased in being able to state that during the period that this report is intended to cover, we have had no trouble with the authorities, who, so far as they have been able, have met our wishes by preventing an excessive waste of time after pay days, and in many other ways; in exchange for this we have been only too glad to lend trifling assistance in the building of a church, and at the same time have conferred favours that whilst costing us but little, has helped to maintain a feeling between ourselves and the powers that are, that has conduced to the general welfare of the Company and comfort of the staff.

Referring again to the number of men, I would mention that at this moment we have quite one hundred on the sick list.

On the 20th June :—

Maria Dama	employed	130	hands.
Silencio mine	"	172	"
Salada mills	"	37	"
Salada mine	"	126	"
Córdoba district	"	295	"
Salada farm	"	58	"
Ditches	"	30	"
Workshop	"	33	"
Timber	"	124	"
Farms	"	12	"
Total		1,020	

An attempt at the commencement of the year to introduce certain innovations which we thought would result in a benefit to the Company and also to the workmen was a failure, or partially so. In the first place the old system of fathoms, feet and inches was successfully replaced by the metric system, which facilitated the making up of accounts, and made it much easier to get the miner to grasp the situation when his bargain was set to him or received; on the other hand the attempt to introduce a working year of thirteen months with a month's pay in hand proved a failure, or at all events the unforeseen difficulties that cropped up were of such an apparently serious nature, that we decided to continue on the old lines, *i.e.*, to close the working month on the 20th inst., regardless of the day on which it might fall, and to pay on the Saturday subsequent to the 25th of the same month.

HEALTH.

During the half-year there has been an unusual amount of sickness, principally since the termination of the late drought. We have had epidemics of erysipelas, dysentery, fevers, and other ills of a comparatively trivial nature, and one case of small-pox was reported a few days ago. The deaths have been many, but I am glad to say that, although the whole of the white men got one or more of the diseases mentioned, they are to day in perfect health

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OUR MILLS

THE SALTO ARRASTRES.—I cannot say that these have so far proved to be an unqualified success, principally owing to the uncertain supply and often total absence of water. They are also too far away from María Dama to allow the effect of this last to exercise sufficient supervision over them, and seem to be of too little importance to warrant the sole employment of a high paid official, still they leave a small profit.

The following is a statement of the produce :—

January	70 oz
February	34.00
March	87.5
April	0.00
May	31.57
June	7 [illegible]
Total ozs. ...	227.08

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MARIA DAMA MILLS.

These have run during the first half-year with the usual regularity and with the exception of No. 3 have required nothing more than current repairs that have been executed on the 24th of each month, which is the general cleaning-up day and end of what we call the "gold month."

No. 3 mill (nine heads) has been cleared away and a new one built in its place, this works admirably and beyond the usual trivial repairs that may be necessary will render good service for years.

From January to June Maria Dama has produced :

	Californian.	Nos. 2 and 3.
January	1,930.52	670.33
February ...	1,984.43	157.90
March	966.80	72.10
April	713.50	137.00
May	795.23	231.77
June	1,490.25	400.75
Total ozs. ...	7,880.73	1,709.85

The three centre lines represent the result of the drought and the inability to get at the high grade mineral in the El Silencio mine.

These three mills may be considered to be in good working order, and to give no extra trouble or entail any extra cost for the coming half-year.

LA SALADA MILLS

Have also worked without anything more than the average or usual stoppages and repairs.

The driving rope (of wire) that connects the Pelton wheel with the main driving shaft (new mill) has caused the usual amount of annoyance and loss of time.

San Estaban Old Mill rarely moves for lack of water, and San Joaquin only when there is an overflow from the New Mill, which, unfortunately, is not often.

These mills have given the following results :—

	New Mill.	Old Mills.
January	6[illegible].35 ...	53.10
February ...	383.53 ...	22.57
March	13[illegible].65 ...	47.80
April	432.70 ...	53.20
May	596.45 ...	79.45
June	535.00 ...	75.10
Total ozs.	2,717.68 ...	331.22

CÓRDOBA DISTRICT MILLS.

Important changes have taken place in our milling power in this part of your property. You are aware that a sixteen-head Californian has been erected, which I am pleased in being able to state is giving good results. The dilapidated state of the Córdoba and Marmajon old mills warned us that we had either to put up a new one or suffer a serious decrease in our returns, with the result that in seven months from the time of starting operations the new Californian was at work, and in the early part of last month the wheel of the old Córdoba collapsed. This mill of sixteen heads is now being rebuilt, and will commence crushing about the end of July or early in August, as soon as this is put out of hand, we shall commence to build a new native style mill in the place of the one in Marmajon when its nine heads will be replaced by twelve. It follows that in some three months from this date all the native mills will be in first-class working order. We are building and repairing with the best timber that can be

got, some of it having been brought from a distance of nine miles, it being our aim to do what we are doing in a thoroughly substantial manner.

The following are the amounts realised from these mills during the last six months :—

	Tigrito	Marmajon	Native Cord.	New Mill.	Total.
January... ...	140.35	836.50	267.02	...	1,243.87
February ...	107.23	1,224.64	171.80	...	1,503.67
March	118.62	556.70	100.80	...	776.12
April	62.05	749.60	131.85	655.05	1,249.45
May	Idle	786.08	185.65	507.80	1,479.53
June	,,	570.45	68.50	671.35	1,310.30
Ozs.	428.25	4,779.07	925.62	1,435.10	7,559.94

That gives a total of 7,559.94 ozs. from this district during the half-year, 1,435.10 ozs. having been contributed by the new mill, which, up to date, and including pay of milling staff for three months, has cost $ c/m: 58,173.50, equal to, at an exchange of 872 to the £ sterling, £4,847 15s 10d; this mill is now approaching completion. Tigrito native stamps, owing to the water that served it being taken for the Californian, is practically idle, the breakdown of the old Cordoba accounting for the comparatively small amount realised from this mill in June.

In concluding this part of my report I would state that before the expiration of three months we shall have all our mills in a state that will enable them to run on for years without any cost other than that usually incurred in trifling repairs. This means to say that whilst having repaired those that were worth it, and in a comparatively good condition, four new mills will have been built, *i.e.*, a nine-head one in María Dama, new Californian in Córdoba of sixteen heads, new Native Córdoba of sixteen heads, and the Marmajon or Marmajito No. 2, of twelve heads, in the place of the old one of nine heads that is doing duty to-day.

OUR MINES.

Seeing that my monthly reports have contained everything of interest connected with these, I may find it difficult to state anything in this that will be new or interesting to you. You are already aware of the loss, as far as the advance of the preparatory and exploring work went, that we sustained through the rising of the water in El Silencio, our principal mine, and you are also

aware that when we did get a supply of water, we "forked" rapidly, this showing, that with an unfailing supply our pit-work is sufficient for our needs; at times we succeeded in lowering the water three feet in 24 hours from a deposit or pool in the No. 5 level, 4 feet wide, and 200 feet long, equal to 2,400 cubic feet per day, or 17,953.20 gallons, add to this the fact that we still had the coming water to cope with, and I feel sure that you will agree with me in saying, that, at this moment, at all events, it is not larger pumping gear that we want, but the power to work what we have in a permanent and satisfactory manner.

EL SILENCIO MINE.

The appearances and conditions have fluctuated considerably during the half-year that has just terminated, with the result, that on the whole, the mine looks as well as it did six months ago; some points have fallen off, others have improved; rich minerals have been exploited, and there are still rich minerals to exploit. In the north part of the mine matters are looking more promising than they did at the close of last year, whilst in the south, and although the shoot of ore met with in the No. 5 level, proved to continue to and below the No. 6, and still holds its own, the prospective value of the mine has fallen off; this results from the fact that all the ends driving in this direction are poor to-day, but it is to be hoped, and in one case we know, that this is only temporary. I allude to the No. 6 level, which, per force, must soon run into the rich mineral which we know to exist a few metres ahead of it.

No. 8 level south (550 feet from surface) contains a lode 2 feet wide and worth, when sample was taken, 2 ozs 8 dwts. per ton. Only 3.30 metres have been driven here, this point having been under water for the greater part of the half-year. It is very disappointing to find that so little has been done, but as you are aware of the cause I need not refer to it.

We hope to be enabled to show an increased amount of drivage in the next six months, but in this as in many other matters we are entirely at the mercy of the rainfall. A winze that is going down from No. 7 in good milling ore will soon put this important point at No. 8 in communication with the No. 7 level.

No. 7 South.—Here, and owing to the same cause, only 9.80 metres have been driven, there being to-day several "caves" or "runs" between the end and shaft.

The No. 6 being clear, these are at last receiving our attention. At the time when we were compelled by the rising

water to abandon this interesting point we were daily expecting an improvement, and you may rest assured that driving will be resumed here as soon as possible.

No. 6 SOUTH has been driven 20½ metres through a lode that has continually varied in appearance and quality, at present and just before (I might say) it is compelled to enter the rich bunch that has continued down from the level above, the end has become poor and hard.

In my Report for the six months ending on December 31st, 1896, I mentioned that at a distance of 150 feet behind what was then the end, we had a rich shoot of ore going down in the bottom of this level, since when it has scarcely been touched; above this point, and both north and south we have some very good stoping ground, the lode averaging 3 feet wide, with a well-formed and continuous seam of pyrites on the west wall about 4 inches wide and worth 10 ozs. to the ton. There is not the least doubt but that we have a very valuable body of mineral standing between this and the No. 7 level.

No. 5 SOUTH has been driven 47 metres through, generally speaking, a good lode, the end to-day is poor and in a very disordered state, it is difficult and would be far from wise to prophecy as to the future of this. Taking as a precedent the one above, we may expect to have a considerable distance to drive before meeting with anything cheering, even should we then, but results previously obtained go to show that radical changes take place in the distance that exists between one level and another, for in the No. 5 we had a splendid bunch of ore, while right-over it in the No. 4 there was barely a lode, which, such as it was, was very poor.

In the present end we have just got past the point where a lode or branch coming in from the eastern side joined the main lode, the results so far have been quite contrary to our expectations, the present end, as I have already stated, being in a very disordered state, in fact at this moment there is nothing worthy the name of a lode in it.

No. 4 SOUTH has been driven 25.90 metres in a poor lode, and latterly through a cross-course that lets out water freely. At this point we are penetrating into an unknown land.

No. 3 was abandoned some time ago, nothing having been done here during the past six months.

MAIN ADIT SOUTH has been advanced 25.90 metres, you are aware that the object of this is to enable us, when necessary, to

take up the water that, at the present time, assists in supplying the 10-inch pole, and which, when pumping operations are suspended, goes down into the mine.

No. 4 NORTH.—During the inundation we opened up on a branch of mineral in the bottom of this level, that considerably improved in size and quality as development progressed, this caused us to resolve on re-starting the No. 5 end, which after passing through a cross-course will come in under the "shoot" mentioned at a distance of 20 metres from where we have commenced to drive.

No. 6 NORTH.—This has been communicated with the No. 5 by a winze which has opened up good stoping ground from one level to the other and of an unknown extent horizontally; the present end is in a well-formed lode containing small strings of pyrites. We are about to commence sinking from here to the No. 7 at a point where it is fully 2 feet wide and worth 2 ozs. per ton. As soon as we deem it necessary, operations of driving or cross-cutting will be commenced in this level. No. 6 has been advanced 19.40 metres during the half-year.

No. 8 NORTH.—Nothing has yet been done here, the lode on this side of the cross-cut being well formed and of a very healthy appearance.

Matters look much more promising in this side of the mine than they have for a long time; at present the situation seems to indicate that we are getting into a more settled formation, and under the disordered ground that was met with below the shallower levels: be this as it may, we have a continuous ore body from the No. 5 to the No. 6 levels, and probably to the No. 7, the actual indications in No. 6 leading us to believe that it is of no slight extension.

NEW SHAFT.

The progress of this has also been retarded through water troubles and lack of men, given that we are favoured by the absence of drawbacks during the last half of the year, the sinking and rising ought to be terminated at the expiration of that time.

NEMEÑEME LODE.

An old adit on this has been cleaned out and driving commenced on a well-formed and kindly-looking lode, which in the

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abandoned end was found to be disordered by a cross-course, we have driven 3.50 metres here, total length of adit being about 20 metres, a part of this being open cutting.

LA SALADA MINE.

During the past six months no notable change has taken place in the state or prospects of this, which continues to maintain its reputation as being the possessor of an unlimited quantity of low and medium grade minerals. This part of your property also suffered considerably through the late drought, for although we succeeded in keeping the water from rising above a certain point, the bottom levels were submerged, or partly so, during the whole time that we were deprived of the necessary water, since when, and chiefly owing to surface improvements, we have a dry mine, and intend making an attempt to sink.

The surface part of the pumping gear has been completely renewed, the whole having been put on solid masonry in lieu of the timber that but badly supported it before, in fact the whole affair was in such a rickety state that it caused us no sorrow when we found it had finally broken down; the renewal alluded to having caused the whole machine to work with more regularity, and to give more satisfactory results.

In the valley that extends west of shaft, more than 200 feet of launders have been laid over old workings, and points that absorbed quantities of water that inevitably found its way into the mine. Pits have been filled or cut into from the hillside, and numerous drains made with most satisfactory results, and a notable decrease of water in the mine. We shall still continue this work of draining and filling which is far from finished.

The No. 3 Level South has been driven only 1.56 metres in a poor lode, which may be expected to continue unproductive up to a cross-course some 10 metres ahead, on the other side of which good mineral was found in the level above.

No. 3 North has been driven 7 metres in a lode about 2 feet wide; this has improved of late, in fact sufficiently so to lead us to hope that there are better things ahead.

No. 2 level north has been driven 6.18 metres, the lode having varied from 10 to 20 inches in width. The mineral exploited has been of a moderate grade.

In the No. 2 South, 9.97 metres of ground has been gone through, a decided improvement having taken place in the last

two driven, both in the size and value of the lode, it being at present 2 feet wide, and worth 2 ozs. 7 dwts. per ton.

Driving in No. 1 North has been resumed after an interval of two years, and a communication made with a rise that was brought up from the No. 2, indications of an improvement having shown themselves, this end was continued by two men, 8.60 metres have been driven, and the lode looks better as we advance.

CROSS-CUT FROM ADIT TO SHAFT.

Here we have had a practical demonstration of the next to absolute uselessness of these people when put on hard ground, for we have only driven 8.65 metres in five months, this gives a total of 30 metres from adit, leaving 45 more to drive before communicating with the shaft. A new pair of men have been put here, and it is to be hoped will in July and following months give better results, otherwise the present generation stands a fair chance of being cleared away before the object for which this was started is attained.

THE GREAT FLAT LODE.

Stopes on this show that it is worth from 12 to 20 dwts. per ton of ore, various points opened on it show that it will average 2 metres wide. Measurements show that its dip is about 20 degrees from the horizontal, and that from the adit level to its outcrop there is an inclined height of 200 metres, the vertical height being about 86 metres, and surface indications will allow of its being traced 600 metres and more. What does all this mean? It means that you have, in this piece of the lode alone, and waiting for treatment, 240,000 cubic metres of pay mineral, which, at two tons per cubic metre means 480,000 tons of ore, worth at the least, 10 dwts. per ton, or 240,000 ozs. to gold, which, at £2 10s per ounce represents a value equal of £600,000, this is a very modest calculation, the lode having a greater height than I have stated, its grade according to yield from stopes being 12 dwts. and 1 oz. respectively, equal to an average of 16 dwts. per ton, and the gold at the surface being of a higher value than that realised from the deeper levels; neither have I calculated the value of the lode standing from adit level to the bottom of the mine, which is practically untouched. Well, Gentlemen, you have here on the one hand a body of ore, worth at the least £1,000,000, and on the other a 20 stamp mill working irregularly and capable at its best of milling 12,000 tons per year. You have sufficient wood here to supply a powerful

engine with fuel for a very long time, and when that fuel is finished and has been used in raising steam that would enable you to mill ten times the amount of mineral that you are milling to-day, circumstances would be such as to warrant your building a railway from here to Zaragoza, and having steamboats of your own on the river, that would tow barges full of coals, carry merchandise and assist in making this the biggest mining enterprise and the most successful one in the world. What are all these woods for? The greater part of the timber they contain is only fit for fuel, it is of no use where it is; if at the end of twenty years you have consumed it all, you will have had the benefit of its consumption, whilst if you let it remain, I can't see where any benefit at all comes in. Did you decide to get the concern out of the sleepy hollow in which, in my opinion, it has slumbered, light tramroads could be laid all over the place, and concessions could be asked for and probably got of other tracts of wooded land. In say 20 years the fuel would all be consumed, and 20 years is a long time.

Of course there is the alternative of a deep adit from the Pocuné valley, where there is an unfailing supply of water which would be very considerably increased by what would be liberated in time from the lodes intersected. Be this as it may, what I want to impress on you is the importance and immense value of your property, in which, comparatively speaking, nothing has been done.

There are exceptional difficulties to be overcome, but they are not insurmountable, and a start made on new lines, which means more milling power, would soon produce the wherewith to enable you to overcome them, for let them be whatever they may, they will all yield to the judicious investment of capital.

Just fancy La Salada mine with a lode, a small piece of which I have described and valued with the San Joaquin lode near it, being bound down to a 20-stamp mill, that runs but rarely a full month without water troubles. Our aim at present is to move the Pelton wheel nearer to the mill, and so save rope troubles and power. This done, we intend asking you for 20 heads more, and a steam engine that shall be auxiliary when there is water, and run the whole thing when there is little or none.

If what I have stated is a digression you will kindly pardon it, my object being to show you that there is not only a future here, but a very brilliant one, and that your property is in its infancy.

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CÓRDOBA MINE.

During the six months passed this has been ventilated at two points on the north side of the No. 8 adit, and we are now rising in the south part on a good lode with the object of opening up stoping ground and ventilating this section.

In February last the No. 8 south was re-started, and has been driven 40.40 metres, 20 of which passed through a fairly good lode averaging 2 ozs. per ton, more or less. In the early part of June the lode became disordered by a cross-course, and has not yet regained its previous condition. Other points in this mine call for no observation that would be interesting. We have a large section of stoping ground laid open from which the new Native mill will be supplied when necessary.

TIGRITO.

This compact little mine continues to look fairly well, and to yield good milling ores.

The No. 6 Level West has been driven 20.25 metres in an average lode, which during the past six weeks has improved considerably, averaging 2 feet wide, and of an assay value of 2 ozs. 7 dwts. per ton.

No. 6 East has been driven 31.40 metres through a poor lode, and has been abandoned *pro tem.*

No. 5 Level East and West is being cleaned up for ventilation purposes, whilst carrying out this work productive ground has been met with.

The plans of former working show that the shoots of ore above cannot, should they continue in depth, be far ahead of us, and that we are about to enter a valuable piece of ground that may be expected to extend some 300 metres, this being the distance between the present No. 6 West and the Tigrito old shaft.

We can only be guided by theory and what can be seen in the shallower levels and plans in this matter, in the meantime and let results be what they may, the western part of this mine looks very promising.

On the 20th of May we re-started the main adit, which is being driven in a favourable and kindly-looking rock, this

important and interesting piece of work will be continued until one or more of the lodes ahead are intersected.

MARMAJON ADIT.

After having driven on the lode in an easterly direction and finding nothing that was even promising, we commenced driving west, and have advanced 27 metres in this direction; although up to date we have met with nothing of value, the lode presents a much more favourable appearance than it ever did in the eastern part.

MARMAJITO.

No. 2 level east has been driven 16.40 metres through a lode that has varied in size and quality; it has averaged 12 inches in width, and has produced good milling ore throughout.

In the end of main adit we are excavating for the sinking of a vertical shaft and erection of pumping gear that will be worked by mules.

A tunnel 80 metres long has been put, through from this mine to a point near the new mill, through which mineral is being transported.

The points that were being wrought between the Nos. 2 and 1 levels and east of adit, show a considerable falling off in value, those west of it and in the backs maintaining their reputation.

TRIBUTERS.

No important change has taken place during the half-year in the mines let to these.

PALMICHALA is poor to-day, the lessee (Franco) has had three months grace as an assistance in putting in an adit which will intersect the lode at a greater depth than heretofore obtained.

In the CECILIA MINE comparatively little has been done, the tributer (Piedrahita) having devoted the greater part of his time and funds to the development of that part of the Tigrito property that has been let to him.

TIGRITO.—A six-head mill has been erected here by the lessee who, up to date has not done as well as he expected, the mineral treated having proved to be of a very low grade.

GARIBALDI.—Here the returns show a considerable improvement on the last half of the year 1896.

VICTORIA REINA.—This and the DOÑA ANA property is being tributed by Pantaleon Monsalve, who as will be seen by tabulated statement is returning a little gold; should circumstances warrant it, a contract for three years with the usual 20 per cent. royalty, will be made with this man.

FILIPINAS.—Nothing has been received from the lessee during the half-year, this property having been very poor and scarcely worked for the whole period.

STREAMERS.—At present there are none, results showing that the men who had permission to wash for gold, were not to be depended on, the greater part of that won having been sold to outside buyers.

POPALES.—Here we have let a piece of ground to Antonio Diaz, the alcalde of Segovia, for streaming purposes; up to date he has been engaged in preparatory work, this having brought him into collision with the French Company, whose mills are being served by the stream which Diaz proposes to use, and the deepening of which sent a sufficient quantity of sand into the mill mentioned to impede operations. I have not much hope of this venture proving a success.

The following statement shows the amount of gold produced

Mines.	Bar Gold.	Value in Gold.	Royalty.
Palmichala ...	47.15 ozs.	$545.15	$98.45
Cecilia	86.75 „	970.50	194.05
Tigrito	90.15 „	1,130.35	39.65
Garibaldi	503.05 „	6,031.80	1,206.35
Victoria Reina	30.60 „	283.75	56.80
Streamers.....	11.30 „	125.05	—
	769 00 „	$9,086.60	$1,595.30

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When compared with the last six months :—

	Less Ozs.	More Ozs.
Palmichala produced	187.55	—
Cecilia "	145.45	—
Tigrito "	—	90.15
Garibaldi "	—	265.98
Victoria Reina "	—	30.60
Filipinas "	33.40	—
Streamers "	—	11.30
Total ozs.	366.40	398.04

This shows an increase of 31.64 ozs. in the six months' working as compared with the produce of the half-year ending in December, 1896.

SULPHURETS.

I am still unable to report any progress in regard to the treatment of these, our time having been devoted to matters of more urgent importance to your interests, neither have we had a man at our disposal, who, whilst having the knowledge required, could devote his time to the making of experiments on them. A sample has been sent to the Brazils, which Mr. Chalmers has kindly offered to treat by the oxygen process. We are anxiously awaiting the result.

The quantity exported is much less than in the previous half-year, when 3,080 boxes containing 100 lbs. each were sent, as against 2,030 boxes in the past half-year, showing a decrease of 1,050 boxes. You are aware that in the matter of getting this material from here to Zaragoza, we are practically in the hands of outsiders, the quantity transported by our own mules being very small. We attribute the falling off mentioned to the very low price that has obtained for freights, which has led carriers to seek better results in other parts. The following figures show the amount of sulphurets for the half-year :—.

MARIA DAMA.

	Tons.	Value $ gold.
Exportable & produced during the half-year	61.471	5,214.85 nett
Too poor to credit or remit	36.294	4,774.00 gross
Total	97.765	9,988.85

LA SALADA

	Tons.	Value $ gold.
Produced during the half-year non-exportable	77.500	5,918.10

FUEL.

The following will show the amount received, consumed, and in hand on June 20th :—

Stock, December, 1896 ...	287,784 lbs.
Amount received	3,790,644 "
Total ...	4,077,828 "
Amount consumed	2,570,780 "
Stock, June 20th, 1897 ...	1,507,048 lbs.

Equal to c/m	$7,580 10
Receiver $50 per month, including rations ...	300.00
4 treefellers at $50 each per month	1,200.00
Total cost ...	9,080.10

We have still an amount of fuel around the place that relieves us of all anxiety on this score, though as time goes on there will probably be a slightly increasing cost in its transport to the necessary points.

HOSPITAL.

As you are aware what was once a family residence has been transformed into a decent and well-ventilated hospital, where every convenience for the sick and injured is to be found. The old one has been completely renovated and turned into residences for workmen and employees.

The total cost for the half-year is ...	$4,485.30
As against	5,502.08
In the last half of 1896, showing a saving of	$1,016.78

In the sum stated the cost of putting the house on hospital lines is included, the saving on drugs amounting to $1,147.35 ; $2,153.60 having been spent in the half-year ending December, and $1,006.25 in the present half-year.

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Board Account shows an increase of $307.25. On the other hand we have fed 15 people as against 13 in the previous six months.

FARMS.

The following observations have been handed me by the person in charge of these.

CURUÑA.—This farm is to be found in a good climate, with a sufficient clearing for the maintenance of the 219 head of cattle grazing there to-day, but the pasture is of a very inferior quality, so much so that losses are of frequent occurrence, with the result that this part of your property, calculating cost of staff and losses of cattle, costs you at the least $2,000 per year, 16 cows and calves having died during the six months that have just terminated. There are two houses here that will soon want extensive repairs.

CUTURÚ.—This is to be found in a much warmer climate, and is also better adapted for grazing and breeding purposes, the pasture being of a most excellent quality. Cattle thrive here and increase in number. We have 178 head of cattle on this farm.

POMOS.—In and about this farm, the headquarters of the Ditches, stuff is to be found there, being some small clearings on which 21 head of cattle are at present grazing, the fine condition of these prove the pasture to be of good quality.

MAÑON.—Here we have 73 head of cattle at the present moment all in good condition, the pasture in clearings being very fine, there are also plantations of cane and yerva imperial (fodder) with large and well-constructed shed for shelter and feeding purposes.

ARENALES.—Here there is also a fine shed and manger arrangement, the farm proper being partially overgrown by brushwood. Mules are sent here for a few days after return trip from Zaragoza.

LA SALADA.—This farm has many clearings called respectively, Salada, Silencio, Maria Dama, Raicero, Cecilia, San Joaquin, Restaurador, Zambulligallo, Betumen, Popales, Tigrito and Guahaná. In the last, cattle owned by people of Segovia are allowed to feed and for which a small sum per head is paid. On the remaining clearings some 51 milch cows feed, also 121 oxen for transport service, 125 mules and 122 pigs, who live chiefly on

the leavings from the kitchens, there is also a flock of goats and 56 ducks with a varying number of cattle that are brought in for killing.

It is our intention as soon as cost can be reduced at other points to clear the Arenales farm of undergrowth, and complete the erection of at least one of the two unfinished houses that are there.

TIMBER

of a very costly description has been extensively used during the past six months, and a much larger quantity of a common class than in the previous half-year; Córdoba, new and old mills, and No. 3 of Maria Dama, timber for the complete renovation of the roof and balconies of La Salada house; new flooring for Maria Dama mill, and a large number of launders, account chiefly for an increase of $15,156.25. The total for last half-year being $31,043.50, and first half of this year $46,201.75.

DITCHES.

We have kept these in thorough repair, and are pleased in being able to report almost an entire absence of breakdowns during the half-year, the most serious having deprived us of water for 8 hours only. In Los Pomos we have cut and repaired a piece of ditch about a mile long around a valley or corner that is crossed by a viaduct of no mean proportions, and the timber of which we found to be very rotten; as this is now of no earthly use we have decided to spend no more money on it, at the same time we have succeeded in getting the owners of the alluvial mines at and around the head of the Pocuné stream, to stop the tributers who were there from washing. This whilst slightly increasing the quantity of water, will prevent large quantities of sand from making pools where the water will now be confined to the width of the leat. In fine, by buying out squatters, allowing clearings to return to their primitive state, and exercising watchful care, I cannot see why this stream should not in time, become as abundant as it was said to have been a few years ago.

In the Betumen district, where the source of the stream that supplies the Córdoba new mill is to be found, I believe that we can increase the amount of water available to-day by cutting trenches through and across the marshes, and cleaning up the ditches at various points. It is our intention to proceed with

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these undertakings at once, and to do all that lies in our power to prevent a catastrophe similar to the one we had to suffer through the late drought.

CONCESSION.

The large tract of wooded land applied for has been granted us by the Superior Court of Medellin, subject to the respecting of rights obtained by settlers previous to the grant. An appeal has been put in by parties who are opposed to our becoming the owners of the land. This will be heard and a final decision given in Bogotá. Our lawyer feels confident that the decision or verdict of the Superior Court will be confirmed by the Supreme, and that this appeal will only delay us from taking possession. I had hoped to have been in a position to have given you an estimate of the quantity of wood available for fuel in the tract of land asked for, and will endeavour to do so at an early date.

MOTIVE POWER.

This was fully dealt with in my last half-yearly and subsequent monthly reports, it follows that you are aware of our intention to erect a powerful pumping gear on the Mañon farm, where there is a quantity of water that, when once sent through our ditches, will make impossible anything like the state of affairs re mills and mines that obtained here during the months of February, March and April. There are also other streams in the Arennles valley that can be pumped up by steam or hydraulic power and into the Tias ditch, but before doing this, some arrangement will have to be arrived at with the owners of cane mills situated farther down the stream. The realisation of these schemes will take time, and particularly here where matters move so slowly, but I have not the least doubt but that time will show that you can obtain from the places mentioned all the water you want for many years, or as long as things are run on present lines.

SURFACE WORK.

I cannot give you a detailed account of all the odd jobs that have been done in the shape of repairs, re-roofing, changing of timbers, building of kitchens, and a great many items that have cost time, material and money.

During the six months, we have built the Californian, a new 9-stamp mill in Maria Dama, and purchased all the material

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necessary for the new native mill in Córdoba, we have nearly floored the whole of Maria Dama mill, changed many "horses" and launders, turned a dwelling-house into a hospital, built two new rooms where the English workmen live, changed floors, plastered walls, and re-roofed the old hospital, renovated and roofed the house where the candlemaker lives, dug and repaired a mile of ditch in Los Pomos, built two solid loadings for water wheel and balance bob in La Salada, a kitchen for timber men and another for the artizans, and completed many other pieces of work of minor importance, the whole not having cost less than £10,000, and there is still a lot to do.

The many plans and projects that have been mentioned in former reports have not been forgotten, and will be carried out in time.

The coming half-year will see a substantial building erected for the storage of explosives; we also intend commencing operations that when completed will enable us to shorten the wire driving rope and increase power at La Salada Mill; we also intend excavating on one side of this until we have room for an additional 20 heads, steam engine and yard for fuel. Marmajon No. 2 Mill of 9 heads will be taken down (if it does not fall) and replaced by a 12-head stamps. La Salada official residence will be re-roofed and timbered inside and out, and in fine all will be done that we possibly can do to keep things in thorough repair, increase the returns, and enhance the value of your property.

FINANCIAL POSITION.

All our liabilities are discharged up to date, and the mean exchange for the half-year has been 140.33 per cent.

I have the honour to remain, Gentlemen,

Your obedient Servant,

JNO. PENBERTHY,

Superintendent.

Informe semestral de Mr. Penberthy
a Dic. 31, 1897

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

Mr. JOHN PENBERTHY'S HALF-YEARLY REPORT.

La Salada, *December 31st*, 1897.

The Directors of the

Frontino and Bolivia Company, Limited,

184, Gresham House, London.

Gentlemen,

I have great pleasure in handing you this, my Report for the six months ending on December 31st, in which I shall endeavour to give you a resumé of what has been done during that time, and to outline, as far as possible, our plans and prospects for the future. I need not state that I can refer you with satisfaction to my observations made on June 30th, regarding the value of your property and its producing powers. The best proofs of the accuracy of my statements, re these matters, and confirmation of my opinions, are to be found in the results obtained, which I would fain believe you have found highly satisfactory. During the half-year we have

produced gold to the value of £67,054 9s 9d, at a cost of £33,313 10s 9d, leaving a profit, after deducting £300 per month for home expenses of £31,941 10s. In other words our produce has been equal to £11,175 14s 11½d per month, our cost £5,552 2s 5½d per month, and our profit £5,323 11s 6d per month.

The attainment of these results has been materially assisted by an exceptionally abundant supply of water power, the rainfall for the time covered by this Report having been very heavy—the fact that La Salada Mill has not suffered from lack of water for the last eight months, being a sufficient proof of this, seeing that it is the first to feel the effects of a drought.

Regarding the future of your property, I shall have little to say here, the more I know of it the more I feel myself confirmed in former opinions. It is capable of enormous developments, and, as I have repeatedly stated, is in its infancy. The metalliferous belt confined within your boundaries contains a large number of lodes that only await your will to open them up, and to yield riches equal to those already obtained. The lodes that we are exploiting to-day are capable of greater things in the future than they have been in the past. In fine, this is a new concern and one in which I consider myself to have taken a pioneer position, and to have been fortunate in having been able to start a new order of things, and one which I feel confident will continue.

RAINFALL.—The last time we had to slow down for lack of water was on the 12th May, on the 15th of the same month we got 0·50 inches of rain, since when, an abundant supply has been the order of the day.

In July the rainfall was		11.75	inches
In August	„	11.00	„
In September	„	16.87	„
In October	„	34.16	„
In November	„	12.17	„
In December	„	9.61	„
		95.56	inches

of rain in six months, equal to 15.92 inches, or at 10 tons per acre, 1,592 tons of water per acre per month.

The biggest storm we experienced was on the night of October 20th, when 6 inches of water fell in a less number of hours, this did a tremendous amount of damage particularly in our ditches.

With all the mishaps that accompany abundant rain in this place, we devoutly hope that their abundance will continue. They may mean a cessation of work and damage at times, which, at their worst, are far and away preferable to lengthened droughts and consequent total or partial paralysing of pumps and mills. We are now entering on what, last year, proved to be a most disastrous dry season. It is to be hoped that the present one will be tempered by occasional showers. Be this as it may, we are far better prepared for a drought than we were a year ago. It is to be noted that the absorbing properties of the surrounding soil are very limited indeed, in fact, one might say, nil. The ground to be found between the surface and bed rock is of a very clayey nature, consequently scarcely any water is taken up by it, the few springs that are about showing a marked decrease in the quantity of water delivered when rain is absent for any length of time. These facts will be fully understood when I state that, although water to the amount of 9,500 tons per acre fell from June to December, the absence of rain for one month would make itself felt in a manner adverse to our interests. It is to be hoped that the end of another year will see a big pump sending water into our ditches when required.

MEN.

We have had no reason to complain of the number available, and looking at the fact that all mining enterprises are short-handed, may consider that we have had more than our share. Unfortunately, the drinking propensities of these people seem to be on the increase. That the number of hands in your mines has notably increased is proved by the following data:—

In December	1895,	candles consumed in mines		33,180
„	1896	„	„	32,221
„	1897	„	„	43,232

During the whole year of 1896 we consumed 350,221 candles, and in that of 1897 - - - 454,901

Total difference - - - 104,680

Surface hands have also considerably increased in number, though owing to the continual rains and frequent calls for

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assistance from the ditches, I cannot say that the progress made has been satisfactory. However, work has been done, buildings erected and repaired, and our ditches again put into first class condition.

SURFACE WORK.

Whilst attending to current repairs, a first-class magazine for explosives has been erected, and at a point where should an explosion unfortunately take place no harm would result. This is the only stone and brick building in the district.

Shortening of Distance from pelton wheel to La Salada mill. This has proved to be a far more lengthy and difficult piece of work than we anticipated, and has been seriously interfered with by the rains. In the cutting that was commenced in the early part of the half-year, numerous boulders varying in size were encountered, all these had to be blasted, an operation that with the help of abundant water brought away large quantities of ground. This piece of work still occupies a number of men, and will continue to do so until finished, after when we hope that result will justify us in asking you for an additional ten heads for the mill.

Casa Grande (Residence of staff, offices and stores). The renovating of this has proved a long and costly piece of work, one repair entailing the necessity of another, until the whole building as far as the timber goes—may be called new. I am pleased in being able to state that it now presents a respectable and substantial appearance, and that it will be totally finished within a few weeks.

Marmajito Mill.—We calculated that this would have been working before the close of the year, but continual breakdowns in our ditches and wet weather willed that such should not be the case, our carpenters having been often called away to assist in repairing the one, and been hindered by the other. This mill is now in a fair way to completion, and ought to be working in February month.

Córdoba Native was rebuilt and started on August 14th, since when it has worked successfully.

Córdoba Californian has also received the few last and necessary touches.

2 soldadores

Marmajito Mill has undergone extensive repairs and is now enclosed within a strong fence, and numerous other items of minor importance have been attended to in this district.

Maria Dama.—In the month of August the upper part of boxes and several important pieces of timber were changed here, the whole entailing a stop of four days. Milling operations were recommenced on the 24th instant, since when no stoppage has occurred.

In the early morning (October 21st) the tunnel under corner of mill got choked and serious damage resulted. This was thoroughly repaired and has given no further trouble.

We are at present engaged in building a Calcining Furnace here and hope soon to reduce the weight of exportable sulphurets by 50 per cent. with a corresponding increase in their grade.

A new kitchen and mess rooms for employés and men have also been built with very satisfactory results.

In El Silencio a new smiths' shop has been erected. Drains have been cut around depressions, and a large number of old excavations filled in, notably decreasing the amount of water in the shallower levels of this mine.

Ditches.—Old pieces have been abandoned, and new ones cut. Launders have been added, the Pocuné water shed has been drained by a series of small ditches, all leading into the main ones, and many repairs have been attended to, the state of these, as far as one can judge, being very satisfactory at the present moment.

La Salada.—A broken axle of the water wheel was promptly replaced by a new one, which had to be turned in the lathe previous to being fit for the work. This mishap led to a suspension of pumping operations from the 20th September to the 24th instant, during which time the water was kept in check with cars.

Outside of the undertakings mentioned, many others of minor importance have been attended to. All these breakdowns and the repairing of other damage having given us a very busy six months, and at times no little anxiety.

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THE DITCHES.

These, owing to an unusual amount of rain, have given us serious trouble, particularly during the month of October. At one particular point, where there are about one hundred feet of flumes, the whole mountain side commenced to slide and threaten us with a very serious accident; fortunately we were able by continual watching and lifting to keep these in their place until the sinking of the ground ceased. Only by increasing the staff and number of workmen in this department have we been able to repair the damage done, and keep up our supply of water.

The Pocuné branch takes its water from the foot of a water-shed that was being deprived of all its timber by the owner of the land, gold washers, at the same time, contributing considerably towards a loss of water and its irregular flow: it is to be presumed that the destruction of the forest to a great extent caused the decrease that has been noted in the supply from this place. Believing this to be so, the land was purchased and will soon be covered with a sufficient amount of undergrowth to prevent the excessive evaporation that inevitably took place when the swampy ground was bared to the rays of a tropical sun. Mr. Crosley also kindly consented to suspend or prohibit people from washing for gold on his property which covers a part of the ground in question. I am pleased in being able to state that these measures and the cutting of the small ditches already mentioned have notably increased the amount of water, and will probably in time restore this source of power to what it was said to be but a few years ago. There are still several points where the main ditch can be considerably shortened and evaporation proportionally lessened, notably from the San Joaquin aqueduct to El Silencio pumping wheel, between which points the driving of a tunnel of about 300 feet in length would shorten the distance about a mile and a-half and deliver the water at an increased height of from four to six feet. This and many other points in connection with the water supply are worthy of attention, it being beyond doubt that valuable improvement can still be made in this section of your property.

TIMBER.

Although the distance from which this is brought continually increases, the same prices have obtained during the last half as were paid in the first half of the year, the increased

cost of that used from June to December being explained by the greater amount of work done. A more rapid development of our mines entails the consumption of a greater amount of this article, and I need not state that no small quantity has been used in the surface work mentioned in a former part of this report. For the first half of this year our timber bill amounted to ... $ c/m 46,201.75
and for the last half 64,159.60

Increase $ c/m 17,957.85

For the coming six months the cost of this necessary, and I am sorry to say very inferior article may be a little less, but where the ground being opened up and to be kept open is heavy, as it generally is in our mines, and where timber decays, as it does here, with a rapidity which must be seen to be believed, the purchase of this will always entail a very heavy expenditure. Before treating of the Tierras Baldias (Crown lands), I would state that the heaviest pieces are transported from the woods to their destination on the shoulders of men, ordinary mine timber, such as stull pieces, legs for sets, &c., &c., being brought in by mules, one end of a piece being lashed to the side of the animal, and the other dragged on the ground.

CROWN LANDS.

Previous to my arrival here a concession of, practically speaking, virgin forest, covering an area of 3,750 acres, was petitioned for by your representative and in the name of the Company. After passing through many vicissitudes, travelling from here to Medellin, back again, then on to Bogotá and again back to this place—by which time the affidavits had assumed the proportions of a respectably-sized book—order to give possession was given to the authorities here; this was opposed, tooth and nail, by a dog-in-the-manger clique, whose only aim could have been the wringing of money from the Company, seeing that no recognized rights were affected in the least, it being clearly stated in our petition that we bound ourselves to respect rights that were established previous to the date of our asking for the grant. Be this as it may, these would-be parasites, who think they have a divine right to hang on to this industry and fatten at its expense, managed to get at an error in the forming of the petition, and to prove that we had asked for an area far and away beyond

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that to which we were entitled as owners of mines and mills; this discovery sent the affidavit again to Medellin, where the Messrs. Restrepo, acting on the advice of our lawyer, paid in the estimated value of the excess (8250 c/m). From there the papers were again sent to Bogotá, where we have every reason to believe the course taken will be approved of and possession given. On the other hand, some other objection may still be raised.

The whole of the ditches from the Remedios road to their watersheds pass through the concession asked for, which, with a few insignificant exceptions is covered with timber well adapted for fuel, and also for building and mining purposes. A narrow tramway laid along by the side of our streams, or in other convenient parts, would lessen enormously the timber cost of the present day, which, as time goes on and distances increase, which they inevitably will, must seriously augment. I have not the least doubt but that continual developments and proportionate increase in the value of your mines, will lead you to taking some steps in this direction in the near future.

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FUEL.

The following tabulated statement will show the amount dealt with during the half-year :—

Stock in hand June -	lbs.	1,507,048
Received - - -		1,992,885
Total - -		3,499,933
Consumed - - -		2,410,076
Stock, December - -		1,089,857

The 1,992,885 lbs. received cost for transport $0.05 per quintal, or a total of - - - -	$9,964.44
Receiver $50 per month, including rations	200.00
Four wood cutters at $50 per month, including rations - - - - - -	1,200.00
	$11,464.44 c/m

equals total cost of 996 tons of fuel, or $11.51 c/m per ton.

In my report for the half-year ending in December, 1896, I mentioned that we calculated the La Salada farm to contain 2,838 tons. Of this there is none left, the whole having been taken to La Salada mine, workshops, kitchens, and El Silencio, leaving the whole clearing, practically speaking, clear of timber. Of fuel we have an abundance, but the distance over which it has to be brought having increased two-fold, we have been obliged to augment the price for the coming year from five to eight cents per arroba (25 lbs.). Women exclusively are employed in this business, who, while receiving no rations, manage to gain sufficient for all their wants, the increase in price having insured a full supply for the year 1898.

HOSPITAL.

The cost of this shows the trifling increase of $134.53 c/m.

Total cost from January to June -	$4,483.30
From June to December - -	4,617.83
Difference - -	$134.53 c/m.

Generally speaking, the health bill has been a good one, particularly as regards your staff, who, with few exceptions, have had no illness worthy of mention. Among the native population there has been nothing in the shape of an epidemic though small-pox scares have been frequent. Of this there has been a few cases of a mild type, the terrible scourge having recently developed in the town of Remedios, from where some deaths have been reported. Portions of the vaccine kindly sent have been distributed, but its powers as a preventative must be strong indeed if it will keep the disease from getting hold of people whose houses are surrounded by pools of stagnant water, mixed up with fermenting vegetable matter, and decomposing offal of every description.

FARMS.

All these are in much the same condition as they were when last reported on with the exception of Arenales, which is in a worse state as far as brushwood goes than it was six months ago. We propose having this cleared in the coming year, at a cost of from one to two thousand dollars.

CATTLE.—Seeing that there were an increasing number on our farms that grew without fattening, we decided to dispose of some of them by sale, with the following results:

35 bull calves were sold for	$775.	
20 steers for	500	
61 do.	3,050	
	$4,720	
PIGS.—37 were sold for		557.50
BULLOCKS.—21 were sold to the provision department for		1,645.00
Total		$6,922.50 c/m

The following statement shows the number and estimated value of our live stock:—

CUTURU FARM.		
151 head of cattle in	$5,305	
CURUNA FARM.		
157 head of cattle in	4,908	
LOS POMOS FARM.		
16 head of cattle in	652	
MANON FARM.		
67 head of cattle in	1,804	
	$12,759	
LA SALADA FARM.		
37 cows.		
34 calves.		
101 pigs.		
18 goats.		
35 ducks		3,981
OXEN.		
97 oxen valued in		6,162
SADDLE BEASTS.		
20 horses and mules valued in		3,780
PACK OR CARGO MULES.		
98 mules valued in		14600
	$41,282	

This valuation made by the man in charge was considered to be a little too high, and 20 per cent. was deducted giving the value at this date to be $33,026 c/m.

LOST THROUGH DISEASE.	
Bullocks	11
Heifers	2
Cows	2
Calves	9
Mules	7
Total	31

In the coming half-year we intend increasing our stock of mules, a great many of the number mentioned in this report being only fit for odd jobs about the farm.

We have still a large number of barren and aged cows for sale, it being more than probable that they will soon be disposed of.

STORES.

A detailed inventory of these was sent you, and showed stock up to the end of June, since when important additions have been continually arriving, and, in view of orders sent, will continue to arrive. We are actually much better off in respect of these than for some time past, and in a fair way of accumulating a stock adequate to our needs, and sufficient for a lengthened period.

TRIBUTERS.

I have to report a further reduction in the amount realized by these during the six months, that contributed towards the total produce being comparatively insignificant.

PALMICHALA, which is still rented to Franco, has given even worse results than in the first half of the year.

CECILIA has been worked on a very limited scale, with but poor results; also the part of TIGRE tributed with the Cecilia Mine by Florencio Piedrahita, h proved practically of a failure so far, nothing of importance h ving been discovered.

GARIBALDI.—Although it again heads the list for value produced, shows a decrease of about one-half when compared

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with the previous six months. This mine is still leased to Vargas.

VICTORIA REINA shows an improvement on the six months work, but far from an important one.

STREAMERS.

A few attempts at this style of gold winning have again been made with the usual unsatisfactory results. In fact, were we not sure that nothing can be lost by allowing applicants to make a trial, it would be absurd to permit them to do so—they have no capital wherewith to pay for anything, and are contented once in a while to pan out a small quantity of gold, the bulk of which probably goes into the hands of outside buyers.

SAN ESTEBAN OLD MILLS

Ceased to pay the cost of the staff we had there, and were given, on trial, to Piedrahita, who has managed to do a little since taking charge.

POPALES.

In my report for the first half of the year you were informed that a section of this had been leased to the then Alcalde (Antonio Diaz), and that the amount of sand sent down the stream led him into difficulties with the French company. This and other complications led to my assisting this person financially, the total of sums advanced from time to time amounting to $418.50 c/m, which I am afraid will not be paid back, his operations being very restricted in view of a fear of renewed troubles from below. Up to date he has refunded $30.82 c/m, leaving a balance against him of $381.68 c/m.

COMPARISON OF PRODUCE.

Mines		1st half '97.	2nd half '98.	Increase.	Decrease
Palmichala - -	Gold $	545.15	188.85	—	356.20
Cecilia - - - - - -		970.50	756.10	—	214.40
Tigrito (part of) - - -		1130.35	1334.00	203.65	—
Garibaldi - - - - -		6031.80	3490.55	—	2541.25
Victoria Reina - - -		283.75	499.40	215.65	—
Streamers - - -		425.05	160.50	35.45	—
San Esteban - - -		—	114.25	114.25	—
		9086.60	6543.65	569.00	3111.95

Total decrease gold $2542.95.

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COMPARISON OF ROYALTY.

Mines.		1st half '97	2nd half '98	Increase.	Decrease.
Palmichala - -	Gold $	98.45	8.65	—	89.80
Cecilia - - - - - - -		194.05	151.25	—	42.80
Tigrito - - - - - - -		39.65	266.75	227.10	—
Garibaldi - - - - -		1206.35	698.20	—	508.15
Victoria Reina - - -		56.80	99.95	43.15	—
Streamers - - - - -		—	—	—	—
San Esteban - - - -		—	—	—	—
		1595.30	1224.80	270.25	640.75

Total produce for the half-year 588.93 ozs. worth gold $6543.65, equal to £1,308 14s 7d.

SULPHURETS.

As you are already aware I am not in a position to report a new departure *re* the treating or remission of these. Correspondence has been opened, and samples sent to persons who are supposed to have successfully treated minerals of this description, but up to date we are in ignorance as to any results that may have been obtained.

Having found bricks of a moderately good quality we have commenced preparations for the erection of a calcining furnace, by the use of which we shall reduce the weight of the exportable pyrites by 30 %, and proportionately increase its grade. Should no inconvenience arise we shall be in a position to remit this mineral in a new form before the expiration of the coming half-year.

LA SALADA MILL.—From this only a small quantity has been saved during the last six months, the Frue Vanner belts having been completely worn out. These will be replaced when the new ones arrive, and the stock increased.

CÓRDOBA MILL.—Here we are saving a moderate amount, of which stock has not yet been taken account of, the amount saved here will be given in June, 1898. The following statement will show the amount produced during the six months that end to-day:—

In Maria Dama 108,437 tons, worth £866 12s 5d.
In La Salada 15 tons, worth £151 8s 0d.

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TAILINGS.

These still continue to accumulate without anything having been done, up to date, towards winning from them the large amount of gold that they contain; roughly speaking, 6,000 tons have been saved from Maria Dama, 4,000 from La Salada, an equal quantity from Cordoba Californian, and say 6,000 tons from the Native mills, or a total for the half-year equal to 30,000 tons, worth at the least 6 dwts. per ton, or £6,000, this added to the amount locked up in the large quantity of sands, previously saved, represents a large sum of money that ought to be assisting to swell the monthly produce, the fact of its not doing so is owing—not to a lack of will or a desire to move in this matter—but because we have been fully employed in erecting mills, exploring mines, repairing generally and, in fine, investing no small amount, month after month, in work that was absolutely necessary for the progress and permanent prosperity of the affairs placed under our charge. Though there is still much to do, and, in fact, ever will be, we are making preparations for the erection of an experimental cyanide plant, which, should it prove successful, will be at once followed by one capable of dealing with considerable quantities, and increasing your revenue.

OUR MILLS.

I have already referred to these, and am pleased in being able to state that they are in good working order, it being more than probable that no expense, beyond that incurred in current repairs, will be necessary during the coming half-year.

As already stated, the Marmajon new mill will be completed in February month. With this we shall have sufficient milling power for the district of Córdoba. The following statement will show the respective produce and differences compared with the first half of the year:—

EL SALTO ARRASTRES—

	Ounces.		Increase.
July	88.63	-	18.63
August	93.90	-	59.90
September	97.05	-	88.32
October	84.30	-	84.30
November	80.50	-	53.95
December	86.00	-	7.20
Total ozs.	539.38	-	312.30

Total increase, 312·30 ozs.

MARIA DAMA CALIFORNIAN—

	Ounces.	Decrease.	Increase.
July	1,362.47	568.05	—
August	1,618.40	366.03	—
September	1,567.10	—	600.30
October	1,454.67	—	741.17
November	1,758.82	—	993.59
December	2,129.40	—	639.15
Total ozs.	9,890.86	934.08	2,944.21

Total increase, 2,010.13 ozs.

MARIA DAMA NATIVE MILLS—

	Ounces.	Decrease.	Increase.
July	357.73	312.60	—
August	418.87	—	260.97
September	356.45	—	284.35
October	282.80	—	145.80
November	228.98	2.79	—
December	250.50	210.25	—
Total ozs.	1,895.33	525.64	691.12

Total increase, 165·48 ozs.

LA SALADA CALIFORNIAN—

	Ounces.	Decrease.	Increase.
July	566.07	79.28	—
August	837.38	—	453.85
September	563.35	—	428.70
October	812.23	—	389.53
November	755.30	—	158.85
December	780.25	—	245.25
Total ozs.	4,314.58	79.28	1,676.18

Total increase, 1,596.90 ozs.

LA SALADA NATIVE MILLS—

	Ounces.	Decrease.	Increase.
July	95.40	—	42.30
August	96.25	—	73.68
September	114.82	—	67.02
October	100.00	—	46.80
November	97.60	—	18.15
December	96.90	—	21.80
Total ozs.	600.97	—	269.75

Total increase, 269.75 ozs.

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CÓRDOBA CALIFORNIAN—

	Ounces.	Decrease.	Increase.
July	1,005.35	Not working	1,005.35
August	1,142.17	for first	1,142.17
September	936.25	3 months.	936.25
October	667.78	—	401.83
November	615.85	—	106.05
December	969.55	—	296.20
Total ozs.	5,336.95	—	3,901.85

Total increase, 3,901.85 ozs.

CÓRDOBA NATIVE MILLS—

	Ounces.	Decrease.	Increase.
July	950.03	291.82	—
August	654.78	848.89	—
September	783.90	—	8.78
October	791.67	201.83	—
November	1,181.40	—	200.67
December	1,065.15	—	232.20
	5,426.95	1,342.54	644.65

Total decrease, 697.89 ozs.

Increase on the Córdoba district, 3,304.

The following shows the comparative increase in the different sections of the Company's property :—

	Ounces.
El Salto	312.30
Maria Dama Mills	2,175.61
La Salada Mills	1,566.65
Córdoba Mills	3,304.16
Total	7,658.72

Causes other than improvements in our mines have enabled us to show such a marked increase in our produce as compared with the first half of the year. First and foremost we have had a full supply of water, this having enabled us to run our mills during the whole time at full speed.

The Córdoba Californian also came in a valuable help, for although we fell off 697.69 ozs. in our native mills, we increased our produce in the Californian by 3,901.85 ozs., showing a gain of 3,304.16 ozs.

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THE MINES.

Sufficient has been stated in this report to show that their yield during the past six months has been very satisfactory, and I shall endeavour to show that preparatory and exploring work has in no wise been neglected, in fact I am willing to believe that more has been done in the last half-year than was ever before accomplished in the same time since this Company came into existence. Some of the exploratory work initiated has been crowned by success, whilst it still remains to be proved whether other points will prove remunerative and reward the perseverance that has and is being observed in prosecuting them.

EL SILENCIO.

In this mine we have been heavily handicapped through water troubles, and can safely say that during the year we have been shut off from the deeper and, from an exploratory point of view, most important levels, for six months. In the first half we were unable to keep the water, owing to one of the most severe droughts that has ever visited this part of the country; and in the last half a succession of breakdowns in our ditches caused the water to rise rapidly and again inundate the deeper levels of the mine; the abnormal rain-fall having, at the same time, seriously increased the quantity. In fact, it looked at one time as if we were going to be drowned out. Fortunately night and day work on our ditches kept up the supply, and we are again in fork. But all this means that our Nos. 6, 7 and 8 levels are fully 60 metres farther behind, both north and south, than they would have been had these hindrances not occurred, compelling us to exploit and impoverish our reserves in a manner that though absolutely necessary, was far from agreeable. The long cross-course driven through in the Nos. 4 and 5 south, and the far from rich lode found in the last, also tended to diminish the value of the property, and although we recognise that the falling off of the grade of our ores is only a temporary matter, we are bound to confess that at this moment this mine is not looking so well as it has for some time past.

On the other hand you will be pleased to find that the northern part of the mine, which previous to my arrival here was practically abandoned, is now giving a fair quantity of good milling ore—in fact, quite a half of our output is being

won from this side. What was called the eastern branch proved to be the main lode, and not the western one which had been extensively driven on, and with anything but satisfactory results. This has led to the opening up of level after level on the eastern side of those previously driven, there seeming to be no doubt but that we are discovering a large extension of stoping ground at these points, and also finding a more settled lode as we increase in depth.

During the half-year the ENGINE SHAFT has been sunk, when circumstances would allow, 5.60 metres. We are now engaged in preparatory operations for the re-arrangement of pitwork, which I would fain believe will be accomplished in the January month. This done, we shall be in a better position than heretofore, and better able to cope with the water. Sinking operations will also be re-commenced as soon as possible.

No. 8 LEVEL SOUTH has been advanced in a good paying lode 18.10 metres, at this point the inundation brought away a large quantity of lode and country rock that has not yet been cleared away. It will be seen by the accompanying section that this end has just passed through a cross-course, and that it will probably traverse a section of (judging from what can be seen above) valuable ground; whether it will prove so unproductive further ahead as the level above, remains to be proved, the No. 7 having produced nothing but very low grade ores from the cross-course to its present end.

No. 8 NORTH.—Here operations will be commenced at an early date both on the lode and west branch, they having been intersected in the cross-cut. On this side we have every reason to believe that a valuable piece of ground will be opened up.

No. 7 SOUTH.—The last water trouble made itself most severely felt at this point, seeing that it was of the utmost importance to get this level into the ore body that we were exploiting in the bottom of No. 6, from where a winze was sunk in the hope of meeting it; failing this, the mineral, which was of very high grade, was taken away to the depth indicated in section, by underhand stoping. It will be seen that the end will soon be communicated to this excavation, and it follows, continued into and under the other underhand stopes, which are being wrought on a continuation of the rich branch of ore that was found in No. 5 South some year-and-a-half ago, and that has given such satisfactory results.

Taking as a precedent the No. 6 as far as it has gone, and the No. 5 up to the big cross-course, we may reasonably suppose

that the level in question will open up a fine body of ore, a part of which at the least will be of a high grade: the actual distance from present end to cross-course being about 500 feet.

No. 7 NORTH, on the west branch, has been driven 1.70 metres. Development in the level above led us to suspend operations here, and to commence driving on what we knew to be the main lode.

On this (named in the tabulated statement of drivages for the six months, cross-cut east No. 7 north) we have advanced 5.10 metres in a small lode enclosed between two very hard walls. During the latter part of this month this end has shown a much more kindly appearance, with strong indications of an early improvement.

No. 6 SOUTH has been driven 66.60 metres, and owes its present backward position to the drought by which we were visited in the early part of the year. In the bottom of this level we have a continuous ore body from the first bottoms up to the present end, the stopes in bottom—or continuation of the No. 5 discovery—still looking well. Judging from what was passed through in this, last, and beyond the vertical of the present end, we may expect to open up a valuable section of ground by the advance of this level.

No. 6 NORTH has been driven 30 metres, the greater part through a lode of fair quality and width. It is now in a bar of hard ground, which, judging from the state of the winze being brought down from No. 5, will soon give place to a lode of average size and quality.

No. 5 SOUTH has been advanced 42.30 metres during the last half-year. After leaving the southern part of the rich deposit this level was driven in a moderately productive lode, showing rich patches of mineral until it struck what proved to be the widest cross-course yet seen in this section of your property; this was driven through, and the lode found on the other side. Into this we have penetrated a few metres without finding, up to date, anything beyond a kindly formation, which is letting out a comparatively moderate amount of water. As will be seen by the section we have, at this point, no precedent to judge by, or from which to form an opinion, seeing that we are ahead of all previous workings, which means to say that we have virgin and unexplored ground from the level in question to the surface. It follows that the discovery of a good lode here would mean, practically speaking, the opening up of a new mine which would enhance the value

of the property tremendously. That we shall, by continued driving, ultimately reach a paying lode I have not the least doubt, but it is impossible to even give an opinion as to when. A study of the surface shows that we are just under the outlet of the north-eastern corner of the San Joaquin valley, where boulders of granite and a somewhat disordered stratification is to be seen. He who seeks shall find. We are seeking vigorously, and sooner or later the reward will come.

No. 5 North has for some time been in a paying lode of an average width of two feet. Here we are opening up an important section of good milling ore. A rise has been holed to a bottom previously worked in the No. 4 level, and a winze is being put down with the object of communicating with the No. 6. This winze is in a fine lode, strongly impregnated with pyrites of a high grade for gold. Here we are also opening up good stoping ground.

No. 4 Level [illegible] course of lode, [illegible] advancing in the No. 5 level about the end of this month. A rise has been started in the back of the last which, whilst ventilating the both levels, will ensure us as to our whereabouts in the No. 4.

No. 4 North, which has been driven in an aimless sort of a manner, much farther than our present workings in the deeper levels has been abandoned for some time.

No. 3 South.—Driving has been suspended for some time, and will be resumed as soon as we get the lode in No. 4.

No. 3 North.—Here nothing is being done.

Adit Level, South.—The section shows plainly what we have been doing here. You will observe that the old adit is beneath the new one, which has been advanced 33½ metres, when it is holed to an old rise through which the greater part of the water that we wanted to prevent going into the mine, was found. The greater part of this has been taken up, there still being a certain amount of work to do before we can say that this important undertaking is completed.

In some of the rises that are being put up from the back of No. 3 level south we are opening up good stoping ground, and in quantities that show these preparatory works to be adding to the value of the property.

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East Lode.—This is shown in the cross section, and although narrow, has yielded good quality ores, in the No. 4 level, where it has been driven on north and south about 20 metres. We are now sinking here, and driving a cross-cut to meet this winze from the No. 5. This last was initiated some time ago—abandoned through lack of men—and driving resumed during the early part of this month.

Sinks and Rises.—Of these I need not say much, they have been undertaken chiefly for ventilating and stoping purposes.

The following data has been furnished by Mr. Seccombe, who is also the author of the plans that accompany this report.

Excess of metres in driving, &c., when compared with the first half of the present year:

Sinking	22.40	metres.
Driving	200.05	"
Rising	122.10	"
Stoping	480.30	"
Total	824.85	metres.

From what I have stated and endeavoured to explain, you will see that this mine is far from being poor, and that there is not the least fear of a scarcity of good milling ores.

Nos. 5, 6 and 7 levels north are opening up large sections of ground that will pay handsomely to treat, and No. 8 will soon be started in the same direction.

No. 7 Level South will soon be penetrating a valuable body of ore. In the bottom of No. 6 south we still have high grade minerals, and a continuation of the rich bunch that gave us such valuable help in time past, whilst the present end is bound to develop the piece of ground standing between it and the cross-course. Nos. 5, 4 and 3 levels south are problems that remain to be solved. The rises in the back of No. 3 are also opening up reserves of moderately good mineral.

DONAGAN'S ADIT.

This has been driven 65.40 metres on a large and well formed lode that at one time promised big things two ways taken from it yielding 3 ozs. per ton of mineral. On the day that

dates this report, this lode was crossed obliquely by another which, whilst letting out water abundantly, showed free gold. It looks as if we are on the verge of opening up a valuable mine here which, should such prove to be the case will be an important addition to those we already have.

PROJECTS FOR THE FUTURE.

Whilst straightening the hoisting shaft and renewing the—I may say—whole of the skip road, we intend to rise to the bottom of this (No. 7) from the No. 8 level—when this is sufficiently advanced—which will enable us to send our cars to the bottom of the mine. Our pitwork ought to be re-arranged by the end of the coming month, when two drawing lifts will be replaced by a pole and sinking operations re-commenced. Exploring operations will be continued wherever there seems to be a hope of their being attended by success and the work necessary for the improving of our method of pumping and use of water power will be proceeded with. There is not the slightest doubt but that a Pelton wheel [illegible] would prove to be far more effective than the [illegible] which, placed at the surface, has served our purpose so far. The first idea was to connect the Pelton with the rods and use it as an auxiliary force, but this was not approved of, and reasonably so, by the Company's Consulting Engineer, who advocates the doing away entirely with the waterwheel, and relying on the Pelton alone. Undoubtedly this will be the correct thing to do, and acting on this conviction we shall at once proceed to make the necessary arrangements, these will prove of an extensive and costly nature, it being notorious that our main adit is totally unfitted for its purpose when that purpose means the continual passage of a large quantity of water and the transport of the usual quantity of stuff from the mine to the mill. Unfortunately it has been too often the case that what perforce must be the principal outlets of a mine have been made in a way that leads one to think that the maker never expected a mine to be found. This I am sorry to state has been the case in El Silencio, where the shafts have been sunk in anything like a minerlike manner, and where the adit (about 1,300 feet long) is a "creep" in the fullest sense of the word, as it is, we continually suffer from the upsetting of cars and a track that in several places is under water.

Looking at the following facts it will be seen that the opening or enlarging of this adit is of the greatest importance to the El Silencio mine.

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First, an ample tunnel would enable two mules to do the work of 20 men who push the cars to and fro to-day.

Second, a much larger quantity of stuff could be delivered in a given time.

Third, the ventilation would be improved, it being bad at times.

Fourth, Launders could be laid in many places where there is to-day a certain amount of filtration and water finding its way into the deeper levels.

And Fifth, the necessity of a space that would allow the tranquil and permanent flow of the increased volume of water that would have to find its way to the mill after having expended its power on the Pelton wheel.

Our shaft has a depth of 500 feet from adit to bottom and an underlie of 35 degrees from the horizontal with a small quantity of water in the deepest part which increases as our levels extend, and particularly in those destined to open up the south part of the property. Pumping gear has a 4-feet stroke, runs about eight strokes per minute, and forces by a 10-inch pole 108.78 gallons of water up to the adit in the same time. For the driving of a Pelton wheel we can count on a vertical fall of 99.41 feet, that is to say from bottom of wheel-pit to adit

	69.41 feet
height of present waterwheel or to level of ditch	30.00
	99.41 feet.

Our available quantity of water is about 300 cubic feet per minute.

We calculate that there would be even under the most adverse circumstances, sufficient water to work the Pelton and keep our mine dry, there being a great saving of power with this last when compared with the system that obtains to-day.

In view of the statements made, I think you will recognise, as we do, the necessity of proceeding with the enlargement of the main adit, and this is what we intend doing as soon as possible.

CÓRDOBA.

This district continues to increase in importance, and at the present moment is equal in value to any other that the Company owns. The accompanying plan will, it is to be hoped, assist you in grasping the situation. By it you will see that we own an area of 313 acres in which we are working four mines, there still being many lodes that, sooner or later, will be opened up, and that will in all probability prove to be as productive as those from which we are actually exploiting minerals of an average grade.

This concession was ceded by the government when the boundaries were marked by the watershed or division of the waters, which is naturally the crests of ridges and tops of hills, by roads and by streams; hence the irregular form of this part of your property, which is bounded on the east and south by the Sucre and Providencia mines (Colombian Corporation), on the west by the Nemeñeme and Garibaldi properties (both owned by this Company), and on the north by the Cogóte property owned by outsiders. Within this area we are working four mines, their approximate position being shown on the map. The Córdoba mine, however extensively it may be worked, can never, practically speaking, leave the Company's rights, seeing that were it extended beyond the boundary, and past the Rosario Hill, it would enter the Nemeñeme or Garibaldi concessions; Tigrito No. 6 adit enjoys the same advantages. The Marmajon mine being also well within our limits. Marmajito mine is near the boundary, and is worked on a lode which dips in the direction of the Cogóte property.

Between the Marmajito and Marmajon mines there are two adits which we are now opening up and retimbering, this done driving will be continued and the Marmajito lode intersected at about 90 feet below the level of the No. 2 adit.

LAS VETAS HILL (HILL OF THE LODES).

It will be advisable to put an adit beneath this and continue it on to the Bitumen where we have opened cuttings on a lode that is well formed and has a very promising appearance. Undoubtedly this will be done some day, and many other enterprises undertaken that stand more than a fair chance of being attended by success. It would be possible to continue writing

on matters regarding this district that would probably prove of interest; but for the present I will endeavour to explain by the help of the accompanying plans the actual and prospective state of the mines working to-day.

MARMAJITO.

This mine as you are aware is to be found near the northern boundary of the Cordóba concession, and speaking generally is a producer of high grade minerals which are not continuous, but are found in the form of lenticular deposits in a lode averaging one foot in width, which wherever opened on lets out water freely. Experience shows that these bunches are lenticular horizontally, but continuous in depth, the three winzes sunk below the No. 2 or adit level containing a rich lode, inferior in no way to that passed through in the level from which they were started, whilst the backs both north and south have continued vertically to yield minerals of a high grade at certain points.

No. 2 West has been suspended for some time, the lode explored for a considerable distance having proved poor. Between this level and the surface there is still a considerable amount of rich mineral which is being exploited and sent to the mills.

No. 2 East has proved very disappointing during the half-year that expires to-day. For short intervals our hopes have been raised by the appearance of a rich lode which after an advance of a very few feet has again become poor. This has been the order of the day for the whole six months, during which time we have driven through 29.80 metres of what can only be called unproductive ground. We fail to account for this unexpected poverty, seeing that the lode though generally narrow has always been well defined and the country rock the same as in those parts where it enclosed minerals of a very high grade, worth sometimes 20 ozs. to the ton.

The section will show you that we now have four sinks in the bottom of this level. They will be numbered from east to west.

No. 1 has been recently started on a short shoot of mineral which seems to improve in quality and size as we increase in depth.

No. 2 is in a lode worth 4 ozs. per ton on which a level has been driven east and west, good stoping ground has been opened up and is being taken away.

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No. 3 was sunk on a rich lode fully 1½ feet wide and worth from 4 to 5 ozs. per ton. A level has been driven east and west of this also, and has opened up a valuable section of ground; nothing is being done here at present.

No. 4 has also been sunk in a valuable piece of ground which yields mineral equal in quality to that existing in any of the others.

Looking at the state of the lode in any of these four sinks there seems no reason to doubt but that in depth this mine will prove to be quite as rich as it has ever been in the No. 2 level and above it. We have cut a space for the erection of a horse-engine that will be put up as soon as possible, when a shaft will be sunk that will drain the lode for a depth of 130 feet on its dip. This will bring us to about the level of the first adit east of the mine which when driven on the lode ought to drain it and insure a sufficient output of valuable mineral for years.

We consider this to be one of your most valuable mines, it being satisfactory to know that in an easterly direction the space between the division of the waters and lode increases rapidly and to an extent that puts us beyond the possibility of nearing what may prove to be the rights of others for a very long period.

Driving of the No. 2 level east will be continued and renewed in the two cross-cuts at the foot of the hills. The shaft will be sunk, and, in fine, everything done that will tend to sustain the actual output and enhance the value of the mine.

The winzes sunk in the bottom of the No. 2 level vary in depth from 2½ to 15 metres and have explored a piece of ground 600 feet long, the lode averaging one foot in width.

TIGRITO.

I am pleased in being able to state that this mine, whilst contributing its share towards the produce, continues not only to hold its own but to increase in value as developments progress, it being to-day one of the most valuable parts of your property, yielding, as it does, a comparatively abundant quantity of mineral, some of which is of a high grade. Until lately little had been done in the upper part of this mine, which is now receiving attention and where there are indications of important improvements in the near future. You will

have noted when reading the monthly reports that the No. 6 west has been favourably mentioned. The continued productiveness of the lode in this level led us to commence cleaning up the No. 5 where a run of ground of long standing had to be, and is being, contended with. From what this cleaning up has exposed we find that it is just possible that the level in question was not driven on the lode that has and is giving such satisfactory results in the No. 6.

It would be premature to say more than this at present.

No. 5 Level. East has been re-timbered and driven 29.20 metres, the lode in the end being one foot wide, and composed of low grade ore.

From the No. 5 west a rise has been holed to the surface, which, whilst perfecting the ventilation, has opened up a valuable and extensive section of stoping ground.

No. 6 East has been driven 27.10 metres during the half-year, and is in a lode, that whilst paying for stoping, is of rather low grade, than otherwise, it being about 1 foot wide in the present end.

A rise started in the back of this, and destined to communicate to the level above met with a point about 18 feet above the level, where a "dropper" joined a main lode, and notably enriched it; samples taken show it to be worth 8 ozs. per ton, and impregnated with small particles of free gold, which are visible to the eye. This is a beautifully free-milling ore, on which we are at present engaged in driving a mid-level.

No. 6 West has been driven 27.50 metres during the six months through a splendidly formed lode fully 1½ feet wide and worth 2 ozs. per ton.

So far our expectations regarding the permanency of this find have been realised, the only change that has taken place of late being the notably decreasing size of the "horse" which you are aware caused trouble and delay in driving. This piece of ground which stands between the lode and its hanging-wall proper, was at one time fully 5 feet wide, it is now no more than two and is at the same time changing into a rock of a softer and more congenial nature. This end has now been advanced in a fine lode, more or less, 40 metres (about 132 feet).

Several rises have been wrought from one level to the other and from the No. 5 to the surface, ensuring perfect ventilation and in the majority of cases laying open important sections of ground.

After reading the facts stated you can but agree with me in thinking that it would be more than difficult to estimate the value of this mine, but should this require further confirmation I beg to refer you to the accompanying plan. By it you will see that we have driven west of main adit 520 feet and east 800 feet, making a total of 1,320 feet, equal to 216 fathoms. After walking from one end to the other you could safely say that you had passed over a continuous lode for the whole length averaging 1½ feet in width and worth 1 oz. of gold to the ton.

MAIN CROSS-CUT has been driven 34.20 metres in a kindly rock. A survey must be made before we can estimate the distance between present end and the lode we intend to intersect.

MARMAJON (See map of Córdoba concession).

This is a new mine which has previously been fully reported on. We are driving east and west on a lode which generally speaking is of a low grade, though at certain points it has yielded minerals worth 3 ozs. per ton, at present it is one foot wide in the eastern end, and worth 10 dwts. per ton. The western end is poor and letting out a large quantity of water, this coming from a depression and swampy ground above it—an advance of some 30 metres will put us under the base of a hill where an improvement may be expected.

From general appearances we hope to find ourselves in a position to supply the new Marmajon mill from this mine.

CÓRDOBA MINE.

From the enclosed plans you will judge of the amount of work that has been executed, particularly at the No. 8 level, in search of what one may well call the lost lode, nothing having been yet found in the north part worthy of the name, branches and strings have been driven on that in some places have given minerals of a moderately high grade, but taken as a whole it is impossible to find a more disordered piece of ground than that existing from a little below the No. 7 to the No. 8 and from the adit north. South of this driving discovered no improvement when compared with the north side, until the No. 1 rise was commenced and the main lode cut.

On this, which is strong and well defined, we are rising, and barring accidents, ought to communicate to the No. 7 in

the early part of the year. This important work accomplished, we shall have, to all intents and purposes, a new mine with not only an abundance of pay mineral laid open, but a perfect system of ventilation which will allow us to rapidly drive our levels south and get under or into the valuable and rich ore body that is said to exist beneath the present air shaft, and for some distance to the north of it.

At the same time investigations will be continued to the north in the hope of reaching what is said to be a valuable piece of ground in the Rosario mine which is at present covered with water.

No. 8 MAIN ADIT.—You will observe that the last few feet of this has been driven in a northwesterly direction and as lately proved, parallel to a lode which we have intersected. This adit is now being continued in a straight line, and will, at a distance not yet known, intersect several lodes, that, judging from surface appearances, promise to be valuable in depth.

Ground excavated and driven in excess of the first six months of the year.

MARMAJITO—			
Driven, sunk and rose	115.02		
Stoped	272.28		
		387.30	
TIGRITO—			
Driven, sunk and rose	107.59		
Stoped	789.50		
		897.09	
CÓRDOBA—			
Driving, sinking and rising less	65.29		
Stoped more	251.27		
		185.98	
Total		1470.37	

metres more than were driven, &c., in the first half of 1897.

THE FUTURE OF THE CÓRDOBA DISTRICT.

From what I have stated it will be seen that with the exception of the winzes sunk for a short distance below the No. 2 level in the Marmajito mine nothing has been done to prove any of the other mines in depth, water being abundant in all of them.

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In Marmajito we have an extensive and valuable ore body beneath us and in El Tigrito the same, whilst the Córdoba mine is a problem that can only be solved in a satisfactory manner by sinking. As long as the ends being pushed ahead at the adit levels continue to prove productive we can depend on a supply of mineral for our mills still, and even should they do so we ought to be sinking and forming reserves, the deeper adits leaving no room for others below them.

Had we an abundance of fuel and the means of transport a central shaft, and powerful pumping engine would enable us to sink and open up the Tigrito and Marmajito lodes, which by some are thought to be one and the same, though even this system would entail the driving of long cross-cuts. It must be also borne in mind that we have no water power available for pumping purposes.

In view of these facts and when looking at the value in sight in two of these mines the tunnel scheme acquires an additional importance, and in my opinion becomes an absolute necessity. The main tunnel once in the heart of the property, branches could be started from it and carried into or beneath the Córdoba district, where it would drain the lodes and open up unlimited room for exploration and production. The general plan of the Córdoba concession has been supplied by Mr. Hoskin and those of the mines by Mr. Craven.

LA SALADA MINE.

This has been so fully dealt with in my last half-yearly report (June 30th), that I can find but little to say that would be new to you.

The plans made by Mr. James, which I have great pleasure in sending with this will, it is to be hoped, assist you in grasping the situation.

Cross-cut from main adit to shaft. This important piece of work is within a few metres of its termination, and will be holed during the coming half-year, when plat will have to be cut, and launders laid from shaft to the mouth of the adit. All this will take a considerable amount of time, and, when finished, will allow us to lessen the height to which the water is being pumped to-day (280 feet) by 100 feet. This will lighten the load, and permit us to put a 12-inch pole in the place of the 10-inch that is doing duty to-day, and at the same time do away

with the bucket lifts. We think ourselves safe in saying that when this is done sinking may be resumed and successfully proceeded with until the shaft intersects and penetrates the lode. The plan also shows a projected new shaft which would intersect the lode at the No. 3 level, and with the necessary pumping plant assist in draining the mine and opening up its northern part, we propose putting a horse engine on this.

As I have already stated it will still take a considerable amount of time to prepare the main cross-cut, fix the 12-inch work and send the water, that is now being pumped to the surface, through the main adit. Until this is done the new shaft project must remain in abeyance, our number of hands not being sufficient to tackle the both things at the same time.

Under ordinary circumstances we might find it necessary to vigorously push on these undertakings, but in this case, the circumstances are extraordinary, seeing that even did we not sink one inch for the next five years La Salada would still be a mine abundant in minerals, and I may even venture to say practically inexhaustible. These minerals generally speaking are of a low grade, but that the lodes contain "shoots" of high class stuff has been practically proved during the last few months.

The Adit and Nos. 1 and 2 ends are in a well-formed and paying lode, which if it does not improve is safe to hold its own as these points advance and get under the old Salada mine, from which, if report speaks true, good minerals were won, surface formation points to this result seeing that the ground above the present ends, and for a long distance south of them, is conspicuous by the absence of dykes, or the intrusion of any foreign strata that might cause the dislocation or disordering of the lodes on which we are working to-day.

The No. 3 end south is in a hard rock that has nearly pinched the lode to death, taking as a precedent what was passed through above, this ought soon to give place to a productive lode.

In the north part of the mine matters also look fairly well, the No. 3 end containing a good lode worth from 3 to 5 ozs. per ton.

The Great Flat Lode is shown in the cross-section, and has been dealt with in my report for the first half of the year.

THE LABOUR QUESTION.

Is one that bristles with difficulties, and as time goes on will be found to be the most serious drawback to progress, not only for this, but for every other mining company in the country. Even to-day we are ever in a position to occupy more hands than are available, the supply in no case being equal to the demand.

In this district we have the Colombian Corporation and the French Company competing with us, it being impossible, particularly with the last, to come to any arrangement regarding pay, or the employment of one company's men by the other. This reduces the matter to a case of catch-all-you-can and pay-all-you-can, it being a fact, or at least so I am informed —that the French people pay a higher rate of wage than we do. On the other hand, and as a set-off to this, we are supposed to give a better living, and we have a hospital and a Doctor; be this as it may, men are continually leaving us and going over to the French Company, who often send agents about to enlist them, and then again men leave the French people and come over to us.

I believe it to be a fact that there is a yearly decrease in the mining population of Colombia and in all the Spanish Americas.

Your property is capable of great things, in fact, were you to bring a man here who knows the business, and had seen gold mining in the Transvaal, he would tell you that you had not commenced to work yet; but you will either have to concentrate your works, and so limit the number of hands necessary, or find yourselves compelled to continue on the lines that obtain to-day, which are expensive lines, and ones by which you will never be able to attain that position in the mining world that your property deserves.

CONCLUSION.

It is now about one-and-a-half years since I had the honour of taking charge of your property, and representing you here; and I am willing to believe that something has been done during that time towards enabling you to recognise more fully than you ever did before the prospective value of the numerous concessions that you own in this district.

El Silencio Mine is what we should call in Cornish parlance, "A bunchy bal," always containing ores of a low grade, and often producing rich minerals in abundance.

Here vigorous exploratory work is of the first importance. Had we not been driven from the deeper levels for at least one-half of the year, matters would still be flourishing, and would continue to flourish, seeing that the rich shoot of ore discovered in the No. 5 south shows not the least sign of pegging out in the bottom of the No. 6. The northern part of this mine has wonderfully improved, and is capable of much greater development, though it is to be noted that the country rock on this side is much harder than in the south part.

LA SALADA

Is and will be a steady producer and when the projects outlined in this report are carried out can be made far more productive than it is to-day.

DONAGAN'S ADIT.

Here we have a great future before us.

MARMAJITO

Contains a paying lode about 1 foot wide in the bottom of the No. 3 level and for its whole length.

TIGRITO

Is not a speculation, but a commercial enterprise where he who invests his money in draining the important ore body that extends for the whole length of the No. 6 level is sure to be handsomely rewarded.

MARMAJON

Is a coming mine and will prove to be a producer of abundant quantities of mineral.

The Two Cross-Cuts situated between this and Marmajito mine will intersect lodes, that, being in the same range, will more than probably yield their share of gold.

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CÓRDOBA MINE

Promises little in the parts explored at the No. 8 level, where the lode, if any, is in a very disordered state. We are supposed to find better things farther north and farther south, time will prove whether this is to be the case.

THE CECILIA mine if drained would prove to be handsomely remunerative.

THE GARIBALDI is a rich property.

There are several lodes in the Beturner Section which meet or pass through the hill of lodes.

THE GREAT FLAT LODE is intact and there are many others that, being in the same strata as those worked on, with the same dip, and same strike, must surely prove productive when explored.

At this moment we have ten mills working here—three Californians and seven natives—scattered over the place. Each mill has a boss and some stealing is sure to be done in the whole of them, some of them are handy to the mines, whilst others are at a considerable distance from them, and unavoidably so, seeing that the mill must be where there is water to drive it. It follows that each mill must have its staff and so it happens that had we one mill capable of treating the whole of our output the cost of treatment would not be a third of what it is to-day. Should anyone entertain the idea that your property is not a permanent property from a gold-producing and a profit-yielding point of view, it is time for them to get rid of that idea and recognise the fact that beyond scratching, so to speak, here and there, nothing has been done. Under the present system waves of depression must and will pass over your affairs, seeing that it won't pay us to mill ores that in other parts of the world would leave handsome profits. The scattered nature of the industry increases the expense, we are handicapped for want of power, and we have to seek high grade minerals or none.

I am not carried away by my own enthusiasm, neither do I exaggerate when I state that there are tens of millions of tons of stuff around this place that would pay to be run through a 100-stamp mill driven by water power. In the Pocuné valley you have the water to run it.

Were it allowed, every road around the place would be torn up by men and women who, whenever they can get a chance, scrape together a barea of gravel, and wash out enough gold to purchase a day or two's food; whilst it is a known fact that a living could be got by washing the sand that covers the pathway around my house.

GENTLEMEN,

I have the honour to remain,

Yours obediently,

JNO. PENBERTHY,

Superintendent.

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Informe Semestral de Mr. Penberthy
a Junio 30, 1898

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, Gresham House,
Old Broad Street,
London, E.C.,
7th October, 1898.

Subjoined is Mr. Penberthy's Half-yearly Report to the 30th June, 1898.

The Directors have this day received a telegram from Mr. Penberthy as follows: "Hoisting engine repairs can be done here."

By order of the Board,
J. JAMESON TRURAN,
Secretary.

La Salada, *30th June*, 1898.

To the Directors of the
Frontino and Bolivia Company, Limited.

Gentlemen,

I have the honor of submitting for your perusal this my Report for the half-year ending June 30th, and, although those written and sent you monthly have supplied all the information and detail that I could give, I shall endeavour to again show you what has been done during the last six months, and make, what I am willing to believe will be, a very favourable comparison between our position to-day and that of a year ago.

This will apply particularly to our water supply and the state of our pumping gear, the improvements in this and extensive surface drainage having wrought a change that can only be thoroughly appreciated by those who, knowing the defects that heretofore existed, are in a position to testify to the value of the reforms that have been introduced.

Although a considerable falling off in the value of several points in El Silencio Mine has prevented us from giving results so brilliant as we could have desired, the six months' work shows a considerable improvement on that of the corresponding time of last year; for, although no temporary reduction in the cost has been made as in April and May of 1897, we are able to show an increased production and a larger profit.

The following tabulated statement will show the comparative differences:—

1897.	Produce. £ s. d.	Cost. £ s. d.	Profit. £ s. d.	Loss. £ s. d.
January	11,376 8 7	6,214 8 6	5,162 0 1	—
February	9,911 7 2	6,363 13 7	3,547 13 7	—
March	5,078 12 9	5,687 5 0	—	608 12 3
April	8,001 6 7	4,238 14 5	3,762 12 2	—
May	8,413 13 7	4,736 9 10	3,680 3 9	—
June	9,431 2 7	5,140 2 2	4,291 0 5	—
Total	52,214 11 3	32,379 13 6	20,443 10 0	608 12 3
			608 12 3	
Net profit			£19,834 17 9	

Home cost not included.

1898.	Produce. £ s. d.	Cost. £ s. d.	Profit. £ s. d.	Less Plates.
January	10,060 12 5	5,558 3 5	4,502 9 0	
February	9,260 17 7	6,256 3 5	2,974 14 2	
March	10,050 16 0	5,684 3 4	4,397 12 8	
April	11,142 5 2	5,770 3 8	5,372 1 6	
May	9,527 19 0	5,679 6 4	3,848 12 8	
June	10,942 2 10	6,175 11 3	4,766 11 7	
	60,945 13 9	35,313 11 5	25,632 1 7	

Home cost not included.

Excess of produce		£8,731 1 9
Increased in cost	£2,933 17 11	
Increased profit	5,797 3 10	
		8,731 1 9

During the first half of last year, March was the most unfortunate month, when a produce of £5,078 12s 9d and a cost of £5,687 5s entailed a loss of £608 12s 3d.

In the half-year that has just ended February is the month that shows the worst record; an exceptionally heavy cost having been met by what we call to-day a bad month's produce. Still, the period that this report is intended to cover, has not been marked by such radical differences (month for month) in the results obtained as those of the corresponding time of 1897.

It is with more than an ordinary amount of satisfaction that I am able to state that we have had no hindrances in our mines through water troubles. Both El Silencio and La Salada have been in fork, and comfortably so, the whole time. In the first, we calculate that the water, thanks to surface drainage, has decreased in quantity at the least one-third. The rearranging of pit-work and fixing of new has also contributed materially to the satisfactory results obtained, the increased undergrowth all over the watershed purchased by this Company, having at the same time notably increased the supply of power from the sources of the Pocuné.

At La Salada Mine great improvements have also been made in the pumping gear, and a large series of drains have been cut into and around the great number of pits that exist at the surface, and over a large area of ground. To all that I have mentioned regarding the water question, add the fact that we have been favoured, now and again, with more than welcome showers, and, I believe that you will agree with me in saying, that the steps taken to improve the situation, as far as the water in our Mines goes, have been attended by success.

RAIN.

During the first half of the past year we were without rain for ninety consecutive days, this terrible drought following a rainy season that was far from bountiful. As you are aware, milling and mining operations in the deeper levels were partially or totally suspended for that time. You are also aware, that the drought was followed by an exceptionally large rainfall, which, whilst doing no small amount of damage, replenished the springs, with the result that these, assisted by the showers mentioned, have supplied us, with the exception of comparatively short intervals, with sufficient water for milling purposes. The watershed of the Córdoba district being of but small area, comparatively, it is here that a lack of power was most felt, the Californian having had one battery hung up with electric plant and crusher idle for more than two months, the native mills having also been slowed down for, more or less, the same amount of time.

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The following figures will show the amount of rain that has fallen since December 31st, 1897:

January	...	...	...	2.20 inches.
February	...	...	...	1.69 "
March	...	...	...	5.73 "
April	...	...	...	8.08 "
May ...	...	...	...	20.40 "
June ...	...	...	...	17.95 "
	Total		...	56.05 inches.

The heaviest rainfalls were on May 19th and June 18th when the gauge marked 3.24 and 3.68 inches. They both caused slight breakdowns on our ditches, these being the only ones that we have had for the year.

HEALTH.

Some of your staff have been, more or less, seriously ill, so much so that a change was deemed necessary and proved very beneficial to them.

The native population has suffered severely from an epidemic of small-pox of rather a mild type than otherwise. On the mines proper the cases have been very few, whilst in the towns of Remedios and Segovia the disease at one time assumed alarming proportions. Fortunately it now seems to be decreasing rapidly, and it is to be hoped will soon completely disappear. Strange to say, not one person who enjoyed anything like the comforts of life, or in other words, the better classes, caught the disease. Several calls for contributions were made by the authorities. What fell to our share was paid in rations, which we were sure would reach the distressed, when, perhaps, money would have failed to do so.

WORKMEN.

Taking into consideration the many that left through fear of the malady mentioned, and the severe competition that we suffered at the hands of the French Company, we cannot complain of the number of men that have been at our disposal during the half-year, though the increase of developing work in our mines, and consequent employment of a greater number of hands, has caused us to refuse no application for employment.

Thanks to what I should call a most reckless and extravagant system of management, the French Company are said to have raised the price of labour to such a figure, that

only powerful and rich companies could compete with them in the labour market, it having been stated that some of their contractors cleared as much as $700 c/m per month; be this as it may, and if reports speak true, misfortune temporary or lasting, seems to have overtaken these people, who of late have been discharging a large number of men. We shall not be slow in taking advantage of this, and whilst seeking to pay a fair day's wage for a fair day's work shall endeavour to bring down prices to the level at which they were to be found some time ago.

SURFACE WORK.

The importance of this will not come up to what has been accomplished in the earlier part of my administration, owing to the fact that much done leaves less to do. It will also be noted that some of the undertakings we intended to take in hand during the past six months remain where they were at the commencement of the year.

The first and most important of these was the projected enlargement of the El Silencio adit with a view to placing in it a Pelton wheel and gaining greater facilities for the flow of an increased amount of water, and the transport of mineral to the mill. Seeing that a work of this kind would have to be superintended by an English miner who would have to take up and replace the rails on commencing and leaving work, that the quantity of water, through causes already mentioned, had notably decreased, and that it was of the first importance to sink the shaft. Our two English miners have devoted their time to the re-arrangement of pit-work and other matters connected with the regular working and speedy development of the mine, results having shown to a demonstration that with the existing pumping power no water troubles need be feared in this section of your property barring an unexpected increase.

TELEPHONIC COMMUNICATION WITH CORDOBA. — After mature consideration, I have decided that it will be more beneficial to put your headquarters in communication with Mañon, and the steam-pump, which will be some three or four hours ride from here, whilst the Córdoba district can be reached within one hour comfortably. At the same time, the speedy transmission of a message between this and Córdoba can never carry the importance that it may from here to Mañon, where, I may say, the instantaneous starting of the steam-pump will often mean the saving of time and money. On the other hand, the connecting of this office with mines and mills in the vicinity by telephone might cause your manager to refrain from taking that exercise

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which, in my opinion, is absolutely necessary for the maintenance of good health.

SHORTENING OR DRIVING ROPE (La Salada Mill).—We are progressing slowly with this, and at present have two Italian masons building and arching within the timber that is supporting the tunnel.

On January 5th (2 a.m.), and as you were duly informed, the house occupied by the English workmen was burnt to the ground, the fire having originated at a point where the flue was in contact with the lath and plaster walls; these and the thatched roof caused the flames to spread so rapidly that the men sleeping nearest the outbreak barely had time to escape with their belongings.

On the same site a new and comparatively superior building has been erected, the roof being of zinc tiles, whilst the kitchen, dining-room, and servants' apartments are entirely separated from the sleeping rooms, which are larger and more in number than those that the old building contained.

MARMAJON NEW MILL (12 heads) was started on Monday, March 12th, and has continued to work well, though the cast-iron gudgeon on the water-wheel side of axle broke, to be followed by the parting in two of the one by which it was replaced before the wheel had completed many revolutions.

This will make the third mill that has been built and rebuilt in this district, viz.: The Californian of 16 heads, the Cordoba (native style) of 16 heads, and the Marmajon of 12 heads.

THE MARMAJO MILL (of 12 heads also) if properly attended to is good for some time. In fact I may say that the whole of the mills on your property are now in good working order.

CALCINING FURNACE.—One capable of treating a 15 cwt. charge has been completed, and used with very satisfactory results. I have reported so recently on this, and the results obtained that any further observations here are unnecessary.

EXCAVATION FOR STEAM PUMP (Mañon).—This has been made, and 600 cubic metres of rock removed at a cost of $1100 c/m. We shall now proceed to put up buildings for the reception of the men, who will be employed in erecting this, workshops, &c., &c.

The most serious breakage that we have had for the half-year was on Thursday night (27th of May), when the Pelton wheel of La Salada mill got smashed. This was successfully repaired by Mr. Bailey, and the mill re-started after a stop of

111 hours, since when it has continued to work without let or hindrance. I need not mention in detail the many jobs of minor importance that have been attended to, such as the repairing of houses, renewing of launders, re-timbering of tunnels connected with the water-courses, building of dwelling and storehouses at El Silencio Mine, making of drains, filling of pits, &c., &c. It will be sufficient to state that we have done, and, shall continue doing, all in our power, to keep everything in thorough repair, and introduce improvements wherever we think them necessary.

Four new Frue Vanners have been erected in La Salada mill, and two more will soon be added to those already working in Maria Dama. These will enable us to save a larger amount of sulphurets than heretofore.

TIMBER.

It is unnecessary to mention that the consumption of this continues and increases in the mines, that of a good quality becoming scarcer every day. At the same time a much less quantity has been used at the surface.

The accounts show that we have spent in the first half of this year $2,282.20 less than we did in the last half of 1897.

Last half of 1897	$64,189.60	
First half of 1898	61,907.40	
Total decrease ...	$2,282.20 c/m	

HOSPITAL.

The difference in the cost of this when compared with previous half-year's has been trifling, we spent from—

End of June to end of December, 1897 ...	$4,617.83
And in the first half of 1898	4,874.80
Showing an increase of	$256.97

FUEL.

We still continue to get a sufficient supply of this in the usual way, though the increasing distance from which it has to be brought has caused the number of carriers to be less. As you were informed in my last half-yearly report the price was increased, eight cents. per arroba of 25 lbs. having been paid as against five cents. in 1897; this caused such a large amount to be brought in that we decided to return to old prices, since when the monthly amount received has considerably decreased, still, as before stated, we have sufficient for all purposes.

The following tabulated statement shows the amount dealt with during the half-year, the total cost and cost per arroba.

Stock in hand Dec., 1897 ...	...	1,087,857 lbs.
Received	...	3,175,303 "
Total ...	..	4,265,160 "
Consumed	...	3,082,217 "
Stock, June 30th, ...	...	1,182,943 "
Cost of fuel in last half of 1897	...	$7,083.20
January to June, 1898 ...	...	10,455.55
Cost of weigher for six months	...	3,372.35
	...	360.00
Total increase ...	...	$3,732.35

Cost per arroba of 25 lbs. 8½ cents, or 34 cents per 100 lbs, or $7.44 per ton of 2,000 lbs, equal at an exchange of 190 % to £2 7s 0d.

CROWN LANDS.

The documents relating to these are still travelling from this to Medellin, from there to Bogota and back again, it still being uncertain as to what the ultimate result of the delay will be, though the fact of our having purchased the properties in the Pocuné Valley that were owned by Ramirez, ought to remove one of the most energetic members of the opposition.

The last time the affidavit was here, it showed that unscrupulous parties had made all kinds of false accusations against us, such as being guilty of cruelty to the poor, burning the houses of squatters, and demonstrations of hostility and ill-will towards the Colombians generally. Whatever might have been the case previous to my arrival, I was able, in a most satisfactory manner, to prove, that for the last two years these people had been treated with great kindness, and received many favours from this Company. Documents to this effect, and signed by all the leading people of Segovia and Remedios having accompanied the papers on their return to the Supreme Courts. News of the result of this ought to be received at an early date.

FARMS.

I have little new to communicate regarding the condition of these, which if anything, has been improved during the half-year.

A part of Aranales has been deprived of the undergrowth, and a considerable area added to the pasture land; the cane plantation has also been cleaned, and partially replanted. Mahon has also received attention, the cultivated part being also in a far better state than it was at the close of last year.

Curuná and Cuturú are maintained in good order and supply sufficient grazing land for our cattle.

The value of which shows a total of $37,006.5
And on December 31st, 1897 ... 33,026.

Showing a gain of $3,980

RESUMÉ OF INVENTORY.

7 bulls...	$540
37 young bulls...	875
203 cows	9,185
90 oxen...	5,250
2 young oxen...	100
109 heifers	3,765
42 bull calves	535
53 calves	670
130 mules and horses	14,123
81 pigs	1,818
19 goats	95
25 ducks	50
Total ...	$37,006

The following number of animals have died since July 1st:

POMOS FARM.

1 cow

MAÑON.

1 cow
3 calves 4

POPALES.

4 oxen 4

SALADA.

1 cow
3 calves
5 mules 9

CUTURÚ.

7 cows	
18 calves	25
Total deaths	43

A severe epidemic in Cuturú caused the number of deaths to exceed those of all the other farms put together.

TRIBUTERS.

There is little of interest to report regarding these. Nothing of importance having been discovered in any of the Company's mines rented by them.

San Esteban old mill, sands and rivulet beds were tried for awhile by F. Piedrahita, and subsequently by the Uribe family, both failed to make a success of the undertaking, and abandoned the place some time ago.

The Maria Dama stream, or, better said, a portion of it, situate between the mill and the El Salto arrastres has been let to J. L. Franco at a royalty of 25 per cent., with satisfactory if small results. Attempts have been made at washing for gold on several parts of the Company's property, without any gain having resulted from them.

Palmichala is still in the hands of J. L. Franco, who has failed to discover anything of importance in the mine, the returns from which have shown a monthly decrease with no produce in June. I was through this mine a short time ago, and found it looking very poor indeed. The lode, cut by an adit, which must have cost a considerable amount of money, failed to find anything other than a small disordered lode, on which a rise was put to the surface without meeting with an improvement or anything of an encouraging nature.

Cecilia Mine is still leased to Florencio Piedrahita, and shows a considerable falling off in produce. Work is still being carried on on a very limited scale, and there is a chance of an improvement being met with at any moment.

Tigrito, what was previously an abandoned part of this, is still being worked by Piedrahita, who has done better than he did in the last half of 1897. On the results obtained up to date, he may be expected to improve during the coming six months.

Garibaldi again heads the list for amount produced, and promises to do well in the coming half-year.

We are now framing a new contract with the Tributer (Vargas) for two years, and practically on the same lines as the old one.

Victoria Reina.—Leased to Pantaleon Monsalve who manages to extract a small portion of gold from tailings and to keep the native mill working, this being necessary to preserve the water rights. He returned a trifle less than in the previous half-year.

Popalpi.—Although gold seemed to be plentiful, this has proved a failure owing to the continual complaints from the French Company, and the impossibility of working without injury to them. All this led to a suspension of operations without much chance of their being renewed, or the $381.68 still figuring in the suspense account and advanced to Antonio Dias, being refunded.

Comparison of Produce.

Mines		Last half '97.	First half '98.	Increase.	Decrease
Palmichala - -	Gold $	188.85	299.60	110.75	—
Cecilia - - - - - -		756.10	333.30	—	422.80
Tigrito - - - - -		1,334.00	2,347.25	1,013 25	—
Garibaldi - - - - -		3,490.55	5,576.30	2,085.75	—
Victoria Reina - - -		499.40	489.20	—	10.20
Streamers & San Esteban		274.75	455.70	180.95	—
Maria Dama Stream -		—	736.02	736.02	—
Total Gold $		6,543.65	10,237.37	4,126.72	433.00

Increase of produce for the half-year $3693.72 equal to £738 14s 10d.

Comparison of Royalties Paid.

Mines.			Last half '97	First half '98	Increase.	Decrease
Palmichala - -	10 %	$	8.65	29.94	21.29	—
Cecilia - - - -	20 „		151.25	66.65	—	84.60
Tigrito - - - -	20 „		266.75	469.46	202.71	—
Garibaldi - - -	20 „		698.20	1,115.29	417.09	—
Victoria Reina - -	20 „		99.95	95.86	—	4.09
Streamers & San Esteban			27.90	—	—	27.90
Maria Dama Stream	25 %		—	184.02	184.02	—
Total $ Gold...			1,252.70	1,961.22	825.11	116.59

Total increase $ Gold 708.52 = £141 14s.

Note.—San Esteban and streamers amount paid in royalty was omitted in last half-yearly report.

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Tabulated Statement of Differences in Mill Produce.

	First half '97	First half '98	Increase.	Decrease.
Maria Dama, Californian ozs.	7,880.73	9,361.61	1,480.88	—
Native mills - -	1,729.85	1,419.49	—	310.36
La Salada, Californian - -	2,717.68	3,840.95	1,123.27	—
Native mills - -	331.22	191.54	—	139.68
Córdoba, Californian - -	1,435.10	4,972.70	3,537.66	—
Native mills - -	6,124.84	3,749.76	—	2,375.08
El Salto Arrastres - -	227.08	184.73	—	42.35
	20,446.50	23,720.84	6,141.81	2,867.47
			2,867.47	

Showing a total increase on first half of last year 3,274.34 ozs., and owing entirely to increased amount of water-power.

SULPHURETS.

	Tons.	Value $ Gold.	£	s.	d.
Maria Dama—					
Stock on Jan. 1st, 1898 ...	134.776	7,082.05			
Produced in the half-year...	86.000	5,566.80			
	220.776	12,648.85			
Exported	33.571	1,147.65			
	187.205	11,501.20			
Calcined in May and June	9.500	972.32			
	196.705	12,473.52	2,494	14	0
Non-exportable—					
In stock May, 1897	270.938	34,476.55			
Produced up to June 30, 1898	40.000	5,575.00			
	310.938	40,051.55			
Calcined	17.250	2,489.00			
	293.688	37,544.55	7,508	18	2
La Salada—					
Non-exportable stock, Jan. 1, 1898	308.750	28,020.85			
Produced in the half-year...	22.300	1,311.70			
Stock	331.050	29,332.55	5,886	10	2
Córdoba—					
Exportable.					
Produced during half-year...	0.351	246.73			
Exported	0.223	62.73			
	0.128	184.00	36	16	0

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Córdoba.—Californian Mills.

Non-exportable.

	Tons.	Total $ Gold.	£	s.	d.
Produced in the half-year ...	18.000	1075.0	215	0	2

RESUMÉ.

Exportable stock

	Tons.				
Maria Dama, raw	187.205				
" calcined	9.500				
Córdoba - -	0.128				
	196.833	value $ G.	12,657.52	= £2,531	10 0

Non-exportable.

	Tons.				
Maria Dama - -	293.688	value $ G.	37,544.55		
La Salada - -	331.050	"	29,332.55		
Córdoba - - -	18.000	"	1,075.05		
	642.738		67,952.15	13,590	8 6
		Total value		£16,121	18 6

Exported during the Half-year.

	Tons.				
Maria Dama	33.571	gross value $ G.	5,344.02		
Córdoba - -	0.522	"	355.43		
			5,699.45	= 1,139	17 9
And the net value $ G.			1,147.65		
			290.13		
			1,437.83	= 287	11 5

Note.—The 9.5 tons exportable calcined sulphurets are the result of 1,725 tons of non-exportable and part of the produce of January.

COMPANY'S LANDS AND SQUATTERS.

You are aware that until recently these last have been a continual source of annoyance and expense, one having been no sooner got rid of than another, or more, took his place, defying the Company to eject them, felling the Company's woods and making themselves odious generally. In all this they were helped by a pettifogging lawyer who until lately fattened on his gains and managed matters in such a manner that no case was ever settled. The building of huts went on, more litigation

babies
chozas
barracas
cabañas

was commenced, and our, so-called, local lawyer whilst presenting document after document to the authorities, proved to a demonstration, that he was "running with the hare and hunting with the hounds." This led to his discharge and the employment of an energetic young man called Sanin, who I am proud to state has rid your property of every rebellious squatter, established the right of the Company to do what it pleases with its own, and taught these people a lesson, that with a reminder, once in a while, will cause them to cease from troubling you in the future, whilst the squatters' lawyer, from a professional point of view, has taken a back seat and is a thing of the past.

This is very satisfactory, and if care is taken in the future, for ever settles a question that has given trouble and caused expense ever since this Company came into existence.

I would mention that the last point fought arose through a piece of ground that belonged to us for years having been included in the Crown lands that we petitioned for. "All's well that ends well."

We still give permission to build and make small clearings to people whose mules are employed by the Company and to others who we think deserving of a favour, but these, in view of the signal defeat suffered by the Loudonas, Pelusas, Rendones and others, and the ruin brought on them, would no more think of again attempting to remain after receiving notice to quit, than I should of establishing a claim to the El Silencio mine.

THE MINES.

These have not been marked by any remarkable changes during the past six months, and if anything may be said to have fallen off in prospective value, many of our levels, particularly in El Silencio, having entered a channel of unknown length of unproductive ground; this particularly applies to the part south of the engine shaft where in the upper levels the lode was "heaved" by a cross-course, found on the other side, and driven on for a considerable distance without anything more than kindly indications having been met with up to date.

THE NOS. 6 AND 7 LEVELS SOUTH also proved unproductive for a considerable length, particularly the latter, which for the whole distance south of hoisting shaft failed to open up ore bodies of any importance. In the north side, and since the main lode has been found, matters have assumed a much more promising and encouraging appearance. Unfortunately the excessive hardness of the country rock, when compared with that of the south part, makes exploratory work slow and costly,

whilst at the same time the lode when found proves to be narrower and more difficult to exploit.

IN THE NO. 5 LEVEL we have been for some time opening up a valuable body of mineral, which undoubtedly continues in depth to the No. 6, and more than probably beyond it. Under existing circumstances, an important find here would be preferable to one on the south side, where continuous driving entails the risk of a (to us) dangerous increase in the quantity of water to be pumped.

That the finding of rich ore bodies on this (the north side of the property), is neither impossible or improbable, I shall endeavour to show in this report.

The bottom, or No. 8 level, looks very promising, particularly the north part, where, so far, the ground is not near so hard as it proved to be in the levels above, and at equal distances from the shaft.

LA SALADA MINE.

During the last six months nothing of importance, either in work or discovery, has taken place. Minerals are abundant, and generally of low grade. Water from lateral explorations slowly increases. The pumping gear is in first-class order, a series of drains cut over a large area, and filling of pits, having notably decreased the amount that heretofore found its way into the mine.

CÓRDOBA DISTRICT.

CÓRDOBA MINE.

A great improvement has taken place in this and after the boling of the main rise to the No. 7 adit. This not only ventilated all the workings, but also opened up a valuable section of stoping ground, exploratory work being still continued to the north and south.

TIGRITO.

THE No. 6 west has continued to explore and lay open a valuable piece of ground.

THE No. 6 east has failed to discover anything of importance. During the half year some rich minerals were obtained from a branch known as Pryor's lode, these were taken from what proved to be a small bunch or pocket, the ore produced to-day being of very low grade.

MARMAJITO.

Owing entirely to the failure of the No. 2 end east, from a productive point of view, the outlook is not so satisfactory as it might have been. A survey having showed the chance of the lode having been left in the east side of the level, we are cross-cutting in that direction. The sinks below adit still continue to produce mineral of a high grade from a lode varying from 6 to 15 inches in width.

MARMAJON ADIT.

Has so far proved anything but a successful undertaking. Finds of small importance have been made in branches that have been more distinguished for their irregularity than anything else, nothing like a settled lode having been found up to date.

The two adits situated between this and the Marmajito mine have been cleaned up and re-timbered, but nothing in the western part of the first or eastern part of the last as yet warrant their further advance into the hill.

EL SILENCIO MINE.

After the successful re-arrangement of pit-work, the sinking of the engine shaft was resumed, and the depth increased 7.10 metres. We hope soon to get this lift down, and start what will be the No. 9 level, where, to judge from what we have already passed through in the No. 8 north and south, a good lode ought to be found.

No. 8 Level North and South.—Progress in this has been slow owing to its having been in the bottom of the mine, and consequently affected by the smallest suspension of pumping operations. Since sinking has been commenced, we have been able to work more continuously in both ends—this work having so far been attended with very satisfactory results previous to and after passing through the cross-course south, mineral of a very high grade has been met with—pyrites worth more than 100 ounces to the ton, according to assay, mixed with the quartz. At present the lode is well formed, from about half of the height of the end down, and will undoubtedly become more settled as we leave the cross-course and its influence behind us.

The North Level, after passing through a moderately-sized lode of fair quality, reached a point where it was much narrower and poor. Here we observe a radical change in the accompanying country rock, which whilst being of anything like a congenial nature in the level above (No. 7), is soft and of a

much more kindly nature at the point of which I am writing. A favourable change in the class of rock previously met with in the shaft, and at the point alluded to, makes it just possible that we are at last beneath the very hard strata to which the disordered and pinched condition of the lode from the No. 2 to the No. 7 levels must be attributed for a considerable distance north of the engine shaft.

No. 7 South.—Little of importance has been met with in this, the end being near the big bottoms or continuation of shoot of rich ore that was found a little less than two years ago in the No. 5. This shoot attained an abnormal width in and below the No. 6, which leads us to judge that at the No. 7 level it will be found split, and perhaps of much less value than heretofore. Whilst after passing to the other or south side of this bottoms a better class lode may be expected. That a continuation of unproductive ground in one level ought not to be taken as a sign that a similar condition of affairs will be found in the one below has been proved in the Nos. 4 and 5, the first having been poor throughout, and the last one of the richest that have been seen in the mine.

No. 7 North.—Driving on what we suppose to be the main lode was commenced and continued here for some time in a very hard rock. Operations have been suspended pending developments in the No. 6 and No. 8 ends.

No. 6 South.—After passing through the main ore body (big shoot) and opening up a rich lode for a short distance, ran into an unproductive piece of ground in which it continues to advance. The meeting with this was as disappointing as unexpected—the lode in the level above being well-formed right up to the big cross-course, from which the No. 6 is still some 200 feet distant, which means that there is still a chance and room for improvement. Contrary to all precedent, this, so far, unproductive lode carries two splendid walls which in this mine is taken as a sure indication of rich and abundant mineral.

No. 6 North.—The No. 5 level showed that we had to penetrate a wide and hard cross-course here. I am proud in being able to state that indications point clearly to the proximity of the lode in the present end, which, when once met with will add considerably to the value of this side of the mine.

No. 5 South.—Monthly reports have kept you well posted as to this, which passed through the widest cross course known in the district. On the south side the lode was found "heaved" to the east, and driven on. Changes here have been frequent and disappointing, a slight improvement having been invariably

followed by the complete disappearance of anything like better times.

No. 4 SOUTH has been but a repetition of No. 5, to which it is communicated.

No. 5 NORTH is opening up valuable stoping ground and looks as if it will continue to do so. Up to date we have passed through an extensive ore body worth about 2 ozs. per ton. From the back and bottom of this we are winning quite a half of our output, the stopes in the bottom being superior in quality to those in the back. Ahead of the present end (say some 30 feet) we shall encounter a cross-course, on the other side of which rich deposits of mineral were found in the Nos. 2 and 3 levels. This makes it just possible that after the intervening piece of poor ground found in the No. 4, a continuation of the ore body may be met with.

From what I have stated you will see that this Mine is not so rich as it was six months ago. Still I see no reason to fear, or to think that the future will bring anything but success. At this moment the bottom of the mine not only looks promising, but has shown us that it contains a well-formed lode carrying minerals inferior to none that have been found.

Nos. 5 and 6 LEVELS NORTH are opening, and will open up, valuable sections of stoping ground.

No. 7 SOUTH will more than probably disclose a paying lode as it advances, the splendid wall in the No. 6 leading us to believe, and reasonably so, that not having given the expected riches horizontally they will not fail to do so vertically.

THE No. 6 SOUTH must be driven another 200 feet, more or less, before meeting the great cross-course, there being undoubtedly a fair chance of meeting with something before covering that distance.

In the back of the No. 3 south we still have large quantities of mineral of a low grade, which is being taken away as circumstances require.

Comparisons of ground excavated last half of 1897 and first half of 1898:—

	Last half '97 Metres.	First half '98 Metres.	Increase. Metres.	Decrease. Metres.
Sinking ...	22.40	31.70	9.30	
Driving ...	365.35	351.65	—	13.70
Rising ...	122.10	179.60	57.50	—
Stoping ...	2,206.30	2,305.60	99.30	—
	2,716.15	2,868.55	166.10	13.70
			13.70	
Total increase metres ...			152.40	

DONAGAN'S ADIT.

Here we are developing on a strong masterly lode, composed chiefly of minerals worth from 10 to 15 dwts. per ton, though pockets of more or less extension have been met with from which mineral has been won worth from 1 to 2 ozs.

A rise from adit to surface has been holed, ensuring permanent ventilation, and laying open a large section of stoping ground, this containing approximately 6,000 tons of mineral. Driving south will be continued, and the output limited until tram-road is laid, which ought to be in the early part or middle of September. At present the native mill of nine heads is being supplied from this mine.

The following data regarding the EL SILENCIO MINE may prove of interest:—

From what I can gather this mine was rather poor than otherwise, previous to its being inspected by Mr. Clemes (1884), when several unproductive works were stopped, others at the same time having been suspended; owing to the difficulties and expense that attended the working of them.

In the early part of the year 1885 the whole country was in the throes of a revolution, which lasted eight months, and caused a total suspension of operations for that period. Near the end of the same year the Company sent out as Superintendent, Mr. Samuel Gifford, who may be said to have commenced a new era in its annals. Under his administration the No. 1 level was commenced, and the depth of the shaft increased from 190 to 220 feet from where the No. 2 level was started north and south. On this side nothing of importance was discovered, whilst to the north minerals in moderate quantities and of good grade were met with. These finds caused work to be prosecuted with increased vigour, and from 20 to 25 lbs. of gold per month was produced by a native mill of 12 heads. The results obtained encouraged the executive to erect another mill of nine heads, and to display increased energy in developing this side of the mine.

The first rich deposit of mineral was found in the No. 2 level north and about 300 feet from the shaft, the end having passed through a cross-course before striking it. This bunch was about 50 feet long, but did not prove continuous either in height or depth to any great extent. From 50 to 60 lbs. of gold per month were won in the year 1888 and during the administration of Mr. Hodge. A continuation of this level beyond the deposit and through a poor lode for some 60 feet exposed another cross-course which was subsequently proved to have thrown the lode 30 feet to the west. The level was continued on a small branch which resulted

in being one side of a loop, the same having joined the main lode at a distance of some 60 feet where it was found to be—one might say—fabulously rich to the south, back to the cross-course, and to the north for a considerable distance. This find was made in the month of July, 1895, it was about 160 feet long, and extended 90 feet above the level. It will be seen later on to where it reached in depth. About the end of the year mentioned (1896), the administration passed into the hands of Mr. Eustice, when the produce of the two native mills averaged from 100 to 150 lbs. per month and in this same year the pieces for the erection of the Maria Dama Californian commenced to arrive.

Sinking operations were continued from time to time and showed that the lode had been heaved to the west. From this point the shaft has been sunk in the country rock, cross-cuts being driven at intervals of about 60 feet and the lode intersected. In 1888 the No. 3 level north and south was commenced. The first in due time struck the cross-course and found on the other side of it a continuation of the rich minerals that were exploited from the No. 2, these containing, if anything, a greater amount of gold than that won from and about the level mentioned.

In due time the No. 4 north and south was commenced. It may be said that disaster attended this and the deeper levels north. Nothing more than what may be called fragments of the rich ore body having been found, driving was continued here and at the No. 5 and 6, these having got away from what was subsequently proved to be the main lode. At present, and as the result of cross-cutting, matters are looking more promising on this side of the mine than they have for some years, there seeming to be little doubt but that the lode will again settle in depth, and it follows, contain rich deposits of mineral.

No. 4 South.—After being driven more than 1,000 feet, and right up to the big cross-course, failed to yield anything beyond minerals of a low grade, whilst the No. 5 struck a very rich ore body about 800 feet south of the engine shaft.

This was discovered in the month of July, 1896, and has been the main stay of the mine from that date up to the present moment. Though not yielding minerals of a richness equal to some of the shoots found north—their abundance more than compensated for any difference in the grade—the lode, at points, having been fully six feet wide and worth from 4 to 6 ozs. per ton, extending for a length of 200 feet more or less, and from a few feet above the No. 5 level right down to the bottom of the No. 7.

The No. 7 Level South has failed so far to open up anything but ores of a very low grade, whilst the No. 8 in the

same direction contains a good lode at points, corresponding to barren ground in the level above.

From the preceding remarks and observations, the following conclusions may be arrived at:—

(*a*) That this is, in miner's parlance, a bunchy mine.

(*b*) That between the bunches there are often long pieces of lode, sometimes very low grade, and at others too poor to exploit at a profit.

(*c*) That the lode will produce rich minerals on one or the other side of a cross-course, and possibly on the both.

(*d*) That the proved conditions of the lode in a level cannot be taken as a guide or indication of what will be found in the one below it.

(*e*) That a thoroughly practical and intelligent miner is necessary in a mine of this kind, where strict attention and a knowledge of the peculiar features in the lodes and formation generally would be sure to prevent a waste of money, loss of time, and perhaps the waves of depression that heretofore, and up to date, have passed over this section of your property. That this has been the case is illustrated by the driving of 60 feet, more or less, on a small hard branch enclosed in a harder rock, and which proved to be a loop.

After an experience of two years and in view of the facts just stated, I have not the slightest hesitation in saying that this mine will prove to be handsomely remunerative as long as vigorous exploratory operations are carried on under the supervision of a thoroughly practical man. This mine is a study in itself, where a slight neglect in keeping up the surveys, or lack of attention in the directions of driving may lead to many thousands of pounds worth of mineral remaining undiscovered. I need not mention that lateral extension must result in an increase of water. This important—all important—matter will be dealt with in this report.

LA SALADA MINE.

This has been so extensively dealt with in former half-yearly reports, that there is really little new that can be said about it. Low grade minerals are still, and will continue to be abundant. Levels have been continued north and south, opening at times, that the lodes contain ores of a high grade, which, from what can be judged so far, have no great extension laterally or vertically. Perhaps the No. 3 level north (bottom of the mine) will prove

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an exception to this, seeing that for some 30 metres we have passed through an ore body varying from 10 to 24 inches in width and worth 3 ozs. per ton. This is probably a continuation of the "shoot" of ore that was exploited by tributers, and subsequently by ourselves, and is a part of the San Joaquin lode, which, of the two that are worked on in this mine, has proved to be the most productive of high-grade mineral.

The flat lode is strong, wide and well formed, but inferior in quality to the one mentioned. On both these exploratory works are being carried on, and, practically speaking, an unlimited supply of ore, worth from 10 to 15 dwts. per ton, laid open.

CROSS CUT FROM ADIT TO SHAFT.—We hope to have put this through before the end of the half year, but owing to hardness of ground and inferior class labour, have been unable to do so, though we may communicate at any moment.

SINKING OPERATIONS.—These, under existing circumstances, are impossible, and will continue to be so until some other system of draining the mine is established. Cars for hoisting water when necessary have been introduced. An extensive series of drains have been cut at the surface. The pitwork has been improved and works in a most satisfactory manner, and everything that can be done has been done to keep out and pump the water from the mine. On the other hand the extension of our levels north and south has inevitably increased the coming water and will continue to do so, leaving us, as far as the chances of sinking go, just where we were two years ago, which means to say that improvements at surface and underground have just been balanced by the increase attendant on exploratory work, and that without those improvements we should long ago have been driven from our deeper levels.

CÓRDOBA MINE.

In this we are able to report a great improvement and complete change in the aspect of affairs since the commencement of the present year. You are aware that nothing of importance was found in the north part of this mine, and that a rise was started in the south on a vertical branch which between the Nos. 8 and 7 adits was met or intersected by the main Córdoba lode, the rise was continued on this and holed to the No. 7 on the 16th March, ventilating the mine and laying open a large section of stoping ground of more than an average quality. Driving in the No. 8 south has been continued and indications of a speedy improvement met with from time to time, at present the end is in a very

soft, wet and disordered strata—the ground at this point being so heavy that we decided to drive around it and in a firmer rock.

This section of the property is looking well to-day, and, if reports are worth anything, should improve as we advance south.

THE No. 8 MAIN ADIT was driven a few metres, and a small but promising lode passed through. Operations were abandoned here through lack of hands, and the finding of good minerals at the point mentioned.

TIGRITO.

The conditions of this mine have varied considerably from time to time during the last six months.

THE No. 6 WEST has continued to open up, though slowly, a fine lode from 15 to 24 inches wide, and worth 3 ozs. to the ton, mineral of this class having been passed through for a distance of 30 metres since it was first struck. Stoping of this has been going on in the back, whilst the bottom remains intact, and will remain so until means are devised for the unwatering of the mine below the adit level.

Developments in the eastern part of the property have not been attended with success. The No. 6 east has continued to open up a well-formed but very poor lode, whilst driving in the No. 5 level in the same direction, has, so far failed to disclose anything of importance.

Between these two a branch which was named Pryor's lode gave some very rich minerals, which proved to be the contents of a pocket. At present this is small and poor. Taken as a whole this mine cannot be said to be looking as well as it did. The No. 6 west still continues to produce minerals of more than an average grade, the only thing wanting being an improvement in the eastern part to better the position, and place matters on a satisfactory footing.

MARMAJITO.

Anything but good fortune has accompanied us here during the time covered by this report, the failure of the No. 2 east to produce or open up minerals having seriously interfered with our calculation, and for the moment decreased the prospective value of this section of your property.

The level mentioned has been advanced 30 metres on a branch that has frequently held out promises of better days, and as often failed to disclose anything of value. Surveys and their

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results led us to think that the main lode is to the north of the present level, and we are cross-cutting in this direction. In the western part little has been done owing to the proximity of the end, which is poor, to the adjoining property. A little stoping has been carried on in the back, and just below the No. 1 level, all work having been abandoned on this or the western side of the adit.

As I have repeatedly stated a scarcity of mineral and the continued poverty of the No. 2 east compelled us to start sinking operations on and into the shoot of ore that had been passed over. It is from these that the greater part of our output is being won to-day, the lode in these bottoms showing no sign of decreasing in size or quality.

Main Shaft.—After considerable delay in opening a place that in due time will hold a pumping gear worked by mules, the sinking of this was commenced and is being successfully continued. It is destined to intersect the lode at a depth of 20 metres, and will drain about 40 metres on the dip of the same.

I would call your attention to the remarks made in former reports re the prospective value of this mine in depth.

THE WATER QUESTION.

The whole future of this property hangs on this and I sincerely hope that you have come to a decision regarding and in favour of starting that deep adit, unwatering your mines and exploring the many virgin lodes that are to be found within the boundaries of your property.

From what I have stated in this Report you will judge that the power for drainage purposes in our mines is a far from satisfactory power and that unless some measures are promptly taken, disaster, sooner or later, must overtake this enterprise.

Sinking operations are not of such vital importance to us as the ability to explore rapidly east, west, north and south. It goes without saying that an increase of water must follow these explorations and before long, to an extent that will not only make it impossible to sink in any part of the property should we care to do so, but will flood our lower levels and ultimately submerge the whole and every one of the mines in which anything is being done below the adits.

I believe that I have had the honour of submitting this deep Tunnel scheme for your consideration, and, convinced as I am that it is the only means of salvation at your disposal, must again impress on you the urgency of the case.

ELECTRICITY.

I have often given my reason for objecting to the appliance of this power here. The cost of transport, distance from one mine to another, and from one mill to another, making the successful use of it very difficult and costly. Using this you would want or ought to have plant and pumping gear (I mention only the mines working to-day) in five mines, to these add Cecilia, and you have six series of pumps and poles, H and door pieces, windbores, and working barrels, lifts and buckets, all of not less than 15 inches diameter. Look at the cost of all this,—the sinking of shafts to receive it, and electric power to run it all! With an adit from the Pocuné valley none of this would be wanted. Once completed you would have the most perfect and economical system of drainage known. A system universally applied wherever the conformation of the ground has allowed of its being carried out, and in countries where high class fuel is cheap and abundant.

That your mines are a safe guarantee for the sum required, be it large as it may, for the completion of this undertaking, has been proved to a demonstration, seeing that within the last two years, more or less, they have yielded a quarter-of-a-million of £250.000
pounds sterling. Good and abundant minerals are to be found in the bottom of our adits. In the bottom of our mines that have shafts the lodes seem rather to improve than otherwise.

Cecilia lode is one of the most valuable on the property. San Esteban lode is untouched, not counting surface scratchings, and there are many others that only await the opening up necessary to yield to you the riches they undoubtedly contain.

The concentration of milling power is at your command in the Pocuné valley, and, in fine, I will repeat that your salvation lies in prompt action and the speedy accomplishment of this undertaking.

Steam Pump.—This is destined not to increase the amount available to-day when rains are abundant, but to keep up the supply in times of drought. You will easily understand this when I state that the carrying capacity of our ditches will not allow of any great increase on the amount running through them during the wet season. Even if they would we should still have the everlasting annoyance, hindrance and expense that has accompanied, and will accompany, the bringing of the water from its various sources to the mines and mills.

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CONCLUSION.

This ends the Fourth Half-Yearly Report that I have had the honour of sending you. Up to date you must feign confess that my views and expressed ideas regarding the value of your property have been more than realised. The improvements made in it both at and beneath the surface are too numerous to mention. Up to date you have been informed of everything for or against that has taken place, or might affect the value of your property, and to the best of my ability. My opinion regarding its future remains unchanged. Work here has been carried on at high pressure during the last two years, with results that speak for themselves. As long as that pressure is maintained and the undertakings mentioned in this Report taken in hand, those results, with unimportant variations, may be expected to continue. As stated six months ago, under the present system of working, waves of depression must and will pass over your affairs. That these waves may be far distant is the sincere wish of

Your obedient Servant,

JNO. PENBERTHY,
Supt.

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Informe semestral de Mr. Penberthy

a Dic. 31, 1898

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

MR. JOHN PENBERTHY'S HALF-YEARLY REPORT.

LA SALADA, *December 31st*, 1898.

To the Directors of the

FRONTINO AND BOLIVIA COMPANY, LIMITED.

GENTLEMEN,

In my former Half-yearly Reports I have had the honour of submitting for your perusal a description of the Cordoba District, followed, six months after, by all the details I could supply regarding the La Salada Mine, and, at the expiration of the first half of the present year I did my best to give you an idea of the leading features of the El Silencio property.

If the following remarks on the locality and extension of your property prove not to be mathematically correct, it is because in the present case it is not necessary that they should be so. My object here is to give general ideas, and, if anything, to endeavour to diminish the importance of certain facts rather than give them a value that perhaps they do not deserve.

Mining rights are held in this country by concessions and "Pertenencias" from the word pertenece, *i.e.*, belongs to or pertains.

The first style, similar to the one that still obtains in Cornwall, is now abolished, mining rights being given to-day under the more modern system of straight lines and others at right angles to them, but even now but little care is observed in the measuring of a piece of ground or in putting up good permanent marks to show its boundaries.

A concession had no particular shape, size or form. A pertenencia is supposed to be a rectangle, measuring 600 metres by 240 metres. In lode mining the peti... is entitled to three of these, or a total of 1,800 by 240 metres, for which he will pay a yearly rent of $2 for each pertenencia, or $6 c/m per annum for the three. The payment of 20 years' contributions at this rate entitling him to the freehold of the property and exemption for all time of any tax or rent.

A placer mine is entitled to an area measuring 5,000 metres by 2,000 metres. This Company owns concessions and pertenencias, embracing both lodes and alluvial deposits, on some of which the 20 years' royalty has been paid, whilst for others, the yearly contribution of $6 is handed to the authorities when due.

What has proved to be the most important concession, so far, is known by the name of the Nemeheme property; roughly speaking, it covers an area of 2,200 acres enclosed within irregular boundaries. It contains the El Silencio and La Salada Mines, both worked on lodes that have yielded very satisfactory profits, with others to the east and west, or on either side of them, on which just enough has been done to show that they are probably as valuable as those that have been more extensively wrought on. These lodes strike north and south, and can be opened on both ways without the slightest risk of getting out of the concession for many many years.

The Córdoba Concession covers an area of 313 acres, and joins the Nemeheme at its eastern side. It contains the mines of Marmajito, Marmajon, El Tigrito and Cordoba, all worked by adit levels, beneath which little or nothing has been done.

The Garibalin property is also a concession enclosed within irregular boundaries, which I cannot find fully laid down in any map, and am consequently unable to give its approximate area, being at the same time fully aware that it is extensive, and, to judge from the number of lodes it contains, and the excavations wrought on them, very rich in minerals. Since this concession came into the hands of the Company, little or nothing has been done in the way of development—a small amount of gold being received from the tributer, who has a lease of the property.

The Juan Criollo Concession joins the town of Remedios and covers an area equal to some 1,000 acres. Remedios once the headquarters of this Company, and I believe ing operations were rather extensively carried on in this part of the property. At present, and for some time past, a little tributing has, and is being done.

Of mines or pertenencias the yearly tribute is paid on about 50, not one of them having ever been worked by their present owners. Of these, say 35 would be on lodes, and the remaining 15 alluvial. (I don't say that these figures are correct, but they are sufficiently so to convey an idea of what the Company possesses). These setts were taken up chiefly for the timber on them, and to compel outsiders to maintain a respectful distance, but apart from this, some of them are very valuable properties. This applies particularly to the alluvial rights, where I may safely say that hundreds of men and women are gaining a living by washing gold, it being literally impossible to prevent them from doing so.

I could not possibly enumerate the lodes that are contained in the properties mentioned and those recently purchased from Mr. Ramirez. In the Nemeheme, Garibaldi and Córdoba Concessions, we have the Nemeheme lode, Silencio lode, flat lode, San Joaquin lode, San Esteban lode, the Betumen lodes, Garibaldi lodes, Cecilia lodes, Borda lode, and undoubtedly many more that I have not seen, and others that, up to date, have been hidden from the eyes of man.

I would submit for your perusal, the following account of the principal work done and results obtained during the past two-and-a-half years.

Law suits, the expulsion of squatters, and gaining of territory for the Company, will be matters that I shall endeavour first to deal with.

My first step here towards the clearing of the Company's property of intruders was the destruction of the Bolivia village, where we were in danger of seeing a town spring up, with all its attendant evils.

On the other hand, permission has been given, subject to certain conditions, to build a house at the "Cruzada," or cross-ing, where the Zaragoza joins the main road, this being a camping ground for mule-men, where it is far better for a store to be kept, subject to the supervision of the Superintendent, than it would be to allow the indiscriminate and illegal sale of liquor. This house is occupied by one Emiliano Ospina, Mr. L. Botero having become responsible for his good behaviour.

After a long series of partial defeats and strong opposition, the Crown lands of which I enclose a plan, were gained for the Company. A copy of the title deeds having been forwarded on the 25th December.

A Contract for three years, which I consider to be very favourable for us, has been made with the Company whose steamers do service between Barranquilla and Zaragoza.

An important piece of ground enclosing the Pocuné watershed was purchased, cultivation abandoned, and the jungle allowed to grow, to our great advantage, seeing that the amount of water from this source has notably increased.

A series of mines, both lode and alluvial, were purchased from Mr. Ramirez, freeing us from what might at any time have proved a troublesome interference, and clearing the way effectively for the realisation of the deep adit scheme.

Great credit is due to Doctor Sanin for the energy and ability displayed by him in the cases mentioned, and it is to him that you are chiefly indebted for their successful termination.

WORK DONE.

New buildings have been erected and old ones repaired throughout the whole of the Company's property and many other jobs put out of hand.

In El Salto the whole of the timber connected with the Pelton wheel has been changed and driving gear renovated.

In Maria Dana six new Frue Vanners have replaced the four that were worn out, a new house has replaced the old one in which the sulphurets were stored. Mud-cells have been changed, mortar boxes also, the building newly floored, amalgamating tables renewed and a capacious bin built for the reception of mineral.

The pig-stye kind of kitchens that I found here have been replaced by clean and decent institutions, whilst the sleeping apartments for men and women have been put on something like a respectable footing.

No. 3 Mill of 9 heads has also been rebuilt and a calcining furnace erected for the treatment of sulphurets.

In El Silencio a deal of surface work has also been accomplished. New kitchens and mess rooms have been built. A good dwelling house for employés has been put up. A new and capacious smith's shop has been erected; new poppet heads built; "horses," carrying over-shot wheel secured, and a superior building for Englishmen put up in the place of the one that was destroyed by fire. Baths have also been arranged for workmen and employés.

At the same time a series of drains have been cut over the whole of the surface with most satisfactory results, both in El Silencio and La Salada Mines, particularly in the first, where, as you have seen from monthly reports, sinking operations have been successfully carried on.

In La Salada and San Joaquin, new kitchen and mess room, with a house in which all the sulphurets, formerly scattered about the place, is stored, have been built.

Four new Frue Vanners have replaced the old ones, and steps are being taken to shorten the wire driving rope and increase the power. Towards the realisation of this a tunnel has been driven and masoned throughout.

A new wheel pit and loading for balance-bob have been built, and the whole of the surface part of the pumping gear changed for new and more substantial work than previously existed.

Smith and carpenter's shops have been built for workshop department, and offices for Mine Agent and head of shops erected.

The official residence and offices of the Company have undergone thorough repairs, costing about $10,000. The old hospital has been turned into a dwelling house, and what was a superior sort of habitation made into a decent hospital. New rooms and buildings have been erected at the La Salada Farm homestead, and the assay and reduction offices re-built.

In the Córdoba District a 16-head Californian Mill, removed from Cecilia, has been erected. A 16-head blanket mill with overshot wheel for same was completely renewed, and the 9-head Major Mill was pulled down and replaced by a twelve with new overshot wheel. Store for sulphurets has been erected, also mine office, smiths' and carpenters' shops, a new dwelling for employés of a superior class and in a healthy locality being now nearing completion.

Extensive repairs have been carried out on the ditches and the Ponos Aqueduct (which entailed an endless expense) taken down, the water having been easily brought around the head of the valley. A good and comfortable house has been built on the Mañon Farm where the staff employed on the steam pump reside. This last is well on the way towards completion and ought to be ready to work by the end of February. Last, but not least, a store for explosives has been built on the most approved lines and is the only stone and mortar building in the place.

A tabulated statement to be found further on will show you that exploring operations in our mines have not been neglected.

Unfortunately breakages and the lamentable state of the pit-work in El Silencio submerged the deeper levels of that mine for a period of six months more or less, otherwise our exploring record would have been much greater than it is. Since then the whole of the pumping gear and rods have been

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re-arranged and changed. A new skip-road (double) laid down. New and smaller skips successfully introduced. Over 1,000 metres of tramroad changed or added, that from shaft to mill, a distance of some 400 metres, having been, with the ..., completely renewed.

... tramway has also been laid in Donagan's Adit, and from ... mill about half the distance to the mill.

In La Salada Mine the most important work undertaken ... completed was the driving of the cross-cut from Main ... shaft, which proved to be a long and costly job. I need ... well on the advantages we are already deriving from this, ... he greater ones that will be felt in the future. Much ... ing of tramroads, laying of new ones, and improvements ... pit-work could be mentioned. And also the poppet ... and bins, which, though ordered previous to my arrival, ... erected and utilised after I had taken charge.

In the Córdoba District much driving has been done ... and shaft sinking commenced in the Marmajito Mine, where room has been made (underground) for the erection of a pumping plant to be worked by mules.

Jobs without number and of minor importance might also be mentioned, but I think sufficient has been stated to show that many improvements have been introduced, and the work necessary for the keeping of the different departments in good working order carried out satisfactorily.

Whilst being engaged in the many undertakings mentioned, results show that the produce for the period covered by my administration have been, I am willing to believe, very satisfactory.

In Maria Dama we have milled mineral amounting to			41,333 Tons.
These have produced of amalgam	5,655.55 lbs.		
And of dust	928.43 „		
In La Salada we have milled ...			25,803 „
These producing of amalgam...	2,266.90 „		
And of dust	163.67 „		
In Córdoba we have milled			35,693 „
These producing of amalgam...	1,728.91 „		
And of dust	2,954.86 „		
Tributers. Dust and amalgam	291.05 „		

These amounts added to the sums credited on account of exportable sulphurets represent the following values :—

June to December, 1896	£66,555	19	7
January to June, 1897	52,214	11	3
July to December, 1897	67,054	9	9
January to June, 1898	66,943	13	0
July to December, 1898	66,343	6	11
Total ...	£313,111	0	6
From which deduct the total cost, including, say £300 per month for home expenses ...	188,440	2	4
And you find that during the last 30 months the profits have amounted to ...	£124,670	18	2

The following data have been supplied by the agents and are intended to show the amount of work done in your Mines from June, 1896, to December, 1898.

	Metres	cs.	Metres	cs.
El Silencio Mine.				
Sinking shafts and winzes ...	157	10		
Driving (mid-levels included) ...	1,478	30		
Rising	296	40		
Stoping	9,742	05		
			11,673	85
Donagan's Adit.				
Driven	203	70		
Rising	95	00		
Stoping	52	60		
			351	30
La Salada.				
Sinking (winzes)	70	00		
Driving (mid-levels included) ...	571	67		
Rising	348	41		
Stoping	5,101	82		
			6,092	80
Córdoba District.				
Sinking (shafts and winzes) ...	120	60		
Driving (mid-levels included) ...	2,169	66		
Rising	1,094	02		
Stoping	12,256	19		
			15,669	87

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Resumé.	Metres	Metres	£ s. d.
Total sinking	348	60	
„ driving	4,432	73	
„ rising	1,833	83	
„ stoping (cubic metres) ...	27,152	66	
Grand total metres equal to 18,475 fathoms ...	33,787	82	33,787 82

MILLS, SULPHURETS AND SLIMES.

The following tabulated statements are intended to show the movement in sulphurets during the last six months, and value of the stock in hand.

Maria Dama—Californian Mill.

Exportable.	Tons.	Value $ Gold.	£ s. d.
Stock on July 1st, 1898, raw	187.205	11,501.20	
„ „ „ calcined	9.500	972.32	
	196.705	12,473.52	
Produced in the half-year, raw	102.000	4,861.55	
„ „ calcined	30.950	2,635.90	
	329.655	19,960.97	
Exported during half-year, raw	40.848	2,404.50	
„ „ calcined	25.178	2,323.52	
	66.026	4,728.02	

Resumé.			
Stock July 1st, and produce of half-year	329.655	19,960.97	
Exported during half-year	66.026	4,728.02	
	263.629	15,232.95	3,046 11 9

Non-exportable Stock—		Gross Value $ Gold.	
July 1st, 1898	293.688	37,544.55	
Produced	27.000	4,032.45	
	320.688	41,577.00	
Calcined	41.000	5,503.90	
Total non-exportable stock	279.688	36,073.10	7,214 12 4

La Salada—

Non-exportable stock,	Tons.	Gross Value $ Gold.	£ s. d.
July 1st, 1898	331.050	29,332.55	
Produced in half-year ...	126.675	10,940.04	
Stock	457.725	40,272.89	8,054 11 2

Marmajito Mine—Sale Slags—

Exportable.		Net Value $ Gold.	
Stock July 1st, 1898 ...	0.128	184.04	
Produced	0.401	128.83	
	0.529	312.87	
Exported	0.306	195.54	
Stock	0.223	117.33	23 9 3

Córdoba.—Californian Mill.

Non-exportable.		Gross Value $ Gold.	
Stock July 1st, 1898	18.000	1075.62	215 0 2

Note.—Treated by Arrastre.

RESUMÉ.

Exportable stock.	Tons.	Net Value.	£ s. d.
Maria Dama ... raw	218.357	$13,918.22	
„ „ calcined	15.272	1,284.70	
Marmajito	0.223	117.33	
Total Stock	263.852	15,350.28	3,070 1 1

Non-exportable.	Tons.	Gross Value.	
Maria Dama	279.688	36,073.10	
La Salada	457.725	40,272.89	
Córdoba	18.000	1,075.62	
Total Stock	755.413	77,420.91	15,484 3 9

Exported during the Half-year.

	Tons.	Gross Value $ Gold.	Net Value $ Gold.
Maria Dama ... ... raw	40.848	7,510.05	2,404.50
„ „ calcined	25.178	5,470.57	2,323.52
Marmajito	0.306	233.96	195.54
Total	66.332	$13,215.58	$4,923.56
		£2,643 2	£984 14 2

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Of slimes, some 8,000 tons, worth from 4 to 6 dwts. per ton, were saved during the half-year from the Maria Dama mills, and 4,000 tons, more or less, worth from 2 to 4 dwts. per ton, from the Córdoba Californian mills. From La Salada crushings little has been saved, that produced lying in the bottom of the stream and available when required.

Now it is a recognised and established fact that in these mines—and after attaining a depth greater than that reached by atmospheric agencies—where there are no sulphurets there is no gold, and that were all the sulphurets separated from the slimes these last would not be worth saving. The mine assays show the pyrites to be worth anywhere between 4 ozs. and 100 ozs. per ton, 24 ozs. per ton being about the average in the El Silencio mine and Córdoba district. In passing through the mill, the amount of gold retained in the boxes and on the plates varies, generally according to the grade of the ore, a certain portion invariably getting away in the slimes, which, after concentration by Frue Vanners, and re-concentration by hand, yield us pyrites worth from 6 to 8 ozs. per ton in Maria Dama, and from 3 to 5 ozs. per ton in Salada and Córdoba. This gold fails to get caught in the mills, owing to the fineness of the particles, which are probably coated with a film of non-amalgamating matter, their smallness being sufficient to allow them to pass through the screens, and the film allowing them to roll down the plates and find their way to the Frue Vanners, the number of these not being sufficient for the successful treatment of the slimes, or separation from them of the whole of the sulphurets they contain.

At present we have six Frue Vanners in Maria Dama Mills, these being totally inadequate to the requirements of the case, formerly only four of these tables were in use, two having been added during the present year. With these we are able to concentrate and save about 25 tons per month, or say, at the most, half the quantity that flows away from the mill where there ought to be, in my opinion, a succession of tables in which the last of the series should fail to catch or retain anything, for the reason that the sands had been deprived of all the value they contained before reaching it. In the La Salada mill we have four Frue Vanners to which the remarks made re those in Maria Dama can be applied, and in Córdoba buddles, which, whilst concentrating to a certain extent, give far from satisfactory results. Altogether we are saving about 45 tons per month, some of which will pay for exportation, some of which won't. The gross value of the whole, putting the ounce fine at £4, and the mean grade at 5 ozs. to the ton,

being £900, which sum, with the necessary plant for the saving of the whole of the pyrites that goes through the mills to-day, could be easily doubled.

It goes without saying that in our native or blanket mills the failing to retain all the gold is even more marked than in the Californians, where, as you are aware, amalgamation with mercury is the all-important factor and retains more bullion than could possibly be held fast by blankets. Now, although as a natural result the tailings from these contain a comparatively higher percentage of the precious metal, this does not mean to say for a moment that the unextracted gold is lost, the contrary being the case. The sands from these mills is saved and after a process of natural disintegration and the decomposition of those parts susceptible of atmospheric action, are again run through the mill with very satisfactory results. As you have already been informed in former reports, the tailings from the Maria Dama Mills were not saved previous to my arrival here, since when 36,000 tons have accumulated, to which add some four or five thousand tons saved from native mills some years ago and you have a total of, say 40,000 tons, which, worth 6 dwts. per ton, represents a gross value of 12,000 ozs., which, at £4 per ounce, shows that that pile of sands contains sulphurets worth £48,000.

In my opinion, all this points to the necessity of sufficient concentrating power, and some means of extracting the gold from the sulphurets on the spot.

I believe it to be an old, if not universally accepted saying, that anything can be proved by figures. If this applies anywhere, I am sure that in many cases it does to Mill sheets—a knowledge of this causing practical and level-headed men to pay far more attention to results—solid, practical and tangible results—than to rows of figures, sums of addition, multiplication and subtraction, and a lot of nice-looking lines and calculations, by which the Millman would fain convince you that his milling is the acme of perfection, whilst that of his predecessor, or man he aims to injure, if in the same business, is shown up as a specimen of incapacity and ignorance.

Results may be real solid results, or results on paper. The first is the bullion won on, say a month's run, the last the amount that ought to have been won according to assay, which, in the majority of cases, proves to a certain extent misleading, and which, to be otherwise must be attended to with a detail practically impossible where the sample taking, &c., must, perforce, be left for some time, short or long, in native hands,

We take samples here from cars of mineral, each car being supposed to contain a given quantity, which it does not, some cars are much fuller than others, and, in fact, the weight contained must be continually varying.

We also sample our tailings, and we get on the whole something like sensible results, though I have more than once seen a Mill, according to assay, produce £1,000 worth of gold more than it ought, and on other occasions show a deficiency of an equal amount. Though results that would agree with assays would be most satisfactory, I do not see the vital importance of them in this place, fair assays of the tailings always telling us where we are.

I value a mill sheet more as a record of the work done and time lost than for milling results according to assays, that, in spite of every precaution, vary in a most unaccountable way, and point to most contradictory results. As a means of showing the hours lost in repairs, and amount approximately milled, a record is valuable, and I am proud in being able to state that those kept here prove that, with rare exceptions, our mills run from one month to another without let or hindrance other than that caused by circumstances beyond our control. Our mills are and have been, as results have shown, in first-class order; repairs have been attended to on the days dedicated to repairs, and, as far as the mechanical part of the milling goes, I am sure that all has been done that can be done to maintain a high state of efficiency.

Samples repeatedly taken from slimes show them to be worth according to assay, 3 and 4 dwts. per ton, this test being, in my opinion, the best test of an amalgamator's capacity.

According to assays we get the following results:—

MARIA DAMA MILL.—Mineral worth 1.15 oz. per ton. Tailings worth 4 dwts. per ton, equal to 88.57 per cent. of gold saved.

CORDOBA MILL.—Mineral worth 1.5 oz. per ton. Tailings 3 dwts., gold saved 88 per cent.

LA SALADA.—Mineral worth 1 oz. per ton. Tailings 3 dwts., 85 per cent. of gold saved.

I should call these averages a little high, and say that of the gold mined 75 per cent. is caught in the mills and 25 per cent. inevitably allowed to go away locked up in the sulphurets, which are again locked up in the sands.

At present, and for some time past, our mills have been run by Englishmen, with results that are and have been apparently very satisfactory.

A RETROSPECT.

I am willing to believe that the half-year that terminates to-day, has been to you a satisfactory one from every point of view, seeing that whilst pushing on exploring and preparatory work, in which no cost has been spared, we have produced £66,340 7s 1d worth of bullion, and left a profit after deducting the cost here and at home of £26,366 4s 3d. When you look at the fact that the very serious accident to the steam hoist in La Salada, practically stopped the Mine for 76 days, and lessened our produce by at the least £3,800, you will see that but for this misfortune we should have beaten all records, and this fact, supported by the produce of the two previous years, is surely proof sufficient of the accuracy of the forecast made by me 30 months ago and frequently repeated since that time, as to the value of your property.

Here and when on the verge of relinquishing the direction of your affairs, I would repeat what I have often stated, *viz.* that this property is in its infancy, given that prompt measures are taken to apply the means to enable you to explore freely, and without the fear of drowning the far from adequate pumping gear, by which the Mines are kept dry to-day.

I am leaving this with the grand satisfaction of knowing that the mining world has during my administration been made aware of what it seems to have been previously ignorant, and that is the immense value of the property, which in the hands of go-ahead and pushing men here and at home, will in a few years be the successful rival of all other gold mining enterprises in the Spanish Americas.

During the time that this report is intended to cover, we have had various sharp fluctuations in the value of the Mines, this applying particularly to El Silencio, where the poverty of the principal ends caused—from a business point of view—a temporary falling off in the value of the Mine, the same never having given the least cause for anxiety to those who know the property and wished for its prosperity. We could always see places that at the expiration of a given time, and after certain points were reached, were bound to prove productive and they have proved productive to an extent that has enabled us without anything like extra exertion to whip all records. This Mine has been worked vigorously—exploited vigorously—and explored vigorously. The results of this system speak for themselves, and I believe compare favourably with the over-cautious style, said to be previously observed, of taking a pinch of stuff

now and then from a rich point and so maintaining a certain degree of prosperity without much real hard work and less pushing. To maintain results equal to those realised in the near past it will take all a man's time, much energy and more attention.

You are aware that sinking operations have been carried on successfully. That the depth of the mine has been increased by an eight fathom lift., *i.e.*, from the No. 8 to the No. 9, below which we are sinking. A winze on the lode has been kept, more or less on a par with the shaft and has shown that we are opening up a very valuable and extensive ore body in and around this place. The hoisting shaft has also been completed to the No. 8 from where the skips are taking their load when required.

In La Salada Mine.—A very rich though small shoot of ore was passed through by the No. 3 level north, which in the month of July, and with the assistance of other points, enabled us to beat all previous records of this section of your property; subsequently the end became poor and there being no level nor the chance of making one below the No. 3 for some time, we are sinking and stoping in the bottom where there is a fine lode and nearly a total absence of water,

The Córdoba District has presented no remarkable features. In Marmajito the No. 2 east has continued poor. The sinking of a vertical shaft has been continued, and the points being exploited below the main adit level more than sustain their reputation as producers of rich minerals.

In El Tiquito the No. 6 west has continued to open up valuable ground—the end never looking better than it does to-day.

Córdoba Mine has failed to come up to expectations, a cross-course having disordered and impoverished the lode at every point where it has been intersected. As often stated in monthly reports, very rich minerals are said to exist south of the farthest point reached by us. Nothing could possibly be more gratifying and desirable than to prove practically that this is the case.

Donahan's Adit still continues to open up large quantities of low grade mineral.

Work at the Surface has been carried on in much the

usual manner. Excepting the erection of the centrifugal pump, I may say that no job of great importance has been undertaken. A big excavation for this was made, the whole plant transported from Zaragoza to its destination and the work connected with erection, masonry, &c., &c., more than half completed.

A new building of a superior class has been completed in Mañon, and another after the same style commenced in the Córdoba district where the accommodation for British workmen was not too good. Of course, our most serious undertaking during the half-year was the repairing of the parts of the steam hoist which got smashed. This was successfully done, the engine working as well as ever it did.

Preparations for shortening wire driving rope at La Salada are getting ahead slowly, and a smashed Pelton wheel was repaired after a stoppage of 111 hours.

I need not mention in detail the many jobs of minor importance that have been attended to during the half-year.

DITCHES.

I am proud in being able to state that in these, accidents of a serious nature have been conspicuous by their absence. This may be owing to the division made in the distance which at one time one man was entirely responsible for, he having had charge of the whole water courses from here to the water sheds of Pocuné and Tías. Since putting on another staff, who answer for the whole system from the San Antonio Aqueduct to the Mills and Mines, breakdowns such as troubled us heretofore have been absent. At the same time, and although we have had many heavy storms, the rainfall has been more uniform, month for month, than during the corresponding half of the year '97, when, if I remember rightly, we gauged 95·56 inches. Then our heaviest shower gave us on the 21st October six inches of rain in a less number of hours, and came near invaliding myself and some of the members of the staff, who were about in the whole storm and after. During the six months that ends to-day, our heaviest rainfall was on the night of November 22nd, when the gauge marked 3.85 inches.

We had breakdowns on the 4th July, 11th August, 13th August, 19th August, 8th September, 21st September, the most serious of the series, but still not to be compared to the majority of those by which we were punished during the last half of the previous year.

RAIN.

The following statement will show the monthly and total amount of rain :—

July	15.07
August	20.13
September	18.82
October	18.24
November	17.28
December	3.89
	94.63

Undoubtedly the steam pump now approaching completion in Mañon will be a most valuable help should this be at any time again visited by severe drought, though there is not the least doubt but that the increased quantity of water from the Pecune watershed will help to greatly minimise the evil. In fact, with this and the water that can be sent into the ducts by the machine mentioned, I don't see that there is the least reason to fear a repetition of the distress we were in during the early part of the year 1897, when no rain fell for more than 90 consecutive days. Since that time the rainfall has been more regular and abundant; so much so that, even during the whole of the year just ended, but little inconvenience or loss has been felt for lack of water.

PRODUCE.

The following tabulated statement gives a resumé of the six months' produce, cost and profit, which, although mentioned in monthly reports, will refresh the memory of the reader, and prove to a demonstration that the mines have shown themselves quite as capable as ever of producing bullion, for, and as stated in a former part of this report, we should have beaten all records had the La Salada steam hoist not gone wrong.

	Produce.	Cost.	Profit.
	£ s. d.	£ s. d.	£ s. d.
July	11,801 9 9	6,691 13 7	5,109 10 2
August	11,120 10 7	6,913 0 11	4,207 3 8
September	9,810 18 10	6,005 2 8	3,805 16 2
October	10,025 17 5	5,799 16 10	4,226 0 9
November	11,160 13 1	6,378 12 7	4,782 0 7
December	12,422 17 3	6,385 10 3	6,037 6 11
Home cost, not included	£66,340 7 1	£38,174 2 10	£28,166 4 3

HEALTH.

The bill has not been so clean as one could have desired. Many of the Britishers have been down with fevers and other ills to which poor humanity is liable, but none of them seem to have been of a serious nature, barring an illness from which the writer has completely recovered, and which, at one time, threatened to provide a corpse for a funeral. The smallpox has played sad havoc among the poorer classes here—in Remedios, and outlying districts, where it seems to have died out for the lack of victims. In Segovia something like a hospital was established, where cases were, to a certain extent, isolated and fed from this Company's depôt. We are willing to believe that this prevented the spread of the disease, for in Remedios no other step or measure was taken than that of compelling every stricken house to fly a red flag, with a result that stuff of that colour ran to a premium, and the town looked gay; for few and far between were the houses that had not the emblem floating over the roof or hanging in front of the door.

WORKMEN.

We have had no reason to complain of the number at our disposal, which, with a few exceptions, have been sufficient for all our needs, though at present, and as usual at this time of the year, we are short-handed.

During the half-year the total number of hands has been greater than it ever was before. Sinking operations, and the many exploratory works in El Silencio; investigating and preparatory undertakings in the Córdoba district; new house and excavation for centrifugal pump in Mañon; new tramways; and other undertakings, have given employment to a proportionately larger number of men, whilst the high rate of exchange has enabled us to carry out work at less than a proportionate increase in the cost.

TIMBER.

On this little need be said—the consumption is enormous and continues to increase.

We spent in the first half of the year	$61,907.40
and in the last	73,675.40
Showing an increase of	$11,768.00

Prices have not varied in the least, but the consumption, particularly at the surface, has been comparatively large.

HOSPITAL.

As you are aware "Our Doctor" returned from Europe in the early part of the period of which this report is intended to treat, since when I am not aware of anything notable having taken place in his department. The building in which the sick are housed is in good repair and meets all requirements.

From January to June we spent ...	$4,874.80
And in this last half	5,603.59
	$728.79

This increase being entirely due to the higher pay of Dr. Villamizar when compared to that gained by his locum tenens.

FUEL.

We are still getting a full supply of this by the usual means, *i.e.*, women carriers, of which there are a sufficient number. Naturally, the price of transport increases in proportion to the distance from which it is brought. The consumption is about the same, added that consumed in calcining operations.

The following statement is intended to show the position to-day, the amount in stock being probably far from accurate owing principally to the ever-varying amounts consumed in the steam hoists, and to other causes such as wet timber, dry timber, many feast days, or otherwise, rainy and dry seasons.

Stock in hand, June 20th ...	1,182,943 lbs.
Received during the half-year ...	3,590,079 „
Total	4,773,022 „
Consumed	3,137,389 „
Stock on December 20th, 1898 ...	1,635,633 lbs.

Total cost including weighers' pay ... $9,979.70
Total cost per 100 lbs. $0.25
Total cost per ton of 2,000 lbs. $5.00

In my report for the first half of this year, I find an error in the price per ton of fuel. It should read $6.80 per ton of 2,000 lbs.

TRIBUTERS.

These show a decrease in the returns when compared with the first half of the present year, there being, at the

same time little of interest to communicate *re* this branch of the industry.

The Maria Dama stream has been worked for gold by Juan L. Franco with anything but brilliant results.

Palmichala is in the hands of the same person, and has produced nothing.

Cecilia Mine fell off considerably in produce during the half-year. Florencio Piedrahita is still the man in possession.

Old Tigrito shows a respectable increase and is still being worked on tribute by the above-mentioned person.

Garibaldi has been again rented to Rafael Vargas for two years, the conditions being the same as those of his first contract. His returns show a notable decrease.

Victoria Reina still continues to produce a little dust, but shows a decrease when compared with the previous half-year.

Popales.—Nothing more has been done here, it not being possible to stream for gold without prejudice to the French Company, consequently, the $381.68 and some $100 more, advanced to assist the Tributer in his difficulties, may be looked on as a bad debt.

COMPARISON OF PRODUCE.

Mines.	First half 1898	Second half 1898	Increase.	Decrease.
	$	$	$	$
Palmichala ...	299.60	...	...	299.60
Cecilia	333.30	143.10	...	190.20
Tigrito	2,347.25	3,273.40	926.15	...
Garibaldi	5,576.30	3,270.45	...	2,305.85
Victoria Reina ...	489.20	363.25	...	125.95
Streamers and San Esteban ...	455.70	...	...	455.70
Maria Dama Stream	736.02	924.80	188.78	...
Total... Gold	$10,237.37	7,975.00	1,114.93	3,377.30

Decrease of produce for the half-year $2,262.37, equal to £452 9s 5d.

Biblioteca Sala de Patrimonio

COMPARISON OF ROYALTIES PAID.

Mines.		First half 1898	Second half 1898	Increase	Decrease.
		$	$	$	$
Palmichala	10 %	29.94	...	...	29.94
Cecilia	20 %	66.65	28.63	...	38.02
Tigrito	20 %	469.46	634.68	165.22	...
Garibaldi	20 %	1,115.29	634.11	...	481.18
Victoria Reina	20 %	95.86	72.67	...	23.19
Maria Dama Stream	25 %	184.62	231.18	47.16	...
Total...	Gold	$1,961.22	1,601.27	212.38	572.33

Total decrease, Gold $359.95 = £71 19s 1d.

The following tabulated statement will show the mill produce for the first and second half of the year that closes to-day :—

COMPARISON OF MILL PRODUCE.

	First half 1898.	Second half 1898.	Increase.	Decrease.
Maria Dama Californian ...	6,301.61	11,593.62	2,231.11	ozs.
Native Mills ...	1,419.49	2,102.17	682.68	...
La Sabila Californian ...	3,809.93	3,637.81	...	172.12
Native Mills ...	191.54	201.63	10.09	...
Clarita Californian ...	4,972.76	3,302.82	...	1,669.94
Native Mills ...	3,749.76	5,489.06	1,739.30	...
El Sabo Arrastre ...	184.73	181.98	...	2.75
	23,720.84	26,708.49	4,663.48	1,675.83 ozs.
			1,675.83 ozs.	

Showing a total increase on the second half-year of 2,987.65 ozs.

THE MINES.

EL SILENCIO.

During the half-year that terminates to-day very fair progress has been made in this section of your property, both from a preparatory and exploratory point of view, operations having been greatly facilitated by the absence of serious breakdowns and the very notable decrease in the quantity of water which may be

attributed to the dam that successfully raises the water, which previously found its way into the deeper part of the Mine, from the old adit to the new, and to the results obtained by the extensive system of surface drainage that has been established.

Main Engine Shaft.—An 8 fathom lift has been completed and the shaft continued below the bottom or No. 9 cross-cut. Favoured with a continuation of the conditions that have obtained during the last few months this lift—*i.e.*, from the No. 9 to the No. 100—ought to be completed early in 1899.

No. 9 Cross-cut has intersected a fine and well-formed lode, worth from 3 to 6 ozs. per ton, showing the accuracy of the forecast that I made re this point in my report for the first half of the present year. It would not be easy to overrate the value of this discovery, which being made in the bottom of the Mine and, say, 650 feet from the surface, shows that the lode is as sound and vigorous as it ever was, and that you have at this point minerals quite as good in quality as any that have ever been found in the mine. (I of course allude to the pure pyrites with which the lode is impregnated, and which are of a very high grade.)

No. 8 Level North and South.—The engine shaft being served by nothing more than a horse-whim, you will understand that our hoisting power here is a very limited power; to this we owe our inability to prosecute, simultaneously, operations in many points, and to this cause must be attributed the stopping, *pro tem.*, of the north end, where work has been resumed within the last few days, and where there is a very promising lode about 1 foot wide. The south end after passing through an ore body—picked stones from which showed the clean pyrites to be worth more than 100 ozs. to the ton—entered the cross-course to be seen in No. 7, and the disordered ground accompanying it, from which it seems to be just emerging, the present end containing what seems to be the lode, which, though naturally in a very disordered state, holds out hopes of something better in the near future. It will be wise to bear in mind that the No. 7 level south passed through a considerable extension of unproductive ground, whether this was owing to the poverty or absence of a lode, or whether this is still standing intact in the eastern side remains to be proved. (See No. 7 south.)

Hoisting Shaft has been sunk from the No. 7 to the No. 8 level and skip-road fixed, enabling us to hoist from this point when required. To the completion of this we are indebted for a renewal of work in the No. 8 north.

Sump Winze in the bottom of the No. 8 is now equal in depth to the shaft or No. 9, and driving has been commenced

north; the speedy communication of this end with the No. 9 cross-cut is desirable, and will make available a very valuable, though, up to date, not very extensive, section of stoping ground. This sump winze has continued in a good lode for its whole depth, this not having been yet intersected in the No. 9 cross-cut. Before passing to the upper levels, I would call your attention to the exceptionally good results and splendid prospects that have been opened up in these bottom levels.

No. 7 South.—A glance at the plan will show you that this level bears no relation to the two above it in the direction it has taken, which makes it just possible that the main lode is to the east of us. We are at present engaged in proving this by cross-cut, which, should it cut a lode, will show that the No. 7 as it is to-day must be in no wise taken as a precedent for the No. 8. This level has been holed to the big bottoms that were underhand stoped from the No. 6, and from which an end was started north to meet it. Communication once made, the level was soon formed through the workings, and explorations commenced in the virgin ground south of the bottoms referred to, where operations have been suspended for some months, leaving a fine bunch of ore to be penetrated by the No. 8 south. A continuation of the end (No. 7 south) has been attended with very satisfactory results, the forebreast showing to-day a lode 3 feet wide and worth some 2 ozs. per ton, much richer material having been previously passed through. A winze sinking behind the present end shows the lode to be of a fair width and more than average quality in the bottom. Stoping operations are in full swing between this and the No. 6 south, which proved for rather a lengthy period to be disappointing. During the last two months a narrow lode of good quality has been exploted, opening up at the same time stoping ground from which rich minerals have been won. Bearing in mind the situation in the ends above, we cannot expect a very extensive run of productive ground at this point.

Nos. 5 and 4 South.—In the both of these the largest cross-course seen on the property was encountered. This was passed through and a lode found, which we suppose to be the main one, but which, for the time and length it was driven on, gave anything but satisfactory results. A serious increase of water, and the fear of releasing larger quantities, caused us to suspend operations at these two points, we deciding that sinking operations held out far greater hopes of good results than driving on a chance, and entailing the risk of drowning the mine. The two ends of which I am writing would soon have been under the San Joaquin Valley, where there is much water, I would advise that they be left un-

touched until other than the present means of keeping the mine dry has been adopted.

No. 3 Level South.—Beyond keeping this in good repair up to the cross-course, nothing has been done here. A rise started in the back has been continued and a level driven south from it. Much mineral of a moderate quality has been exposed, this undertaking being apparently destined to open up a very large section of a lode that is sure to vary in quality, but will always pay to exploit.

Adit Level South is being continued in a fair lode, this applying both to quality and size. Below this and in the old adit a brick and cement dam has been built, and the water that previously found its way into the mine successfully kept out.

No. 8 North has been already dealt with, and as before stated contains a fair lode.

No. 7 North.—The level proper, as can be seen by plan, was driven in what proved to be a direction that increased its distance from the lode, which developments in the No. 6 showed to be standing to the east; a winze from the level above having proved this to a demonstration. As will be naturally supposed, we are now cross-cutting in that direction and ought to cut the lode some time during the coming year.

No. 6 North.—After having opened up valuable stoping ground, passed through a hard piece of barren country, and duly picked up a continuation in depth of the lode that has rendered, and is still rendering, such good results in the level above. The lode, so far, has proved to be poor and continually varies in width, a further advance being necessary before high grade minerals can be expected.

No. 5 North has seen many vicissitudes during the half-year, but whenever it has produced mineral that mineral has invariably been of a very high grade. After passing through the last cross-course encountered, the end advanced in a rich lode, which in the latter part of the year became split into many branches, none of which are more than an inch or two in width, that inch or two being made up of very valuable stuff. In the bottom of this level we are sinking a winze in a rich lode which, whilst proving the ground, is making assurance doubly sure regarding what we shall, in due time, overtake in the No. 6, more than probably in the No. 7, and possibly in the No. 8.

East Lode.—This was previously intersected by cross-cut from the No. 4 level, and minerals of more than an average grade

exploited from it. During the present administration the same lode has been cut by cross-cut in the No. 5 south, from which a rise to the No. 4 has been commenced. This lode is inferior as a producer of large amounts of mineral but the quality of what it does yield is invariably high, the last sample having given, according to assay, 16 ozs. to the ton, which we consider to be much more than it is worth. This lode varies in size from 6 to 12 inches in width, and is enclosed by a hard rock on either side. What this may prove to be in depth it is impossible to say, but indications go to show that there is a lode in the hanging or eastern side of the whole south part of the mine. Water highly charged with minerals in solution percolates from this wall where-ever it has a chance of doing so, leaving a deposit of mineral in its wake that in my opinion points to something that in all probability it will pay to find.

Bolivia Cross-Cut was driven previous to my arrival here, and with the object of cutting lodes known to exist to the west. Nothing has been done towards the completion of an undertaking that I never approved of, believing it to be far more judicious to prove your lode at the surface and in the upper levels before starting to search for it in the deeper ones. On the other hand there is always that watery bugbear, if I may be allowed to use the term, staring you in the face, whilst at the same time the El Silencio mine offers far more promising "specs" than cross-cuts west ever will, this opinion seems to be confirmed by results obtained in

DONAGAN'S ADIT,

which is on the lode towards which the cross-cut was driven. This is the strongest lode in this section of your property, and may perhaps be correctly called the mother of all the rest, but it never was a producer of high grade mineral, the pyrites which are sometimes abundant—being invariably of a very low grade. In this little mine we are laying open very large quantities of low grade mineral; finds of anything like the rich shoots in El Silencio being conspicuous by their absence.

In these mines a shoot of ore—big or small—once found has been vigorously exploited, and the proceeds divided between the cost of still more vigorous exploratory operations and the shareholders.

LA SALADA.

Monthly reports have kept you informed of what has taken place in this mine during the half-year that terminates to-day, which has been marked by two events of importance, *i.e.*, the finding of rich minerals in the No. 3 or bottom level north and an accident to the steam hoist. The first enabled us to beat all records in the early part of the half-year, and the second threw the mine idle for seventy odd days. Outside of these nothing worthy of special observation has transpired, the mine being as good as ever for an abundance of low-grade minerals, which, added to the rich shoot of ore in the bottom, puts this section of your property in a position superior to any it has occupied during the last three years. Whilst having discovered this rich deposit the adit end south has been advancing in a well-formed lode, averaging, at the least, 3 feet in width and of an assay value of from 1 to 2 ozs. to the ton. Looking at the position of this end, and the fact that it must come up at a depth considerably greater than the deepest point in the old mine, I am not afraid to prophecy a great future for this point, which ought to be pushed ahead with all speed.

The other ends that have been driven more or less vigorously have presented no especial features. Those south have added to the quantity of low-grade mineral that was already exposed, whilst those north, and with the exception of the No. 3, have been characterised by disappointing results rather than otherwise. This last (No. 3), after passing through the rich deposit, explored very poor ground, which, during this month, seems inclined to give place to an improved condition of affairs. You are aware that a costly undertaking in the shape of a cross-cut from the main adit to shaft, a distance of 120 feet, has been completed. (Feet will be used here, thinking it will enable you more easily to grasp the situation.) This cross-cut, when made available, will take away 100 feet of pumps, and leave, say 190 feet from there to the present bottom of the shaft. Now the great aim of every man who seeks the continued prosperity of a mine, is to sink, and rightly so; though in this case, where we have such a vast amount of unexplored and proved ground at a higher level to the south, we do not attach such importance to sinking as we should were the boundaries of the property more limited and the chances of making further discoveries, literally, less. Still, it will be wise to sink this shaft, a thing more than difficult to do—if not impossible—under existing circumstances; but which can, of course, be done when a re-arrangement of pit-work takes place and the actual pumping-gear is replaced by a bigger. Then it will be possible to sink, but with hindrances through hoisting, bucket changing, breakdowns, and the mean class of labour about, that will make the undertaking a very tedious and weary one.

To increase the depth of the shaft by 50 feet, or until it reaches the lode I should recommend the sinking of a winze on the lode to a depth of 60 feet, or until under the shaft from where

a rise could be put up and the increased depth attained without in any way interfering with the pit-work, which could afterwards be arranged from bottom and according to the requirements of the case. To do this effectually and with a minimum loss of time, a watertight door could be put in the No. 3 cross-cut and all water accumulating through breakdowns or other cause kept in the shaft.

In the meantime, and seeing that from any point of view it is impossible to form a level below the No. 3 for some years, we are taking away the rich mineral to be found in the bottom of this.

Any remark I might make regarding the future of this mine would be but a repetition of what I have often stated before.

THE CORDOBA DISTRICT—CORDOBA MINE.

Results here have been rather disappointing than otherwise, owing chiefly to the falling off in the value of the lode caused by a previously unknown "fault" that was run into by the levels and mid-levels north of the rise by which a communication was made from the No. 8 to the No. 7 adits.

Subsequent investigations show the existence of this "fault" in the No. 7 and the lode on the other side of it, which considerably improves the situation from a prospective point of view, seeing that we are now sinking on this and at the same time continuing the mid-levels, which, when communicated to the sunk, will leave the cross-course behind, and undoubtedly commence a new and successful era in the annals of this mine.

The No. 8 Adit End West has been driven at intervals but without finding anything of importance.

Main Level South has been considerably prolonged in a very disordered and slet channel of ground, where indications of a lode or the proximity of one has been frequently met with, but nothing of importance found.

Were it not for the proved lode farther north of the cross-course we might say that matters are looking very gloomy indeed in this section of your property, where fortunately such is not the case, as proved in the No. 7, which clearly shows that in due time large and valuable quantities of mineral will be again won.

EL TIGRITO.

Explorations in the eastern part of this mine have not been attended with the success that we desired; long stretches of poor ground and the proximity of the most easterly ends to our

neighbour's property having caused us to suspend work on this side of the mine for the time being. In the western part we have been favoured with a fine masterly lode in the No. 6 level that has been worth, I may say, for the whole year's driving, 3 ozs. to the ton. I need not mention that the whole output of the mine is coming from this side, and that as long as the No. 6 end maintains its value there will be no difficulty in keeping up the returns.

MARMAJITO.

Main Shaft.—Sinking here has proceeded very slowly, more owing to the incapacity of the native miner for this kind of work than anything else. The importance of this work cannot be over-estimated, for until it is sunk to a sufficient depth, and the pumping gear arranged, the exploiting of mineral from below the adit must be a very expensive process.

The No. 6 East has been driven as rapidly as possible during the whole six months, but without discovering anything more than kindly indications.

The No. 6 [illegible] it abandoned, pending defining of boundaries.

MARMAJON.

A continuation of the main adit brought us to a well-formed and rich lode, which proved to have been worked from the surface in former days. Driving west showed this to be a part of the lode driven on previously. The eastern end which is penetrating the body of the hill looks very cheering, though the lode has sadly decreased in value when compared with its appearance when first intersected.

You will judge from the foregoing remarks that at this moment there is considerable room for improvement in this district. Such is undoubtedly the case, it being quite as certain that before long matters will look much brighter than they do to-day.

The Cordoba Mine.—Ought again to be flourishing before the next half year is ended.

El Tigrito.—Here, should the No. 6 west fail, sinking operations must be commenced, and will be probably on the same lines as those mentioned in Marmajito. One thing must be

borne in mind that unless steps are taken for the unwatering of the district its days are numbered, it being impossible to run the place on present lines for many years.

CONCLUSION.

GENTLEMEN,—This, I fear, too long report, contains, amongst other things, a description of the actual state of your property, which I can conscientiously say, taken as a whole, never looked better than it does at the present time.

My opinion as to its future and ideas of what ought to be done, may not be similar to the opinions and ideas of others, but in one thing I am sure every mining man who knows the place will be with me, and that is the importance of bringing a deep adit under the whole of the mines as soon as possible, for in this lies your future and permanent prosperity.

During the past thirty months all my time has been devoted to your service, and all my knowledge has been at your disposal. No health or other considerations have ever barred me from doing what I have considered to be my duty. I hope that the results obtained have proved satisfactory to you and to the Shareholders: but be this as it may, it will ever be a source of pleasure and satisfaction to me to know that, according to my light, I have conscientiously done for you all and everything that lay in my power.

I remain,

Yours obediently,

JNO. PENBERTHY.

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Informe semestral de Mr. Barker
a Junio 30 de 1899.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, Gresham House,

Old Broad Street,

London, E.C., *28th September*, 1899.

Subjoined will be found the interesting and comprehensive Half-yearly Report of Mr. R. Barker Johnston, to 30th June, 1899. It will be seen that Mr. Johnston is vigorously at work in the development of the mines and the creation of reserves; also that he is making every possible effort to reduce cost, and has already succeeded in making some important reductions.

It will be observed that Mr. Johnston makes no reference in his report to the proposed deep tunnel. From his previous correspondence it is apparent that he is not altogether in favour of that scheme, and as he has no apprehension whatever of any sudden influx of water, but, on the contrary, is of opinion that if the water found in the upper levels should be effectually prevented from descending to the lower levels, there would be very little water (if any) in such lower levels, he considers that his proposal to drain the mines by steam and electricity would be far preferable, and would meet all requirements for many years to come.

The Directors desire to add that the subject of providing the Marmajito Mine with steam power for pumping

and hauling is under the consideration of the Company's Consulting Engineer in England, and doubtless an efficient plant of the most modern type will be provided without loss of time.

The Directors have this day declared an interim dividend of *1s 6d* per share, payable on Thursday, the 12th October.

By order of the Board,

J. JAMESON TRURAN,

Secretary.

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Mr. R. BARKER JOHNSTON'S HALF-YEARLY REPORT

to 30th JUNE, 1899.

LA SALADA, *30th June*, 1899.

To the Directors of the

FRONTINO AND BOLIVIA GOLD MINING COMPANY, LIMITED.

GENTLEMEN,

I have pleasure in handing you my Half-yearly Report of the operations that have been carried on for the six months ending 30th June, 1899.

This must necessarily be a resumé of what has already been submitted to you in my monthly reports and correspondence, which I have made as detailed as possible; but I trust that some additional figures, which I shall be able to add, showing a slight increase in the prospective value of the Mines, together with the efforts being made here to reduce the working expenses, may be of interest to the Proprietors.

Plans and sections of the various mines at work are being prepared and will be forwarded at an early date, showing the amount of work done during the past six months, and the state of the mines at this date.

THE MINES.

The important work of development of certain of our mines has been frequently interfered with during the period under review, by causes unavoidable, such as renewing the San Antonio aqueduct, which cut off our water supply for some little time, on two occasions, and drowned out our lower workings, followed later by bad air in the Silencio mine, from which we get the bulk of our returns. These stoppages, from causes not very serious in themselves, handicapped us in our effort to augment our reserves of ore; and the increasing of the reserves is, in my opinion, of paramount importance, as the great difficulty we have had to contend with is the small quantity of ore available in the mines. Every effort is being made to alter this state of affairs, by changing the 12-hour shift system to 8-hour shifts, and most satisfactory results have both

obtained in the drivage; and with the aqueducts renewed, the ditch in good condition, and the "holing" to surface, of a "rise" in the Silencio mine, supplemented by the blower put in the Silencio shaft, we do not look for any interference in our development from either of these causes, unless some unforeseen cause should arise. Development by hand labour is usually a slow process, and especially so in this country, but we try to encourage the miners in the more important points which we wish forced, by giving a bonus for any advance over a fair amount of work. A small rock-drilling plant for Salada and Silencio mines would be a valuable acquisition, as it would enable us to open up our lower workings, where our most valuable ground is, in a much shorter time than we can do it by hand labour.

EL SILENCIO MINE.

This mine continues to open up well in the bottom. Since January the No. 9 levels north and south have been started in both the east and main lodes (which do not join) and valuable stoping ground is being opened up.

Main Engine Shaft.—The sinking of the shaft is being vigorously pushed on with, and in May the east lode was cut in the shaft—a fine reef 18 inches wide and assaying 13½ ozs. gold per ton. This reef after coming into the shaft has turned back and is now in the footwall again. We are now down 24 feet below No. 9 level and I purpose sinking at least 70 feet before starting No. 10 levels, as the starting the levels at the short distances we have in the upper workings is most expensive and of no advantage; in this way we will have a good block of ore to start stoping on, which will last for some time and allow us to get our levels below advanced. During January, February and March we were impeded by repairs, water in the mine and bad air, and only 0.60 metres were sunk during those three months, whereas during the remaining three months we have sunk 6.90 metres, making a total of 7.50 metres for the half-year.

Our pumps have up to date done good work, and if we were having a constant motive power we would have no water difficulties in the mine. The bulk of our water comes from the upper workings, and once keeping that from getting below we have no water worth speaking of in the lower workings. It will be necessary to re-arrange our system of pumps shortly to enable our sinking and extension to be carried on, but this can be done without any serious stoppage of work. At present we

are entirely dependent on our water wheel (a wooden one) to keep our mine "in fork," and, in my opinion, we ought to have some supplementary method, be it steam or electricity, to keep our water in hand should anything serious happen to our wheel. As we are at present any very serious breakdown to our waterwheel might mean disaster, as with our principal producing mine drowned out the returns would be greatly reduced. This shaft has now a total depth of 708 feet.

Hoisting Shaft.—This shaft is down to the No. 8 level and is for hauling mineral only, as the main shaft is down 107 feet below it, and should we be unfortunate enough to get our lower workings flooded, our engine cannot assist the pumps until the water rises to the No. 8 levels and special arrangements would then have to be made. A glance at the plan will show that the two shafts are converging and will eventually join, so that I don't see the use of carrying down two shafts at a great [illegible] we will have to do all our work in one. [illegible] it was to be put down at all, ought to have been put down parallel with the other shaft and in such a position that it would work a different section of the mine, as it is now, the steam engine ought to have been placed in the main shaft where all the ore hauling could have been done and in the event of our pumps being stopped, the water could have been kept down meanwhile by the engine. I am seriously thinking of making this alteration, if we are to remain dependent on the elements for our pumping power, and we will dispense with the mule whim, which frequently causes the levels to get filled with stone and interferes with our progress.

No. 9 Levels, North and South, East Lode.—These levels are opening up rich ore and are being pushed on with all speed, the lode varies in size but slightly, averaging about 15 to 18 inches in width. The "rise" put up showed that the rich mineral continues upwards, and also showed that the main lode was coming in towards the east lode, and is evidently a branch of it. All through the east lode is the more valuable lode, and as the main lode is deteriorating in quality and appearance in the ends, I have suspended driving these, as the distance between the two lodes is only 24 feet, and as we progress with our No. 9 levels, east lode, we can cross-cut and see what the main lode is worth.

No. 8 Levels, North and South.—These levels have not been at work all the time and here, as in the levels below, we have the main lode inferior in quality to the east lode. When

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work was resumed at these ends, the lodes were not very high grade, but as we advanced they improved in quality and size and continue good at the time of this report.

No. 7 Level South.—During the early part of the year we had good ore in this level, for a time it decreased in value, but it has again improved, and now we have an average reef in the end. In the bottom of this level we have good mineral standing, and to facilitate our extraction and hasten development, a winze was started, and is going down in a body of good ore; this winze is a good way ahead of the end of the level below No. 8 south.

Cross-cut East of No. 7 Level North.—This has to advance from 15 to 20 feet before we expect to cut the reef; this, when accomplished will give another available block of ground for the extraction of mineral for the mills.

Reserves.—The high pressure policy effectually prevented any reserves of any importance of high grade ore from being left. In this mine I estimated, when I took charge, that there were 7,674 tons of ore (good, bad and indifferent) standing, Donagan's adit included, as follows:

			Last No. of tons at 30 June, 1899	30 June	Increase	Decrease
No. 6 level north	rich	...	—	165	165	—
„ 7 „ south	„	...	72	410	338	—
„ 8 „ north	fair	...	—	136	136	—
„ 8 „ south	„	...	60	340	280	—
„ 7 „ „	„	...	240	110	—	130
„ 6 „ north	low grade	...	65	410	345	—
„ 6 „ „	„	...	45	—	—	45
„ 5 „ „	fair	...	60	234	174	—
„ 5 „ south	good	...	—	154	154	—
„ 4 „ „	fair	...	332	215	—	117
„ 3 „ „	low	...	2,300	1,955	—	345
Donagan's adit	poor	...	4,500	4,500	—	—
		Total ...	7,674	8,629	1,592	637

SUMMARY.

Number of tons standing 30th June, 1899	...	8,629 tons.
„ „ „ 25th January, 1899	...	7,674 „
Increase	...	955 tons.

This is certainly not much, but it is a step in the right direction. A company like this cannot go on working from hand to mouth, and I will not rest satisfied until we have a substantial reserve of ore in all the mines.

MINE CONTRACT PRICES.

The following comparison of prices paid for ground broken as at 20th December, 1898, and this date, will show what is being done in this department with regard to reducing cost here:—

	20 Dec., 1898.	20 June, 1899.
Shaft	£170 per metre	£180 per metre
No. 8 Level South	50 „	42 „
„ 7 „ „	35 „	25 „
„ 6 „ „	45 „	38 „
„ 5 „ „	36 „	40 „
„ 5 „ South, East Lode	65 „	45 „
„ 3 „ „ Mid-Level	40 „	30 „
Cross-cut E. of No. 5 Level N.	60 „	52 „
No. 5 Winze below No. 7 Level South	28 „	33 „
No. 4 Winze below No. 5 Level North	25 „	45 „
No. 8 Level Stopes, South ...	8 „	6.50 „
„ 7 „ „ „ ...	5.50 „	4.50 „
„ 6 „ „ North ...	7 „	7 „
„ 4 „ „ South ...	8 „	8.50 „
„ 3 „ „ „ ...	6 „	5.50 „

The above prices paid for the shaft and No. 5 level north, although apparently large, are in reality much cheaper, as the exchange has risen from 215 per cent. in December last to 299 per cent. in June, and the paper dollar is worth less in gold; thus:—£170 per metre in the shaft = £215.34 at 299 per cent., or £38.34 paper dollars gain per metre, and £30 per metre in No. 5 level north = £45.56 at 299 per cent., or £15.56 paper dollars gain per metre, and the ground in the shaft and No. 5 level north is considerably harder. The winze No. 3 in No. 7 level south, and No. 4 in No. 5 level north are now much deeper, and the pumping and hauling of ore and water from an increased depth explains the rise in prices at these points.

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ORE MINED.—During the six months this mine has supplied 6,915 tons of ore to the mills.

DONAGAN'S ADIT.

This work has been stopped, as the lode though large is very low grade. This is evidently the "Manto," or mother lode of the district, which is, on an average, low grade mineral, with occasionally pockets of good ore but at this particular point it carries very little pyrites, and the ground is very heavy and expensive to keep open, hence the stoppage.

LA SALADA MINE.

This mine is at present only capable of supplying low grade ores to the mills. We have rich ore in the bottom of No. 3 level, but we have not continued the expensive under hand stoping and hand pumping. We are leaving this mineral until we get our shaft down and a level in under it, when it can be taken out in a legitimate manner and cheaply.

PITWORK.—This was in an unsatisfactory state, as the pumps were resting on the shaft timbers. When our balance bob of the pump broke last February, a heavier bob was put in, with a view to replace our pumping gear with a larger pump and do away with the bucket lifts. This has been accomplished and we now have a 12-inch pole at work, which will easily enable us to keep the mine clear of water, and permit the sinking of the shaft to be resumed. The future of this mine lies in depth, with a strong probability of our getting higher grade ores as we extend our workings south and get under the old Salada mine, and every effort is being made to attain this end, and we are now in a position, with our new pump at work to restart the sinking of the shaft. Nothing in the way of actual development of ground has been done for some considerable time, beyond driving the upper levels, and a marked improvement in the lode, both as to size and value, has taken place as we get south. The sinking of the shaft will naturally be a slow process, as we have to work with hand labour, and to get down deep enough to start another level will require a considerable time. The stoppages for replacing our pump timbers and putting in the new pump, seriously interfered with our driving operations, and account for the decreased drivage as compared with the previous six months.

Comparison of ground driven and excavated during the last half of 1898 and the first half of 1899, in this mine :—

	Six Months ending 30/12/98. Metres.	Six Months ending 30/6/99. Metres.		Metres.
Driving	123.00	... 71.17	Decrease	51.83
Sinking	10.45	... 16.15	Increase	5.70
Rising	91.90	... 68.05	"	36.15
Stoping	821.64	... 1,042.79	"	221.15

APPROXIMATE QUANTITY OF ORE.

	Developed.	Being Developed.
No. 3 Level South... ...	1,048 metres.	—
No. 3 Flat Lode	625 "	—
No. 2 South	1,038 "	920 metres.
No. 2 Flat Lode	2,486 "	—
Total ...	5,197 metres.	920 metres.

During the six months this mine supplied 4,955 tons of ore to the mills.

CÓRDOBA DISTRICT.

This district continues to supply fully one-quarter of our produce, and 8,525 tons of ore have been extracted from the mines in this district and milled. Whilst some of the mines have come to the front and continue, at this date, to look well, others have gone back and been disappointing, but the district is a rich one, and undoubtedly there are more reefs than those we are working, and an important discovery any day is not at all improbable. We are in a much better position prospectively in this district, at this date, than we were last January, in respect of mineral being developed, although we have actually less ore developed in the various mines, as in one of the mines, from which large returns have been got, no available stoping ground has been opened up by the drives for a long distance—I refer to the Marmolito mine. At the time of my first visit to the mines, in this district, in the end of January and the beginning of February last, I found the following quantities of ore developed and being developed, and the

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following table shows the ground developed and being developed at the end of June, 1898 :—

	January, 1898. Developed.	Being developed.	30th June, 1898. Developed.	Being developed.
Marmajito...	1,527 tons.	368 tons.	260 tons.	1,022 tons.
Tigrito ...	3,034 "	— "	4,055 "	— "
Córdoba ...	450 "	— "	328 "	2,483 "
	5,011 tons.	368 tons.	4,443 tons.	3,505 tons.

From the above we have 1,568 tons less ore in the mines actually developed, but we have an increase of 3,137 tons of ore being developed.

CÓRDOBA MINE.

This mine has of late come well to the front, and the improvement is being maintained at the time of writing. For a time we had the cross-course in the end of the drive, but as we advanced the cross-course has given way, and we have little evidence of it in the face or end. We know, from what we have in the bottom of the level above, that we have good ore ahead, and every effort is being made, with the materials at our command, to push our No. 8 level south, and get away from the influence of the cross-course, when we will be able to add largely to our reserves.

TIGRITO MINE.

The lode in this mine, in the No. 6 level west, continues to look well, and is of a fair size; and as this is our lowest level, we are dependent on the lode continuing good for our supplies from this mine. When the lode gives out, then pumping and hoisting by steam power will be necessary.

MARMAJITO MINE.

This mine which formerly produced rich mineral, is now producing very little ore, and what we get from it is low grade ore. This mine was the most unsatisfactory, as far as the system of working was concerned, here we had underhand

stoping and water pumped by hand labour, so that the rich ore could be got out to swell the returns. A so-called "main shaft" was being sunk, but it could never have been intended for any serious work, as it is far too small, and was evidently only put down for immediate returns. The size of the "main shaft" is 7 feet by 3½ feet. This mine has been a heavy drag on us, in the way of cost and the workmen at the pumping suffer greatly from pneumonia and occasionally fill the hospital. The east drive has not opened up any available ore and the small lode carried us on without any results, so this end has been stopped.

A new inclined shaft is being put up through the stopes to surface for the pumps and hauling to be done by steam power from the surface and this will enable us to work the mine down to our boundary much more cheaply.

MARMAJON MINE.

We have continued getting a little ore from this mine, but our explorations have, so far, been without tangible results.

RETURNS.

Although no attempt has been made to keep our returns up to those of the corresponding period of last year, yet they compare very favourably, when the conditions are made similar. During 1898 no stores were charged and all stores used during the six months now ending have been fully charged, and these represent a sum of £4,431 14s 5d as shown below. The following table gives details :—

1898.	Produce. £	s.	d.		Cost. £	s.	d.		Estimated Profit at Mines. £	s.	d.
January...	10,020	12	5	...	5,518	3	5	...	4,502	9	0
February..	8,260	17	7	...	6,286	3	5	...	2,974	14	2
March ...	10,053	16	6	...	5,684	3	4	...	4,367	12	8
April.....	11,142	5	2	...	5,770	3	8	...	5,372	1	6
May	9,327	19	0	...	5,879	6	4	..	3,648	12	8
June	10,942	2	10	...	6,375	11	3	...	4,766	11	7
	£60,945	13	0		£35,313	11	5		£25,632	1	9

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1899.	Produce. £	s.	d.	Cost. £	s.	d.	Estimated Profit at Mines. £	s.	d.
January ...	15,128	4	5	6,452	2	3	8,686	2	2
February ...	10,353	0	11	6,654	17	2	3,678	3	9
March ...	6,650	14	0	5,715	13	2	935	0	10
April ...	7,991	5	7	5,539	10	9	2,451	15	7
May ...	8,133	7	5	5,460	16	1	2,672	11	3
June ...	8,562	3	1	5,670	5	4	2,892	18	1
	£54,718	15	9	£36,493	4	1	£21,581	11	8

Stores used during the six months of 1899 and charged.

	Dollars. Gold.	
January ...	4,414.70	
February ...	3,164.60	
March ...	2,770.60	
April ...	5,927.74	
May ...	3,140.70	
June ...	3,940.90	
	$22,158.60 at	£4,431 14 5

To compare these returns with last year's we have to allow for the stores used, as we used £4,431 14s 5d worth of stores and charged them, whereas no stores were charged in the 1898 returns; thus we have :—

1898. Estimated profits at mines without stores charged.	1899. Estimated profits at mines with stores charged.
£25,632 1 7	£19,581 11 8
	Add stores used 4,431 14 5
£25,632 1 7	£24,013 6 1

or a difference of £1,618 11s 6d on the six months. The heavy drop in the returns for March was the natural outcome of the high pressure policy, as the high-grade ores in the mines were practically exhausted. The January produce was the last of the inflated returns, and no attempt will be made to rival the returns for the latter half of the year, as the high-pressure policy impoverished the mines and gave the proprietors dividends which under ordinary circumstances would have been obtained in this year, and much more economically; still with all that, the returns ought to be considered very satisfactory, in view of the fact that, whilst giving these returns, the prospective value of the mines is being increased, which was not

the case with the larger dividends. The average of the ore crushed is the same as last year, viz., 1 oz. 1 dwt. 23 grs. gold per ton.

Comparison of Produce of Mills for first half-year of 1899, with first half of 1898 :—

BAR GOLD—OZS. TROY.

Name of Mill.	First half, 1898.	First half, 1899.	Increase.	Decrease.
Maria Dama, Californian	9,361.61	11,793.88	2,432.27	—
Maria Dama, Native Mills	1,419.49	1,624.87	205.38	—
La Salada, Californian	3,840.93	2,924.20	—	916.49
La Salada, Native Mills	191.54	62.80	—	128.74
Córdoba, Californian	4,972.76	2,624.50	—	2,348.26
Córdoba, Native Mills	3,749.76	3,290.37	—	459.39
El Salto, Arrastres	184.73	138.59	—	46.14
Total ...	23,720.84	22,459.47	2,637.65	3,899.02
Total Decrease...	—	—	—	1,261.37

SULPHURETS ACCOUNT FOR HALF-YEAR, JANUARY-JUNE, 1899.

MARIA DAMA—EL SILENCIO :

Exportable, net values.	Tons.	$	Value $1 to £. £ s. d.
Stock, Jan. 1st, 1899, raw	248.357	13,948.25	
" " calcined	15.272	1,284.70	
Total	263.629	15,232.95	
Produced in the half-year, raw	47.000	2,474.15	
" " calcined	22.800	1,689.15	
Total	333.429	19,396.25	3,879 5 0
Less Exported during half-year, raw	51.026	1,364.30	
" " calcined	24.151	2,152.25	
	55.177	3,516.55	703 6 3
			£3,175 18 9

Non-exportable, gross values.	Tons.	£	Value per ton £ s. d.
Stock, January 1st, 1899 ...	271,588	36,073.10	
Produced in half-year ...	70,050	9,800.75	
Total	346,738	45,873.85	
Calcined	32,500	4,674.45	
Total non-exportable stock	317,238	41,252.40	8 5 9 7

NOTE.—The value of the non-exportable sulphurets calcined during half-year could not always be ascertained, because of the mixing of sulphurets during the year, 1897. Where not known, the value has been arrived at by finding the average per ton for the whole of exportable stock.

SAN JOAQUIN—LA SALADA—

Non-exportable, gross values	Tons.	£	Value per ton £ s. d.
Stock, January 1st, 1899 ...	465,735	40,272.30	
Produced in half-year ...	22,598	4,678.80	
	488,333	44,951.60	5 10 6 5

MARIQUITO—CÓRDOBA—

Exportable, net values			
Stock, January 1st, 1899 ...	0.223	117.35	
Produced in half-year ...	0.333	44.16	
	0.556	161.49	32 6 0

All exported, leaving no stock.

CÓRDOBA—CALIFORNIAN MILL—

Non-exportable, gross values			
Stock, January 1st, 1899 ...	18.000	1,075.05	
Produced during half-year	9.000	769.60	
Total ...	27.000	1,844.65	
Treated by Arrastre ...	2.000	175.30	
Total non-exportable stock	25.000	1,669.35	333 17 5

RESUMÉ.

Exportable stock, net values.				
Maria Dama ...	raw.	264.331	15,038.10	
" "	calcined	13.921	821.60	
Total		278.252	15,859.70	3,175 18 9

Non-exportable stock, gross values.		Tons.	£	Value per ton £ s. d.
Maria Dama		317,238	41,252.40	
La Salada		540,623	44,951.60	
Córdoba		25,000	1,669.35	
Total		882,861	87,873.35	17,574 13 5

EXPORTED DURING HALF-YEAR.

		Tons.	Gross Value.	Net Value.
Maria Dama ...	raw	31,626	$5,242.55	$1,364.30
	calcined	24,351	5,171.10	2,152.25
Córdoba		0.356	205.99	161.49
Total ...		55,533	$10,619.64	$3,678.04
			£2,123 18 7	£735 12 2

SURFACE WORK.

Our repairs have been enormous, and some little idea may be formed of what we have had to do, when it is known that although the prices of timber have, during the last months been reduced 20 per cent., 25 per cent., and in some cases 33 per cent., yet our timber cost, for the six months exceeds last year's, by $10,485.59 Colombian money. Mills, houses, kitchens, men's quarters, aqueducts, flumes, &c., &c., have all been in a state of collapse, and most of the repairs we have done, ought to have been done under the previous administration. In 1899 the timber account for the six months was:

	$72,392.99	Colombian money.
In 1898	61,907.40	" "
Increase in 1899	$10,485.59	

Once our repairs are all overtaken I look for a big reduction in the timber account. On the ditch the San Antonio aqueduct was renewed with timber which was lying ready for this work on my arrival here. I renewed the San Joaquin aqueduct and have put in nearly 400 yards of fluming near the "Cruzada." At San Joaquin, the native mill has been completed and is at work. The Pelton wheel tunnel has taken longer than was anticipated, owing to the fact of our having an enormous loose boulder overhead, which had come down about 11 feet, and this had to be blasted before work could proceed, and even then we had to secure the ground as we proceeded. The work will not be finished for some time yet, but it will be

a substantial piece of work, and will facilitate the working of the San Joaquin mill greatly.

A small (40-ton) cyanide experimental plant has also been erected.

At Silencio new quarters have been put up to accommodate the workmen, and a new office has been built.

At Maria Dama sundry repairs have been done, and the slaughter-house is being renewed.

A new kitchen and harness room have been built at the "Alto." And in the Córdoba district the Marmajito native mill is being built, and a house for the native mine captains is also being put up, whilst the kitchens, smiths' shops, &c., have also been kept in good order.

The smelting offices had a room added to them, and assay furnaces are being built.

HEALTH.

I am pleased to be able to report that we have had no serious illness of any kind in the camps. There was a threatened outbreak of smallpox but prompt segregation checked it. With the exception of an occasional case of fever, the staff and workmen have enjoyed good health.

FARMS.

I have visited all your farms and they are well looked after. We have had to spend large sums of money in weeding some of the pasture fields and cleaning the cane patches, and now we can supply our animals with sufficient food. The Cumná Farm has been let to one of our contractors on terms which bring in a little every month and we save all the expenses. On the farms and at the Alto we have the following stock :—

198	Cows	$8,653 C/m.
8	Bulls	530
54	Young bulls	2,138
80	Oxen	4,415
84	Heifers	2,562
47	Bull calves	847
43	Calves	751
131	Mules and horses	16,000
142	Pigs	2,000
18	Goats	54
32	Ducks	64
		$38,014 C/m.

FUEL.

We don't experience any difficulty in keeping up our supply of this, and the price for bringing it in has not slightly modified. As soon as I get the Grevilla robusta and Eucalyptus globulus seedlings suitable for planting out I shall try them, and see if they will thrive here, for fuel.

RAIN.

Our total rainfall for the six months is nearly equal to that of last year's corresponding period, viz., 55.49 inches, made up as follows :—

January	2.19	inches.
February	7.66	"
March	11.38	"
April	7.59	"
May	14.06	"
June	12.61	"
Total ...	55.49	"

We had only one slight breakdown on the ditch on the 28th May, after a rainfall of 2.33 inches, which was repaired in about four hours.

CYANIDE EXPERIMENTS.

Several laboratory experiments were tried to see if the pyrites, and some of the richer tailings, could be treated on the spot, and so save, in the case of the former, the enormous expenses of exporting those that were rich enough. The small trials gave satisfactory results, and a small plant to treat ten tons of mineral, was lately erected. An experimental trial was made on ten tons of pyrites, which were too poor to export, assaying 1 oz. 13 dwts. 14 grains gold per ton, and after treatment the residues assayed 7 dwts. gold per ton, and the consumption of cyanide varies from 3 to 3½ lbs. per ton. This shows an extraction of 79.15 per cent. by assay. We have not been able to clean up and verify this, by the gold obtained, as the gold is distributed over a large quantity of zinc) but I have not the slightest doubt but that this is correct, as it corroborates our tests on a small scale.

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We will report full details after we have a final clean up. The following figures will show what is obtained by this treatment. Ten tons of pyrites, which we could do nothing with here, were treated:—

	Ozs.	dwts.	grs.		Ozs.	dwts.	grs.
10 tons pyrites @	1	13	14	gold =	16	15	20
Residue assayed 7 dwts.	...		...	=	3	10	0
Extracted as per assay	...				13	5	20

TRIBUTERS.

Our tributers, who are working some of the outlying mines and reefs which the Company is not working, have not been doing well of late, and in every case in which the same mine was at work in the corresponding period of last year, we have a large decrease, as the following figures will show. San Joaquin, which shows an increase, was not working last year. The royalties for the six months amounted only to £111 15s 2d, being a decrease of £280 9s 7d. Now we have only five tributers at work, on Garibaldi, Victoria Reina, Old Tigrito, Maria Dama and San Joaquin streams, and there are signs of the returns increasing, as some of the reefs being worked are improving in value.

TRIBUTERS' PRODUCE AND ROYALTY EXPRESSED IN GOLD.

$5 = £1.

PRODUCE.

Miners.	First half '98.	First half '99.	Increase.	Decrease
Palmichala	$ 299.60	—	—	299.60
Cecilia	323.30	—	—	323.30
Tigrito	2,347.25	1,072.20	—	1,275.05
Garibaldi	5,576.30	581.55	—	4,994.75
Victoria Reina	489.20	423.45	—	65.75
Streamers, San Esteban	455.70	—	—	455.70
Maria Dama Stream	736.02	511.80	—	224.22
San Joaquin	—	89.20	89.20	—
Total	$ 10,237.37	2,678.20	89.20	7,648.37
Total Decrease	...	...	...	7,559.17

Produce... £535 12 9[d]
Decrease 1,511 16 8·16

ROYALTIES.

Miners.		First half '98.	First half '99.	Increase.	Decrease
Palmichala	10 %	$ 29.94	—	—	29.94
Cecilia	20 „	66.65	—	—	66.65
Tigrito	20 „	470.45	214.43	—	255.02
Garibaldi	20 „	1,115.29	116.31	—	998.98
Victoria Reina	10 & 20 „	97.86	82.29	—	13.57
Streamers, San Esteban		—	—	—	—
Maria Dama	25 %	164.02	127.93	—	56.09
San Joaquin	20 „	—	17.84	17.84	—
Total		$ 2,561.22	558.81	17.84	1,420.25
Total Decrease		...	...	...	1,402.41

Royalties... £111 15s 2·68[d]
Decrease ... £280 9s 7·68

MILLS.

We have not been able to keep the Californian and native mills all fully supplied with mineral, and when this was the case we allowed the native mills to go without. During the six months under review the mills have crushed 20,125 tons of mineral, producing 22,320.88 ozs. of bullion, averaging 1.099 ozs. bullion per ton of ore crushed, and 69,933 tons of sulphurets, worth £841 9s 10d, of which sum only a part has been taken credit for in the monthly returns. The decrease of 1,261.37 ozs. bullion is mainly in the Salada and Córdoba Mines: in the former we had no rich points at work, and in Córdoba we had no option but to take the ore as it came out, as we had such a small quantity of ore opened up. The driving of the San Joaquin mill by a wire cable is faulty in construction, and very costly in wire ropes.* The alteration, when we get the tunnel finished, will be a great improvement. The Maria Dama mill ought to be driven by a Pelton wheel and do away with the cumbersome and costly water-wheels now in use, which would permit of more stamps being erected, which would enable us to dispense with the two native mills and so have all our Silencio crushing done under one roof and under the charge of a European millman.

Sluice boxes have been put in the native mills, and by the use of these a considerable quantity of pyrites, which used to go down the river, is being saved for future treatment. These average from 3½ ozs. to 4 ozs. gold per ton.

* cable withdrawn, & de- vere (V) [illegible]

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TAILINGS.

I had the heap of tailings lying at the Maria Dama mill measured and worked out, and the result turned out so much less than what has been already reported, that I had them measured and calculated independently by three persons, and the mean amount is—

At Maria Dama ...	...	13,000 tons.
„ San Joaquin ...	...	5,814 „
„ Córdoba districts	...	2,500 „
		21,314 tons.

ASSAYS OF TAILINGS.

		Ozs.	dwts.	grs.
Maria Dama tailings ...	...	0	4	0
San Joaquin „ ...	...	0	4	12
Córdoba districts—Marmajon ...		0	5	0
„ „ Marmajito ...		0	9	6
„ „ Córdoba ...		0	2	12

The Marmajito tailings are being re-worked in the native mills.

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CONCLUSIONS.

With the exception of La Salada, which is entering on what I hope will be a prosperous era, and Marmajito and Marmajon, which for the time are under a cloud, the other mines continue to open up well, and with our reserves, which are slowly being increased, once established, I see no reason why these mines should not continue to give satisfactory returns in the future, provided they are worked judiciously.

What we require for power purposes is, either an additional supply of water, which cannot be got naturally, excepting at considerable outlay, but might be got by placing pumps on an adjacent river, where there is always an ample supply of water, and raise it 60 feet into the Tías ditch by a water wheel, which is not costly after the initial outlay, or an electric scheme to make the more important mines independent of the rainfall; as we are now, we are dependent on the elements. Below the Maria Dama mill, after the water has done all its work, we can generate sufficient electricity to do the winding and pumping, if required, in at least two mines, Silencio and Salada. We can always count on 60 horse power, and we would have this as a supplementary

power in case of a dry season, or a serious breakdown to our present machinery, as the Salada is never dry.

Taking into consideration the difficulties we have had to contend with in almost every department, and the enormous prices paid for everything (the remedying of which took some considerable time), our results for the first six months may be considered fairly satisfactory; and I trust that when we get the effect of the reductions in the mines, contracts, timber, fuel, wages and foodstuffs, that the costs out here will show a very substantial reduction, without in any way interfering with the efficiency of the work.

I am, Gentlemen,

Yours obediently,

R. BARKER JOHNSTON.

THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company,

LIMITED.

DIRECTORS' REPORT AND BALANCE SHEET

FOR PRESENTATION AT THE

ANNUAL MEETING OF SHAREHOLDERS

TO BE HELD AT

WINCHESTER HOUSE, OLD BROAD STREET, E.C.,

On Wednesday, 19th December, 1900,

At Two o'clock p.m.

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NOTICE IS HEREBY GIVEN, that the ANNUAL MEETING of the Shareholders of this Company will be held at Winchester House, Old Broad Street, in the City of London, on Wednesday, the 19th day of December, 1900, at Two o'clock P.M., for the following purposes:—To receive the Report of the Directors, and the audited Statement of Accounts of the Company for the six months ending the 30th June, 1900; to elect a Director; to elect an Auditor; and for other business. The transfer books of the Company will be closed from Monday, the 17th day of December, until Wednesday, the 19th of December, 1900, both days inclusive.

By order of the Board,

J. JAMESON TRUSAN,

Secretary.

184, GRESHAM HOUSE, OLD BROAD STREET,
LONDON, E.C., 5th *December*, 1900.

Directors.

RICHARD DONAGAN, Esq., *Chairman.*

THE HONOURABLE F. C. DRUMMOND.

SIR GEORGE D. HARRIS, J.P.

C. F. LOWE, Esq.

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DIRECTORS' REPORT.

184, GRESHAM HOUSE,

OLD BROAD STREET,

LONDON, E.C., *5th December*, 1900.

The Directors beg to submit their 27th Report since the re-construction of the Company, together with the Balance Sheet, to the 30th June, 1900, and the Profit and Loss Account for the half-year ending on that date.

The returns from the mines worked by the Company during the half-year ending 30th June, 1900, have been as follows :—

Tons of Mineral.	Produce of Bullion.	Average Produce.	Weight and Value of Sulphurets.
4,860	9,949	2 oz. 0 dwts. 22½ grains	77¾ tons valued at £1,433 and not credited.

Any comparison of the returns with the corresponding six months of the preceding year must necessarily be altogether incomplete, because, during the last mentioned period, there was no interruption by revolution, whereas, during the period under review, a revolution was in progress during the whole of the half-year, and such comparison will, therefore, not show any advance or falling off attributable to the state of the mines, but rather a statement showing the extent to which the mines have been interfered with by the operations of revolutionary tactics.

Compared with the returns of the corresponding six months of the previous year the above table shows a decrease of 15,565 tons crushed, a decrease of 12,508 ozs. produced, and an increase of 18 dwts. 23½ grs. in the yield per ton. With regard to the sulphurets these are not now credited till after treatment, and therefore the value of the material produced during the half-year does not appear in the accounts submitted. The only comparison that can be made is that in the half-year ending December, 1899, the treatment of pyrites yielded 229 ozs., and in the half-year now under review 353 ozs., being an increase of 124 ozs.

The returns from the Tributers have been 220 ozs. of bullion against 236 ozs. in the corresponding six months of the previous year, being a decrease of 16 ozs.

No portion of the gold raised during the half-year has been realised, the whole of it having been retained and stored away at the mines in consequence of the impossibility of putting it on the road during the continuance of the revolution, which was in progress during the whole of the half-year, and still continues. The accounts submitted, therefore, do not as usual supply particulars of an actual sum realised on the sale of the gold, but the most that can be done at present is to set out the estimated value as supplied by Mr. Johnston. As a general rule the gold on realisation fetches more than the valuation, such valuation being always kept a little on the safe side, but whenever the actual value is received the difference will appear in a subsequent account. Such valuation amounts to the sum of £24,396 17s 4d as against £54,382 9s 2d, being a decrease of £29,985 11s 10d; but, as already explained, this comparison is utterly fallacious, as the falling off is all attributable to the interruption to work caused by the unfortunate revolution in Colombia.

During the three months of the current half-year regarding which written advices have been received, the number of tons crushed has been 3,075, the number of ozs. of bullion therefrom has been 4,440, and the average yield per ton has been 1 oz. 9 dwts. 11 grs. There has been no yield from the treatment

of pyrites as the stock of cyanide has been exhausted, and a fresh supply, although sent out from this country, is not likely to reach the mines until the river and road shall be again free for traffic.

The yield from the Tributers' mines has been 57 ozs. of bullion. The total estimated value of the bullion for the three months has been £1,950 10s 6d.

A cablegram giving the result for October has just arrived, giving the value of the produce of October at £3,106, making the total produce of four months of the current half-year £14,056 10s 6d.

The Half-yearly Report of Mr. R. Barker Johnston to the 30th June, 1900, was circulated among the Shareholders on the 7th November.

The advices received from Mr. Barker Johnston subsequent to his Half-yearly Report are necessarily very restricted in the information they contain, seeing that the work in progress in the three mines where operations are continued, is only such as can be carried out under the perplexing circumstances in which he is placed, owing to the continuance of civil war in Colombia, and that in the other three mines all work is practically suspended, with the exception of timbering and other protective precautions. The Directors, however, are much pleased at calling the Shareholders' attention to the very promising points now being opened up in the deeper portions of the Silencio mine. In the circular for August, Mr. Johnston's Report mentioned that the lode in the No. 10 level north was 20 inches wide, and assayed 5 ozs. 10 dwts. per ton, and in a report received since, dated 8th October, he announces that the width of the lode is the same, but that its value has increased to 6½ ozs. per ton. He adds that there are good walls in this drive, and the lode carries both galena and blende, which, as a rule, are indicative of high-grade ore.

In the same circular Mr. Johnston mentioned that the No. 9 level north was in a good lode, 15 inches wide, with fairly good mineral of the assay value of 1 oz. 5 dwts. By the subsequent

report above mentioned, Mr. Johnston states that the lode has opened out slightly, and has also improved in value, and that it measures 18 inches wide, and assays 5½ ozs. per ton. He adds that the ore carries a large quantity of pyrites, and promises to hold out. In the same circular Mr. Johnston mentioned that the No. 9 level south, the lode, although through the cross-course, was still influenced by it, but he added that there were evidences of a formation in the face of the hanging wall similar to what had been met with in No. 8 level above, so that he was in hopes of the lode making in the drive shortly. By the subsequent report above mentioned, Mr. Johnston states that the lode was getting away from the influence of the cross-course, and was looking well, and was nearly 2 feet wide, and assayed 2 ozs. 16 dwts. per ton.

In the same circular Mr. Johnston mentioned that in the winze No. 2 below No. 8 level south the lode was in rich ore, nearly 2 feet wide, assaying 4 ozs. 4 dwts. per ton, and in the subsequent report above mentioned he states that 3-70 metres had been sunk, that the lode was 18 inches wide, assaying 5 ozs. 2 dwts. per ton, and he adds that at this point the pyrites is abundant.

The intelligence from La Salada mine is not so satisfactory as could have been desired, but operations here appear to have been interfered with by a run of ground in the adit level south, and as the pump water is discharged through this adit it became necessary to stop the pumps until means for discharging the water were provided, and this necessarily interfered with the work. Several of the points also are lower in value, especially the No. 6 rise, where an unfavourable change appears to have taken place.

At the Tigrito mine the lode is reported as continuing to look fairly well, and it is stated that the mine is supplying the Cordoba mill, the produce of which is more than covering the expenses of the mine itself, and also the three mines which at present are in abeyance.

With regard to the revolution, the latest intelligence is that

contained in a telegram which appeared in some of the news papers of the 4th December, and was as follows:—

RENEWED FIGHTING IN COLOMBIA.

(Through Reuter's Agency.)

NEW YORK, *Dec.* 3.

Advices from Colon received vid Kingston state that the Insurgents captured Chagres on Wednesday.

Eight hundred Government troops were immediately sent to relieve the place, and sharp fighting followed. The Government forces lost heavily, but the rebels were driven out of the town.

It is reported from Colon that the Insurgents are attacking Porto Colombia and Salamilla. Government reinforcements have been ordered there.

It is believed that the Insurgents will concentrate against Colon instead of Panama.

Martial Law has been enforced at Colon, and many suspected persons have been imprisoned.

The United States warship Bancroft and her Majesty's cruiser Intrepid were off Colon when the advices left that town.

One result of the revolution is that a decree dated 11th June, 1900, has been promulgated imposing an export duty of 2 per cent. on all gold to be sent away from Colombia. The question has been started whether this applies to gold raised previous to the date of the decree but not sent away in consequence of the war. It therefore remains to be seen whether the duty will be payable on the exportation of this Company's accumulated gold or only on such part of it as was raised subsequent to the date of the decree.

With regard to the Antioquia Company, in which this Company is so largely interested as a Shareholder and Creditor, the Directors are pleased to announce that the reports of Mr. Seccombe continue to be of a satisfactory kind. Mr. White, the late Superintendent, has resigned, and Mr. Seccombe has been appointed by the Directors in his place. The debt of £9,600 and interest due to Messrs. Restrepo has been paid off out of the first profits made, and Mr. Seccombe has a small balance in hand to carry on his restricted works of development. It is contemplated to reconstruct the Company so as to provide some capital to carry out the larger works which Mr. Seccombe recommends,

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and he has no doubt that when these works are executed the mines will produce a fair profit to the Company. A meeting of Shareholders will be held some few days previous to the Meeting of this Company, when probably some understanding as to reconstruction will be arrived at. In the event of a Resolution for reconstruction being ultimately carried, it is considered probable that many Shareholders in this Company may be desirous of taking up, through the Liquidator, any shares that holders of shares in the Antioquia Company may be unwilling or not in a position to subscribe to.

The Profit and Loss Account now submitted shows a profit of £9,221 11s 6d. The profit on the previous half-year was £15,809 3s 10d. The profit thus obtained, although so much less than previous profits, is satisfactory under the circumstances which have prevailed, and would admit of a dividend if the gold had been realised, but inasmuch as no gold since August, 1899, has been realised it is not practicable to pay it. The gold which has accumulated since August, 1899, up to and including October, 1900, is of the estimated value of £65,471, and it will be seen from the accounts now submitted that the Directors have had to borrow a sum of £15,200 from the London Joint Stock Bank on the security of the Government and India Stocks forming the investment of the Reserve Fund, and a sum of £3,500 from the London agents of Messrs. Restrepo up to the 30th June last on security of certain portions of the accumulated gold. Since that date Messrs. Restrepo's agents have made further advances bringing the total of their advances up to £15,000, such total being secured upon specified portions of the gold accumulated, and such agents are prepared to make further advances as may be required. Upon the termination of the revolution and the remittance of the gold to this country and upon its realisation, all the above advances and any further advances will be discharged, and the surplus (less export duty) will be available for the purposes of the Company, including a dividend out of the £37,619 11s standing to the credit of Profit and Loss.

The investment of the Reserve Fund remains the same as mentioned in the last report, and the sum of £227 16s 5d cash arising from dividends and standing to Current Account has since been increased to £453 11s 8d by means of the receipt of the July and October dividends.

The Director, who, in accordance with the Articles, retires is the Honourable F. C. Drummond. He is duly qualified, and offers himself for re-election.

Mr. J. H. Tilly, the Auditor elected by the shareholders, retires, and offers himself for re-election.

By order of the Board,

J. JAMESON TRUKAN,
Secretary.

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Dr. Cr.

To Nominal Capital ... £ s. d. £ s. d.

" Issued Capital:
129,062 Shares of £1 each fully paid 129,062 0 0
" Reserve Fund at 31st December, 1899 ... 17,000 0 0
" Investment receipts on sales 227 16 5
" Bills Payable 17,227 16 5
" " " In transit (since accepted) 1,063 17 1
1,300 0 0
" Sundry Creditors in England 2,363 17 1
" " " Columbia 3,231 6 8
" London Joint Stock Bank - 1,700 0 0
Advance on security of Reserve Fund 17,500 0 0
" Mayer, Stickel Bros., Advance on security of Gold at Mines 2,500 0 0
21,031 6 8
" Open Accounts in Columbia, Bills in transit, &c. 682 12 9
" Reserve Account 845 4 6
" Dividend Dividends as per warrant 215 14 3
" Balance from Profit and Loss Account 37,619 11 6
£209,282 9 3

By Purchase of Mines, as per last Balance Sheet ... ... £ s. d. £ s. d.
" Valuation of Plant and Machinery as per last Balance Sheet 18,109 12 11
Less 10 per cent. per annum Depreciation 1,810 19 1 16,298 13 10
" Prospecting Account at the Mines 177 15 0
" Liability Account 1,211 8 8
" Horse Account 18,871 7 8
" Cattle Account 27 2
" Culaco Farm Account 88 10 1
" Ospina Farm Account 67 2 10
" Station and Aviaul Farm Account at the Mines 164 7 5
" Pulperia's, Sales's, Peons and Popular Farm Account ... 116 1 4
" Live Stock Account at the Mines 462 10 3
37,272 12 4
" 4,000 5% Preference Shares held in the Antioquia (Frontino) Company, Limited, fully paid upon values 4,000 0 0
" 10,000 Ordinary Shares held in the Antioquia (Frontino) Company, Limited (cost valued at present) 0 0 0
" Sundry Debtors in England 3,427 9 6
" " " Columbia 624 9 6
4,052 19 0
" Value of Bullion on surface as per last Balance Sheet ... 1,866 6 5
" " " Gold in transit ... ... 60 ... 2,423 5 6
" " " Gold at mines 48,402 1 9
52,291 13 8
Note.—Part of this Gold has been hypothecated to Mayer, Stickel Bros., as security for loan of £2,500.
" Stores in transit ... ...
" Investment of Reserve Fund (£11,250 in 3% Consolidated 11,750 15 7
" " " Gold in the India 3½% 4,250 0 0
16,000 15 7
Note.—This Stock has been lodged at London Joint Stock Bank as security for loan of £15,500.
" Uncalled Liabilities on shares as separate account ... ...
" Cash, viz.:
Mine Manager's Balance 216 11 1
Cash Mayer, Stickel Bros. & Co. 224 18 8
Current Account, London Joint Stock Bank 6 2 6
Petty Cash Account 850 16 9
31 9 10
951 1 7
£209,282 9 3

Examined with the Books and Vouchers of the Company and found correct.

JOHN H. TILLY, F.C.A., *Auditor*,
37, Queen Victoria Street, E.C.

3rd November, 1900.

THE FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY, LIMITED.

Dr. *Profit and Loss Account for Six Months ending 30th June, 1900.* Cr.

To Expenditure at the Mines, viz.: £ s. d. £ s. d.
Labour, Cost and Materials 11,321 4 2
Tributers' Account 789 0 0
14,110 4 2

" Payments in London, viz.:
Management Account including Directors' Fees, Secretary and Clerks' Salaries, Rent of Offices, &c., &c. 850 19 4
Auditors' Fees 13 2 6
Insurance 467 6 1
Legal Expenses and Commission on Transfer of Stock 13 8 8
Interest Account 181 10 6
Freight and Charges on Gold 0 10 6
Passage and Travelling Expenses of Officers and Men to and from the Mines, and Inspection of Machinery 247 9 0
1,783 6 7

" Depreciation on Plant Account 520 10 7

14,814 10 4
" Balance, Profit for Half-Year 9,221 11 6
£24,036 1 10

By Value of Gold at the Mines ... ... £ s. d. £ s. d.
" " Auriferous Lead at the Mines ... 21,175 4 8
" " Auriferous Copper Bars at the Mines 211 8 8
3,010 4 0
24,396 17 4
Less Estate and Freight and Charges ... 370 16 0
24,026 17 4
" Transfer Fees 9 4 6
£24,036 1 10

To Income Tax on Profits ... ... £ s. d.
" Balance carried to Balance Sheet 1,979 12 0
37,619 11 6
£39,599 3 6

By Balance from 31st December, 1899 ... ... £ s. d.
" Profit, as above, six months 30,377 11 6
9,221 11 6
£39,599 3 6

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Informe semestral de Mr. Barker
a Dic. 31 de 1899

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,

OLD BROAD STREET,

LONDON, E.C., *30th April, 1900.*

Subjoined will be found the Half-yearly Report of Mr. J. Barker Johnston to the 31st December, 1899.

It will be observed that Mr. Johnston towards the end of his Report gives some reasons for his not being in favour of the proposed deep tunnel; and in a previous part of the Report, under the head of "MOTIVE POWER" he explains the mode of operation which he would prefer to see instituted. From a letter received from Mr. Johnston by the last mail to hand he explains that the scheme to which he refers in that paragraph is the erection of a reservoir adjacent to the Pocuné River, which, he calculates, would afford a supply of water during the dry season sufficient for 80 days' consumption. Some further particulars are to arrive by an early mail.

By order of the Board,

J. JAMESON TRURAN,

Secretary.

MR. F. BARKER JOHNSTON'S HALF-YEARLY REPORT TO THE 31st DECEMBER, 1899.

LA SALADA,

31st December 1899.

To the Directors,

FRONTINO & BOLIVIA GOLD MINING COMPANY, LIMITED.

GENTLEMEN,

I have pleasure in handing you my half-yearly report of the operations carried on here from 1st July up till 31st December, 1899.

Work has been carried on with fair regularity for the first four months, and our object was to crush the ores that the mines could produce without undue forcing, and so allow our development work to be increased, but circumstances have arisen which have completely upset all calculations and virtually thrown the work further back than it was at last half-year's report, which is very unsatisfactory. A sound position for a mine to be in is to have development well ahead of the milling needs, and that was what we have attempted to get, but the milling capacity is a long way ahead of our mines, as is shown by the fact that we cannot keep all the mills running full time, and this is a legacy which we have inherited from our predecessors. This can only be remedied by opening up the lower levels, and sinking the main shafts by power drills, which will give a very large increase in both driving and sinking, over hand labour, and we would have the additional advantage of the fresh air from the drills for ventilation purposes after it had done its work. This means an outlay in more machinery, but in my opinion it would be well spent money, and would very shortly more than repay itself, as with all the mills running full time, when we have the water, the returns can be considerably augmented.

Plans of all the mines, with the exception of Marmajito, where no work has been done, have been prepared, showing the progress made up to the end of the year, since 30th June last, and are being forwarded.

REVOLUTION.

One of these periodic outbreaks is upon us: the country was declared in a state of siege on the 19th October officially, but before that date we had evidence that something was going to happen, from the restlessness of the workmen. All kinds of excuses were pretended in order to get away, and the mothers, fathers, sisters and brothers began to die in large numbers,—in fact there was a sudden epidemic amongst the relatives. We tried to dissuade them from going, but it was useless, and in any case which had a semblance of truth about it, the wages due were given them. What with recruiting parties constantly scouring the Company's properties, and the workmen leaving through fear of being caught, our workmen have been so reduced in numbers, that my anxiety is to try and get enough produce to cover costs. So far I have been able to do so.

THE MINES.

The work of opening up the mines proceeded fairly satisfactorily during the first part of the period under review; but in the latter months of 1899 considerable encroachments were made on the gain already effected, and left us very much in the same position as we were at the first half of the year, due, as will be known, to the disturbed state of the country. Apart from this we have had the usual mining difficulties of bad ground, but the greatest difficulty we have to contend with is the increasing power in the Silencio mine. We have as much water as the pumps can cope with going steadily, and we have not been able to change the pumps and put in the 12-inch pulso which ought to relieve the position for a time; but an electric system for pumping and hauling in this mine has been submitted to the Directors, which, if approved of, will be able to keep the mine dry at all times, and allow the work to proceed regularly. As we are at present, the moment a little water gathers in this mine, our most important point—No. 10 level—must of necessity stop. The sinking has been continued in the Silencio mine until we are in a position to open out another level, and from the winze which is being sunk below No. 9 level, we know that we have good rich ore between No. 9 and the level now being started, which is very satisfactory. The re-starting of sinking in the Salada shaft is another prominent feature, where a fair average lode has been cut and mid levels have been commenced on it. In the Córdoba district three mines have been worked, Marmajito having been shut down; but we have been obliged to practically close all the mines in this district for want of hands. The timbering of all the mines, including those shut down, is being looked after, and they are being kept in good repair for resuming work as soon as circumstances will permit of this. The

ores extracted from the mines during the six months show a decrease all round as compared with the previous six months, but the yield has increased to 1 oz. 4 dwts. 14 grains as against 1 oz. 1 dwt. 23 grains.

EL SILENCIO.

This mine continues to maintain its reputation as a gold producer, and it is fortunate that this is so, as we are mainly dependent on it for our returns. Since June we have been able to get down for another level and from what we have seen of the lode when it was cut in sinking the shaft and the winze 30 feet north of the shaft in No. 9 level, we have as good ore under foot as we have got out of No. 9 levels.

MAIN ENGINE SHAFT.—This has been sunk 5.70 metres = 18.69 feet, which carries us down deep enough to start a new level 70 feet below No. 9 levels. During the last four months, what with water troubles and bad difficulties we have been unable to get any sinking done. The bottom of the shaft is perfectly dry and any water there is comes down the shaft.

HOISTING SHAFT.—We are carrying this down to No. 9 level by stoping out the mineral between Nos. 8 and 9 levels, and when we are able to hoist from No. 9 with the engine, then the main whim will only have the incline shaft and No. 10 level to keep clear—this we expect to get to No. 9 level in a short time.

NO. 10 LEVEL.—This has been started during the half-year, at a depth of 70 feet on the incline, under No. 9 level. The drivage is as yet small, but we have the lode within a very short distance, and we hope soon to cut it. This work will be pushed on vigorously as soon as we get the mine clear of water.

NO. 9 LEVELS NORTH AND SOUTH.—Towards the north we have extended the level 72.81 feet, and about 30 feet north of the main incline shaft a winze was started for the double purpose of letting us know what class of ore we might expect to have between levels 9 and 10 and for ventilating No. 10 level as well. The ore we have met with at the point the winze is going down is of good quality. The southern drive has been extended 116.70 feet and after going through the usual No. 9 quality ore, has got into a cross-course which we knew was ahead, and at the time of writing, is still in the cross-course. Every effort is being made to get through this as quickly as possible and No. 9 level is one of the points which has been always kept at work, when we could do so. These levels have been extended in the six months 189.57 feet.

CROSS-CUT WEST OF NO. 7 LEVEL SOUTH.—We have not got out the lode here yet. We know from the rise below that the lode is going very flat, which accounts for our not intersecting it; we ought to reach it soon, and the flat underlay of the lode has evidently misled my predecessors, and I should not be surprised to find a lode of good mineral, which will be a very welcome addition to our reserves.

PUMPS.—We have been delayed in getting the proposed changes made, but we have now on the ground the 12-inch pole, and we hope at an early date to get the 10-inch pole which came out of the Salada shaft, placed at No. 9 level, and the 12-inch pole at No. 5 level, and this will relieve the situation for a time at least. We can form no idea of when anything will be finished, as we never have the same number of men for two consecutive days, but this matter is being kept in view. Several alterations have had to be made in the shaft for this change, to give the requisite space, and we have had to do this as we could at odd times, not to interfere with the regular work of hauling ores.

RESERVES.—We are much in the same position as we were as at 30th June, as the following table will show. Considerable encroachments have been made on the reserves ever since the hands have been reduced, and we are trenching still on them, as we have only the principal points of work, and No. 9 level south in the fault. We started some winzes ahead of the ends of two of the levels and when this mineral, which properly speaking is not developed ground, is included, we show a slight gain in the reserves, but it is far from being what under normal conditions we ought to have.

			31st December, 1899	30 June, 1899	Increase	Decrease
			Tons	Tons		
No. 9 level	north	rich	... 117	165	—	48
" 9 "	south	"	... 316	410	—	94
" 8 "	north	fair	... 136	136	—	—
" 8 "	south	"	... 775	340	435	—
" 7 "	"	"	... 55	110	—	55
" 6 "	north	poor	... 423	410	13	—
" 6 "	"	rich	... 112	—	112	—
" 5 "	"	fair	... 68	234	—	166
" 5 "	south	"	... 100	154	—	54
" 4 "	"	"	... 210	218	—	8
" 3 "	"	low	... 1,737	1,955	—	218
Donegan's adit		poor	... 4,560	4,500	—	—
		Total	... 8,549	8,920	560	630

SUMMARY

	Tons
Number of tons standing 30th June, 1899 ...	8,629
" " 31st December, 1899 ...	8,549
Decrease ...	80 tons.

and if we add the ore which is being developed and will be developed as soon as the levels are communicated, with the workings from the winzes sheari, we have:—

	Tons
Number of tons standing at 31st Dec., 1899 ...	8,549
Being developed in No. 5 level South, nitrate ...	573
" " 6 " North, rich " ...	65
	9,187
Number of tons standing 30th June, 1899	8,629
Increase ...	0558 tons.

Showing a slight increase of 558 tons in the six months in this mine.

CONTRACT PRICES.—These are much the same as at last half yearly report, and are intrinsically less owing to the exchange having gone in favour of the Company's mark.

ORE MINED.—During the six months this mine has supplied 4,863 tons of ore to the mills, a decrease of 2,072 tons, but the value of the ore has increased somewhat, compensating to a certain extent for the smaller quantity crushed.

LA SALADA.

The most important work in this mine has been the resinking of the sinking of the shaft, which has been sunk 8.25 metres = 27.06 feet, and this has allowed middevels to be started, to get at the rich ore left below No. 3 level. This shaft has now a total depth of 256 feet.

The southern workings of this mine are getting under the old Salada workings and the water is increasing as we extend south, presumably drainage from the old mine, but the new pump is working well and we have no difficulty in keeping the water well in hand. This mine being on the main road from Segovia here, has been most frequently visited by the recruiting parties and we in consequence have very few workmen: just enough to keep the timbers in order. The ores we can extract from this mine will be an insignificant quantity and we have had all that was broken in the stopes cleaned up and sent to the mill, in all about 60 tons ore. No rich ore can be got from this mine until we get the mid level north, below No. 3 level, advanced about 100 feet more, and this drive is at present suspended for want of labour.

COMPARISON OF SIX MONTHS WORK ENDING 20TH JUNE AND 20TH DECEMBER, 1899.

	Dec. 20. Metres	June 20. Metres	Increase Metres	Decrease Metres
Sinking	31.95	16.15	15.80	—
Driving	128.65	71.17	57.48	—
Rising	50.40	68.05	—	17.65
Stoping	857.93	1,042.79	—	184.85

APPROXIMATE QUANTITY OF ORE.

	Dec. 20. Developed Tons	Dec. 20. Being Developed Tons	June 20. Developed Tons	June 20. Being Developed Tons
Adit south ...	278	1,930	—	—
No. 1 level south ...	2,660	1,540	2,620	—
No. 1 Manto ...	1,562	—	1,562	—
No. 2 level south ...	—	2,730	2,595	2,300
No. 2 Manto ...	5,773	—	6,215	—
Tons ...	10,213	6,200	12,992	2,300

RESUMEN.

	Tons.
Developed, 20th June, 1899	12,992
Developed, 20th December, 1899	10,213
Decrease	2,779
Being developed, 20th December	6,200
Being developed, 20th June	2,300
Increase	3,900

The amount of quartz extracted and crushed from this mine, during the six months ending 31st December, 1899, is 4,863 tons.

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CÓRDOBA DISTRICT.

This district, being so far from head-quarters, and the mills so scattered, also suffered severely from the recruiting scares and when the workmen got reduced in numbers, it was considered advisable to concentrate the few remaining men in the Silencio Mine, for two reasons; the first being, that as we were dependent on one mine for our returns, this was our richest mine, and the other was, that we were better able to protect the workmen; and all the miners were transferred from the Córdoba district, leaving only the necessary timber-men to keep the mines open, so that from October up to the end of the year, this district has been closed down and no ores have during that time been extracted and crushed. The amount of ores crushed from the Córdoba district during the six months amounts to 4,726 tons, which is a considerable reduction.

The following Table will show the ground developed and being developed in this district:

	January, 1899.		December, 1899.	
	Developed.	Being Developed.	Developed.	Being Developed.
	Tons.	Tons.	Tons.	Tons.
Tigrito ...	3,034	—	2,201	643
Córdoba ...	450	—	1,368	2,346
Marmajito.	1,527	368	241	1,022
Marmajon.	—	—	13	—
	5,011	368	3,823	4,011

Summary.

Ore developed in January, 1899 ...	5,011	Tons.
" " " December " ...	3,823	"
Decrease	1,188	"
Ore being developed, December, 1899	4,011	Tons.
" " " January, 1899 ...	368	"
Increase	3,643	"

CÓRDOBA MINE.

The lode in the bottom level carries the longitudinal fault with it, which affects the lode, and causes variations both in size and value. Of late the lode has got pinched, and of little value. All that we require, is some labour to get the large quantity of partially developed ground opened up, which would add largely to the ore reserves in this mine, and allow us to extract material for the mill.

TIGRITO MINE.

The lode in this mine also has gone poor and small, after passing through a fault. There is a theory here, which is frequently corroborated by what has been found, that the lodes go poor in valleys and flat ground; the Tigrito end is now in the Guanana valley, and if this theory holds good in this case, we shall not get good milling ore until we get across the valley, which at this point is pretty wide. The air shaft is nearly communicated with the shaft being sunk on the plain, and will be useful for hoisting and pumping from later on, when sinking has to be resorted to, and the ore and water can be discharged at the No. 6 level.

MARMAJITO MINE.

In the bottom of the underhand stopes in this mine, the lode had for nearly the whole length of the stopes, pinched to such an extent, that the ore scarcely repaid its extraction, and looked as if this was going to be an expensive mine to work, owing to the amount of dead work necessary to get out the ore, but we got an agreeable surprise when we cut the lode in the small prospecting shaft, and found that the lode where it was intersected had opened out to 18 inches wide, and assayed 7½ ozs. gold per ton; this is at a depth of 19 metres below No. 2 level. The hoist whim gear is ready for erection, but the work is stopped for want of workmen, and the shaft and stopes are full of water. The "rise" which was being put up, to be stripped down to form the new inclined shaft, got into very heavy ground, which was going to delay the progress, as well as be very expensive to timber and keep in repair, so after duly considering the matter, it was decided to carry a "rise" up in one of the stopes from the cross-cut, which will be much more cheaply kept in repair, and will be made in less time, as we will have sound ground for the shaft.

MARMAJON.

We opened up a small quantity of ore in the new level, but the greater portion of this has gone to the mill, and we have only

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a few tons left standing. There are possibilities of our getting some ore from this portion of the property, but this all depends on the lodes holding out, as the country seems to be distorted in this neighbourhood. Still there are one or two outcrops which we will prospect and see what there is.

RETURNS.

Although the returns for the corresponding period of 1898 are given, there is no common ground for comparison. I calculated that with regular work, we would have produced in the six months about £21,500 profit, but the revolution broke out, and public order was declared disturbed on 19th October last; this was too far on in our milling month to affect to any great extent the October returns, but the drop is very marked in November and December. From the heavy drop in the beginning of the year up till September, the crushings have been in keeping with what the mines could reasonably produce without impoverishing them, and it will be observed that the improvement in the returns was steady, until the civil war interfered with the work.

Details of Produce for six months, July to December, 1899:

	Produce.			Cost.			Estimated Profit at Mines.		
1899.	£	s.	d.	£	s.	d.	£	s.	d.
July	8,644	4	9	5,276	15	5	3,367	9	4
August ...	8,106	12	7	4,386	19	0	3,719	13	7
September	8,943	5	4	5,148	11	6	3,794	13	10
October ...	8,432	2	7	4,959	14	5	3,472	8	2
November	5,880	7	6	3,211	12	4	2,668	14	8
December..	3,767	14	9	2,334	15	8	1,432	19	1
	£43,774	7	0	£25,318	8	4	£18,455	18	8

Stores used and charged during the six months:

		Dollars.	
July ...	...	3,555.50	
August	...	3,636.40	
September	...	2,141.62	
October	...	*3,460.27	
November	...	1,029.75	
December	...	1,140.60	
		$14,983.54	= £2,096 14 2

* provisional

The estimated profits on the spot work out at the satisfactory figure of 42.16 per cent on the gross produce.

The amount of bullion produced per month was as follows:

		Ozs.
July ...	...	3,528.21
August	...	3,319.98
September	...	3,721.57
October	...	3,454.20
November	...	2,331.20
December	...	1,554.30
		17,899.46 ozs.

costing per ounce to win, £1 8s 3½d.

The returns for the corresponding six months of 1898 were as follows:

	Produce.			Cost.			Estimated Profit at Mines.		
1898.	£	s.	d.	£	s.	d.	£	s.	d.
July ...	11,810	6	9	6,691	13	7	5,109	16	2
August ...	11,120	10	7	6,913	6	11	4,207	3	8
September	9,810	18	10	6,005	2	8	3,805	16	2
October ...	10,025	17	7	5,799	16	10	4,226	0	9
November	11,160	13	2	6,378	12	7	4,782	0	7
December	12,420	17	2	6,385	10	3	6,035	6	11
	£66,340	7	1	£38,174	2	10	£28,166	4	3

In the above figures no stores were charged.

The average value of the ore crushed is slightly over that of the previous six months, and works out at 1,229 ozs. bullion per ton. The amount of ores crushed during the six months is 13,977 tons.

SULPHURETS.

I would here point out that whilst credit for £1,523 5s 3½d has been taken for sulphurets in the latter part of 1898, no sulphurets have been credited in this half-year, but a small quantity of non-exportable pyrites has been treated on the spot with favourable results, and the bullion is, unfortunately, still in this country.

During the six months 176.65 tons of sulphurets have been produced of varying assay values, and valued at £3,493 19s 8d.

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gross. These have been added to stock and no credit taken for them. They were produced by the following mills:—

Mill	Tons	Gold ozs.	Silver ozs.	Gross Value £ s. d.
Maria Dama ...	... 85.90	7.14	18.11	2,643 7 10
San Joaquin ...	... 77.00	1.05	2.28	487 16 3
Cordoba ...	... 23.75	3.53	3.76	363 4 7
	Tons 186.65			£3,493 19 8

These will, no doubt, be treated locally in the future and the contents sent to England in the form of bar gold.

MAILS.

These have been very irregular owing to the disturbed state of the country, and at one time we were without any communication with the exterior for a period of nine weeks. Before this war commenced there was a disaster on the river, and the steamer "Francisco Montoya," carrying the mails of the 11th September, was totally destroyed by fire on the river Magdalena. The loss of the mail naturally caused some inconvenience through the non-arrival of the correspondence, giving details of the previous month's work, and we did not know of this until fully a month after it happened, when duplicates of all papers lost were forwarded. The Government were not disposed to risk the sending of the mail from Medellin, carrying the bullion remittance of September, and this was returned to Medellin and still lies there. The roads were not considered safe for sending gold, so I have the produce of October, November and December lying here until we can securely forward them.

SURFACE WORK.

The repairs to houses, mills, &c., have been many, but nothing calls for special notice in this department. The Company's buildings are all in good repair, and our timber expenses (most of which was for underground purposes) shows a decided reduction on the six months of 1898. From July to December, 1898, the expenditure was ... ... $73,675.40 c/m
In 1899, July to December ... ... 63,988.94 „
Decrease ... ... $9,686.46 c/m

At San Joaquin mill, the Pelton wheel tunnel has been carried up to surface, and the alterations made for continuing to use the wire rope until we have the new Pelton wheel in position

There only remains the paving of the water-way and the alterations of the water column, and early in the new year the Pelton will replace the old wheel. Advantage was taken of the necessary stoppage to put in new guides in the batteries and renew the frame work of the shifters.

An additional 10-ton tank for cyanide has been made and erected at San Joaquin, and we are engaged in making another precipitating box to complete this small plant. A new office for the Agent at Salada mine has been put up and an additional room added to the blacksmith's shop.

RAINFALL.

The rainfall for the six months falls short of that of the previous year by 9.92 inches. We total up 84.71 inches as follows:—

July	18.10	inches
August	10.47	„
September ...	13.24	„
October	27.93	„
November ...	11.30	„
December ...	3.67	„
	84.71	total inches.

The heaviest fall was on the 2nd October, when 9.68 inches were registered in 14 hours, but we suffered no damage to speak of.

TIMBER.

I made an arrangement whereby the Córdoba district will be supplied with timber for a number of years from La Playa. I purchased from the owner the exclusive rights for eight years to cut in his forest all the timber we require for the sum of $2,300, which is equivalent to £99 3s 1d, and works out at 8d per day. With a tramway laid down the timber can be brought in cheaply.

DITCHES.

These are all in very good order, and we have been remarkably free from breaks, although we have had some heavy rains. We had some continuous day and night work on one occasion when a landslip occurred, but the earth was cleared and the water kept flowing. Several of the flume boxes have been renewed from time to time, and this has always been done without any prolonged stoppage of the water. The system now being

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manufactured in England for San Antonio will avoid the aqueduct, and about 2 miles of the worst part of the ditch.

The new ditch from the Silencio wheel to Maria Diana has been surveyed, and the track cut for about half the distance.

FARMS.

These are all kept in good order. On Curana, 84 animals were left when the farm was let, and any increase is to be equally divided by the tenant and the Company; periodical inspections show that they are all in good condition, and at the end of the year any profits will be shared. The following animals are at the various farms:

El Alto.

43 cows	valued at	...	...	$ 2,045 c/m
14 bulls	„	...	...	287
18 calves	„	...	...	220
1 heifer	„	...	...	50
1 bull	„	...	...	60
3 young bulls	„	...	...	90
70 oxen	„	...	...	3,630
180 pigs	„	...	...	2,800
28 goats	„	...	...	84
21 ducks	„	...	...	40
125 mules and horses, valued at				15,620
				24,826

Curana.

92 cows,	valued at	...	...	$ 3,625
7 bull calves	„	...	...	70
10 calves	„	...	...	100
41 heifers	„	...	...	1,356
2 bulls	„	...	...	120
7 young bulls	„	...	...	350
8 oxen	„	...	...	480
6 bullocks	„	...	...	375
				6,476

Mason.

38 cows,	valued at	...	...	$ 1,890
11 bull calves	„	...	...	120
9 calves	„	...	...	135
25 heifers	„	...	...	860
14 young bulls	„	...	...	442
1 bull	„	...	...	60
				3,507

Carried forward ... 34,829

Brought forward ... 34,829

Curana.

3 cows,	valued at	...	...	$ 120
2 calves	„	...	...	25
1 bull calf	„	...	...	12
6 heifers	„	...	...	150
2 bulls	„	...	...	120
				427

Cattle left in partnership with Sinforoso Muñoz on Curana:—

18 cows,	valued at	...	...	$ 952
7 bull calves	„	...	...	105
3 calves	„	...	...	45
9 heifers	„	...	...	360
47 young bulls	„	...	...	1,880
				3,347
				$ 38,603 c/m.

In striking a balance, the capital ($3,347) will be deducted, and any balance shared equally.

Résumé.

205 cows ...	...	...	$ 8,637
30 bull calves	...	...	494
42 calves...	...	...	545
82 heifers	...	...	2,776
71 young bulls	...	...	2,762
78 oxen ...	...	...	4,110
1 bulls ...	...	...	360
6 bullocks	...	...	375
180 pigs ...	...	...	2,800
28 goats ...	...	...	84
21 ducks	...	...	40
125 mules and horses	...		15,620
			$ 38,603 c/m.

RESERVES OF ORE.

The maximum may be taken as the ground developed,

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and being developed in the various mines. Both these items amount to:—

Silencio	...	...	..	...	9,549 tons
Salada	...	...	...	...	17,763 „
Cordoba District	...	...	...		7,854 „
					35,166 tons

A large percentage of the above is in the "Manto" lode in Salada Mine, and on the average, it may be taken as low grade ore. A company of this standing ought to have several years supply of ore standing in their mines, and I have tried to get a block of ore on hand, but circumstances have prevented it so far. The average amount of ore crushed in a month, with our mills running as they do now, partially supplied with ore, or occasionally stopped for want of water power, may be taken as 3,400 tons, and provided we could keep on crushing regularly, we would require in a year about 40,800 tons, so that the total ores we have in the mines, developed and being developed, do not represent one year's crushing, and I am afraid with the reduced labour, that the reserves will be trenched on, as very little development can be done with so few hands. The only way to remedy this is to introduce more drills, and with labour which could not be introduced with the indicated before, a large reserve of ore could be obtained.

MILLS.

These have been run very irregularly, at one time want of water hinders the work, at another time it is want of mineral and now we have one mill only at work, due to want of hands. When we have our full complement of men, and a mill runs short of ore, dumps are re-worked and a little amalgam is so won, generally sufficient to pay expenses. Our ore cost is as much to-day, with one mill at work, as if we were working everything full time and if we could keep all our mills working on ore, the ore cost would remain the same as at present and the returns would be largely increased, but this presupposes a large reserve of ore, and means of obtaining this have already been referred to. The position may be summed up in a few words, our milling power is larger than the mines can keep going. It may be as well to explain that by ore cost I mean fixed salaries. At Maria Dona, arrangements have been commenced to alter the driving of this mill, and the Pelton wheel which comes out of the San Joaquin mill will be utilized for this purpose. The Pelton tunnel at San Joaquin is finished and I expect to have this mill working by belting early

in 1900. The house over mill No. 2, at Maria Dona, has been renewed, and a new axle has been put into mill No. 3. Ten heads of stamps will later on be erected in San Joaquin, which will permit of the existing batteries being overhauled gradually without interfering with the crushings, provided we can get workmen. I should like to see better concentration in the mills and the vanners are all overworked, a very small proportion of pyrites in the tailings means a considerable loss per month, when the tonnage is taken into account, and additional concentrators have been suggested to see if we can concentrate better and remove pyrites from the quartz, which carries little or no gold.

STORE IN ZARAGOZA.

The house which was purchased for a store has been fitted up and had additions made to it, and the Company's goods and machinery have been moved into it, which makes us independent of outsiders.

MOTIVE POWER.

What we require here is a constant power to drive the pumps and mills, so that the mines can be kept clear of water and our crushings can go on regularly all through the year; haulage power to open up the mines and keep the mines clear of stone, and the mills supplied with ores. Of course, it is understood that I am referring to the mines which have workings below adit levels. For the pumping and hauling in the Silencio mine, electricity is the best, in my opinion, and a scheme for generating this has been submitted to the Board, and which, I trust, will be approved of. We can count on 60 horse-power from using the water after it has done all our work, and generating electricity; and by making another ditch we can supplement this by another 75 horse-power, which would give all the power required for a considerable numbers of years. A scheme with full details and particulars will shortly be laid before the Directors which will give us a regular supply of water, make this Company much more independent of the elements, and the mills, pumps and electric machinery, if erected, can have a regular motive power whereby the mines can be kept free from water, and the mills can be in a position to run regularly and crush constantly, if they can be supplied with ore.

HEALTH.

Our bill of health for the six months has been remarkably clean. We have had no serious sickness, either amongst the

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staff or the workmen. Endemic diseases, such as malaria, fevers, &c., have been prevalent, but these are to be expected in this climate, and as a rule are not fatal. A comparison of expenditure on the hospital, notwithstanding the exchange being higher, shows a decrease:—

July to December, 1897	...	$2,648.23	=	£250 4 2
July to December, 1898	...	2,731.22	=	230 16 1
Increase	...	$ 82.99	=	£19 8 1

This is accounted for by the fact that our doctor was present the whole time in 1899, and in 1898 he was here only a part of these months, and the locum tenens was paid in paper currency.

FUEL.

This is being brought in by women carriers, and also by mules and oxen at the same price as the women receive. There is no scarcity of labour for this work, as the men are nearly all away in the ranks, the women find this a good means of earning their livelihood. The higher exchange has made a marked difference in this item, and reduced the intrinsic value of the fuel although more has been used.

AMOUNT SPENT IN FUEL.

July to December, 1898	...	$12,029.70	=	£725 12 9
" " 1899	...	$12,056.20	=	584 4 6

The seeds sent out did not germinate well and I was not successful with them.

WORKSHOPS.

These, when we have the steam hammer, lathe, radial drill and planing machines, which are in Barranquilla, erected, will be equipped for any work or repairs which we may need and will be second to no workshop in the country. The steam hammer will enable us to weld and use up the pieces of old shafting and stamp steel which had been thrown aside as useless, and utilize a large amount of the scrap heap.

CYANIDE EXPERIMENTS.

Another ten-ton vat or tank has been made and erected, and a large precipitating box is in hand. The tanks have been erected at San Joaquin mill, and the ordinary mill hands have attended to the charging, &c., of the tanks. We have treated in

all fifty tons of concentrates (including one charge brought from Marti Pampa), and the bullion extracted weighs 195.20 ozs., showing a yield per ton of 3.905 ozs. bullion, or 2.329 ozs. fine gold per ton, and having a value of £285 15s 7d. The two cones will more than treat the pyrites produced by the San Joaquin mill, and the stock of pyrites lying there will be gradually worked up and realized. As is usual in all new work of this kind, unexpected difficulties crop up, and we have found from experience that, by prolonged contact the cyanide solution extracts a large percentage of the precious metals, and we are now getting a better extraction; the amount of gold won shows an extraction of close on 70 per cent., but we are doing better work of late.

PROVISIONS.

The exportation of cattle from this country to Cuba after the war, to a large extent drained this country of fat bullocks, and caused the price to rise, and for a new contract of beef we had to pay an increased price, in paper currency. In other articles the same happened, but the exchange question has reduced their actual value below what these articles were worth in the first months of last year, as the following figures show:—

BROWN SUGAR.

Sept. to Dec., 1898,	mule load	$18.00	@ 209 %	£1	3	3
" " 1899	" "	$18.00	@ 410 %	£0	14	1
			Decrease in value	£0	9	2

BEANS.

Sept. to Dec., 1898,	mule load	$31.74	@ 209 %	£2	1	1
" " 1899	" "	$36.00	@ 410 %	£1	8	2
			Decrease in value	£0	12	11

INDIAN CORN.

Sept. to Dec., 1898,	mule load	$12.10	@ 210 %	£0	15	6
" " 1899	" "	$18.84	@ 410 %	£0	14	10
			Decrease	£0	0	8

BEEF.

Sept. to Dec., 1898,	arroba of 25 lbs.	$5.675	@ 209 %	£0	6	6
" " 1899	" "	$7.50	@ 410 %	£0	5	11
			Decrease	£0	0	7

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The comparisons are made from September on, as the new contracts commenced on 9th August of 1899. The advantage gained in this department is solely due to exchange having gone in favour of the Company.

During the month of September we lost ten fat bullocks from some epidemic, but a change of pasture prevented any more losses; this caused the value of the rations for that month to rise. I have made a good purchase of salt and rice; seeing that we were going to have trouble, I purchased five tons of salt and 100 sacks of rice, which I have in Zaragoza in the store there; and the salt works out at $4.50 put down here and salt in Remedios is $8.50 the arroba. The price comes out much cheaper than to have to buy it hereabouts.

NUMBER OF HANDS EMPLOYED.

European Officials	17
Colombian Officials	11
Miners	213
Carpenters	18
Smiths	20
Engine Drivers	3
Mechanics	8
Mill Hands	167
Surface Hands	327
Wood Carriers	40
Total...	829

The above is taken from the books for December.

SUMMARY

of work done during the six months ending 31st Dec., 1899.

	Metres.	Total Metres.
SINKING SHAFTS:—		
Silencio...	5.70	
Salada	8.25	
„ Air Shaft	23.70	
Marmajito	2.70	
		40.35

	Metres.	Total Metres.
DRIVING LEVELS:—		
Silencio	269.80	
Salada	128.05	
Marmajito	4.10	
Córdoba	25.50	
Tigrito	44.60	
Marmajon	5.10	
		618.05
SINKING WINZES:—		
Silencio...	4.10	
Marmajito	1.10	
		5.10
RISING:—		
Silencio	67.40	
Salada	50.20	
Marmajito	19.00	
Córdoba	19.10	
Tigrito	13.80	
		169.40
CROSS CUTTING:—		
Silencio...	27.60	
		27.60
SLOPES:—		
Silencio...	1,758.07	
Salada	857.94	
Marmajito	372.12	
Córdoba	257.03	
Tigrito	1,065.93	
Marmajon	209.97	
		4,521.06
RETIMBERING:—		
Salada	180.40	
Marmajito	112.10	
Córdoba...	136.80	
Tigrito	83.90	
Marmajon	137.65	
		644.85
CONTRACT RETIMBERING:—		
SILENCIO.		
Sets in drives	391	
„ „ shaft	21	
Studdle pieces	298	
Dry stone walling ...	348.5 metres.	
SALADA.		
Sets in drives	126	

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TRIBUTERS' RETURNS.

These have been disappointing, and again show a considerable decrease; the only mine that shows a slight increase out of six worked being "Victoria Reina," and the gain is trifling. The Quebrada de San Joaquin was not working during the corresponding period of last year. The tributers are having a bad time of it, and several of the mines and mills worked by them are closed down, so that no dependence can be put on these returns.

TRIBUTERS' COMPARISON OF PRODUCE.

Mine.	Half Year, December, 1899.		Half-Year, December, 1898.	
	Ozs. Troy.	Value. $	Ozs. Troy.	Value. $
Tigrito	93.08	1,216.05	264.09	3,273.40
V.R.	44.55	417.75	39.50	303.25
Garibaldi	176.63	1,872.45	293.47	3,179.45
Que. de Maria Dama ...	45.53	583.75	74.80	924.30
Que. de San Joaquin ...	3.30	44.45	—	—
Cecilia	—	—	11.38	143.10
Totals	364.19	4,165.35	683.33	7,975.00

Value $5 = £1.

Mine.	Increase. Ozs. Troy.	Decrease. Ozs. Troy.	Increase. $	Decrease. $
Tigrito	—	170.11	—	2,026.45
V.R.	4.96	—	54.50	—
Garibaldi	—	116.64	—	1,398.00
Que. de Maria Dama ...	—	29.27	—	341.05
Que. de San Joaquin ...	3.30	—	44.45	—
Cecilia	—	11.38	—	143.10
Totals	8.26	327.40	98.95	3,908.60

COMPARISONS OF ROYALTY PAID.

Mine.	Half-year, Dec., 1899.	Half-year, Dec., 1898.	Increase.	Decrease.
	$	$	$	$
Tigrito	252.41	634.68	—	382.27
V.R.	80.50	67.17	13.83	—
Garibaldi	379.32	634.11	—	254.79
Que. de Maria Dama ...	142.40	231.18	—	88.78
Que. de San Joaquin ...	8.89	—	8.89	—
Cecilia	—	28.63	—	28.63
Totals ...	863.52	1,601.27	22.72	754.47

Total Decrease, ozs. Troy, 319.14.

" " $3,869.65 = £761 18s 7d.

" " Royalty, $731.75 = £146 7s 0d.

DELP TUNNEL SCHEME.

It appears to me that the time is past for driving this tunnel, as the workings of the Silencio mine will be below the tunnel by the time it could be driven to cut that lode; and all that it could be used for would be a waterway. The length required to drive to cut the Silencio lode is 2,700 metres, which would occupy, with the erection of the machinery, and driving the tunnel, about ten years. The matter of cost is being gone into, and full details will be duly laid before the Directors.

CONCLUSIONS.

The revolution has been the sole cause of the decrease in the returns, otherwise there would have been returns compatible with the state of the mines, which although not so large as those of the corresponding half-year of 1898, which were won under exceptional circumstances, would have been fairly good. I am afraid the war is going to last for several months, and if this opinion is correct, then, and in reserves to the one mine that is being worked to try and cover expenses, are liable to be seriously diminished in the interval (said they are too small at present), as we are very short of labour, and development is not increasing in proportion, as I would like to see it, with the extraction. The immediate effects of the war we have felt in the drop in the returns, and we are

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going to get the after effects in the increased price of food, as grain is sure to rise in price, as the agriculture is practically abandoned, and the crop for next year will be little or nothing, as no crops are being sown; but as an effect we will have the rise in exchange which is sure to follow, on the issues of paper-money, which have been made, and which will be made, if the war lasts any length of time.

It may be well here to point out, that working one mine only, we are leaving a profit monthly which, with everything in full working order and running regularly, would be largely increased, but a considerable amount of machinery is necessary to attain this position, involving an outlay of capital to be invested in work, which would produce returns and very soon pay for itself.

These mines are well worthy of being attacked in a vigorous manner and being rapidly opened up, and with power drills to obtain a reserve of ore such as would satisfy the ordinary requirements, and keep the mills fully occupied with ore, pumping and winding power sufficient to keep all water in hand, and a constant motive power, these mines, I venture to prophesy, would produce returns which would satisfy the most exacting proprietor.

I am, Gentlemen,

Yours obediently,

R. BARKER JOHNSTON.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,

OLD BROAD STREET,

LONDON, E.C., *7th November*, 1900.

Enclosed is Mr. R. Barker Johnston's Half-yearly Report to the 30th June, 1900.

The telegram relating to the month of September, which under ordinary circumstances would have arrived about the 16th October, has not yet been delivered.

By order of the Board,

J. JAMESON TRURAN,

Secretary.

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Informe de Mr. Barker a Junio 30, 1900

Mr. R. Barker Johnston's Half-Yearly Report to 30th June, 1900.

La Salada,

30th June, 1900.

To the Directors

Fronting and Bolivia Gold Mining Company, Limited.

Gentlemen,

I beg herewith to hand you my report on the operations carried on during the half-year ending this day.

During the six months we have only been able to carry on the little work, that we have been able to do, in a haphazard way. We have not been able to do any work in the mines that are working beyond that most absolutely necessary, and consequently the deadwork and exploration have fallen behind. The numbers of workmen varied almost daily, and we now have got some women in the mines, and some of them are capable of drilling rock, and we pay them the same wages as [illegible] do equal work. There is one advantage in this [illegible] and that is, they are not liable to be recruited.

REVOLUTION.

This is the cause of all our trouble, and we have had it, more or less intensified all the time, and the end seems yet far off; notwithstanding the Government bulletins that the revolution is crushed. The fact that the mails are still suspended, the telegraphs closed, and the gold still lying in this country, points to an unsatisfactory state of affairs to say the least. The route by which this Company's goods are brought up, viz., viâ Zaragoza, has been closed more effectually than the Magdalena river, and we are in danger, if this revolution lasts much longer, of running out of the various necessary stores for carrying on the work; as there are no manufactories of any kind in this country, and we are entirely dependent on the outside world for our supplies. The various Companies in this neighbourhood assist one another with what they have an abundance of, but this system cannot last long, as we shall all run short, if this state of affairs continues much longer. The only steamboats running on the rivers are armed boats, in the employment of the Government, and they are not particularly willing to carry private merchandise.

THE MINES.

It has been a continual struggle, what with the great want of labour, the water troubles, due to the dry season, and the difficulty of getting mine timber brought in, to keep the mines working. For several months, the most important point in the Silencio mine, No. 10 level, was under water, but certain alterations made in the pumps have enabled us to get this mine dry and allow of the bottom workings being attacked and opened up. The water wheel now with 5½ revolutions, can keep all the coming water, so that we have a reserve of power now, which I trust will keep the mine in fork, until we get the 20 H.P. electric pump put in, and this will enable us to do any repairs to the water wheel which necessitates our stopping it. A good concrete loading has been put under the horses, carrying the water wheel and this is now made secure.

At the Salada mine, the mid-levels below No. 3 level, have been driven north, and the lode, though fairly rich, has not yet opened out, but we have good ore ahead, and hope to get this mid-level extended as rapidly as the reduced labour will permit of. A new pit head frame and ore bins have been erected at this mine and are giving satisfaction.

In the district three mines are practically shut down, [illegible] Marmajito and Marmajon. A small quantity of ore has been got out of Tigrito and crushed, to try and cover the expenses of this district, and in this we have been successful. The amount of ore crushed during the six months is small, but the yield per ton is considerably higher.

EL SILENCIO.

This mine is, at present, the mainstay of the whole concern, and we cover all our costs from this mineral, although we have only been able to keep the mill running about half time. We have evidence that, below the No. 9 level, the ore continues in depth and is rich and although we have not been able to open up much ground below No. 9 level, we have a winze going down on the lode to the north of the shaft, which, so far, has given gratifying results. Now that the mine is clear of water, the opening up of the No. 10 levels will have careful attention, as well as the sinking of the shaft for another level as soon as we can get workmen.

No. 10 Level.—The work done at this point has been of the most meagre description, and only 3.28 feet have been driven in the crosscut in January, which brought us to the hanging-wall

of the lode, when the flooding of this part of the workings interrupted all work for the remaining months.

Hoisting Shaft.—This has been carried down to No. 9 level south, and we shall soon have the road laid down, and this will relieve the whole whim of a deal of work and let it deal with the stone and ore from No. 10 level and the main shaft.

No. 9 Levels North and South.—We have been able to do a little driving in both of these ends, and the north end has been advanced 20.30 feet; the lode is rather mixed with country rock and poor in value, but we look for an improvement as we advance. The south end has been driven 35.42 feet, and there are indications that we are getting through the fault, as branches of mineral are beginning to appear in the face of the drive.

No. 8 Levels North and South.—As the water never rose to these levels, we have been able to do a little more driving at these points, and the levels have been extended in the six months 78.06 feet. The lode in the north end is rather small but of fair value, whilst the south end carries a well formed lode, which has fallen off somewhat in value, but I look upon this as only temporary.

No. 6 Level North.—This has been extended in all 50.84 feet, and has got into one of the faults. We had to suspend this as we were draining a winze ahead, and the pumps were unable to cope with the water. The winze being drained, driving will be resumed.

Pumps.—The foundations of the waterwheel have been repaired and strengthened, and the rockers renewed. New crank arms had to be fitted to the wheel, and one new gudgeon; all these repairs tended to interfere with the mining work, and help to account for the small quantity of exploration done. We were unable to erect the 12-inch pole as intended, owing to a flaw being discovered in an important piece, it was decided to erect a 10-inch pole at No. 9 level to raise the water to the 10-inch pole at No. 3 level, and as this latter has more surface water than it could deal with, we carried the 6-inch pole column from No. 5 level up to the adit level, thus relieving the No. 3 pole of the No. 5 level water. These two poles (10-inch and 6-inch) are slightly less than a 12-inch pole, but the arrangement is working well, and we have control of the water and a slight margin of power, in proof of which we have the mine dry.

Reserves.—There is apparently a slight increase in the ore standing in this mine, but this is entirely due to the small quantities of ore we have been able to crush monthly. As we had neither miners nor timber to keep Donagan's adit open, it has

run together and as the ore is low grade and would only pay if crushed in large quantities, it has not been included in the reserves. The following table will therefore show the actually available ore we have to depend on at this date

	30th June, 1900. Tons	30th June, 1899. Tons.	Increase. Tons.	Decrease. Tons.
No. 9 level north, rich ...	106	165	—	59
No. 9 level south, rich ...	526	410	116	—
No. 8 level north, fair ...	178	136	42	—
No. 8 level south, rich ...	620	—	620	—
No. 8 level south, fair ...	810	340	470	—
No. 7 level north, poor ...	250	—	250	—
No. 7 level south, fair ...	36	110	—	74
No. 6 level north, rich ...	240	—	240	—
No. 6 level north, poor ...	400	410	—	10
No. 5 level north, rich ...	50	234	—	184
No. 5 level south, average.	85	154	—	69
No. 4 level north, average.	80	—	80	—
No. 4 level south, average.	—	215	—	215
No. 3 level south, poor ...	1,041	1,955	—	914
Total tons	4,422	4,129	1,818	1,525

Resume.

No. of tons standing 30th June, 1900 ...	4,422 tons.	
" " " 30th June, 1899 ...	4,129 "	
Increase	293 tons.	

Ore Mined.—During the half-year ending 30th June, we have sent to the mill from this mine 2,833 tons of ore, a very marked decrease in quantity.

La Salada.

In this mine the mid level below No. 3 level has been driven north, for a distance of 36.40 feet, and although the lode has not made in size, the value is good. The junction of the two lodes lies more to the north than we have reached, and I look for an improvement both in size and value farther ahead.

Adit Level South.—This has been extended 93.31 feet, and the drive has passed through mineral of varied values. The lode

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is large but not very valuable, still it will pay to crush. For exploration purposes this level will be continued, as the old Salada workings lie to the south, and we will get beneath them.

GENERAL.—This mine, as far as the extraction of ore was concerned, was practically closed, but a few men having come in, we were in a position to resume getting out ore for the mill in fair quantities.

New pithead work and ore bins have been erected, and are working well. At the winding engine a tank has been erected as a hot well, and this enables the boilers to be fed with hot water and saves a considerable quantity of fuel.

I purpose laying down about 350 feet of rails to an outcrop of the Manto lode as a precautionary measure, and if our men get so reduced in number that we cannot extract ore from this mine, this outcrop, which assays fairly well, can be run to the mill cheaply by women, if necessary, and so keep the mill running.

COMPARISON OF SIX MONTHS WORK ENDING 20TH JUNE, 1900, AND 20TH DECEMBER, 1899.

	Dec. 20, 1899. Metres	June 20, 1900. Metres	Increase Metres	Decrease Metres
Driving	128.65	39.55	...	89.10
Rising	50.40	12.15	—	38.25
Stoping	857.94	309.67	...	548.27
Sinking	31.95	—	—	31.95

APPROXIMATE QUANTITY OF ORE.

	20th Dec., 1899. Developed Tons	20th Dec., 1899. Being Developed Tons	20th June, 1900. Developed Tons	20th June, 1900. Being Developed Tons
Adit south	278	1,930	1,785	979
No. 1 level south ...	2,600	1,540	2,107	1,540
No. 1 Manto ...	1,562	—	1,562	—
No. 2 level south ...	—	2,730	—	2,730
No. 2 Manto	5,773	—	5,773	168
Tons ...	10,213	6,200	11,227	5,417

SUMMARY.

Developed 20th June, 1900	11,227	Tons.
„ 20th December, 1899 ...	10,213	„
Increase	1,014	„
Being developed, 20th December, 1899	6,200	Tons.
„ „ 20th January, 1900...	5,417	„
Decrease	783	„

The amount of quartz extracted and crushed from this mine during the six months of 1900 is 1,633 tons.

CÓRDOBA DISTRICT.

At the beginning of the year we had this district practically closed down, but a few men having come in, we commenced getting out a little mineral from the Tigrito mine, and crushed it in the Californian mill which worked by day only, and we were thereby enabled to cover the expenses of this district. Some of the native mills have been working on sands, and producing a little gold.

The mines in this district are practically in much the same condition as at last report, with the exception of the small quantity of ore extracted and crushed from Tigrito, which amounts to 394 tons.

RETURNS.

During the half-year, there have been crushed 4,860 tons of ore, producing 9,610·60 ozs. of bar bullion. The amount of ore crushed in the corresponding period of 1899 was 20,423 tons, so that we have a decrease of 15,563 tons crushed for this half year. The average yield per ton has risen to 1 oz. 14 dwts. 5 grs., as against 1 oz. 1 dwts. 23 grs. for last year.

The Amount of Bullion produced monthly was as follows:—

	Bullion.
January	1,850.65 Ozs. Troy.
February	1,887.00 „
March	1,330.35 „
April	1,111.45 „
May	1,057.60 „
June	2,034.70 „
Total ...	10,171.75 „

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Details of Bullion Produced.

Company's Mills	...	9,610.80 Ozs.
Cyanide treatment	...	169.75 „
No. 1 Lead Bar ...	...	170.95 „
Tributers' Gold ...	...	184.40 „
Purchased „ ...	..	35.85 „
		10,171.75 Ozs.

Comparison of Produce of Mills for first half-year of 1900 with first half-year of 1899.

Bar Gold.

Mill.	1900. Ozs.	1899. Ozs.	Decrease.
Maria Dama	7,793.65 ...	11,793.88 ...	4,000.23
„ native ...	76.60 ...	1,624.87 ...	1,548.27
San Joaquin	1,953.05 ...	3,824.46 ...	1,870.51
„ native ...	40.65 ...	62.80 ...	21.85
Córdoba	188.15 ...	2,624.50 ...	2,436.35
„ native ...	388.30 ...	3,290.37 ...	2,902.07
El Salto	69.20 ...	138.59 ...	69.39
	9,610.80 ...	22,459.47 ...	12,848.67

In the month of June four copper plates from Maria Dama mill were taken up and cleaned, and we obtained from them 1,526.10 ozs. bullion, and this mainly accounts for the sudden rise in this month's production.

Auriferous Lead.

We have collected the galena from the concentrates, as far as we can with the present concentrators, and smelted some of it, and in the June returns there appears one pig of lead weighing 117 lbs., and valued here at £211 8s 8d, as it contains 47.40 ozs. fine gold and 123.53 ozs. fine silver. This lead, which formerly was allowed to go into the pyrites, is now being collected, and in the year will produce a fair sum of money. This in America would be called a "new departure," and any produce so obtained is from what was practically a waste product.

Details of Produce for six months ending 30th June, 1900:

1900.	Produce. £	s.	d.	Cost. £	s.	d.	Estimated Profit at Mines. £	s.	d.
January ...	4,512	11	0 ...	2,207	17	3 ...	2,304	13	9
February .	4,190	14	0 ...	1,791	7	1 ...	2,699	6	11
March ...	3,048	14	2½ ...	1,638	3	0 ...	1,410	11	2½
April	2,745	12	4 ...	1,522	8	9 ...	1,223	3	7
May	2,653	5	2 ...	1,834	16	0 ...	818	9	2
June	6,896	0	8 ...	2,118	9	7 ...	4,777	11	1
	£24,306	17	2½	£11,163	1	8	£13,233	15	8½

The estimated profits at the mine work out at the abnormal figure of 54.24 per cent. of the gross produce. It may be as well to point out that this must not be taken as a basis in the future, as we are only doing the absolutely necessary work and all the other dead work and exploration which under ordinary circumstances would be going on, is stopped.

The returns for the corresponding six months of 1899 were as follows:

1899.	Produce. £	s.	d.	Cost. £	s.	d.	Estimated Profit at Mines. £	s.	d.
January ...	13,138	4	5 ...	6,452	2	3 ...	6,686	2	2
February .	10,233	0	11 ...	6,654	17	2 ...	3,678	3	9
March ...	6,850	14	0 ...	5,715	13	2 ...	935	0	10
April ...	7,901	7	7 ...	5,539	10	0 ...	2,361	15	7
May ...	8,133	7	5 ...	5,460	16	2 ...	2,672	11	3
June ...	8,562	2	5 ...	5,340	5	4 ...	3,211	18	1
	£54,718	15	9	£35,163	4	1	£19,555	11	8

All the gold won up to date is still lying here.

It may be interesting to know that the ores crushed from the various mines gave the following yields:

Silencio	...	2.75 ozs. bullion extracted per ton.
Salada	...	0.67 „ „ „ „
Cordoba	...	0.47 „ „ „ „

SULPHURETS.

During the six months 77.84 tons of pyrites have been produced of varying assay values, and valued here at £1,453 7s 10d gross value. They have been added to stock, and no credit has

been taken for them. They were produced by the following mills:

Mill.	Tons.	Gold. Ozs.	Silver. Ozs.	Gross Value. £	s.	d.
Maria Dama...	45 ...	6.07 ...	14.61 ...	1,212	2	7
San Joaquid...	32.84 ...	1.53 ...	2.97 ...	221	5	3½
	77.84 tons.			£1,433	7	10½

MAILS.

The mails are still suspended, and the telegraph lines are closed to the public and even cables are subject to censorship: the result is that our correspondence arrives very irregularly and for outgoing mails, we have to take advantage of any foreigner going out of the country.

RAINFALL.

The registered amount for the six months is practically equal to the amount registered here in the corresponding months of 1899, as the following table will show:—

1900.		
January	7.67	inches.
February	1.09	"
March	5.37	"
April	6.40	"
May	17.85	"
June	16.44	"
Total	55.72	inches

WORKSHOPS.

A small cupola has been erected, and successfully worked with the coke of this country; with this we will be able to cast any piece we may require, on the ground. The advantage of this, both in the saving of time, carriage and cost, will be self-evident, when it is known that the nearest foundry is 120 miles away.

DITCHES.

These are all in good order. We have occasionally some land-slips, after heavy rains, and these are attended to as they occur. On the 9th June, we had a serious break, which unfortunately occurred between the Mahon pump and the mines, so that the pumps were useless. This break took nine continuous days

and nights' work, to get the water on again. This would have been very serious, had we not been able to get the Tias water, which joins our ditch lower down. I made arrangements with Mr. Halse, the manager of Suete, to get all this water, until the break was repaired, and we are indebted to this gentleman's kindness, as this saved the situation and prevented our mines from being flooded to a large extent, which would have necessitated a long time to get them pumped out.

The new ditch for Maria Dama has been cut and graded, and the timber for flumming certain parts of it, where the ground is porous, is being prepared. Another ditch is being surveyed to the Bolivia stream, and by this we will be able to supplement the Pocuré supply by an amount of water almost equal. This ditch will not exceed three-quarters of a mile in length, and will give us two sources of supply in case one should fail us, and we will also get the benefit of some of the showers, which are very local.

FARMS.

Periodical visits are made to these and they are all receiving careful attention and are in good order. The following animals are on the various farms and on the Salada.

183 cows,	valued at	...	...	$ 8,050 c/m
59 bull calves	"	...	...	750
49 calves	"	...	...	745
60 heifers	"	...	...	2,360
8 bulls	"	...	...	580
21 young bulls	"	...	...	940
74 oxen	"	...	...	3,700
6 bullocks	"	...	...	380
145 pigs	"	...	...	2,900
27 goats	"	...	...	90
18 ducks	"	...	...	40
120 mules and horses, valued at				16,000
				$ 36,535 c/m.

The foregoing stock and animals are all in good condition.

MILLS.

These have been running intermittently, due to our having too few hands in the mines, to keep them fully supplied with ore. At San Joaquin Mill, the new Pelton has been put to work, and it is a great improvement, and much less time is lost, in stoppages for repairs, splicing wire ropes, &c., &c. The three Colombian

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...mills crushed the following quantities of ore, in the various months :—

	Maria Dama Mill	San Joaquin Mill	Córdoba Mill
January	700 tons	321 tons	—
February	648 „	169 „	—
March	538 „	268 „	44
April	336 „	275 „	101
May	259 „	311 „	105
June	352 „	289 „	144
	2833 tons	1,633 tons	394 tons.

SURFACE WORK.

We have attended to the more necessary work as required. A new house is being built for the cashier, as his house was sinking, being over a stope. The head-quarters of the staff has had extensive repairs to the roof, and a large number of the colonnes of the verandah have been renewed, and the whole house and offices have been painted. At Maria Dama the excavations for the new Pelton for driving the mill are in progress, as well as the Tail race.

CYANIDE WORKS.

All the cyanide having been used, and none procurable in this country, these have had to be suspended until a further supply of cyanide can be obtained; meanwhile the pyrites produced are being stored until we can re-start this treatment.

POWER.

The bringing in of the water from the Bolivia stream to the new Maria Dama ditch, will give us from 900 to 1,000 cubic feet of water per minute and, with a head of 120 feet, will enable us to have the electric generating station at Maria Dama mill, which will be a double advantage in having a central electric station at the mill and a much shorter distance to carry the current and consequently much less costly to erect.

HEALTH.

The staff and workmen have all enjoyed remarkably good health during the past half-year, and, excepting a few cases of malarial fevers, we have not much to complain of under this head.

TRIBUTERS' RETURNS.

The revolution has effected the Tributers' returns as well as the Company's, and only one man shows an increase over the corresponding period of last year.

None of the Tributers' mines are working, and all that is being done is the re-working of some sands and tailings. The Tributers' at San Antonio and El Tejar, have started recently, and are working alluvial ground.

TRIBUTERS' COMPARISON OF PRODUCE.

Value $5 = £1.

Mine.	Half-Year, June, 1900. Ozs. Troy.	Value. $	Half-Year, June, 1899. Ozs. Troy.	Value. $
Tigrito	23.25	296.74	91.85	1,072.20
V.R.	33.90	381.49	37.67	423.45
Garibaldi	95.85	1,237.76	43.80	584.55
Que. de Maria Dama ...	25.80	328.09	31.15	311.80
Que. de San Joaquin ...	—	—	6.50	89.20
San Antonio	3.45	40.50	—	—
El Tejar	2.45	34.21	—	—
Totals	184.40	2,318.79	221.37	2,078.25

Mine.	Increase. Ozs. Troy.	Decrease. Ozs. Troy.	Increase. $	Decrease. $
Tigrito	—	68.60	—	775.46
V.R.	—	3.77	—	41.96
Garibaldi	52.05	—	656.21	—
Que. de Maria Dama ...	—	15.35	—	185.71
Que. de San Joaquin ...	—	6.50	—	89.20
San Antonio	3.45	—	40.50	—
El Tejar	2.45	—	34.21	—
Totals	57.95	94.62	730.92	1,090.33

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COMPARISONS OF ROYALTY PAID.

Mine	Half year, Jan., 1900	Half year, June, 1900	Increase	Decrease
	$	$	$	$
Tigrito	59.33	214.44	—	155.11
V.K.	76.30	82.29	—	5.99
Garibaldi	247.55	116.31	131.24	—
Que. de Maria Dama ...	82.02	127.93	—	45.91
Que. de San Joaquin ...	—	89.20	—	89.20
San Antonio	40.50	—	40.50	—
El Tejar	34.21	—	34.21	—
Totals ...	539.91	630.17	205.95	296.21

Total Decrease, ozs. Troy, 36.97.
" " $359.41 = £71 17s 7½d.
" " Royalty, 290.26 = £18 11 0½d.

PROVISIONS.

These have not risen in price in proportion to the exchange, and consequently are not dear. I have not been able to get an acceptable contract for fat cattle, and in the meantime I am going to pay a contractor a commission on each head of cattle that he delivers on the mines until we see how things can be worked. No one would contract to supply us for a year excepting at a very high figure, and cattle are too dear to contract at these prices for a year ahead, as no doubt the price will drop later on.

NUMBER OF HANDS EMPLOYED.

European Officials	13
Colombian Officials	6
Miners	158
Carpenters	31
Smiths	17
Engine Drivers	6
Mechanics...	15
Mill Hands	163
Surface Hands	519
Wood Carriers	24
Total	952 ✓

The above is taken from the books for June.

SUMMARY ✓

of work done during the six months ending 30th June, 1900.

	Metres.	Total.
SINKING SHAFTS:—		
Silencio	12.60	
Tigrito	3.60	
		16.20
SINKING WINZES:—		
Silencio	8.90	
		8.90
DRIVING LEVELS:—		
Silencio	61.50	
Salada	39.55	
Tigrito	7.30	
		108.35
RISES:—		
Silencio	25.00	
Salada	12.15	
Córdoba	15.20	
Tigrito	3.30	
Matamatito	14.70	
		70.35
CROSS-CUTTINGS:—		
Silencio...	2.40	
		2.40
STOPES:—		
Silencio...	1,094.55	
Salada	309.67	
Tigrito	227.00	
		1,631.22

CONTRACT RE-TIMBERING:—

SILENCIO.

Sets in drives	126
" " shaft	23
Straddle pieces	497
Dry stone walling ...	48 metres.

SALADA.

Sets in drives	446
" " shaft	2
Straddle pieces	200
Lagging 3,726 feet in shaft.	

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CONCLUSION.

Whilst this war lasts, no estimate can be formed of what we can do, as the working conditions may alter at a moment's notice. All the foreign companies have suffered from the effects of the war, and we have been more fortunate than most of them. Fortunately we have some rich points in our main producing mine, and if we get anything like fair play, I shall be able to more than cover costs, and I shall certainly use my utmost endeavours to attain this object. Unfortunately all the gold is still lying in this country, and we see very little prospects yet of our getting it away, as from what we can learn, there is not much chance of this war coming to a speedy termination.

I am, Gentlemen,

Yours obediently,

R. BARKER JOHNSTON.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, Gresham House,
Old Broad Street,
London, E.C., *3rd April*, 1901.

Subjoined is Mr. R. Barker Johnston's Half-yearly Report to the 31st December, 1900.

By order of the Board,

J. JAMESON TURAN,
Secretary.

Mr. R. BARKER JOHNSTON'S HALF-YEARLY REPORT, TO 31ST DECEMBER, 1900.

La Salada,
31st December, 1900.

To the Directors
Frontino and Bolivia Gold Mining Company, Limited.

Gentlemen,

I beg to hand you my report on the operations carried on here during the six months ending to-day.

Our main object has been the working of the mines, with our reduced labour, in such a way as to cover costs, and leave if possible a profit each month. The plants have fluctuated accord-

Informe de Mr. Barker
a Dic. 31, 1900

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ing to the difficulties we have had to fight against, but we have always had a balance on the right side, as would be seen from the monthly reports; unfortunately, these profits have not been realized, but I think the time is not far distant when they will be, as I have been informed that one month's production (September, 1898) has left this country, and the others may probably soon follow.

The employment of women during the Revolution has worked very well, and we have been able to get our ditches and the masonry work at Maria Dama well advanced, which, without their aid, would have been impossible. The women seem to appreciate being able to earn their livelihood, and I have no doubt will continue working after the war is over.

The conditions under which we have worked during the last six months have been very much similar to what we previously experienced as far as the war is concerned; but the continuation of the war for such a long time has intensified our difficulties, and we are running short of necessary stores, which is all the more aggravating, as we have them lying in the country and unable to get them up here.

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REVOLUTION.

According to the Government reports, this has been crushed a good many times, but it still goes on. Judging from outside events, I should say that it will not last much longer, unless some new element enters into it, and the cause of its ending will be the want of arms and ammunition on the part of the opposition. These people are of indomitable spirit when the upsetting of a Government they disapprove of is the object. No hardships are too great to undergo and they will sacrifice anything to gain their end, and though they may be defeated again and again, they never get disheartened nor dismayed. According to some Government figures, there have been killed in this revolution, on both sides, up to the end of October last 20,000 men, and since then, there has been considerable fighting. The change of Government, it was thought, might put an end to the war, but it only embittered the feeling, and it is more than probable, that had the old Government been allowed to remain in power, the revolution would have ended long ere this. At times telegrams get transmitted and cables occasionally get delayed, but there is no official mail yet, although two remittances of bullion have been sent from Medellin to the exterior.

THE MINES.

The revolution we have had all the time, and we have had on occasions water troubles, foul air and sickness, which have complicated matters and interfered with the general work, and the mine work in particular; still, with all these difficulties, we have been enabled to get our bottom level in Silencio opened up to a considerable extent towards the north and started southwards, and the way in which the northern level is opening up, so far, leaves nothing to be desired, and the southern drive promises well also. That we have a valuable block of ground between No. 9 level and the new one, No. 10, is amply proven by the winze to north of the shaft, and in southern side of the shaft by the work done below the hoisting shaft, where good mineral has been found.

In the Salada mine we have got into the rich mineral to the north of the shaft, which assays well, whilst to the south we have of late got into a run of very poor ground with massive lodes, which as a rule here are low grade.

About 400 feet of tramway were laid from the Salada shaft to the outcrop of the Manto or mother lode, and, chiefly with women for trammers, we removed 757 tons of this to the mill, until the ore got too poor to pay. An old level was opened up in this work, and we are continuing this as a prospect and getting some ore out.

Our greatest difficulty at present is with our steel hauling cables. These are in a very bad state, and to keep things moving we have had to cut pieces out and put some half-inch chain in the Silencio cables (fortunately we had the chain lying here) until we can get new cables. The chain is a makeshift, and so far is working well.

In the Córdoba district there is nothing of importance calling for comment.

The Garibaldi lessees' term having expired, I have decided to do a little prospecting in that neighbourhood instead of leasing it again, as it was bringing in very little.

Nineteen new shaft sets have been put in the Salada shaft, carrying this down to the solid rock and making the shaft secure, and eighteen new shafts sets have been put in the Silencio shaft.

At the mouths of the shafts of Silencio and Salada mines we have put up an arc lamp of 1,000 candle power, which are great improvements for hauling mineral at night, which we frequently have to do.

The electric pumping plant is lying at Barranquilla, and we have been unable to get it up, but some of the lighter pieces were sent round by Puerto Berrio, and are on the ground, the heavy pieces, unfortunately, cannot be brought that way.

In the waste heap of Silencio it was found that the smalls contained a fair proportion of pyrites and assayed well, and we collected 290 tons of this and milled it, and got fairly good results from it; later on we shall put more of this through the mill.

Some workmen are coming in, but we can neither get a sufficient number, nor the class of labour that we would prefer.

EL SILENCIO.

This rich mine still holds its own and continues giving us rich ore whenever we call for it. The way this mine is opening up in the lowest level is a positive pleasure, and we are getting a block of ground opened up, which fully comes up to what we looked for, and in the future crushings this ore will help to average the poorer ore.

Unfortunately we have not been able to get men to sink the shaft, as we required every man we had to keep things going without this, and we await the arrival of more workmen to get this important work restarted.

No. 10 Level North.—Since we have been able to keep this point clear of water, we have had some men driving it, and we have extended this level 40.34 feet, and the mineral has proved rich. From here up to No. 9 level we have a block of ore, 70 feet deep; this is the greatest depth between any of the levels in this mine.

No. 10 Level South.—Under ordinary circumstances we would have made the one cross-cut do for both No. 10 levels north and south, but at this point the lode is so near the shaft that this is impossible. It will be remembered that in sinking the shaft we cut the lode a little higher up, and that it doubled back again, and is so close to the shaft that we had to start the No. 10 level south on the south side of the shaft. This level has been driven 20.90 feet, and has the lode in the face, of an average size and very good mineral, and I shall be much disappointed if this level does not open another block of valuable ground to the south.

No. 9 Levels North and South.—These have been driven respectively 32.47 and 82.65 feet. In the north end the lode is smaller than usual but fair ore; in the south end we started in the fault and eventually got through this and found the lode at first poor, but afterwards it regained its size and a good value, only to fall off again in value, and this point was forced to get the drive through the poor ground, and I should say we have succeeded; hence the vast difference in the drivage of the two ends.

No. 8 Levels North and South.—These have been driven nearly the same distance, viz., 40.67 and 47.39 feet respectively. In the north end the lode got pinched and fell off altogether in value, whereas in the south drive, the lode held good all the way, with slight variations in value until we communicated with the drive off winze No. 3 in the No. 7 level south.

Pumps.—The alterations, as explained in last half-year's report, have continued to work well and enabled us to get the No. 10 levels opened up to a certain extent. We are looking forward to getting the electric pump up from Barranquilla, when we will be able to stop the waterwheel and do some necessary repairs.

Reserves of Ore.—I am pleased to say that we have not lost much ground in our stock of ore, as the following table will show:—

	Stoped. Tons.	Blocked. Tons.	Increase. Tons.	Decrease. Tons.
No. 10 level north, rich ...	—	286	286	—
No. 9 level north, fair ...	106	182	76	—
No. 9 level south, rich ...	526	168	—	358
No. 9 level south, poor ...	—	298	298	—
No. 8 level north, fair ...	178	110	—	68
No. 8 level south, rich ...	620	444	—	176
No. 8 level south, fair ...	810	1,024	214	—
No. 7 level north, poor ...	250	82	—	168
No. 7 level south, fair ...	36	20	—	16
No. 6 level north, rich ...	240	296	56	—
No. 6 level north, poor ...	400	228	—	172
No. 5 level north, rich ...	50	50	—	—
No. 5 level south, fair ...	85	85	—	—
No. 4 level north, fair ...	80	—	—	80
No. 3 level south, poor ...	1,041	1,041	—	—
	4,422	4,314	930	1,038

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SUMMARY.

	Tons.
Number of tons standing at 30th June, 1900 ...	4,422
" " " 31st Dec., 1900 ...	4,314
Decrease	108 tons

ORE MINED.—During the six months there have been extracted and sent to the mill 2,587 tons of ore, showing a decrease of 246 tons on the preceding six months.

HAULING CABLES.—These are causing us great anxiety, as they are getting so bad that we have had to stop sinking in No. 9 level below the hoisting shaft, and pieces of chain have been put in both the steam engine and mule-whim cables.

GENERAL.—An arc lamp of 1,000 candle power has been put up at the mouth of this mine for night work, Maria Diana supplying the current.

LA SALADA.

In this mine the valuable ore lies to the north of the shaft mainly; towards the south we are, at the time of writing, in a run of very poor ground, but the lode is there, and massive, which is probably the cause of its poor quality. We shall have to drive on it in the hope of getting through this poor ground and into better mineral.

MID-LEVEL BELOW NO. 3 LEVEL NORTH.—This has been advanced 65.50 feet, and now has a total length of 101.90 feet, and although we have not yet got beneath the stopes in the bottom of No. 3 level north, we have reached the rich mineral that they were put down to get.

ADIT LEVEL SOUTH.—This level have got into barren ground, with a very large reef of no value, but we have to drive to the south to prove the ground under the old Salada mine. This level has been extended 65.61 feet in the six months.

NO. 2 LEVEL SOUTH.—The ore in this drive, which has been driven 52.31 feet, is of milling grade, and assists us in supplying the mill with ore.

SHAFT.—This has been retimbered, and nineteen sets have been put in, and it is now thoroughly secure; but the timber of

this country, even the best of it, is so short lived in a mine, that I purpose putting iron girders in the shaft instead of wooden sets, and this will make a permanent piece of work, and last for a long time.

GENERAL.—More workpeople having come in, the extraction of ore from this mine has been resumed, and the mill has been kept fully supplied with fair average ore from the mine and the open cast.

COMPARISON OF SIX MONTHS' WORK ENDING 20TH JUNE, 1900, AND 20TH DECEMBER, 1900.

	June 20, 1900. Metres	Dec. 20, 1900. Metres	Increase Metres	Decrease Metres
Driving	39.55	116.27	76.72	—
Rising	12.15	32.50	20.35	—
Stoping	309.67	157.98	—	151.69

APPROXIMATE QUANTITY OF ORE DEVELOPED.

	20 June, 1900. Tons	20 Dec., 1900. Tons	Increase. Tons	Decrease. Tons
Adit level, 50 ...	1,785	3,591	1,806	—
Level No. 1 south...	2,107	2,072	—	35
Level No. 1 Manto ..	1,562	1,820	260	—
Level No. 2 Manto ..	5,773	5,620	—	153
Level No. 2 south...	—	807	807	—
Mid-Level below No. 3 north ...	—	459	459	—
Tons ...	11,227	14,369	3,332	188

SUMMARY.

Approximate quantity of ore in sight, 20th Dec., 1900...	14,369
" " " " 20th June, 1900...	11,227
Increase	3,142

ORE MINED.—During the six months this mine produced 2,527 tons of ore for the mill, and from the open cast or outcrop of the Manto lode we extracted 785 tons, an increase over the previous six months of 1,679 tons.

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CÓRDOBA DISTRICT.

There is practically nothing new in the mines of this district. Tierito continues supplying a little ore to the Californian mill, which covers expenses, and until more people come in we won't be able to increase this much. Meanwhile, the mines are being looked after and kept open. The amount of mineral sent to the mill in the six months is 853 tons, a considerable increase over the previous half year.

MILLS

These have crushed all the mineral that we have been able to send, but they have been running short time, although our crushings are considerably larger than in the first half of this year, as will be seen from the table that follows :—

María Dama mill ran	115¾	days in the six months	
San Joaquin "	140½	"	"
Córdoba "	73½	"	"

so that

María Dama mill was idle	9	weeks and 5 days	
San Joaquin "	"	5 weeks	
Córdoba "	"	15 " and 5 days	

in the half year; notwithstanding this—

María Dama mill crushed ...	*2,876½	tons.
San Joaquin " ...	†3,312	"
Córdoba " ...	853	"
Total crushed ...	7,041½	"

* Includes 289½ tons from Silencio waste heap.
† " 785 " Manto-vout-rop.

An arc lamp of 1,000 candle power has been placed in both María Dama and San Joaquin mills, and is proving of great service.

MARÍA DAMA.—This is the most antiquated mill on the property, and the one we depend most on for our returns. The stamps are rather light, and we could not drive them at a proper speed to get them to do good duty. At first this mill was driven by a large waterwheel and gearing in the mill, and another outside and above the mill; the expense of building the wheel

pits alone must have been very heavy; with proper gearing, this would have answered the purpose, but the right kind of gearing was not employed, and troubles arose. To remedy this, another waterwheel, 30 feet diameter, was erected outside the mill and belting was employed; this was wrong in principle, and was another heavy cost, and it has been a constant source of trouble and expenditure. A large flume was carried over the mill, and all the waters were gathered in; Bolivia, Pocuné, Nemeheme, Gunnani and the mine water, and a regular sea of water went to move this wheel, and in the dry season we could only get 50 drops per minute from the stamps, and frequently had to hang some up. Our large belt, 20 inches wide, has of late shown marked signs of fatigue, and the whole frame and wheel have deteriorated so that a renewal very soon was imperative; instead of carrying on a system which would continually entail endless expenditure and never be satisfactory, I decided to erect a Pelton wheel, and make this mill, as far as the motive power went, an up-to-date mill, and I am pleased to say the Pelton wheel started work on the 31st December, and using Pocuné water alone, without Bolivia, Nemeheme, Gunnani and the mine water, and in a specially dry season, drove the stone-breaker and 20 stamps, dropping 115 blows per minute.

This change at María Dama is the most important matter that has occurred during the six months. The Bolivia water will be brought in later on for power purposes with Pelton wheels and Gunnani, and the mine water will be used for other purposes later on. One battery is under repairs, and the others will be attended to in rotation. A new bin is being got ready, and the vanner tables and shafting are being overhauled. The wood work of the mill wants renewing, and wherever I can do away with timber and put masonry I shall do so, as timber in this country is a delusion and stands no time.

The new water column is 301 feet long and has a vertical head of 120 feet. A considerable part of this column was made in the workshops here, part is from the old column at San Joaquin, and sundry pipes which were being used as chimneys in the kitchens, were all brought in after being hydraulically tested.

CÓRDOBA MILL.—We have taken 70 feet of worn pipe out of this column and replaced it with new pipe. The new pipe for continuing the column up to the new ditch is being made in the workshops; about 150 feet are required. In other respects this mill is in good condition.

SAN JOAQUIN MILL.—With the Pelton wheel and belt we have been able to crush more mineral, as very little stoppage for

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repairs to the belt is necessary as compared with the wire rope. Some of the mortar boxes of this mill have become loose and require re-rivetting; two have been made good, and the others are to be done in rotation. Timber is already in for renewing parts of the house, bin and battery frames.

RETURNS.

The total amount of ore crushed in the six months is 7,042½ tons, and from this we obtained a total of 9,884.32 ozs. bar bullion. This is a decrease in ore crushed of 6,935½ tons and 8,015.14 ozs. bar bullion, as compared with the corresponding period of 1899. In 1899 the war affected, practically speaking, only two months' returns, November and December, whereas we have had nothing but war all this term, and we are much more unfavourably situated in every way.

Details of Produce for six months July to December, 1900.

1900.	Produce. £	s.	d.	Cost, Stores included. £	s.	d.	Estimated Profit at Mines. £	s.	d.
July	4,027	12	6	1,838	4	5	2,189	8	1
August ...	3,585	8	4	1,997	5	2	1,588	3	2
September	3,337	9	8	2,420	19	10	916	9	10
October ...	3,106	4	2	2,209	5	2	896	19	0
November	3,205	16	2	2,365	17	9	839	18	5
December	6,772	4	0	2,126	19	11	4,645	4	1
	£24,034	14	10	£12,958	12	3	£11,076	2	7

The Bullion produced per month was as follows:—

July	...	1,661.97 Ozs.
August	...	1,477.60 „
September .	...	1,305.10 „
October ...	...	1,291.15 „
November .	...	1,309.50 „
December ..	...	2,779.00 „
Total	...	9,884.32 Ozs.

Made up as follows:—

From ore crushed	8,355.40 Ozs.
„ tributers	115.60 „
„ treatment of pyrites ...	28.50 „
„ purchased gold	9.85 „
„ lead bar	20.47 „
„ copper plates	1,354.50 „
	9,884 32 Ozs.

The average value of the ore crushed, as per extraction, is 1.403 ozs. bullion per ton, and the estimated profits on the spot work out at 46.08 per cent. of the gross produce.

At the end of December, four copper plates in San Joaquin mill, and two in Maria Dama were cleaned and produced 1,354.50 ozs. of bullion, valued here at £3,328 19s 3d.

The returns for the corresponding period of 1899 were:—

1899.	Produce. £	s.	d.	Cost, including Stores. £	s.	d.	Estimated Profit at Mines. £	s.	d.
July ...	8,644	4	9	5,276	15	5	3,367	9	4
August ...	8,106	13	7	4,386	19	0	3,719	13	7
September	8,943	5	4	5,148	11	6	3,794	13	10
October ...	8,432	2	7	4,959	14	5	3,472	8	2
November	5,880	7	0	3,211	12	4	2,668	14	8
December	3,767	14	9	2,334	15	8	1,432	19	1
	£43,774	7	0	£25,318	8	4	£18,456	18	8

The September gold of 1898, I am advised, has been shipped to England. October, November and December are in Medellin, and the remainder is lying here. I shall be glad when we get this gold away from here, as it will relieve me of the responsibility of having such a large quantity of gold lying here without proper safeguards to protect it.

AURIFEROUS LEAD.

We have evidently great variations in the value of the galena as the second lot which is about the same weight as the first, is

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worth only £46 or 9/d here, as per assay, still it will always pay well to collect, run down and ship to England. We have 654 lbs. of galena collected, which will be run down and forwarded later on. The galena is very destructive on the crucibles and an experimental furnace is being erected to run this down.

SULPHURETS.

In the six months 100.65 tons of pyrites have been added to stock, valued here at £2,058 os 6d, and produced by the following mills :—

Mill.	Tons.	Gold. Ozs.	Silver. Ozs.	Gross Value. £	s.	d.
Maria Dana...	62.65	5.50	15.23	1,544	7	8
San Joaquin...	38.00	3.10	2.50	513	12	10
	100.65 tons.			£2,058	0	6

MAILS.

There are no official mails, the correspondence comes very irregularly, and it is surprising, that so far as we know, we have lost no letters. At times cables and telegrams are admitted, but this is at the caprice of the Government.

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RAINFALL.

In every month we have had a smaller rainfall than in the period corresponding in 1899, and the total decrease amounts to 26.64 inches or 4.44 inches less per month.

	1900 Inches.		1899 Inches.
July ...	8.24	...	18.10
August ...	9.22	...	10.47
September ...	11.73	...	13.24
October ...	18.87	...	27.93
November ...	8.81	...	11.30
December ...	1.25	...	3.67
	58.07	...	84.71

Total decrease 26.64 inches, and the result is, that we are threatened with a severe drought. The want of water is first felt

at Silencio and Córdoba, then comes San Joaquin Mill. Maria Dana, with the Pelton wheel arrangement, will not feel the want of water so soon as it formerly would.

DITCHES.

The new ditch at Maria Dana, 400 yards long, is finished, and water in it. The Córdoba ditch of equal length is finished, and waiting for the penstock and extra column to turn the water in. A small ditch over 300 yards long has been made in the Nemeleme valley, to bring the water of this stream into the Maria Dana ditch. The bank of the new Bolivia ditch has been cut for a distance of 1,100 yards: this would have been further advanced, but we had to take the workpeople from this and send them to Pocuné, when we had some breaks there. We had one bad, threatened break in Pocuné ditch, but it was seen in time, and we had a heavy piece of cutting to do to prevent the bank breaking away. San Antonio aqueduct has had the horses that carry the flume nearly all renewed. All the foregoing has been a heavy and exceptional expenditure, and it has all been included in our ordinary monthly working cost.

FARMS.

The following are the total animals on the various farms and on the Salada, and they are all in good condition and well looked after :—

LIVE STOCK.

182 cows,	valued at	...	...	$ 8,550 c/m.
43 bull calves	"	...	...	625
44 calves	"	...	...	580
51 heifers	"	...	...	£ 2,480
8 bulls	"	...	...	690
29 young bulls	"	...	...	1,600
74 oxen	"	...	...	4,240
110 pigs	"	...	...	2,000
25 goats	"	...	...	100
16 ducks	"	...	...	38
159 mules and horses, valued at				28,000
				$48,903 c/m.

As a very large number of mules have been killed in the war, the prices of these animals have risen and are likely to rise, and as we shall have a large quantity of materials to bring up from Zaragoza, as soon as the river is opened for traffic, I have increased our stock of mules and bought them at very favourable prices. The fact of the Company having animals of their own,

prevents freight rates being put up to any great extent, so that indirectly it pays the Company to have a fair stock of provisions.

HEALTH.

We have enjoyed fairly good health all through the period until the month of November, when we had an epidemic of influenza, which laid up a large number of the workpeople, and actually caused the stoppage of San Joaquin mill for a day or two. The Silencio mine had a large number of workmen unable to enter the mine. Dr. Villamizar reports that in the six months he has attended to 1,574 cases. The majority of these were cases of malarial fevers, next in order of numbers came diarrhœa, bronchitis and anæmia. Five deaths occurred in the hospital.

A Röntgen Ray apparatus has been ordered for the hospital; this will be a valuable addition, and if we had had this apparatus we could probably have saved the life of a valuable workman, who died from a revolver bullet, and the projectile could not be found.

WORKSHOPS.

Part of the Maria Dama column was made here, and the extra pipe required for Córdoba is being made also. The cupola has been run several times and cast some pieces of various kinds for the works; we have thereby been entitled to cast some pieces of some old stone breakers, and they are being refitted and made equal to new. A large quantity of waste material has been, and is being used up. We have not been able to get the new shop completed, nor the machinery up from the coast. A small cupola is being made for running down the bad ore, and when not used for this can be used for small castings.

GENERAL ELECTRIC STATION.

The foundations are being prepared at Maria Dama for the 20-horse power generator, which is on the coast, and it is intended to remove all the dynamos and put them in, what will be our general electric station, where all the electric machinery will be under the care of one man and can be properly looked after.

SURFACE WORK.

The new house for the cashier is finished and occupied, and we have renewed the roof of the Salto reduction works, repaired and kept in order the various buildings.

TRIBUTERS.

These have not done well, the prolonged war having affected them more than it has the Company, as they are all working on low grade ores or poor sands, and they have not the same facilities for protecting their workmen. The lease of Garibaldi terminating at the end of the year, I purpose keeping this mine in our hands, and doing some prospecting in that neighbourhood, as, if it pays a lessee to work the mine, it will pay the Company. The worst of this mine is that it is on the Segovia-Remedios road, and it will be difficult to keep men as long as the war goes on, but a lessee is in exactly the same position.

TRIBUTERS' BULLION.

COMPARISON OF PRODUCE.

Mine.	Half-Year, ending Dec., 1899.		Half-Year, ending Dec., 1900.	
	Ozs. Troy.	Value. $ Gold.	Ozs. Troy.	Value. $ Gold.
Que. de Maria Dama...	45.53	583.75	26.35	345.63
V.K.	44.55	417.75	22.30	272.73
Tigrito	93.98	1,246.95	25.45	334.18
Garibaldi	176.83	1,872.45	27.45	431.17
Que. de San Joaquin ...	3.30	44.45	—	—
San Antonio	—	—	6.55	91.78
El Tejar	—	—	7.50	106.21
Totals	304.19	$4,165.35	115.60	$1,581.70

Value 85 = £1.

Mine.	Increase. Ozs. Troy.	Increase. $ Gold.	Decrease. Ozs. Troy.	Decrease. $ Gold.
Que. de Maria Dama ...	—	—	19.18	238.12
V.K.	—	—	22.25	145.02
Tigrito	—	—	68.53	912.77
Garibaldi	—	—	149.38	1,441.28
Que. de San Joaquin ...	—	—	3.30	44.45
San Antonio	6.55	91.78	—	—
El Tejar	7.50	106.21	—	—
Totals	14.05	$197.99	262.64	$2,781.64

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COMPARISON OF ROYALTY PAID.

Mine.	Half-year, Dec., 1899.	Half-year, Dec., 1900.	Increase.	Decrease.
	$ Gold.	$ Gold.	$ Gold.	$ Gold.
Que. de Maria Dama ...	142.40	86.35	—	56.05
V.R.	86.50	54.54	—	31.96
Tigrito	252.41	68.82	—	183.59
Garibaldi	379.32	86.23	—	293.09
Que. de San Joaquin ...	8.89	...	—	8.89
San Antonio	—	12.34	12.34	—
El Tejar	—	20.43	20.43	—
Totals ...	$869.52	$328.71	$32.77	$573.58

Total Decrease, Dec. Gold, 248.59 Grs. Troy.
" " in value $2,588.65 = £516 14s 7d.
" " Royalty $540.81 = £108 3s 3d.

NUMBER OF HANDS EMPLOYED.

European Officials	7
Colombian Officials	12
Miners	274
Carpenters	21
Smiths	13
Engine Drivers	6
Mechanics...	13
Mill Hands	199
Surface Hands	416
Wood Carriers	42
Total	1,003

These details are taken from the December books, and include a large number of women.

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SUMMARY

of work done during the six months ending 31st December, 190

			Tota
SINKING SHAFTS :—			
Silencio	Metres. 5.50		5.5
SINKING WINZES :—			
Silencio...	27.00		27.0
DRIVING LEVELS :—			
Silencio	93.85*		
Salada	116.27		
Tigrito	21.90		
* 27 metres in barren ground.			232.02
RAISES :—			
Silencio	30.00		
Salada	32.50		
Tigrito	24.10		
			86.60
CROSS-CUTTING :—			
Silencio...	6.00		6.00
STOPES :—			
Silencio...	1,197.05		
Salada	463.98		
Tigrito	254.48		
			1,915.51
RE-TIMBERING :—			
SILENCIO.			
Sets in shaft	18		
" " levels	262		
Studdle pieces	556		
Dry stone walling... ...	52 metres.		
SALADA.			
Sets in shaft	19		
" " levels	1,755		
Studdle pieces	50		

GENERAL.

The conditions under which work has been carried on, have become more trying, as the war is prolonged, and in addition to the scarcity of labour, we have now to contend with running short of absolute necessities, such as hauling cables, iron, cyanide of potash, mill screens, belting, &c. Fortunately we had a large stock of shoes and dies, and large supplies of all kinds of stores are necessary in a country like this, where revolutions spring up like weeds, and cut you off from the civilized world.

We would undoubtedly have been able to get the main shaft at Silencio sunk, had our cables been good, but the miners are afraid to work under the whim cables, and this important work will have to be delayed, until we can make the men safe.

Our costs have been increased by the heavy prices we have had to pay for some materials purchased in the country, viz., sheet iron at the enormous price of £41 17s 2d per ton, and by the large amounts we had to pay monthly as discount to obtain small notes to pay the work people. This amounted to $5,055.80 c.m. in six months, and even in this way we had great difficulty in getting sufficient small change.

Exchange has been in our favour, and has fluctuated in an unaccountable manner, going down to 730 per cent. premium in September and rising to 970 per cent. premium in December. This is the benefit we get from the war and the paper issues and the dollar is now about 4d sterling.

What is in store for us we cannot foretell. One would have thought that, long ere this, both sides would have been tired of fighting, but it seems to be a part of these people's lives.

My hearty thanks are due to the Staff for the great interest they have taken in their work during the trying and difficult times we have been passing through.

I am, GENTLEMEN,

Yours obediently,

R. BARKER JOHNSTON.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, Gresham House,
Old Broad Street,
London, E.C., *4th November*, 1901.

Subjoined is Mr. R. Barker Johnston's Half-yearly Report to the 30th June, 1901.

By order of the Board,
J. JAMESON TRURAN,
Secretary.

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Mr. R. Barker Johnston's Half-yearly Report to 30th June, 1901.

La Salada,
30th June, 1901.

To the Directors
Frontino and Bolivia Gold Mining Company, Limited.

Gentlemen,

I beg to hand you my report for the half-year ending this day.

Although this period the cares, anxieties, worries and difficulties have been so intense and continuous, that we have given up all thoughts of earning profits, and have directed our

Informe de Mr. Barker a Junio 30 de 1901

endeavours to try and keep the concern moving and pay expenses. In addition to the revolution, we have had an unprecedented drought, scarcity of workpeople, want of actual necessities, and to crown all, practically speaking, a famine. The expenses have risen in foodstuffs, due entirely to the scarcity, and in this district, to the treatment the natives have received from the military chiefs in Remedios, who, instead of encouraging their bringing food to a mining district, which is entirely dependent on other districts for food, these natives have been recruited and put in the army, and their mules seized for baggage animals.

* * * * * *

The food difficulties have caused great irregularities in the work, and the workmen, principally the miners, are very exacting, and insist on having what we have not got and cannot buy under any circumstances. On one occasion the Silencio miners refused to go underground if they did not have raw sugar in the morning, knowing full well how we were situated. I offered them more meat to make up for the want of the raw sugar, but they would not have it, and I then "took the bull by the horns," and sent down the mine agent with instructions to dismiss every man who was not disposed to work, and inform them all that those who were dismissed would have their names posted in the other departments, and get no more work in the Company, and if they would not start work immediately, to close the kitchen, knowing full well that they could not earn their food outside. This unexpected move rather staggered them, and they returned to their work, five only going away. I gave them to understand that a repetition of this conduct would cause the mine to be shut down.

The drought has been more severe than has been known here for a great many years and of exceptional duration. The seasons seem to have changed entirely and one never knows what to expect. I anticipated a drought from the reduced rainfall last year, but I never expected that we were going to have no rain for so many continuous months, and the only satisfaction we have, is in knowing that we did everything that could possibly be done under the circumstances.

We have got a considerable quantity of goods to Zaragoza, brought up in canoes and expect more to arrive shortly, as several canoes were detained on the way, as they had explosives on board.

* * * * * *

THE MINES.

Very little work, beyond extracting what mineral we could, for milling, has been done in the mines. The Silencio mine for the greater part of the six months has had water in it, and the scarcity of workmen has been very marked, and we have felt the want of them more, in all the mines, as the timbering of the mines is becoming a serious question, as our timber-fellers, dressers and carriers are pretty well demoralised and scattered. It will take some considerable time after peace is restored, before the mines can be got into regular working order, and a considerable sum will have to be spent on this, once we get sufficient workmen. All that we are doing is struggling to exist, and beyond keeping the concern actually moving, we are not doing much good, either financially or otherwise, and the only consolation is, that the mines are not deteriorating to the extent that they would do, if completely closed down. Twenty months of continual war and persecution is a long term, and I am often surprised that we have achieved any result at all.

In the Salado mine we have had some trouble with water, but not to such an extent. In our bottom level driving north, we are approaching the underhand stopes, where the mineral has been already extracted, a proof that it was good ore.

In Córdoba district any little work done has been restricted to Marmajito and Tigrito mines, and the ore from these has more than covered cost. The weathered mineral in the lode outcropping above the cross-cut in Marmajito is giving us some good mineral, and we are working on it and opening it up to see what there is in it, as the cost of extraction is small, and we have a wooden chute to carry the ore down to the mouth of the cross-cut, where it is loaded into trucks for the mill.

Garibaldi has covered expenses, and we are driving a couple of cross-cuts to intersect some outcrops which look promising.

EXCHANGE.

This has, with the exception of one month (May), risen steadily. In January the premium was 970 per cent., in February 1,100 per cent., March 1,250 per cent., April 1,720 per cent., May 1,620 per cent., and June 1,920 per cent., so that at the latter figure the paper dollar works out at 7.415 pence.

DUTY ON GOLD.

This has been paid on the gold detained here and in Medellin on account of the war, and amounts to £1,947 2s 5d, paid out as follows:

		Pesetas		
In January ...	$14,063.28 @ 970 %	=	£262 17 3	
March ...	28,815.375 „ 1250 „	=	426 17 10	
May ...	25,632.00 „ 1020 „	=	298 0 11	
June ...	25,632.00 „ 1020 „	=	298 0 11	
„ ...	68,441.95 „ 1920 „	=	661 5 6	
	$162,584.555 c/m.	=	£1,947 2 5	

This sum includes the charges for safe conduct of the remittances of bullion to the coast, in addition to the 2 per cent. duty, amounting to $17,873.245 c/m = £243 14s 10d.

DISCOUNT PAID FOR SMALL MONEY.

The great scarcity of small bills has been to a very large extent due to the Government issuing $100 bills, and the merchants in general gathering in the small money, and charging a discount for changing the large bills, which in some cases rose to 20 per cent.

Our expenses for getting small change during the six months £202 11s 10d, is made up as follows:—

SUMS PAID IN MEDELLIN, REMEDIOS AND SEGOVIA FOR OBTAINING SMALL CHANGE.

1901.		c/m.			
January ...	$1,409.50 @ 970 %	=	£27 9 4		
February ...	2,350.50 „ 1100 „	=	39 5 6		
March	604.00 „ 1250 „	=	8 19 0		
April	4,776.90 „ 1720 „	=	52 9 10		
May	4,589.50 „ 1620 „	=	53 7 4		
June	2,178.00 „ 1970 „	=	21 0 10		
	$15,974.40 c/m.	=	£202 11 10		

INCREASE OF DUTIES.

The Decree No. 495 of 30th August 1901, increases the duties on all exports and raises the duty on gold, silver and platinum to 3 per cent. The Decree No. 507 of 1901, doubles all duties on foreign imports.

FOOD STUFFS.

Notwithstanding the enormous rise in exchange in our favour, some of the more essential articles of food have increased in value, and although the rise in price is not much, still when the enormous quantities required to feed 933 mouths are taken into account, this represents a considerable sum of money per month. The following comparison is made, as at June, 1900, and June, 1901, and compares the prices of the principal articles used.

	June, 1900.		June, 1901.	
Beef, arroba of 25 lbs.	$ 9.96 = £0 4 5		$ 28.53 = £0 5 6	
Indian Corn, mule load	26.83 = 0 11 9		70.84 = 0 13 8	
Raw Sugar „	23.20 = 0 10 2		94.86 = 0 18 4	
Beans „	58.40 = 1 5 8		131.70 = 1 5 5	
Lard, arroba of 25 lbs.	19.25 = 0 8 5		48.80 = 0 9 5	

Even at the increased prices we have great difficulty in getting what we require and frequently have run short of some of the more important articles; but I have told the workmen, who are very exacting, that we have both the means and the desire to get everything required in the way of food, but that the state of affairs has made this impossible, and whilst we are in this position, they must put up with any inconveniences that may arise.

That the shareholders may form some idea of the quantity of food consumed in the six months, I append some details:—

			Tons.	cwts.	qrs.	lbs.	
Bullocks killed, producing ...			107	3	2	22	meat
Pigs „ „ ...			10	15	0	18	pork and lard
Indian Corn, 1,754 cargoes ...			156	12	0	16	
Raw Sugar	733	„ ...	65	8	3	20	
Beans ...	217	„ ...	19	7	2	0	
Rice ...	49½	„ ...	4	8	1	16	
Yuca ...	223½	„ ...	19	19	0	12	
Plantains	39½	„ ...	3	10	2	4	
Salt ...	783½	„ ...	69	18	2	18	
		Tons	457	4	0	14	

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RAINFALL.

This has been the smallest that we have any record of, and it has been a decreased rainfall all through the six months, as compared with last year's, and is shown in the register. The small quantity of rain in this period deprived us of power, and as the water in the mine does not decrease so rapidly as the rain, the water gained on us, and rose in the mine in spite of all we could do, using all the water in the district. The Sucre portion of the water cost us—

In April $6,078, at 1,720 per cent. premium —	£	66	15 10
and in June $15,630 at 1,970 per cent. premium —		151	0 3
	£	217	16 –1

COMPARISON OF RAINFALL IN 1900 AND 1901.

	1900. Rain fell	Inches.	1901. Rain fell	Inches.	Difference.
January ...	16 days	7.67	11 days	4.67	— 3.00
February ...	12 „	1.99	7 „	6.97	— 0.92
March ...	10 „	5.37	11 „	1.41	— 3.96
April ...	14 „	6.40	12 „	4.35	— 2.05
May ...	23 „	17.85	23 „	11.05	— 6.80
June ...	14 „	16.44	23 „	15.39	— 0.08
	89 days	55.72 ins.	87 days	37.91 ins.	—16.81

showing a deficiency of 16.81 inches of rain in six months.

DITCHES.

Córdoba New Ditch, 400 yards long, has had the penstock put in, and an overflow, and the column has been carried up to this, and the water was turned in on 28th February. The increased head has been of great service in the extreme drought, and the ditch has given no trouble at all. 156 feet of column were required to connect the new ditch with the existing column, and this was made in the workshops.

The Nemesme Ditch, although it does not catch all the water of the stream, as some joins the ravine below the dam, supplies a fair quantity of water to the Maria Dama new ditch.

Bolivia Ditch.—This ditch, including three aqueducts and one or two small flumes, measures 2,218 yards or one and a quarter miles in length; the bank has been all cut, and the women and children have taken out from the bank cutting 15,951¼ tons of earth; the ditch has been cut and finished for half the distance and 714 tons of earth have been excavated therefrom, making a total up to date 16,665·75 tons moved. We have the foundations for the pillars of the aqueduct near Maria Dama excavated, and the foundations of two built with granite and lime; the larger of these pillars will have from 140 to 150 tons of stone and lime in each, and we are making them so that they shall last for all the time that the Company may require them. The cost, up to date, of this work, at the various exchanges has been—

Food	£	342	11 2
Wages		198	2 1
10 % for tools, powder, &c.		53	1 4
	£	593	14 7

The great advantage of this ditch is that it is short, and as it joins the other near Maria Dama, we shall be able with this water, in the event of a break on Pocuné ditch, which is nearly two miles long, to work Maria Dama mill and keep Silencio mine dry, once we have our electric pumps erected.

Pocuné Ditch.—The ground all along this ditch having cracked and opened by the sun during the long drought, has given us a great deal of trouble after the rains started, and owing to the many and successive breaks, we got very little benefit from the rains. Near the end of January two beams broke in San Joaquin flume; these were not two years old, as I renewed the entire flume after I arrived. In February we had a break on the ditch, and later on in the month, the flume at Silencio fell, owing to the foundation being washed out; in May we had a break on the ditch, and in June we had a succession of breaks at short intervals. On the 20th June, after a severe hurricane of wind, one of the pillars of San Antonio aqueduct simply fell to pieces, and fifty feet of the flume gave way, the pillar was simply a heap of stones thrown together and faced with lime; I am surprised that such bad work stood at all. We had to replace it by wooden horses until we get a pillar properly built. I have sent out rails to lay a tramway for bringing in stone for this purpose, but we have no people to do anything, and I am afraid of every shower we get, as with pressgangs everywhere we cannot get the work-people to go out and work on the ditch.

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HEALTH.

We have had a good deal of sickness, both amongst the staff and the workpeople, largely due to the continued dry weather. In the hospital, under Dr. Williamson's care, 52 patients were admitted, of whom four died, and the remainder were cured. Outdoor patients to the number of 1,696 received medical assistance and drugs, giving a monthly average of 282 cases treated. Paludic fevers, in their varied forms, are the most prevalent diseases, and in May and June we had a good many cases of dysentery. The hospital building is in very bad order, and I am getting out a drawing for a new hospital, which we will build on a site near the present one, and make it suitable for the requirements of the Company.

SURFACE WORK.

At Salada Mine we had to open up a waterway which passes under the "patio" of this mine, and was secured with timber which was always decaying and giving us continual trouble; we have built the walls and arched it with stone for a distance of 140 feet, and once we had done this, we were enabled to build the granite walls and pillars of the new workshop, part of which was over the waterway. This has been done, and the engine-room is enlarged so as to permit of the compressor engine being put down later on. The timber for the new roof of the workshop is being got ready, and it will be a strong piece of work, and will allow of heavier shafting being put in to drive the extra machinery which is on the way.

At Silencio, masonary foundations have been put below the flume horses, to prevent it being again washed out by the rains, and a new wooden shed with an iron roof, has been erected near the engine house, to keep the fuel dry. The old men's quarters is also under repairs and being got ready for workmen. One of the Mahon engines has been erected near the mouth of the mine to help the waterwheel in the great drought we have gone through, and this is so placed that, later on, it can be used for working the pumps alone, should the waterwheel get damaged, and for winding as well. This scheme cannot be carried out until we get coke for the cupola, to cast some pieces that are wanted to complete the gearing, but this is the intention. At Maria Dama, the foundation of the six foot Pelton wheel and the belt pits are completed, and the retaining wall of the electric station is having the foundations put in. Two foundations of pillars for the aqueduct for the new Bolivia ditch, have also been built in, and the excavations for the others are ready. Additional rooms have been added to some of the houses and the general repairs have been attended to as far as the difficulties of the situation would permit.

MINING WORK.

EL SILENCIO.

The lower workings of this mine have been under water for the greater portion of the six months under review, and as will be seen from the reserves of ore, we have been taking away more mineral than we have been opening up. As was to be expected, we found several runs of ground when we got the water out, and these had to be first of all cleared away and the ground secured. Our first efforts will be to drive the ends and get more ground opened up as rapidly as possible as soon as we can get miners. The timber all through the mine is deteriorating more rapidly than we can renew it, mainly due to the few hands we have in the forest and bringing in timber, and we can only give attention to the more important places, such as shafts, &c., which we will do our utmost to keep open. We are now nearing two years of revolution, and things are getting very bad, and there seems to be few signs of the state of affairs coming to a speedy end.

RESERVES OF ORE.

SILENCIO MINE.

Approximate quantity of Ore, 30th June, 1901.

No. of Level.	Dec., 1900. Tons.	Jun., 1901. Tons.	Increase. Tons.	Decrease. Tons.
10 north, rich ...	286	286	—	—
9 north, fair ...	182	140	—	42
9 south, fair ...	466	352	—	114
8 north, poor ...	110	60	—	50
8 south, fair ...	1,468	1,148	—	320
7 north, poor ...	82	211	129	—
7 south, fair ...	20	20	—	—
6 north, fair ...	524	98	—	426
5 south, fair ...	85	85	—	—
5 north, rich ...	50	50	—	—
3 south, poor ...	1,041	771	—	270
	4,314	3,221	129	1,222
				129
Reduction in Reserves ...				1,093

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SALADA.

This mine has been also frequently under water, but the pumps having a less height to raise the water, have been thereby enabled to be driven faster than the deeper Silencio Mine, and the water was got out sooner. The lodes in this mine, being wider, yield a larger quantity of reserves with a reduced drivage, and there is an increase of reserves here.

CÓRDOBA DISTRICT.

As no reserves have been given in the last six-monthly reports, we can make no comparison, but only very meagre work has been done in this district, and until matters get settled, one way or the other, we are not likely to be able to do much in this exposed district.

The drivage in all mines that were working in the previous six months has decreased.

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LA SALADA.

No. of Level	Dec., 1900. Tons	June, 1901. Tons	Increase. Tons	Decrease. Tons
4 mid-level N. ...	459	312	—	147
2 level S. ...	*807	3,689	2,882	—
1 level S. ...	2,072	2,033	—	39
Adit level ...	3,591	4,024	433	—
4 mid level Manto	—	160	160	—
2 level "	5,630	5,620	—	—
1 " "	1,820	2,332	512	—
	14,369	18,170	3,987	186
			186	
Apparent increase ...			3,801.	

* The amount entered in December report, 807 tons, was the ground actually blocked out; the ground being developed ought to have been included as well, this was 2,730 tons, so that the actual increase is only 152 tons in this level and 1,071 tons in the mine, and although this nearly equalizes what we have fallen behind in Silencio mine, it must be remembered that this ore is inferior in grade to Silencio ore.

to some ... so as far

CÓRDOBA DISTRICT.

TIGRITO MINE.

From No. 9 stope to end of No. 6 level west ...	2,222	tons.
No. 1 stope west of No. 8 rise west ...	454	"
No. 2 stope west of No. 8 rise west ...	66	"
No. 3 stope west of No. 8 rise west ...	180	"
No. 3 stope west of No. 7 rise west ...	287	"
No. 6 stope west of No. 6 rise west ...	155	"
	3,364	tons.

MARMAJITO MINE.

No. 3 level east	200	tons.
Lode in the hill	70	"
	270	tons.

RESUMÉ.

No. of tons standing 30th June, 1901 :—

Silencio	3,221	tons.
Salada	18,170	"
Córdoba District—		
Tigrito	3,364	"
Marmajito	270	"
Córdoba as at December, 1899 ...	3,714	"
Total reserves ...	28,739	tons.

SUMMARY

of work done during the six months ending 30th June, 1901.

	Metres.	Previous six months.	Increase.	Decrease.
SINKING WINZES :—				
Silencio	6.55	32.50*	—	25.95
DRIVING LEVELS :—				
Silencio	36.05	93.85	—	57.80
Salada	114.10	116.27	—	2.17
Marmajito outcrop	44.40	—	44.40	—
Marmajon ...	7.00	—	7.00	—
Tigrito ...	5.80	—	5.80	—

* Includes 5.50 metres shaft work.

		Metres.	Previous six months.	Increase.	Decrease.
RISING:—					
Silencio ...	...	13.40	30.00	—	16.60
Salada ...	...	30.35	32.50	—	2.15
Marmajon	...	9.00	—	9.00	—
Tigrito ...	...	25.40	—	25.40	—
STOPING:—					
Silencio ...	...	1,255.50	1,197.05	58.45	
Salada ...	...	335.50	463.98	—	128.48
Marmajito	...	291.30	—	291.30	—
Marmajon	...	42.90	—	42.90	—
Tigrito ...	...	344.85	—	344.85	—

CONTRACT RETIMBERING.

SILENCIO:—				
Sets in shaft ...	...	...	...	45
„ drives ...	...	...	...	420
Studdle pieces in shaft	...	...	...	20
„ „ stopes, &c.			...	560
Dry stone walling	...	...	...	8 metres.
SALADA:—				
Sets in shaft ...	...	...	...	3
„ drives ...	...	...	...	448
Studdle pieces	...	...	...	250
TIGRITO:—				
Sets in air shaft	...	...	...	8
„ drives ...	...	...	...	76
„ water cross cut		...	...	108
Studdle pieces	...	...	...	150
CÓRDOBA:—				
Sets in air shaft	...	...	...	9
„ drives ...	...	...	...	313
MARMAJITO:—				
Sets in air shaft	...	...	...	58
„ drives ...	...	...	...	167
Studdle pieces	...	...	...	112
MARMAJON:—				
Sets in drives ...	...	...	...	137
Studdle pieces	...	...	...	46

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NUMBER OF HANDS EMPLOYED.

European Officials	13
Colombian Officials	8
Miners	217
Carpenters	16
Smiths	13
Engine Drivers	6
Mechanics...	10
Mill Hands	166
Surface Hands	425
Fuel Carriers	59
Total	933

(Taken from the books for June, 1901.)

FARMS.

MANI.—This is a sugar plantation on the road to Zaragoza, about three hours from here, which was purchased on very favourable terms, as the owners were giving up business, and it enables us to partly supply the Company with raw sugar and plantains. The former article is indispensable, and being our own producers, we are not so entirely in the hands of the clique who have that industry to themselves. We commenced work here in March, and for the four months this place has produced

Plantains ...	28.75 mule loads, value	$247.00 c/m	
Raw sugar ...	92.00 „	„ 7,447.75	„
		$7,694.75 c/m	
Working expenses		6,604.45	„
Profit in the four months		$1,090.30 c/m	

This property having been opened out by prospecting and being situated in Government waste lands, has the right to another quantity of land equal to what has been opened up free of charge. This will enable the farm to be enlarged and eventually supply all the sugar required by the Company.

In addition to fifteen blocks of 100 yards square with cane, there are 73 blocks of plantains, and 600 cacao trees, with a good mill, with all necessary utensils. The purchase price was about the value of the mill and copper pans.

CURANÁ.—This was a farm which did not lie any way near our other work, and was a source of constant outlay, and the people who sold Maní to the Company, wished to purchase it, and the places were exchanged, they paying the Company $1,500 c/m. in addition to the sugar plantation of Maní.

CUTURÚ.—We lost six head of cattle on this farm through a flood, and the hurricane closed up the road by blowing down several trees, this has been cleared away. This farm has very good pasturage, and is being well looked after.

INVENTORY OF LIVE STOCK, JUNE, 1901,

on La Salada, Córdoba, Popales, Arenales, Cuturú and Maní.

143	mules and horses	$48,763.00
14	bulls	2,338.00
13	young bulls	1,378.00
66	oxen	7,326.00
161	cows	14,651.00
39	heifers	3,666.00
38	bull calves	1,140.00
37	calves	943.50
120	pigs	4,200.00
29	goats	224.75
24	ducks	105.60
		$84,735.85

These values in paper money are worked out at the exchange of 2070.

MILLS.

These have all run short time, and with part of the stamps only at work, and the mineral crushed from all parts amounts to 6,240 tons, as against 7,041½ tons in the previous six months.

MARÍA DAMA.—The Pelton wheel which was erected here has run smoothly all the time, and given entire satisfaction. One battery has been hung up all the time, and the repairs to the stamps done in rotation, so that only 20 heads have been at work; new boxes have been put in where required, and others have been patched and new guides have been put in when necessary. This mill ran with 20 heads 103 days, equal to 3 months, 2 weeks and

6 days, out of the six months, and crushed 2,741 tons, of which 2,484½ tons came from the Silencio Mine and 256½ tons came from the dumpheap.

SAN JOAQUIN MILL.—This mill ran for 144 days 22 hours equal to 5 months, 4 days 22 hours, with an average of 15 stamps, and crushed 2,644 tons of ore.

CÓRDOBA MILL.—We only averaged eight stamps in this mill, which ran 159 days, equal to 5 months, 2 weeks and 5 days, and crushed 855 tons of mineral. The increasing of the head of water at this mill has been a marked improvement.

COMPARISON OF ORE CRUSHED.

	Six months ending 30th June, 1901. Tons.	Six months ending 31st December, 1900. Tons.
María Dama ...	2,741 ...	2,876½
San Joaquin ...	2,644 ...	3,312
Córdoba ...	855 ...	853
	6,240 ...	7,041½

being a decrease of 801½ tons crushed. The ore averaged 1 oz. 1 dwt. 4½ grns. per ton, including the gold scaled from the plates.

GABRIELA MILL.—This commenced work on 17th February, grinding sands and crushing some poor mineral, and produced up to the end of June, 3,873 lbs. of amalgam, which is worth approximately, £77 8s 6d.

The ore from the various mines gave the following yields of bullion:

	Bullion.
Silencio, without dumpheap ...	1.77 ozs.
Salada	0.49 "
Córbola	1.054 " *

* This value is mainly due to the Mamajito ore, which is richer than Tigrito.

The native mill at Mamajito crushes rock, which is too poor to put through the Californian mill, and which is not included in the foregoing amounts.

RETURNS.

Although we have only crushed 801½ tons of ore less than the previous six months, there has been a marked fall in the gold contents of the mineral crushed, entirely due to the fact of our having to take what ore we could get, as the Silencio mine was

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practically under water for the greater part of the time, and the average ore works out at 1.07 ozs. bullion. Again, the quality of the ore being taken into account, we were not so severe on the plates at the clean up, every six months, and we only removed 631.90 ozs. of bar bullion from the scaling operation.

Details of Produce, January to June, 1901 :—

	Gross.			Fine.			Profit.			Loss.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
January	3,544	17	9	2,499	4	2	1,045	13	7			
February	2,999	2	9	2,134	2	2	865	2	7			
March	2,326	16	9	2,443	0	10				116	4	1
April	1,705	19	5	1,903	0	0				197	0	7
May	2,470	1	10	2,097	19	10	372	2	0			
June	3,806	12	6	2,990	9	5	816	3	1			
	16,853	11	0	14,067	14	5	3,099	1	3	313	4	8
							313	4	8			
Profit							2,785	16	7	(Estimated at the Mines)		

The bullion produced per month was as follows :—

	Bullion.
January	1,434.90 ozs.
February	1,230.10 „
March	924.75 „
April	681.00 „
May	954.80 „
June	934.10 „
„ Copper plates	631.90 „
	6,791.55 ozs.

Made up as follows :—

	Bar Bullion.
From ore and sands ...	6,610.90 ozs.
„ tributers	69.00 „
„ treating pyrites ...	105.80 „
„ purchased gold ...	5.85 „
	6,791.55 ozs.

Average produce 1 oz. 1 dwt. 4½ grns. from ore, including amalgam obtained by scaling the copper plates of Maria Dama and San Joaquin; the former yielded 490.25 ozs. bar bullion, and the latter 141.65 ozs. bar bullion.

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The returns of the previous six months were :—

1900	Produce.			Cost.			Estimated Profit at the Mines.		
	£	s.	d.	£	s.	d.	£	s.	d.
July ...	4,027	12	6	1,838	4	5	2,189	8	1
August ...	3,585	8	4	1,997	5	2	1,588	3	2
September	3,337	9	8	2,420	19	10	916	9	10
October ...	3,106	4	2	2,209	5	2	896	19	0
November	3,705	16	2	2,365	17	9	839	18	5
December	6,772	4	0	2,126	19	11	4,645	4	1
	24,034	14	10	12,958	12	3	11,076	2	7

The duty on all gold has been paid here and charged in the working expenses.

Table of ore crushed, showing the origin of the gold :—

	Tons Crushed.	Bar Gold. ozs.	Treatment of Pyrites. ozs.	Tributers. ozs.	Bought ozs.
January ...	1,051	1,406.20	6.70	22.00	—
February...	1,121	1,200.10	14.35	13.15	2.50
March ...	1,042	906.70	12.00	4.90	1.15
April	792	648.50	28.90	3.60	—
May	1,229	913.35	25.60	13.65	2.20
June	1,005	904.15	18.25	11.70	—
	6,240	5,979.00	105.80	69.00	5.85
„ Copper Plates		631.90			
		6,610.90			

The bullion produced for half-year ending December, 1900, was as follows :—

	Bullion.
July	1,661.97 ozs.
August	1,477.60 „
September	1,365.10 „
October	1,291.15 „
November	1,309.50 „
December	2,779.00 „
Total ...	9,884.32 ozs

showing a decrease in bullion in this half-year of 3,092.77 ozs.

SULPHURETS.

During the six months 94½ tons of pyrites have been produced, valued here £1,637 5s 9d. A small quantity of this has been ground in arrastres and produced 105.50 ozs. bullion, the remainder has been added to stock and no credit taken for it. The concentrates were produced by the following mills :—

Mill.	Tons.	Total Gold Contents. Ozs.	Total Silver Contents. Ozs.	Value here. £ s. d.
Maria Dama ...	33½	243.55	628.83	1,085 15 10
San Joaquin ...	61	119.70	314.80	551 9 11
	94½	363.25	943.63	1,637 5 9

The San Joaquin concentrates contain a considerable proportion of sand, which reduces their value, but will not interfere with the cyanide operation.

The small quantity of pyrites produced in Córdoba district was used up in the arrastres there as produced.

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TRIBUTERS.

The returns of the Tributers have still further decreased, and have got so low that it is a question if it is worth while carrying on this system. All that is being done is re-working sands, as all prospecting for payable lodes has been stopped for some time, and the mills are all in very bad repair.

Comparison of Tributers' results with previous half-year :—

Six Months ending June, 1901.

	Ozs. Bar.	Royalty. £ s. d.	Total Value. £ s. d.
January ...	22.60	11 3 8	57 10 6
February ...	13.15	5 8 0	30 19 4
March ...	4.90	2 10 8	10 18 4
April ...	3.60	1 9 6	6 16 4
May ...	13.65	8 6 10	36 14 7
June ...	11.70	6 1 9	28 18 6
	69.00	35 0 5	171 17 7

Six Months ending December, 1900.

	Ozs. Bar.	Royalty. £ s. d.	Total Value. £ s. d.
July ...	22.60	13 3 7	61 18 0
August ...	15.45	8 12 1	41 14 6
September	11.35	5 13 3	26 3 8
October ...	17.90	10 0 2	46 5 10
November	31.95	20 0 3	97 7 9
December	16.35	8 5 3	42 16 11
	115.60	65 14 7	316 6 8

BAR BULLION :—

Half-year ending December, 1900 ...	115.60 ozs.
„ „ June, 1901	69.00 „
Decrease	46.60 ozs.

ROYALTY :—

Half-year ending December, 1900 ...	£65 14 7
„ „ June, 1901	35 0 5
Decrease ...	£30 14 2

TOTAL VALUE :—

Half-year ending December, 1900 ...	£316 6 8
„ „ June, 1901	171 17 1
Decrease	£144 9 7

CONCLUSION.

The war continues and is likely to do so, until one party or other gets the upper hand.

The Company's position is much less satisfactory in many ways than it was at the end of 1900, as the reserves of ore are decreasing notably, the timber in the mines is getting into bad order, and although we have a considerable quantity of dressed and sawn timber in the forests, we have not got men enough to bring it in, and much of this is in places where neither mules nor oxen can go, and our men are getting so afraid, that those who escape being recruited are leaving of their own accord.

I cannot see that we can do any good until this war is brought to a termination, so we are anxiously awaiting a decisive result and trust it may come sooner than is expected.

I desire to record my thanks to the staff, who have worked loyally and heartily all through these most difficult and trying times, in getting the results which we have obtained, and which, if not satisfactory, are the best that could be got under the circumstances.

I am, GENTLEMEN,

Yours obediently,

R. BARKER JOHNSTON.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

184, GRESHAM HOUSE,
OLD BROAD STREET,
LONDON, E.C., *14th June*, 1902.

The Directors beg to annex copy of Mr. R. Barker Johnston's Half-yearly Report to the 31st December, 1901.

By order of the Board,

J. JAMESON TURAN,
Secretary.

Informe semestral de Mr. Barker a Dic. 31, 1901

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Sala de Patrimonio Documental

MR. R. BARKER JOHNSTON'S HALF-YEARLY REPORT TO 31ST DECEMBER, 1901.

LA SALADA,
31st December, 1901.

To the Directors
FRONTINO AND BOLIVIA GOLD MINING COMPANY, LIMITED.

GENTLEMEN,

I beg to hand you my report for the six months ending to-day.

These six months have been to a large extent a continuation of what we have gone through in the first six months of this year, the only difference being that our difficulties have

been more acute. We have been short of workpeople, short of necessary materials to carry on the work, short of mineral, and frequently, due to the scarcity of paper money, short of small money to pay the workpeople, and several times short of food; notwithstanding these adverse combinations, we have struggled through, and left a small profit over the local costs, although we had to crush what ore we could get, as our best ore in the early part of these six months was under water. The workpeople, in addition to being few in number, are of very poor quality; many of them not being worth their food, but we have no choice in the matter, and to make matters worse, some new mines are being started near Remedios, and a competition in wages is likely to ensue, as these people simply look at the wage, and do not take into consideration the other advantages they get by working for an established Company. Once matters were settled, and people could come here from up country and work freely, we would have no fear of such competition, but we have at present to depend on the people of the district only, and a great many of these are engaged in washing for gold, which has a large price in paper money, and whilst they can make a good living at this work, they are not likely to work for wages.

THE REVOLUTION.

This is like Tennyson's brook.

THE MINES.

There has been no work of importance done in any of the mines working, and several of the mines are closed for want of workmen. Ever since the sentries were posted at the mouths of the shafts and air-shafts on 14th August, Salada Mine has been practically stopped, so far as extracting mineral is concerned, we have the pumps going and in good order and some few men in, timbering and keeping the mine open as well as we can; several runs of ground have taken place, but nothing serious so far.

In Córdoba district, Marmajito, Córdoba and Marmajon Mines are closed, and we have occasionally a man or two in Tigrito, driving the end and timbering; we are mainly dependent on the Marmajito waste heap for our Córdoba crushings, with a truck or two of mineral from Tigrito occasionally thrown in. The new lode found near the Californian mill also supplied a few tons of ore for the mill; this

lode, as far as we are concerned, is a new thing (there are evidences of its having been worked in days of old) and is well worth prospecting.

The reserves of ore are decreasing in our main producing mine, to an extent which is causing grave anxiety, and if crushing, even as we are doing now, is to be kept up, then some other means than hand labour will have to be adopted, to get our reserves augmented, so as to be something like proportionate with our requirements. These people have their old-fashioned customs and ideas, and work single-handed (*i.e.* hold the drill in one hand, and the hammer in the other) and as for working two or three shifts, they cannot understand the advantage of it, and it would not pay the Company to educate them and change their customs; so the Colombian miner is not capable, even at his best (which is not good) of opening up reserves of ore for our present machinery, and power drills of some kind will have to be employed. We have large reserves of ore in Salada mine, but it is of a lower grade than Silencio ore, and would require to be crushed in larger quantities than we could do to keep the concern going, and this can only be looked upon as an adjunct; our mainstay is Silencio, and we must get more reserves opened up in this mine; the shaft should be sunk for another level and the bottom levels ought to be rapidly opened up. To get the results we have got, we had to resort to some underhand stoping in Silencio mine, a reprehensible practice under ordinary circumstances, but justifiable under these exceptional conditions.

SILENCIO MINE.

Although we show an increase in sinking, driving and cross-cutting over the preceding six months, the whole work does not amount to anything, and we are steadily losing ground.

SUMMARY OF WORK DONE IN SIX MONTHS ENDING 31ST DECEMBER, 1901 :—

		31/12/1901. Metres.	30/6/1901. Metres.	Increase. Metres.	Decrease. Metres.
Sinking	...	17.30	6.55	10.75	—
Driving	...	54.75	36.05	18.70	—
Rising ...	...	10.25	13.40	—	3.15
Cross-cutting	...	3.95	—	3.95	—
Stoping...	...	*703.78	1255.50	—	551.72

* Of this quantity 102.14 metres were underhand stoped.

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EL SILENCIO.

Average prices per metre for sinking, rising and driving for the six months ending 31st December, 1901.

Class of Work, Nature of levels, &c.	Total Cost for 6 months to 31st Dec. 1901	Total Metres driven for 6 months to 31st Dec. 1901	Average price per metre to 31st Dec. 1901	Average price per metre to 30th June 1901
SINKING—				
Hoisting Shaft	536.00	4.15	129.15	—
No. 1 winze, No. 8 level south	409.75	5.75	69.69	—
„ 4 „ 7 „ „	—	—	—	160.00
„ 4 „ 6 „ „	946.75	7.40	127.94	97.56
RISING—				
No. 1 rise, No. 10 level north	68.00	1.90	35.78	—
„ 1 „ 9 „ „	37.50	1.25	30.00	32.64
„ 2 „ 9 „ south	133.80	4.00	33.45	31.02
„ 1 „ 8 „ north	—	—	—	30.00
„ 2 „ 7 „ „	120.80	3.10	38.90	—
DRIVING—				
No. 10 level north	451.40	7.60	59.39	55.00
„ 10 „ south	277.00	5.20	53.27	50.00
„ 9 „ north	457.50	8.80	51.98	53.97
„ 9 „ south	540.50	12.50	43.24	47.08
„ 8 „ „	432.30	9.00	45.03	—
DRIVING—				
No. 7 level north	477.30	11.05	43.20	61.55
„ 6 „ „	—	—	—	38.00
CROSS-CUTTING—				
East of No. 8 level north ...	260.50	3.95	68.22	58.77

Average sinking to 30th June, 1901 ... 1.09 metres per month
„ 31st Dec., 1901 ... 1.24 „ „

Increase ... 0.15 „ „

Average of total sinking to 30th June, 1901 ..... 1.09 metres per month
Average of total sinking to 31st Dec., 1901 ..... 2.88 „ „

Increase ... 1.79 „ „

Average rising to 30th June, 1901 ..... 2.23 metres per month
„ 31st Dec., 1901 ..... 0.93 „ „

Decrease ... 1.30 „ „

Average of total rising to 30th June, 1901 2.23 metres per month
„ „ 31st Dec., 1901 1.70 „ „

Decrease ... 0.53 „ „

Average driving to 30th June, 1901... 2.250 metres per month
„ 31st Dec., 1901 ... 2.205 „ „

Decrease ... 0.045 „ „

Average of total driving to 30th June, 1901 ..... 6.000 metres per month
Average of total driving to 31st Dec., 1901 ..... 9.125 „ „

Increase ... 3.125 „ „

The pumps continue to work well, and are in good order, we have had no trouble with them since new bushes were put in the No. 9 pole case, and with our ditch in order and a fair quantity of water we can keep the mine "in fork" easily. The wire ropes are all in a very bad state; the last wire rope in the district we bought and have on the engine, the others are patchwork of chains and ropes and are absolutely dangerous.

The 20 h.p. generator and motor are in the workshops, but they are defective, as some important parts have not yet arrived, we may be able to make these in the workshops, and are going to try; the Worthington steeple pump is at Zaragoza, but some parts are also wanting, we are waiting for the roads to dry and improve before bringing it up, as there are some heavy pieces.

We have in contemplation the building of a masonry foundation for the balance bob of the pumps at present working, and we have new timber in for a stronger bob; a masonry foundation for the gearing is to be built: also, so that the pumps can be driven by steam or electricity, when the water fails us, and so keep the work going regularly.

SALADA MINE.

Beyond the necessary timbering and keeping the pumps going, very little is being done in this mine. Ever since the

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14th August, when we found soldiers posted at all the shafts, in a barbarous attempt to starve out the men, this mine has been practically idle. The timbers of the shaft have been renewed and fresh lagging put in, and everything is being kept in order to start work as soon as we get workmen. We have plenty of second grade mineral in this mine ready for extraction, but we have no miners to stope it. This mine shows a decrease all round.

SUMMARY

of work done in six months ending 31st December, 1901.

		31/12/1901.	30/6/1901.	Decrease.
Driving	...	2.25	114.10	111.85
Rising	...	2.50	30.35	27.85
Stoping	...	160.75	335.50	165.75

CÓRDOBA DISTRICT.

Practically no mining is being done in this district; a little work is being done on the Branch on the hill at Marmajito, the larger pieces going to the Californian mill and the smalls to the native mill, and we are going over the dump or waste heap of Marmajito and getting some good mineral from it. The lode that was found near the Californian mill consists of oxidised ore and promises to open out well; it has been traced across the stream, where it enters the hill. These three points have supplied the most of our ore for crushing, and we have got from the mills 20,655 lbs. amalgam, worth approximately £417 2s 0d in the six months. Marmajito has no mineral now above No. 2 level and will have none until sinking has been resumed.

Work done in Marmajito during the six months ending 31st December, 1901.

	31/12/1901. Metres.	30/6/1901. Metres.	Increase. Metres.	Decrease. Metres.
Driving, Branch on hill...	52.80	44.40	8.40	—
Stoping No. 2 level East	159.25	291.30	—	132.05

Work done in Tigrito during six months ending 31st December, 1901.

		31/12/1901.	30/6/1901.		Decrease.
Driving	...	5.75 metres	5.80	...	0.05
Rising	...	3.80 „	25.40	...	21.60
Stoping	...	165.60* „	344.85	...	179.25

* Includes 59.60 metres stoped from new find near Californian mill.

Work done in Garibaldi during six months ending 31st December, 1901.

		31/12/1901.	30/6/1901.		Increase.
Driving	...	2.40 metres	—	...	2.40
Cross-cutting	...	83.37 „	—	...	83.37

RESERVES OF ORE.

These show a decrease in each mine worked, as will be seen from the following table:—

SILENCIO MINE.

Approximate quantity of ore, 31st December, 1901.

No. of Level.	June, 1901. Tons.	Dec., 1901. Tons.	Increase. Tons.	Decrease. Tons.
10 north, rich ...	286	490	204	—
9 north, fair ...	140	93	—	47
9 south, fair ...	352	248	—	104
8 north, poor ...	60	24	—	36
8 south, fair ...	1,148	360	—	788
7 north, poor ...	211	211	—	—
7 south, fair ...	20	20	—	—
6 north, fair ...	98	—	—	98
5 south, fair ...	85	85	—	—
5 north, rich ...	50	50	—	—
3 south, poor ...	771	771	—	—
Total tons	3,221	2,352	204	1,073

LA SALADA MINE.

No. of Level	June, 1901. Tons	Dec., 1901. Tons	Decrease. Tons
4 mid-level N. ...	312	198	114
2 level S. ...	3,682	3,100	583
1 level S. ...	2,033	2,027	6
Adit level ...	4,024	4,024	—
4 mid level Manto ...	160	160	—
2 level „ ...	5,020	5,020	—
1 „ „ ...	2,332	2,332	—
Total ...	18,170	17,167	703

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TIGRITO MINE.

No. of Level	June, 1901. Tons	Dec., 1901. Tons	Increase Tons	Decrease Tons
From No. 9 rise to face	2,222	2,334	112	—
„ No. 1 stope W. of No. 8 rise	454	370	—	84
„ No. 2 „ „	66	66	—	—
„ No. 3 „ „	180	180	—	—
„ No. 3 „ „	287	278	—	9
„ No. 6 „ „	155	101	—	54
Total ...	3,364	3,329	112	147

MARMAJITO MINE.

	June, 1901.	Dec., 1901.	Increase	Decrease.
No. 2 level east	200	—	—	200
Branch on hill	70	126	56	—
	270	126	56	200

As far as this mine is concerned, all the payable ore has been extracted and we have to depend on what we get from the branch on the hill and the waste-heap, until operations are resumed and sinking proceeded with; this necessitates pumps and means of working them.

CÓRDOBA MINE.

Nothing but keeping the mine open by timbering has been done here, and the reserves of ore are the same as when last reported, as no mineral has been extracted from this mine.

	June, 1901.	Dec., 1901.
Ore developed and being developed	3,714 tons.	3,714 tons.

RESUMÉ.

Number of tons standing as at 31st December, 1901 :—

Silencio	2,352 tons.
Salada	17,467 „
Tigrito	3,329 „
Marmajito	126 „
Córdoba	3,714 „
Total reserves ...	26,988 tons.

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GARIBALDI.

I have been looking round this property, and I have formed an opinion by no means unfavourable, and I only wish we could get some men in to do a little prospecting work. The lodes here run N.W. and S.E. and underlay to the N.E. From the lode behind the bath we crushed some mineral, but any gold was all in the pyrites, and this class of mineral in a native mill is of no use. I had a look at a large outcrop of promising looking mineral lying to the N.E. of the mill, a sample of which gave 2 ozs. 5 dwts. 8 grs. gold per ton, and a wheelbarrow road is being laid down to crush some of this ore in bulk and see what results we get. I noticed that some work had been done and the mineral washed by the natives, which indicated that the ore contains free gold.

Recapitulation of mining work done during the six months ending 31st December, 1901.

	31/12/1901. Metres.	30/6/1901. Metres.	Increase.	Decrease.
SINKING WINZES :—				
Silencio	17.30	6.55	10.75	—
DRIVING LEVELS :—				
Silencio	54.75	36.05	18.70	—
Salada	2.25	114.10	—	111.85
Marmajito ...	52.80	44.40	8.40	—
Tigrito	5.75	5.80	—	0.05
Garibaldi ...	2.40	—	2.40	—
RISING :—				
Silencio	10.25	13.40	—	3.15
Salada	2.50	30.35	—	27.85
Tigrito	3.80	25.40	—	21.60
CROSS-CUTTING :—				
Silencio	3.95	—	3.95	—
Garibaldi	83.37	—	83.37	—
STOPING :—				
Silencio	703.78	1,255.50	—	551.72
Salada	169.75	335.50	—	165.75
Marmajito ...	159.25	291.30	—	132.05
Tigrito	165.60	344.85	—	179.25

CONTRACT RETIMBERING.

	31/12/1900.	30/6/1901.	Increase.	Decrease.
Silencio :—				
Sets in shaft ...	46	45	1	—
Studdle pieces in shaft	14	20	—	6
Sets in drives ...	348	479	—	131
Studdle pieces ...	579	560	19	—
Dry stone walling ...	29·75 m.	8 m.	21·75 m.	—
Salada :—				
Sets in shaft ..	5	3	2	—
Dividings shaft ...	20	—	20	—
Sets in drives ...	320	448	—	128
Studdle pieces ...	30	250	—	220
Tigrito :—				
Sets in air shaft ...	4	8	—	4
Sets in drives ...	88	76	12	—
Sets in water cross-cut ...	40	108	—	68
Studdle pieces ...	48	150	—	102
Córdoba :—				
Sets in air shaft ...	13	9	4	—
Sets in drives ...	245	313	—	68
Marmajito :—				
Sets in drives ...	159	137	22	—
Studdle pieces ...	—	46	—	46
Garibaldi :—				
Sets in cross-cuts ...	25	—	25	—

MINE PLANS.

Tracings of the plans of Silencio, Salada and Tigrito mines have been made, showing these mines as at 31st December, 1901, and a plan of Garibaldi has also been made, showing the positions of the cross-cuts. All of these go by this same mail.

TAXES ON MINES.

Each mine has to pay an annual tax of $5 or $6 according to circumstances and a large number of this Company's mines were paying taxes each year, and in ordinary times this amounted to a considerable sum of money per annum.

Advantage has been taken of the high exchange, and these mines have been freed in perpetuity, by paying 20 years' taxes; this, with the high exchange amounts to a comparatively small sum, and now all the Company's mines are free from taxes.

In 1898 the taxes on these mines at 209 % premium amounted to	£22	4	0
1899 at 380 % premium amounted to	15	10	0
1900 at 970 % " "	6	12	8
	£44	6	8

The 20 years' taxes at the high exchange amounted to £32 2s 6d.

MILLS.

There have been running part of the time, and in every mill we have had stamps idle, and our crushings are getting very much reduced in quantity. In the three Californian mills we have crushed during the six months 3,891 tons of ore, being a decrease of 2,349 tons, as compared with the previous six months. We are out of stamp heads, tappets, cam shafts, stamp stems and screens.

Maria Dama.—This mill requires a great deal of repairs, both to the house and the machinery, and wherever it may be possible, masonry will replace timber. During the six months this mill ran 96½ days with 20 heads, equal to 3 months 1 week and 3½ days and crushed 2,347 tons of ore from Silencio and 29 tons from the waste heap, a total of 2,376 tons, as follows :—

Month.	Heads.	Days.	Tons crushed.
July ...	20 ...	18 ...	340
August ...	20 ...	12½ ...	352
September ...	20 ...	16¾ ...	431
October ...	20 ...	17 ...	469
November ...	20 ...	20 ...	519
December ...	20 ...	12¼ ...	335
	20 heads	96½ days	2,376 tons.

San Joaquin Mill.—Averaged 15 stamps for 37 days and crushed 954 tons of ore, from Salada mine. The woodwork of this mill house wants renewing in several places, and we have the timber in for the repairs.

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The crushings were as follows :—

Month.	Heads	Days.	Tons crushed.
July ...	15 ...	12½ ...	345
August ...	15 ...	10½ ...	261
September ...	15 ...	7½ ...	149
October ...	16 ...	4 ...	116
November	20 ...	1½ ...	55
December	12 ...	1 ...	28
Average	15 heads	37 days	954 tons.

CÓRDOBA MILL.—This mill being the last erected, is naturally in much better preservation. Here we had an average of 14 heads at work for 28½ days and crushed 561 tons of mineral, as follows :—

Month.	Heads.	Days.	Tons crushed.
July ...	16 ...	6½ ...	104
August ...	5 ...	3½ ...	52
September ...	16 ...	5½ ...	103
October ...	15 ...	4½ ...	86
November ...	16 ...	4 ...	86
December ...	15 ...	8½ ...	130
Average	14 ...	28 days 20 hrs.	561 tons.

COMPARISON OF ORE CRUSHED.

	Six months ending 31st December, 1901. Tons.	Six months ending 30th June, 1901. Tons.
Maria Dama ...	2,376 ...	2,741
San Joaquin ...	954 ...	2,644
Córdoba ...	561 ...	855
	3,891 ...	6,240

showing a decrease of 2,349 tons crushed. The ore averaged 1 oz. 2 dwts. 11 grns. gold per ton, including the gold obtained by the cyaniding operations in December month.

CHILIAN MILL.—This mill has been kept working over the sands and grindings of pyrites they can pick up, in the meantime, until we discover some mineral; and produced in the six months 4.0325 lbs. of amalgam worth about £20 per lb. = £80 12s or £3 5s more than the previous six months.

compuesto, mezclar

YIELD OF BULLION PER TON OF MINERAL.

	Bullion.
Silencio (including dumpheap) ...	1.35 Ozs.
Salado	0.38 "
Córdoba	1.32 "
Average yield per ton ...	1.122 "

RETURNS.

Notwithstanding the fact that the average gold contents of the ore crushed is slightly better, the much smaller quantity treated has greatly reduced the amount of gold won in the current half-year; and until this revolution is settled—and it looks as if it is going to drag on for a long time—I am afraid that there is not much chance of the returns being increased to any appreciable extent, and we will do well if we can keep them from falling off.

Details of Produce July to December, 1901 :—

	Gross. £	s.	d.	Cost. £	s.	d.	Profit. £	s.	d.	Loss. £	s.	d.
July	1,958	11	11	1,969	2	2	...			10	10	3
August	1,509	17	6	1,897	3	0	...			387	5	6
Sept. ...	1,661	14	5	1,860	5	9	...			198	11	4
October	1,790	7	9	1,412	10	6	377	17	3	...		
Nov. ...	1,384	2	3	1,617	17	8	...			233	15	5
Dec. ...	2,318	0	4	1,505	14	7	812	5	9	...		
	10,622	14	2	10,264	13	8	1,190	3	0	830	2	6
							830	2	6			
Profit ...							£360	0	6	{Estimated at the Mines.		

The bullion produced per month was as follows :—

	Bullion.
July	777.40 ozs.
August	614.35 "
September	693.00 "
October	759.35 "
November	500.00 "
December	1,510.00 "
	4,456.10 ozs

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Made up as follows :—

		Bullion.
From ore and sands	...	4,311.95 ozs.
„ tributers ...	...	52.30 „
„ treating pyrites ...	...	76.20 „
„ purchased gold ...	...	15.65 „
		4,456.10 ozs.

Table of ore crushed, bar gold and its origin :—

Month	Tons Crushed.	Coy.'s Mine. ozs.	Treatment of Pyrites. ozs.	Tributers. ozs.	Purchased Gold. ozs.
July.....	789	756.90	16.05	7.20	3.25
August ...	605	603.05	—	10.70	—
September	683	670.30	15.45	7.25	—
October ...	606	725.90	19.35	14.10	—
November	655	506.55	17.00	5.45	12.40
December	493	507.75	13.75	7.60	—
	3,891	3,825.05	76.20	52.30	15.65
From copper plates		486.90			
		4,311.95 ozs.			

The export duty on the gold sent to London has been paid in Colombia, and charged in the working expenses.

The bullion for half year ending 30th June, 1901, was as follows :—

	Bullion.
January	1,134.90 ozs.
February	1,230.10 „
March	924.75 „
April	661.00 „
May	954.80 „
June	934.10 „
„ copper plates ...	631.90 „
	6,791.55 ozs.

being a decrease in the present half year of 2,335.45 ozs.

The returns of the previous six months were :—

	Ground. £ s. d.	Cost. £ s. d.	Profit. £ s. d.	Loss. £ s. d.
January	3,544 17 9 ...	2,499 4 2 ...	1,045 13 7 ...	—
February	2,999 2 9 ...	2,134 0 2 ...	865 2 7 ...	—
March...	2,326 16 9 ...	2,443 6 10 ...	...	116 4 1
April ...	1,705 19 5 ...	1,903 0 0 ...	...	197 0 7
May....	2,450 1 10 ...	2,697 19 10 ...	372 2 0 ...	—
June ...	3,806 12 6 ...	2,960 5 5 ...	816 3 1 ...	—
	£16,853 11 0 ...	14,637 14 5 ...	3,099 1 3 ...	313 4 8
			313 4 8	
		Profit ...	£2,785 16 7	Estimated at the Mines.

PYRITES.

We have produced 59½ tons of pyrites at Maria Dama and San Joaquin mills, valued here at £997 10s 1d. Some of this was treated in arrastres, as is shown below. The remainder was added to stock, and no credit taken for it.

Mill.	Tons.	Total Gold Contents. Ozs.	Total Silver Contents. Ozs.	Value here. £ s. d.
Maria Dama produced	29½ ..	187.75 ...	394.90 ...	826 5 6
San Joaquin	„ 30 ...	39.05 ...	72.24 ...	171 4 7
	Total 59½ ..	226.80 ...	467.14 ...	997 10 1

EL SALTO ARRASTRES.

In this establishment a portion of the Maria Dama sulphurets are ground and amalgamated, and during the six months produced 86.85 ozs. of bullion; the bullion won in August was inadvertently included in the monthly returns, whilst the remainder goes to reduce the value standing against sulphurets on the ground.

		Fa Bullion.		
In July we obtained	10.05 ozs.	valued at	£24 17 10	
August „	10.65	„	27 2 6	
September „	15.45	„	40 2 2	
October „	19.35	„	48 2 9	
November „	17.60	„	44 15 7	
December „	13.75	„	34 17 6	
Total...	86.85 ozs.		£219 17 6	

Deducting the August bullion, 10.65 ozs., valued at £27 2s 6d,

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we have left 76.20 ozs. bullion, valued at £192 15s 10d, available for reducing the value of the pyrites account.

TRIBUTERS.

Comparison of results with previous half-year :—

Six Months ending December, 1901.

	Ozs. Bar.	Royalty.	Total Value.
July ...	7.20	£3 14 11	£18 14 8
August ...	10.70	5 9 7	27 8 6
September	7.25	3 12 4	18 1 10
October ...	14.10	6 15 11	33 19 8
November	5.45	2 15 3	13 5 5
December	7.60	4 11 10	20 1 7
	52.30	£26 19 10	£131 11 8

Six Months ending June, 1901.

	Ozs. Bar.	Royalty.	Total Value.
January ...	22.00	£11 3 8	£57 10 6
February ...	13.15	5 8 0	30 19 4
March ...	4.90	2 10 8	10 18 4
April ...	3.60	1 9 6	6 16 4
May ...	13.65	8 6 10	36 14 7
June ...	11.70	6 1 9	28 18 6
	69.00	£35 0 5	£171 17 7

BAR BULLION :—

Half-year ending June, 1901	69.00 ozs.
" " December, 1901 ...	52.30 "
Decrease	16.70 ozs.

ROYALTY :—

Half-year ending June, 1901	£35 0 5
" " December, 1901 ...	26 19 10
Decrease	£8 0 7

TOTAL VALUE :—

Half-year ending June, 1901	£171 17 1
" " December, 1901 ...	131 11 8
Decrease	£40 5 5

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EXPORT DUTY ON GOLD.

The following payments were made and charged in the working expenses :—

August ...	$22,535.25 c/m at 2,480 =	£181 14 8
October ...	13,389.75 " " 4,500 =	59 10 2
November...	33,483.70 " " 4,420 =	151 10 2
		£392 15 0

Exchange during the six months was as follows :—

July	2,140 per cent. premium.
August	2,380 " "
September ...	2,620 " "
October	4,400 " "
November ...	4,320 " "
December ...	3,470 " "

DISCOUNT PAID FOR OBTAINING SMALL MONEY IN MEDELLIN, RETREATOS AND SEGOVIA.

1901.	c/m.				
July ...	$9,024.00	@	2,260 %	premium =	£79 17 2
August ...	5,087.00	"	2,480	" " "	41 1 2
September ...	4,002.00	"	2,720	" " "	29 8 0
October ...	2,751.00	"	4,500	" " "	12 4 0
November ...	4,438.20	"	4,420	" " "	20 1 3
December ...	9,037.00	"	3,570	" " "	50 12 6
					£233 5 1

I got some tickets for small sums printed, to issue to the workmen as vouchers of what was due to them, and receivable at the Company's office at any time for national money, to try and avoid paying these discounts, but the authorities objected, and I had to recall them.

RAINFALL.

This has been much greater than in the corresponding months of the previous year, showing an increase of 29.44 inches, which fell principally in the months of July and August :—

	1900. Rain fell	Inches.	1901. Rain fell	Inches.	Difference.
July	18 days	8.24	24 days	22.69	+ 14.45
August ...	17 "	9.22	18 "	17.66	+ 8.44
September..	21 "	11.73	24 "	12.47	+ 0.74
October ...	26 "	18.82	23 "	15.57	— 3.25
November..	28 "	8.81	22 "	10.93	+ 2.12
December..	14 "	1.25	16 "	8.19	+ 6.94
	Total ins.	58.07	Total ins.	87.51	+ 32.69
					— 3.25
				Increase, ins.	29.44

MAHON.

44 cows	$6,600 c/m.	
10 young bull calves...	400	"
10 young calves	400	"
23 heifers	3,565	"
23 young bulls	4,000	"
5 oxen	1,500	"
3 bulls	900	"
	$17,965 c/m.	

RESUME.

185 cows	$27,750 c/m.	
43 young bull calves...	1,720	"
45 young calves	1,800	"
36 heifers	5,580	"
6 bulls	1,800	"
44 young bulls	8,800	"
62 oxen	18,600	"
128 pigs	11,520	"
48 goats	576	"
13 ducks	91	"
237 mules and horses...	82,200	"
	$160,437 c/m.	

The foregoing does not include 23 mules and horses which were seized by the Government agent and forcibly taken from the Company's stables, for war purposes, none of which have been returned. These animals I value at £234.

FOOD STUFFS.

Although we have a marked rise in exchange over other six monthly reports, and a decrease in the quantity consumed, yet the principal items of consumption have increased notably in value:—

	July to Dec., 1900.	July to Dec., 1901.
Indian Corn, per mule load	£0 8 7 ...	£0 14 4
Beans "	1 4 11 ...	1 18 1
Raw Sugar "	0 10 7 ...	2 2 9

whilst the following articles have been cheaper:—

Beef, arroba of 25 lbs. ...	£0 6 8 ...	£0 4 1
Lard, " ...	0 7 6 ...	0 5 6
Rice, per mule load ...	2 5 5 ...	1 12 1

And at times we have had great difficulty in obtaining the requisite quantity of food for the workpeople. We lost a considerable quantity of food through our mules being seized by the Government, and our not being able to get it brought in from the depots before it was destroyed by insects.

KITCHENS.

Reforms have been introduced into these, and a person put in charge of this department, and the rations are issued on a system by tickets; the saving has been great, and the workpeople now get what they are entitled to; there is naturally some dissatisfaction, especially with those who had perquisites and did a little pilfering, but these are being gradually weeded out; with this system of feeding the workmen, and kitchens scattered over the different departments, it is almost an impossibility to avoid waste and prevent petty pilfering, but we have got these down to a fine point now.

HEALTH.

The health bill has been a fairly good one in general. At one time we had a threatened outbreak of small pox in Segovia, but the mayor took prompt measures, and had the cases isolated, and we got rid of it. They were evidently imported cases.

I am sorry to say that in August, one of the staff, a promising young man, died of dysentery.

Dr. Villamizar reports that the following patients received medical attention as out-door patients.

July...	237 cases
August	255 "
September	209 "
October	216 "
November	230 "
December	275 "
Total ...	1,422 cases

Twelve serious cases were admitted to the hospital, and of these five died, all dysentery cases.

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NUMBER OF HANDS EMPLOYED.

European Officials	13
Colombian Officials	16
Miners	91
Carpenters	11
Smiths	22
Engine Drivers	4
Mechanics...	7
Mill Hands	138
Surface Hands	333
Fuel Carriers	29
Total	664

(Taken from the books for December, 1901.)

GENERAL.

Neither party seems to get tired of fighting, nor inclined to yield, and as far as one can judge, the end is yet far off, and I question if 1902 will see the revolution finished, unless events move much more rapidly than they have done heretofore. The misery in the country is very great, and bands of robbers are occasionally met with on the roads, so that it may be necessary to send an armed escort with the bullion.

The state of the Puerto-Berrio railway is such, that goods have to lie nine to ten months awaiting their turn.

We had hurricanes of 12th August and 1st November, in the former we had a deal of damage done to the houses, which is not yet all repaired, and we lost two mules that were drowned whilst crossing a swollen stream on the way to Mani; in the latter we suffered a serious loss of pyrites (about 400 tons) at Maria Dama.

A library has been started for the use of the employés, and it is being taken advantage of and is much appreciated.

An arrangement has been entered into with the colonel of the forces in Remedios, whereby no recruiting parties are to come in the mines, which I trust will work well and let the workmen dedicate themselves to their work without fear.

We are trying the effect of steaming timber to see if it will last longer, as the timber as a rule does not stand any time.

The various members of the staff have all worked well and done their best to try and get the best possible results under very difficult conditions, and my thanks are due to them.

I am, Gentlemen,

Yours obediently,

R. BARKER JOHNSTON.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

Mr. ALFRED TILLY'S HALF-YEARLY REPORT TO 24TH DECEMBER, 1902.

La Salada,

31st January, 1903.

To the Directors

Frontino and Bolivia (South American) Gold Mining Company, Limited.

Gentlemen,

I beg to submit for your perusal a review of operations effected on this Company's properties for the six months dating from the 24th June to the 24th December, 1902, together with remarks and recommendations pertinent to future developments and to complete resuscitation to prosperity of these valuable mining claims.

MINES.

Stanton.—You will observe by the tabulated figures appended that the extensions of the levels as well as other points of development in this mine show a very meagre result, due to the adverse circumstances of which it has been my unpleasant duty to advise you from time to time. The chief of these is now happily removed, viz., the revolution, a struggle which lasted over three years, resulting in a surrender of the revolutionary forces on or about the 24th November last. Order is being restored, and until the further disbandment of the Government troops, more workmen will be available for the mines. The Remedios, or local contingent, has not yet been dispersed.

Informe semestral de Mr. Tilly a Diciembre 24, 1902

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The few points which were under development, and the little work done during the time under review, call for no special comment beyond the general appearance of the reef in the drivages, which may be said to show a slight improvement.

The pumping plant operating in the main shaft has had some important renewals, and is now in fair condition.

A foundation of granite, weighing about 120 tons, has been built at the mouth of the said shaft for the purpose of erecting the gearing for the working of the pumps by steam or electrical power, when the water from the Pocuné Ditch fails, or an accident to the wheel occurs. This gearing, I am glad to say, will be ready for operation in the course of another month.

Serious delays and inconveniences were experienced by the breaking of three gudgeons of the said wheel, in consequence of which the lower levels were flooded for some considerable time.

At the hoist shaft a new headgear has been erected in place of the old one, which was in a rotten condition and unsafe for work.

SALADA.—In this mine we have, as far as possible, kept a little development in progress. This has been chiefly confined to the drivage of the No. 2 south and the No. 4 north. In these extensions the lode opened up slightly exceeds the tonnage of ore extracted and sent to the mill. This you will note by the tabulated form giving estimate of ore reserve.

The pumps in this mine have worked well, and the mine kept clear when there has been sufficient water in the ditch for the pump wheel.

The balance-bob beam, rods and rockers attached to this pump require renewing.

CORDOVA.—Nothing has been done in this mine beyond the necessary timbering for the maintenance of the roadway.

TIGRITO.—The extension of the No. 6 level west has progressed in a regular and well-formed lode, but the mineral produced was of low yield. This level, which represents the deepest point in the mine, and which, I may add, is above water level, has a total extension of nearly 2,000 feet in a well-defined reef, which has proved more or less productive throughout. The estimated ore reserves credited to this mine are located above this level. The reef below is quite intact. It will be a question later on of getting machinery for the purpose of carrying exploratory workings below water line in this promising and native reef. This will be effected as soon as circumstances permit.

MARMAJITO.—The reef or lode in this mine is a continuation of Tigrito, to the east, and in this section it has been extended on a distance of over 1,000 feet, and a level of from 20 to 30 feet below that of Tigrito. Nothing has been done in Marmajito during the period under review beyond a little timbering. In 1897 workings were pushed most vigorously, the reef proving rich, a sink of 20 feet below this level (which is also an adit) was effected, and a level extended on the course of the reef. A good deal of trouble was occasioned in keeping these workings clear of water by means of hand pumps. The reef, however, was rich, and compensated for the extraordinary outlay in keeping constant relays of men at the pumps. Nothing below this level has been done.

In order to open up this mine, it will be necessary to sink a shaft from surface, and equip same with hoisting and pump gear. This is on the list of projected new works. I need scarcely draw attention to the importance of these properties, which are, practically speaking, virgin with ore-ground 3,000 feet in extent, already proved, and awaiting the installation of machinery for development below the adit levels.

The mineral, supplied to the Native Mill, was taken from the side of the hill, where a branch of the lode occurs. During the revolution this work has been effected principally by women.

An arrastre was erected in this mill for the treatment of contractes, and works satisfactorily.

MORAJON.—This mine is a continuation of Marmajito to the east. Very little work of an exploratory nature has been done to prove this property, which I consider of importance. It was abandoned, but is now being worked on tribute at a royalty of 30 per cent. The Tributer renovated the old Native Mill on the property at his own expense.

GARRALOL.—The Native Mill has been overhauled and thoroughly renovated. This property, which is somewhat isolated, is at present being worked on tribute at a royalty of 20 per cent. The cross cut north has been duly extended, and a small reef cut. The Tributer is driving on this, but so far the milling results of the rock from the reef have not proved satisfactory. I am of opinion that an improvement will be met with as the drift advances into more settled ground.

MILLS.

MARTA ELENA.—This mill, which was erected in 1891, is in a very dilapidated condition. Repairs have been effected as necessity demanded, till nothing now remains for it but a complete demolition and renewal of nearly every part of the foundation, mill and superstructure, which virtually means an

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entirely new rig out. With the inevitable in view, I have decided to erect, or prepare the ground behind the present mill for the erection of a new 20-stamp mill, making due provision for additions as required. The present transmission and driving gear, with necessary repairs, will fit in for working the new batteries. One of the great advantages of the site of the projected new mill is that the line of the mortar boxes will be kept up at least 10 feet above that of the old mill. This will economize and facilitate to a marked degree the concentration of the tailings, which at present is a laborious task and consequently defective. The old mill affords but little accommodation for gravitation, which is an all-important feature to the proper working of a mill and especially the treatment of tailings.

VANNERS.—There require new aprons. The number is reduced to two in this mill.

The Pelton power for working the mill and Vanners has given no trouble, and is, altogether, very satisfactory.

The building for Electric Power Station is situated alongside the Maria Dama Mill. The outside walls constructed of granite have been completed, and cube some 2,733 fe[illegible]. The central pillars for supporting the roof and carrying the co[illegible] shafting are built of brick. All is of excellent workmanship, and up to the present stage has cost £431 5s 0d. Zinc roofing has not yet arrived on the property.

ARRASTRE.—In order to work up some of the richer tailings and concentrates, I had an arrastre erected on the site of an old native mill, long since abandoned. A second arrastre, alongside the present one, is being added. This will increase the mill returns.

SALTS.—The arrastres in this mill are utilized for the treatment of the sulphurets stocked at Maria Dama Mill. During the six months, 30 tons were treated and produced 122.55 ozs. valued at £512 18s 9d. This amount is credited to the pyrites account and does not figure in the monthly returns. The cost to the mills for the production of this value was £37 10s.

SAN JOAQUIN.—This mill, consisting of 20 heads, is in fairly good condition. Considerable repairs have been effected to the battery frames and building, also to the Vanner tables (3 in number). The latter are in need of new aprons.

CYANIDATION.—The small plant connected with this mill has been kept occupied in the treatment of rich sulphurets, from Maria Dama stock, since August last, having treated 60 tons, resulting in a produce of 338·70 ozs., valued at £671. The cost to the cyanide plant for the production of this value was £154 10s.

CÓRDOBA.—Owing to the decay of the pieces of timber under the mortar boxes, we have been obliged to suspend one battery, which leaves us with only 12 heads working. The repairs are being pushed on as fast as possible. The mill building, which suffered considerable damage during a hurricane, has been repaired.

EL SILENCIO.

SUMMARY OF WORK DONE IN SIX MONTHS ENDING 31st DECEMBER, 1902.

	31st Dec., 1902 metres	30th June, 1902 metres	Increase metres	Decrease metres
Sinking	—	1.50		1.50
Rising	20.0	17.80	2.20	—
Driving	48.85	67.30		18.45
Cross-cutting	1.05	—	1.05	—
Stoping	303.20	305.20	—	2.0

EL SILENCIO.

Average prices per metre for sinking, rising and driving for the six months ending 31st December, 1902.

Class of Work, Names of levels, &c.	Total Cost for 6 months to 31st Dec. 1902 *	Total Metres driven, &c., to 31st Dec. 1902	Average price per metre to 31st Dec. 1902	Average price per metre to 30th June 1902
RISING—	$ c.		$ c.	$ c.
No. 1 rise, No. 10 level north	164.00	1.30	80.00	67.71
„ 2 „ 9 „ south	963.00	5.90	163.22	50.00
„ 3 „ 8 „ „	247.00	2.60	95.00	75.92
„ 4 „ 8 „ „	825.75	10.20	80.95	50.00
DRIVING—				
No. 10 level north	155.00	1.20	129.16	94.15
„ 10 „ south	1,126.50	3.80	296.45	78.79
„ 9 „ north	844.00	5.35	157.75	88.27
„ 9 „ south	4,570.00	17.15	266.47	84.71
„ 8 „ „	1,855.40	18.95	99.49	71.87
„ 7 „ north	300.00	2.40	125.00	95.80
CROSS-CUTTING—				
Cross-cut east of No. 7 level north	119.00	1.05	113.33	—

* Wages were again increased on the 25th October.

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Average rising to 30th June, 1902, 1.62 metres per month per Mine
" 31st Dec., 1902 1.82 " " "
Increase ... 0.20 " " "

AVERAGE OF TOTAL:—
Rising to 30th June, 1902 ... 2.96 metres per month.
" 31st Dec. " ... 3.33 " "
Increase ... 0.37 " "

Average Driving:
To 30th June, 1902 ... 2.171 metres per month per drive.
" 31st Dec., " ... 2.298 " " "
Increase ... 0.127 " " "

AVERAGE OF TOTAL:—
Driving to 30th June, 1902 ... 11.216 metres per month.
" 31st Dec., " ... 8.041 " "
Decrease ... 3.175 " "

Average cross-cutting to 31st Dec., 1902 0.52 metres per month.
" total do. " " 0.17 " "

LA SALADA.

SUMMARY OF WORK DONE IN SIX MONTHS ENDING 31ST DECEMBER, 1902.

	31st Dec., 1902 metres	30th June, 1902 metres	Increase metres	Decrease metres
Sinking	—	—	—	—
Driving	29.30	—	29.30	—
Rising	12.65	19.70	—	7.05
Stoping	106.00	65.10	40.90	—

CÓRDOBA DISTRICT.

SUMMARY OF WORK DONE IN SIX MONTHS ENDING 31ST DECEMBER, 1902.

	31st Dec., 1902 metres	30th June, 1902 metres	Increase metres	Decrease metres
TIGRITO				
Driving	23.65	16.70	6.95	—
Rising	10.50	19.70	—	9.20
Stoping	28.95	62.80	—	33.85

	31st Dec., 1902 metres	30th June, 1902 metres	Increase metres	Decrease metres
MANHATTAN.				
DRIVING on the branch on the hill	—	81.20	—	81.20
GARIBALDI.				
CROSS-CUTTING.—North cross-cut	5.85	8.55	—	2.70

COMPARISON OF ORE CRUSHED.

Six months ending 31st December, 1902 ... 6,156 tons.
" " 30th June, 1902 ... ... 4,264 "
Increase ... ... 1,892 tons.

Made up as follows:—

	Mines.	Waste Heaps.	Outcrops.	Totals.
Silencio ...	1,799 ...	649 ...	— ...	2,448
La Salada ..	1,250 ...	36 ...	236 ...	1,522
Córdoba ...	228 ...	1,958 ...	— ...	2,186
Tons	3,277	2,643	236	6,156

Yield of Bullion per ton of Mineral crushed:—
Silencio ... ... 0.485 ozs.
Salada ... ... 0.549 "
Córdoba ... ... 0.119 "

The extremely low yield of bullion per ton of ore treated is due in the first place to the fact that the rich ore which existed in the Silencio Mine was removed in the previous six months. This Mine having been under water most of the time under review, it was impossible to prosecute any developments in the lower levels, where the reef is richer than in the upper levels. Then again, the waste heaps and outcrops were very poor, and were only treated because of the paucity of labour during the Revolution.

RETURNS.

	Gross £	Cost. £	Profit. £	Loss. £
July	1,236 17 10	2,827 5 5	—	1,590 7 7
Aug.	836 5 8	2,048 7 6	—	1,212 1 10
Sept.	825 1 7	1,741 1 8	—	916 0 1
Oct.	771 17 10	1,250 15 3	—	478 17 5
Nov.	927 11 0	2,101 12 5	—	174 1 5
Dec.	1,822 18 2	1,747 10 9	75 7 5	—
			75 7 5	4,371 8 4
				75 7 5

Loss in the six months at the mines ... £4,296 0 11

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BULLION PRODUCED PER MONTH.

July	533.90 ozs.	bar gold.
August	326.40 "	"
September	419.60 "	"
October	437.90 "	"
November	456.50 "	"
December	847.70 "	"
	3,072.00 "	"

Made up as follows:—

Mineral crushed in Company's Mills	Ore and Sands	2,004.80	
	Copper Plates	332.70	
	Slags ...	7.65	
Treatment of Pyrites		122.55	
Cyanide Bullion		338.70	
			2,806.40 ozs.
Tributers			233.00 "
Purchased Gold			32.60 "
			3,072.00 ozs.
Total Bullion for 6 months ending 31st Dec., 1902			3,072.00 ozs.
" " " " 30th June, 1902			4,491.72 "
Decrease			1,419.72 ozs.

TREATMENT OF PYRITES.

	Bar Bullion. ozs.	Valued here at. £ s. d.
July	21.70	56 8 5
August	9.05	21 15 10
September	7.65	19 5 4
October	18.75	49 3 10
November	27.50	70 1 8
December	37.90	96 0 7
	122.55 ozs.	£312 18 8

	Tons	Bar Bullion ozs.	Value £ s. d.
Total for months ending:			
31st December, 1902	30	122.55.	312 18 8
30th June, 1902 ...	100	99.95	255 17 9
Decrease ...	70	Increase 22.60	£ 57 0 11

CYANIDE RESULTS.

	Bar Bullion ozs.	Value £ s. d.
September	51.10	135 1 1
October	113.90	247 5 6
November	66.00	108 5 6
December	77.70	180 7 11
	338.70 ozs.	£671 0 0

Total for half-year ending:	Bar Bullion ozs.	Value £ s. d.
31st December, 1902 ...	338.70	671 0 0
30th June, 1902	308.75	570 18 0
	29.95 ozs.	£100 2 0

SULPHURETS.

During the half-year ending 30th June, 1902, are produced at Silecio and La Salada...	27½ tons.
And in this half-year	78 "
Increase ...	50½ tons.

Half-year ending 30th June, 1902, the pyrites were valued here at	£769 14 5
And for this half-year	745 5 10
Decrease ...	£24 8 7

TRIBUTERS.

	Ozs. Bar.	Value. £ s. d.
July	7.30	£19 3 3
August	36.40	91 12 2
September	39.75	104 9 8
October	37.80	98 7 10
November	49.25	125 1 0
December	62.50	154 7 11
	233.00	£593 1 10

Six Months ending	Ozs. Bar.	Royalty.	Total Value.
30th June, 1902	35.65 ...	£19 19 10 ...	£95 6 1
31st Dec., 1902	233.00 ...	161 9 4 ...	593 1 10
Increase ...	197.35 ...	£141 9 6 ...	£497 15 9

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PURCHASED GOLD.

	Ozs. Bar.	Value. £	s.	d.
July	4.90	13	9	6
August	4.45	12	13	11
September	3.65	10	4	8
October	3.60	10	2	10
November	4.90	13	7	1
December	11.10	29	9	1
Total ozs.	32.60	£89	7	1

SUMMARY OF BULLION FOR SIX MONTHS ENDING 31st DECEMBER, 1902.

	£	s.	d.
From Company's Mines ...	5,738	3	2
„ Treatment of Pyrites...	312	18	8
„ Cyanide Works ...	671	0	0
„ Tributers	563	1	10
„ Purchased	89	7	1
Total value	£7,404	10	9

RESERVES.

There is a slight increase of ore ground developed as compared with the previous six months. Córdoba workings are inaccessible, owing to roadway being blocked.

APPROXIMATE QUANTITY OF ORE, 31ST DECEMBER, 1902.

SILENCIO MINE.

No. of Level	June, 1902 tons	Dec., 1902 tons	Increase tons	Decrease tons
No. 10 level north, rich ...	345	365	20	—
„ 10 „ south, „ ...	196	275	80	—
„ 9 „ north, poor ...	54	90	36	—
„ 9 „ south, fair ...	348	349	1	—
„ 8 „ north, poor ...	24	24	—	—
„ 8 „ south, fair ...	119	141	22	—
„ 7 „ north, poor ...	211	211	—	—
„ 7 „ south, fair ...	20	20	—	—
„ 5 „ north, rich ...	50	50	—	—
„ 5 „ south, fair ...	85	85	—	—
„ 3 „ south, poor ...	771	771	—	—
Total tons ...	2,223	2,382	159	—

LA SALADA.

No. of Level	June 1902 tons	Dec., 1902 tons	Increase tons	Decrease tons
No. 4 Mid-level	198	182	—	16
„ 2 level south... ...	2,664	3,789	1,125	—
„ 1 „ south... ...	2,017	2,017	—	—
Adit Level...	4,024	4,024	—	—
No. 4 Mid level "Manto"	160	160	—	—
„ 2 Level „	5,620	5,620	—	—
„ 1 „ „	2,332	2,332	—	—
Total tons ...	17,015	18,124	1,125	16

TIGRITO.

From No. 9 Rise to face ...	2,656	3,206	550	—
Stopes W. of No. 8 Rise ..	488	446	—	42
„ „ 7 „ ...	278	278	—	—
„ „ 6 „ ...	101	101	—	—
Total tons ...	3,523	4,031	550	42

MARMAJITO.

Branch on the hill ...	126	—	—	126

CÓRDOBA.

Ore standing as per statement last six months ...	3,714	3,714	—	—

RESUMÉ.

Number of Tons standing as at 31st December, 1902 :—

Silencio	2,382 tons.
La Salada	18,124 „
Tigrito	4,031 „
Marmajito	— „
Córdoba	3,714 „
Total reserves ...	28,251 tons.

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CONTRACT TIMBERING.

SUMMARY OF SETS, &c., FOR THE SIX MONTHS ENDING 31ST DECEMBER, 1902.

SILENCIO MINE.

Sets in shafts	16
Studdles in shafts	30
Sets in drives, &c.	739
Studdles in drives, &c.	1,936

LA SALADA MINE.

Sets in shafts	1
Studdles in shafts	14
Sets in drives, &c.	271
Studdles in drives, &c.	391

MARMAJITO MINE.

Sets in drives, &c.	194
Studdles in drives, &c.	71

TIGRITO MINE.

Sets in drives, &c.	342
Studdles in drives, &c.	75

CÓRDOBA MINE.

Studdles in drives, &c.	192

GARIBALDI MINE.

Studdles in drives, &c.	18

WATERCOURSES.

One serious break, with others of minor importance, occurred in the Pocune and Tias Ditches. Renewals of five aqueducts, aggregating 415 feet and 720 feet fluming, have been effected. Further renewals are still in hand. The maintenance of 15 miles of ditches over very broken country necessitates constant attention and repairs. Upon these ditches we solely depend for the motive power (which, I regret to say, is quite inadequate) for the working of the Salada and Silencio Mine Pumps and the Californian Mills situated at San Joaquin and Maria Dama.

TIMBER.

This commodity for the use of the mines is gradually becoming more distant, and consequently, in the question of carriage, more expensive. This applies equally to planks and square timber of which there is a large consumption in the upkeep of the underground and surface workings and buildings. The timber is of poor quality, and lasts but a very short time. This article forms a serious item of expense, and the advisability of substituting iron sets or frames for the shafts and main tunnels is being duly considered.

FARMS.

MANÍ.—At this farm we have 12 to 14 hectares under cultivation, confined principally to the production of sugar cane. A small sugar mill, with its appurtenances, exist on this property, and we have commenced to produce "Panela" or coarse sugar, of which there is a large daily consumption at the Mines.

POZOS, MAÑON, CUTURÉ, and SALADA Farms with six others of minor importance call for no special remarks. These farms consist chiefly of grazing land for the Company's animals.

Appended is a list of the Live Stock, and valuation of same:—

INVENTORY OF LIVE STOCK.

LA SALADA FARM.

	£	s.	d.
53 cows	106	0	0
28 small calves	5	12	0
11 heifers	17	12	0
15 steers	21	0	0
2 bulls	4	0	0
27 oxen	48	12	0
37 goats	7	8	0
20 ducks	0	16	0
133 horses and mules	532	0	0
87 pigs, all sizes	69	12	0
	£812	12	0

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MASON FARM.

	£	s.	d.
43 cows	86	0	0
14 small calves	2	16	0
22 heifers	35	4	0
19 steers	26	12	0
3 bulls	6	0	0
1 ox	1	16	0
	£158	8	0

CUTURÚ.

	£	s.	d.
70 cows	140	0	0
38 small calves	7	12	0
14 heifers	22	8	0
13 steers	18	4	0
3 bulls	6	0	0
	£194	4	0

RESUMÉ.

	£	s.	d.
166 cows	332	0	0
80 small calves	16	0	0
47 heifers	75	4	0
47 steers	65	16	0
8 bulls	16	0	0
28 oxen	50	8	0
87 pigs, all sizes	69	12	0
51 goats	7	8	0
20 ducks	0	16	0
133 horses and mules	532	0	0
	£1,165	4	0

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BUILDINGS.

The most urgent repairs to the numerous buildings on the Company's properties, which are in a somewhat dilapidated condition, have been attended to. The scarcity of workmen and materials has made it very difficult to maintain the dwellings in the condition they should be. The deterioration, due to climatic influence, is very great, necessitating a constant outlay in this department. New barracks and house accommodation for workpeople are being built.

NEW WORK.

AT MARIA DAMA—

Power Station, 2,773 cubic feet of masonry have been added to this building.

1 arrastre 7 ft. 6 in. diameter.

AT SILENCIO—

2 iron gates.

1 poppet head.

990 cubic feet masonry.

AT CÓRDOBA—

1 arrastre.

NUMBER OF HANDS EMPLOYED.

European Officials	11
Colombian Officials	15
Miners	77
Carpenters	6
Smiths	8
Engine Drivers	4
Mechanics...	4
Mill Hands	87
Surface Hands	272
Fuel Carriers	36
Total	520

(Taken from the books for December.)

RAINFALL.

There has been a decrease in the rainfall of 36.71 inches, as compared with the corresponding period of last year.

This is affecting us most seriously, at the present time the water in the ditch having diminished to the extent of being quite insufficient to keep the pumps going at anything approaching the required speed to keep the mines dry. The lower, and richer, workings of both the Salada and Silencio, at the date of writing, are under water.

	1901.	1902.
July ...	23.24 inches.	7.42 inches.
August ...	18.32 "	10.28 "
September...	15.70 "	7.71 "
October ...	14.57 "	14.31 "
November...	13.51 "	9.11 "
December ...	8.07 "	7.87 "
Total ...	93.41 inches.	56.70 Inches.

EXCHANGE.

The fluctuations in the value of the paper currency during the period under review were unprecedented. The highest transaction in the sale of drafts by this Company was effected at 17,500 per cent., and the lowest 4.135 per cent. The exchange, however, rose to 21,000 per cent., *i.e.*, $1050 to the £ sterling.

The last sale of drafts at the beginning of the present months realised 11,500 per cent.

It is difficult to foreshadow, with any degree of certainty, the ultimate climax of this monetary crisis, which I believe is unprecedented in the annals of history.

TAXES.

The tax on gold was raised from 3 to 5 per cent. in June last. This is based on the net value of the gold bullion exported, which in our six months' returns represents £370. Agitation amongst mine-owners for the abolition of this tax is on foot.

REVOLUTION.

Three of the six months under discussion we were seriously hampered in our operations on all sides by the persistent recruiting of men for the Government's troops.

I petitioned the Civil and Military authorities in Medellin, and on the 13th September obtained a safe conduct for 500 men. After that date we were not further molested, but were allowed to go on in peace, but with only the few workmen who escaped the clutches of the recruiting commissions. We could not augment our supply of labour, notwithstanding the Government guarantees, due to the fact that recruiting was pushed more vigorously in the surrounding districts, and men were afraid to move out of their hiding places, and could not get to the Company's estate, without the too great a risk of being caught. Public order is being restored, and I am glad to say there are now favourable signs of a steady increase in the number of our workmen.

HEALTH.

The three cases of small-pox reported in June last survived this dread disease, and fortunately (due to the complete isolation and precautionary measures exercised) no fresh cases resulted. In December last one case of small-pox developed, which was at once isolated, and up to the present, I am glad to say, no fresh case has occurred.

The health of the European staff may be said to have been fairly good, only a few attacks of country fever being recorded.

The Doctor reports having attended 1,397 cases during the six months—of these 988 were fever patients. In December there was a marked increase in the cases treated, due to the fact that the men commenced returning from the unhealthy districts, where they were engaged in the revolutionary campaign.

GENERAL.

In my ordinary reports it has been with pleasure that I have referred to the efficiency of the members of the staff, and I now beg to record my appreciation of the able and willing support received at their hands in the protection of the Company's properties and interests during a specially trying and anxious time, which I am happy to say has now ended, with the termination of a three years' revolution. Few mines or industries survived the abnormal and grievous state of things that existed. Every available man and even boys were captured and pressed into the ranks. This Company must be congratu-

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lated in having weathered the disastrous effects produced throughout the country by so long and persistent a struggle.

Now that matters are beginning to assume their normal state, the time has come for pushing on vigorous developements at the mines, which necessitate the immediate introduction of machinery and motive power.

The three years' forced restriction of developments has materially prejudiced the mines, and for this reason it is now a question of sinking shafts and opening up levels on the reef to bring the properties into their former prosperous state.

I remain, Gentlemen,

Yours faithfully,

ALFRED TILLY.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

Mr. ALFRED TILLY'S HALF-YEARLY REPORT TO 24TH JUNE, 1903.

La Salada,

15th August, 1903.

To the Directors

Frontino and Bolivia (South American) Gold Mining Company, Limited.

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Gentlemen,

I beg to submit for your perusal a review of the operations effected on this Company's properties for the six months dating from the 24th December, 1902, to the 24th June, 1903.

MINES.

Silencio.—For reasons which it has been my duty to inform you from time to time, this mine during nearly the whole period under review has been flooded, and consequently no developments worthy of notice have been effected. As shown on the tabulated form, the production from this, the principal mine, has been very small.

The auxiliary steam gearing which was erected on the new foundation with the object of assisting the water wheel in pumping, proved too much for the loading. The only available steam engine was a high speed one, and necessitated the addition of extra gearing to reduce the speed to accommodate the water wheel and stroke of the pumps. A trial was made, but the foundation, which was calculated sufficiently heavy for the purpose, and no doubt would have been for single gearing, gave way, and it was

Informe semestral de Mr. Tilly a Junio 24, 1903

decided to increase the size of the loading; this has been accomplished and the weight increased 109 tons, making a total of 229 tons. Owing to the humidity of the climate, at least two months must elapse before the masonry is sufficiently consolidated to bear the required strain. The said gearing is made up of odds and ends of old machinery, but will be replaced by the new pump gear ordered from Europe, as soon as the latter can be brought in from the coast.

The arrangement of the gear is such, that it can be driven by steam or electric power. The former is costly and furthermore inconvenient, owing to the scarcity of wood fuel in the immediate vicinity.

To augment the water supply needed for the development of the electric power for pumping at Silencio, the work of completing the Bolivia ditch and constructing the Doña Ana ditch for increasing the water volume of the latter is in progress. The Bolivia ditch will be connected as soon as practicable with the main or Pocuné ditch, the junction being above the Maria Dama mill. At the level of the latter, the new Pelton, not yet delivered from Zaragoza, will be fixed to work the dynamo, independent of the mill Pelton, for generating the pump power for Silencio. The foundation for the new Pelton is ready.

The work effected during the six months, in connection with the said ditches, which is being carried out with all available force, figures under the heading of "New Works." Every effort will be made to complete this work and get the extra power for this mine before the end of the present year, when the much-needed sinking of the shafts and extension of the lower levels will be possible. A small steam hoist has been made and erected to replace the mule whim at the main or pump shaft. This will deal with the stuff from the No. 10 level.

Repairs to the pump gear and renewals have been effected.

Two new wire ropes have replaced the old ones at the hoist shaft.

La Salada.—During the six months the lower workings in this mine were under water 102 days, due principally to the insufficient supply of water in the ditch for working the pumps.

The pumps have undergone sundry repairs.

The outside gear in connection with the pumps is sadly in need of renewing. Duplicate parts are being made, and will replace the old as occasion offers.

Two new wire ropes have been substituted for the old ones at the hoist shaft, which were in a dangerous condition.

The bulk of the rock extracted from the mine during the time under review came from the No. 2 south and above this

level. The lode in this section known as the "Flat" or "Manto" lode is massive in places, varying from 4 feet to 7 feet in thickness. The mill results from this lode have been very low, little or no improvement can be expected till the development of this mine in depth has been resumed. This can be accomplished only when sufficient power has been established to keep the water under control.

Considerable repairs are needed to the Salada shaft, which has a vertical depth of 240 feet. I am glad to say the timber for sets and casings is now being delivered, and the work of securing this shaft will be carried out as soon as practicable.

Córdoba.—During the six months it has been impossible to do anything towards the opening up of the old workings. The roadway only has been kept open. Preparations for re-timbering of the main adit and the levels to get at the ore reserves, as per statement, are being made. The timber sets are being delivered for this work.

Tigrito.—As shown in the tabulated figures, an increase in development workings is recorded in this mine. The No. 6 level driving west has continued in reef of low grade, and at intervals split into small branches. The ore reserves computed in this mine are located between the No. 5 and 6 levels. Nothing has been done in development of the reef below the No. 6 level, which constitutes the extent of workings in depth in this section. The No. 6 may be described as an adit, which has been extended on a regular and well-defined reef about 2,000 feet.

The development of this important mine below the said level can only be effected when the necessary power and machinery have been introduced.

Marmajito.—This mine, a rich property according to past results, is located to the east of Tigrito, and is apparently a continuation of the same reef. As reported in my last six-monthly, the reef was worked some 20 feet only below the adit level, and over a small extent, by the aid of hand pumps. It was found impossible to sink further without power pumps, &c., and the workings consequently were abandoned.

To open up this important mine, it will be necessary to sink a shaft and introduce the necessary pumping and hoisting plant.

The above mine, with that of Tigrito and Marmajon, extending to the west and east, may be considered practically virgin mines, and a great future is in store for these properties once the necessary appliances are at command.

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MARMAJON.—This mine continues rented to a Tributer at a royalty of 30 per cent. The work is on a small scale only, and no discoveries worthy of note have occurred.

GARIBALDI.—The Native mill and mine are still being worked on tribute, the royalty being 25 per cent. The Tributer has continued the driving of the level east, but the reef by assays and mill results has proved of low grade.

MILLS.

MARIA DAMA.—Only the absolutely necessary repairs have been done to keep this mill going. The site for the new 20-stamp mill, immediately behind the present mill and at a 10 feet higher level, is progressing satisfactorily. 2,234 cubic feet of masonry in walls and 2,002 cubic feet of drystone retaining walls have been built during the period under review. The masonry should be sufficiently advanced towards completion for the reception of the new mill batteries by the end of October. The least heavy parts of the mill are slowly arriving from the coast. The heavier sections will be conveyed here when the Zaragoza road has been repaired.

The Electric Power Station built alongside the mill is minus the zinc roofing, which up to date we have not been able to get in from the river. The structure has cost £442 10s 3d. A 25-h.p. dynamo and also a 5-h.p. dynamo for the rock drills have been erected in this building, and covered with a temporary roofing.

The existing 300 feet power pipe line, 120 feet head, is quite feasible. The new pipe line ordered three years since to replace this is now at Zaragoza, and will be got up as soon as practicable.

SALES.—The arrastres at this mill have continued the treatment of the Maria Dama sulphurets. During the six months, 51½ tons treated produced value of £570 3s 9d. The cost to the mills for the production of this was £40.

SAN JOAQUIN.—Sundry repairs of a substantial nature have been effected to this mill. Three new vanner ajutons have been added, and thorough repairs to the frame-work done. A new main driving belt 140 feet long and 12 inches wide has been put in.

This, I am glad to say, is now in good working condition, and with occasional slight repairs can be kept so.

In connection with this mill, and at the level of the concentration department, some 850 cubic yards of excavation work

have been effected, forming an increased deposit space for the concentrates.

CYANIDATION.—The small plant has been kept employed on the sulphurets from Maria Dama stock. During the time under review, 75 tons were treated, producing value £675 11s 5d.

The cost of treatment was £112 10s 0d.

It is my intention to add two more tanks to this plant, and the building of same will be commenced when the necessary material has been delivered.

CÓRDOBA.—The repairs to the battery, which were suspended on account of the timber blocks under the mortar boxes having given way, have been thoroughly carried out. Sundry repairs to the mill building and battery frames have been attended to, and everything done to maintain, as far as possible, the mill in good working condition.

EL SILENCIO.

SUMMARY OF WORK DONE IN THE SIX MONTHS ENDING 30th JUNE, 1903.

Description of Work		30 June, 1903 metres	31 Dec., 1902 metres	Increase metres	Decrease metres
RISING—					
No. 2 rise, No. 9 level south	...	4.50	20.00	—	15.50
DRIVING—					
No. 9 level north	...	4.80			
„ 9 „ south	...	1.80			
„ 8 „ „	...	4.85			
		11.45	48.85	—	37.40
CROSS-CUTTING—					
Cross cut W. of No. 7 level N.		12.25			
„ E. Maria Dama Mill		6.25			
		18.50	1.05	17.45	—
STOPING—					
No. 9 level south	...	26.50			
„ 8 „ „	...	110.58			
		137.08	303.20	—	166.12

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EL SILENCIO.

AVERAGE PRICES PER METRE FOR DRIVING, &c., FOR THE SIX MONTHS ENDING 30th JUNE, 1903.

Nature of Levels, &c.	Total Cost for 6 months	Total Metres for 6 months	Average Price per metre 30 June, 1903.	Average Price per metre 31 Dec., 1902.
RISING—	$ c.		$ c.	$ c.
No. 2 rise, No. 9 level south	2,250.00	4.50	500.00	163.22
DRIVING—				
No. 9 level north	3,360.00	4.80	700.00	157.75
„ 9 „ south	720.00	1.80	400.00	266.47
„ 8 „ „	3,632.50	4.85	748.96	99.49
CROSS-CUTTING—				
West of No. 7 level north	9,650.00	12.25	787.75	—
East Maria Dama Mill ...	4,375.00	6.25	700.00	—

N.B.—A nominal price was formerly charged for dynamite, fuse, candles, &c., to the Contractors. The higher prices of materials only affected the previous six months in November and December, whereas the increase has been allowed to during the whole of the six months ending June last. Hence the difference in the averages.

These prices do not include rations.

AVERAGES.

Average rising to 30th June, 1903, 2.25 metres per month per rise
„ 31st Dec., 1902 1.82 „ „ „

Increase ... 0.43 „ „ „

AVERAGE OF TOTAL :—

Rising to 30th June, 1903 ... 0.75 metres per month.
„ 31st Dec., 1902 ... 3.33 „ „

Decrease ... 2.58 „ „

Average Driving :

To 30th June, 1903 ... 1.43 metres per month per drive.
„ 31st Dec., 1902 ... 2.29 „ „ „

Decrease ... 0.86 „ „ „

AVERAGE OF TOTAL :—

Driving to 30th June, 1903 ... 1.91 metres per month.
„ 31st Dec., 1902 ... 8.14 „ „

Decrease ... 6.23 „ „

Average cross-cutting :

To 30th June, 1903 2.64 metres per month per cross-cut.
„ 31st Dec., 1902 0.52 „ „ „

Increase 2.12 „ „ „

AVERAGE OF TOTAL :—

Cross-cutting to 30th June, 1903 ... 3.08 metres per month.
„ „ 31st Dec., 1902 ... 0.17 „ „

Increase ... 2.91 „ „

LA SALADA.

SUMMARY OF THE WORK DONE IN THE SIX MONTHS ENDING 30th JUNE, 1903.

Description of Work		30th June, 1903 metres	31st Dec., 1902 metres	Increase metres	Decrease metres
DRIVING :					
No. 4 mid-level north...	3.50				
No. 3 level north... ...	6.45				
No. 3 level south... ...	2.25				
No. 2 level south... ...	12.60				
Intermediate levels ...	6.70				
		31.70	29.30	2.40	—
RISING :					
No. 7 rise, No. 2 level south	14.30				
No. 5 rise, No. 2 level south	13.80				
Small rise, back of No. 2 stopes	6.00				
		34.10	12.65	21.45	—
STOPING :					
No. 4 mid-level north...	167.60				
No. 2 level south ..	216.45				
		384.05	106.00	278.05	—

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CÓRDOBA DISTRICT.

Summary of Work done in Six Months ending 30th June, 1903.

Tributers.

Description of Work	30th June, 1903 metres	31st Dec., 1902 metres	Increase metres	Decrease metres
Rising.				
No. 11 Rise, No. 6 level west	19.45	10.50	8.95	—
Driving.				
No. 6 level west ...	23.20	—	—	—
Intermediate levels:				
East of No. 10 rise	18.30			
West of No. 10 rise	19.20			
East of No. 11 rise	7.70			
	58.40	23.65	34.75	—
Stoping.				
No. 6 level west	332.35	28.95	303.40	—

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Comparison of Ore Crushed.

Six months ending 30th June, 1903	7,753 tons.
" " 31st December, 1902 ...	6,156 "
Increase	1,597 tons.

Made up as follows:—

	Mines.	Waste Heaps	Outcrops	Totals.
Silencio ...	1,050½ ...	786½ ...	— ...	1,837
La Salada ...	1,918 ...	— ...	232 ...	2,150
Córdoba ...	882½ ...	2,099 ...	784½ ...	3,766
Tons	3,851	2,885½	1,016½	7,753

Yield of Bullion per ton of Mineral crushed:—

Silencio	0.496 ozs.
Salada	0.583 "
Córdoba	0.067 "

RETURNS.

	Gross £	Cost. £	Profit. £	Loss £
Jan.	1,491 16 10	1,477 16 6	14 0 4	—
Feb.	972 6 3	1,989 2 9	—	1,016 16 6
Mar.	729 14 6	1,874 6 5	—	1,144 11 11
April	1,306 13 7	2,120 10 11	—	813 17 4
May	1,504 17 8	2,219 7 7	—	714 9 11
June	1,650 16 10	2,600 7 5	—	949 10 7
	£7,656 5 8	12,281 11 7	14 0 4	4,639 6 3
				14 0 4

Loss in the six months at the mines ... £4,625 5 11

BULLION PRODUCED PER MONTH.

January	633.00 ozs. bar gold.
February	556.50 " "
March...	418.60 " "
April	644.25 " "
May	643.50 " "
June	868.75 " "
Six months ...	3,764.60 " "

Made up as follows:—

Mineral crushed in Company's Mills	Ore and Sands	2,577.35 ozs.	
	Copper Plates	113.10 "	
	Slags ...	14.80 "	
Treatment of Pyrites (grinding by arrastre)		219.05 "	
Cyanide Bullion		434.10 "	
Steamers (Company's share of their gold)		4.20 "	
			3,362.60 ozs.
Tributers Gold			391.60 "
Purchased Gold			10.40 "
			3,764.60 ozs.

Total Bullion for 6 months ending 30th June, 1903 3,764.60 ozs.
" " " " 31st Dec., 1902 3,072.00 "
Increase ... ... 692.60 ozs

TREATMENT OF PYRITES.

	Bar Bullion. ozs.	Valued here at. £ s. d.
January	27.10	69 10 11
February	56.15	149 3 0
March	35.10	93 10 10
April	38.40	95 1 6
May	26.40	70 0 4
June	35.90	92 17 2
Total ...	219.05 ozs.	£570 3 9

Totals for months ending:	Tons	Bar Bullion ozs.	Value £ s. d.
30th June, 1903	51½	219.05	570 3 9
31st December, 1902 ...	30	122.55	312 18 8
Increase	21½	96.50	£257 5 1

CYANIDE RESULTS.

	Bar Bullion ozs.	Value £ s. d.
January	32.00	76 19 9
February	116.30	157 8 0
March	53 60	97 19 11
April	52 50	75 14 4
May	35.55	58 12 0
June	150.75	208 17 5
	434.10 ozs.	£675 11 5

Total for half-year ending:	Bar Bullion ozs.	Value £ s. d.
30th June, 1903	434.10	675 11 0
31st December, 1902 ...	338.70	671 0 0
Increase ...	95.40 ozs.	£4 11 5

SULPHURETS.

During the half-year ending December, 1902, we produced at Silencio and La Salada... 78 tons.
And this half year ... ... 123½ „
Increase ... 45½ tons.

Value for six months ending December, 1902 £745 5 10
„ „ „ June, 1903 ... £733 13 7
Decrease ... £11 12 3

TRIBUTERS.

	Ozs. Bar.	Value. £ s. d.
January	74.60	186 8 3
February	60.00	146 14 10
March	51.60	131 4 7
April	59.70	155 18 9
May	62.95	159 14 7
June	82.75	207 14 3
	391.60	£987 15 3

Six months ending:	Bar Gold ozs.	Royalty £ s. d.	Total Value £ s. d.
June, 1903 ...	391.60	281 18 1	987 15 3
December, 1902	233.00	161 9 4	593 1 10
Increase	158.60	£120 8 9	394 13 5

PURCHASED GOLD.

Half-year ending June 30th, 10.40 ozs. bar, £28 10s 5d value.

SUMMARY OF BULLION FOR THE SIX MONTHS ENDING 30th JUNE, 1903.

	£ s. d.
From Company's Mines* ...	6,640 0 0
„ Treatment of Pyrites...	570 3 9
„ Cyanide	675 11 5
„ Tributers	987 15 3
„ Purchased	28 10 5
Total value	£8,902 0 10

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RESERVES.

APPROXIMATE QUANTITY OF ORE, 30TH JUNE, 1903.

SILENCIO MINE.

No. of Level	Dec., 1902 tons	June, 1903 tons	Increase tons	Decrease tons
No. 10 level north, rich ...	365	365	—	—
„ 10 „ south, „ ...	276	276	—	—
„ 9 „ north, poor ...	90	110	20	—
„ 9 „ south, fair ...	349	238	—	111
„ 8 „ north, poor ...	24	24	—	—
„ 8 „ south, fair ...	141	64	—	77
„ 7 „ north, poor ...	211	211	—	—
„ 7 „ south, fair ..	20	20	—	—
„ 5 „ north, rich ...	50	50	—	—
„ 5 „ south, fair ...	85	85	—	—
„ 3 „ south, poor ...	771	771	—	—
Total tons ...	2,382	2,214	20	188

LA SALADA.

No. of Level	Dec., 1902 tons	June, 1903 tons	Increase tons	Decrease tons
No. 4 Mid level north ...	182	92	—	90
„ 3 level north	—	36	36	—
„ 2 „ „	3,789	3,497	—	292
„ 1 „ south... ...	2,017	2,017	—	—
Adit Level	4,024	4,024	—	—
No. 4 Mid-level "Manto"	160	160	—	—
„ 2 level „	5,620	5,620	—	—
„ 1 „ „	2,332	2,332	—	—
Total tons ...	18,124	17,778	36	382

TIGRITO.

No. of Level	Dec., 1902 tons	June 1903 tons	Increase tons	Decrease tons
No. 6 level west ... From No. 9 rise to face	3,206	3,407	201	—
Stopes east of No. 9 rise	825	498	—	327
Total tons ...	4,031	3,905	201	327

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	Dec., 1902 tons	June 1903 tons	Increase tons	Decrease tons
MARMAJITO	—	—	—	—
CÓRDOBA.				
Ore standing as per statement last six months ...	3,714	3,714	—	—

RESUMÉ.

Number of Tons standing as at 30th June, 1903:—

Silencio	2,214 tons.
La Salada	17,778 „
Tigrito	3,905 „
Marmajito	— „
Córdoba	3,714 „
	27,611 tons.

CONTRACT TIMBER.

SUMMARY OF SETS, &C., FOR THE SIX MONTHS ENDING 30TH JUNE, 1903.

Name of Mine.	Sets in Shafts.	Studdles in Shafts.	Sets in Drives, &c.	Studdles in Drives, &c.
El Silencio	21	35	699	1,566
La Salada	4	23	498	1,098
Marmajito	—	—	81	—
Tigrito	—	—	404	320
Córdoba...	—	—	134	—
Total, June, 1903 ...	25	58	1,816	2,984
„ December, 1902 ...	17	44	1,666	2,473
Increase	8	14	150	511

WATERCOURSES.

On the Pocuné and Tías ditches some 1,280 feet of fluming and 300 feet of aqueducts have been renewed. No serious break occurred on either of the ditches, but sundry small ones resulting in the water having been cut off an aggregate of 115 hours during the six months.

Owing to the decrease experienced in the rainfall, the water supply in the ditches became alarmingly reduced, and only by renting Sucré water for 199 days were we able to keep the mines from filling entirely with water.

To augment the water supply at the Maria Dama Power Station, 400 yards of ditch, known as the Doña Ana, have been cut, and is now ready for fluming and aqueducts. This ditch will join the Bolivia ditch, which is now being completed. By the end of the year I hope to add the water from these two ditches to that of the present supply. This will supply power for running the Silencio pump independent of the wheel.

RAINFALL.

	1902.	1903.
January ...	8.04 inches.	5.19 inches.
February ...	2.49 "	0.12 "
March ...	6.63 "	7.99 "
April	17.73 "	6.33 "
May	13.74 "	14.83 "
June	9.87 "	8.76 "
	58.50 "	43.22 "

A decrease of 15.28 inches as compared with the corresponding period of last year, or taking the record for the year a decrease of 51.09 inches.

In order to keep the pumps working the required speed to cope with the mines water, a rainfall of at least 15 inches per month is required to supply the power ditch. During the six months past, the average fall per month was 7.20 inches, barely one-half of the amount needed.

TIMBER.

The supply for the underground workings and structural purposes has been with difficulty maintained. Enhanced prices, and especially for the conveyance of the heavy lumber from the forest, have had to be paid to the contractors.

FARMS.

At Mani, the production of "panela" (raw sugar) shows an increase. The sugar mill has much deteriorated, and considerable repairs will have to be carried out in order to mill increased quantities of cane.

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The remaining grazing farms, located at various parts of the estate call for no special remark.

Inventory of Live Stock, 30th June, 1903.

La Salada Farm.

		£ s. d.	£ s. d.
91	horses and mules	347 13 0	
57	cows	183 16 0	
44	calves	7 0 0	
12	oxen	52 16 0	
3	heifers	7 5 0	
3	steers	4 16 0	
4	bulls	14 8 0	
38	goats	6 0 0	
48	pigs, all sizes	49 18 0	
			673 12 0

Mason Farm.

		£ s. d.	£ s. d.
17	horses and mules	52 0 0	
39	cows	117 12 0	
7	bulls	28 16 0	
38	calves	7 18 0	
16	heifers	39 7 0	
20	oxen	46 17 0	
			292 10 0

Cuturé Farm.

		£ s. d.	£ s. d.
12	mules, young mules, &c. ...	51 4 0	
81	cows	256 0 0	
22	heifers	33 15 0	
20	steers	34 2 0	
29	calves	4 16 0	
3	bulls	12 16 0	
8	small bulls	6 5 0	
18	oxen	63 4 0	
			462 2 0

Popales.

		£ s. d.	£ s. d.
12	oxen	57 16 0	
1	cow	1 12 0	
			59 8 0
			£1,487 12 0

Summary.

	£	s.	d.
121 horses and mules	450	17	0
178 cows	559	0	0
111 calves	19	14	0
82 oxen	220	13	0
23 steers	38	18	0
41 heifers	80	7	0
14 bulls	56	0	0
8 small bulls	6	5	0
38 goats	6	0	0
48 pigs, all sizes	49	18	0
	£1,487	12	0

BUILDINGS.

Repairs of more or less importance have been attended to, and complete renewals of some of the smaller buildings are in hand.

PROVISIONS.

Comparisons of Prices and Quantities of Food consumed in the Six Months ending 30th June, 1903, and December, 1902.

July to December, 1902.

		Quantity.	Value. $ Gold.	Value. £	s.	d.	Prices. £	s.	d.
Maize	... cgs.	1,603	4,075.10	815	0	5	0	16	3
Beans	... ,,	146½	1,886.28	377	5	1	2	11	6
Rice	... ,,	107¾	839.77	167	19	1	1	11	2
Raw sugar	... ,,	491	2,754.94	550	19	9	1	2	5
Lard	... @	352¾	1,025.11	204	12	5	0	11	7
Salt	... ,,	629	878.03	175	12	1	0	5	7
Beef	... ,,	6,881	14,556.44	2,911	5	9	0	8	5

Average price for ration 1s.

Average number of persons, 580.

January to June, 1903.

		Quantity.	Value. $ Gold.	Value. £	s.	d.	Prices. £	s.	d.
Maize	... cgs.	1,249	3,431.94	686	7	9	0	11	0
Beans	... ,,	137½	1,438.22	287	12	11	2	1	10
Rice	... ,,	116½	1,194.89	238	19	7	2	1	0
Raw sugar	... ,,	615½	1,715.19	343	0	9	0	11	4
Lard	... @	243½	1,516.67	303	6	8	1	5	1
Salt	... ,,	1,013½	818.90	163	15	7	0	3	2
Beef	... ,,	5,707	15,520.32	3,104	1	3	0	10	11

Average price for ration 1s 1d.

Average number of persons, 597.

DEAD WORK ACCOUNT.

From January to June, 1903.

	£	s.	d.	£	s.	d.
Electrical Power Station—						
January				11	5	3
Maria Dama New Mill—						
January	13	11	10			
February	42	10	11			
March	40	16	9			
April	36	4	2			
May	51	5	4			
June	52	14	0			
				217	3	0
Silencio.						
Crosscut West of No. 7 Level North—						
February	10	11	0			
March	14	13	5			
April	6	10	3			
				31	14	8
Loading for Gear Work—						
March	5	19	9			
April	3	8	5			
May	4	14	3			
June	70	9	2			
				84	11	7
Maria Dama Crosscut East—						
May	8	4	5			
June	8	5	5			
				16	9	10

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			£	s.	d.
Maria Dama Mill Arrastre—					
April			7	3	6
Doña Ana Ditch—					
May	£12	8 11			
June	36	3 7			
			48	12	6
			417	0	4
Addition—					
Making new Hauling Winch and fixing same at Silencio ...			39	0	0
Cost of fixing pipe, and cost of 210 feet steam piping from boiler to winch at Silencio ...			30	0	0
Making and fixing new 30-inch Pelton water wheel at Maria Dama			19	0	0
Fixing 25 h.p. dynamo, and building temporary shed at Maria Dama			5	10	0
Fixing 20 h.p. motor, and building shed for same at Silencio ...			2	10	0
Bricking wall and drain for Root's Blower in blacksmith's shop...			4	0	0
			£517	0	4

NUMBER OF HANDS EMPLOYED.

European Officials	11
Colombian Officials	15
Miners	93
Carpenters	6
Smiths	10
Engine Drivers	3
Mechanics	3
Mill Hands	96
Surface Hands	391
Ore Carriers	32
Total	662

(Taken from the books for June.)

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EXCHANGE.

The fluctuations have varied, the lowest Exchange being 8,850 per cent., and the highest 11,500 per cent. It is difficult to foreshadow how or when an equilibrium will be established. The critical state of things is a source of great anxiety, and so far nothing apparently has been done to ameliorate the situation.

TAXES.

In addition to the 5 per cent. direct export duty, the government has levied a further charge of 2 per cent. for carriage dues, plus postal stamps, and 30 per cent. of the amounts accruing from these last charges, if the gold is exported. Altogether the charges for getting the gold out of the country amount to about 9 per cent. Petitions for the abolition of these taxes have been presented to Congress.

HEALTH.

The doctor reports having treated 1,578 cases during the six months, an average of 263 per month. In the hospital 26 serious cases were admitted, five of which died.

The number of fever patients figures at 1,181, and these were treated as out-patients.

Three cases of small-pox were treated and cured on the property.

In the village of Segovia, adjoining the properties, 15 cases of small pox occurred. Stringent measures were taken, and the spread of the dread disease prevented.

GENERAL REMARKS.

Contrary to expectations, the working conditions since the termination of the Revolution in November last show but little, if any, improvement. Relatively, there is a great scarcity of labour, and a good demand on all sides for able men. Hundreds of men that left during the Revolution have not returned, the majority probably killed or died of disease during that fatal period. Our present supply of labour is of inferior quality, but the best is being done under the circumstances; a spirit of independence reigns amongst the workmen, due to the abundance of work offering. The task of dealing with and managing is in consequence rendered doubly difficult. Another feature which is greatly responsible for the actual condition of things is the high rate of paper dollars to gold. The district abounds in creeks and streams carrying alluvial gold, and as long as the paper dollars stand at the ruling rates, the incentive to work for alluvial gold is great, and the inhabitants

prefer this mode of earning a living, which can be done easily and without submitting to any rules or regulations.

The Salada and Silencio Mines owing to the failure of water-power were flooded nearly the whole six months, consequently very little work was done by way of development, and the returns necessarily suffered in consequence. Every effort to obtain auxiliary power is being made, and with some additional water to be derived from the Isoba Arr and Bolivia ditches, in conjunction with gearing and pips, one to be brought in from the river, I hope by the end of this year to have the extra power at command. I need hardly add, as things are at present, we are working under great disadvantages, and at every turn in some way handicapped. Matters will improve once the means of transportation has been improved, and the necessary material and machinery can be got on the site of operations when the development of the mines can be pushed on speedily.

I approached the Departmental Authorities respecting the opening up of the Zaragoza Road; after several interviews it was evident that no help was to be expected from that quarter. I therefore applied for and obtained a twenty years concession of this road for this Company. I exacted most favourable conditions [illegible]. I am glad to say this road is now under repair, and there is every hope it will be in a trafficable condition before the end of the year, and I trust we shall have some tons of materials passed over by that date. The length of the road from the mines is 42 miles. Other Companies operating in this district have tons of material waiting to be brought in. According to arrangement, this Company has established toll gates and the collection of tolls is in force from the date the repairs to road commenced.

Since the war we have been without telegraphic communication between this and Medellin. No steps have been taken to re establish the line, nor is there any prospect of same.

In conclusion, I beg to record my appreciation of the willingness displayed by the European Staff in each department throughout an onerous period attended with many and unavoidable difficulties. One and all are desirous of better times, which can only be realised by introducing motive power and getting the mines amply equipped with machinery and extending the development of the valuable properties owned by this Company.

I remain, GENTLEMEN,

Yours faithfully,

ALFRED TILLY.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

Mr. ALFRED TILLY'S HALF-YEARLY REPORT

TO 24TH DECEMBER, 1903.

La Salada,

February 24th, 1904.

To the Directors,

Frontino and Bolivia (South American) Gold Mining Company, Limited.

184, Gresham House,

London, E.C.

Gentlemen,

I beg to hand you a review of operations effected in connection with this Company's properties for the six months ending 24th December, 1903.

THE MINES.

Silencio.—Notwithstanding the increased rainfall as compared with the corresponding period of last year, the benefit of this unfortunately was more than counteracted by the damaging effects of the exceptionally heavy and torrential rains experienced during the former months of the period under review: and, furthermore, a considerable increase in the mine water resulted, due to the saturated state of the ground and free percolation of the water through the old sur-

Informe semestral de Mr. Tilly a Diciembre 24, 1903

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free workings to the mines. Several stoppages of more or less duration, due principally to the old cause—breaks on the ditches and accidents to the wheel and pump gear. Of the 184 days under review, the mine was free of water 11 days only, and this at odd intervals, which afforded an opportunity only of cleaning up the shaft sump and effecting the necessary repairs to the bucket fit and poles.

Mining operations were confined to the levels above the No. 10, and the tabulated figures annexed show the extent of developments effected on the course of the lode, together with amount of ground stoped, &c. The No. 9 level was worked at irregular intervals only, owing to the water being in a greater portion of the time.

The average grade of the aggregate amount of the ore extracted from the various points, as per mill returns, proved the lode to be low in yield. The rich chute of ore ground is undoubtedly located in the central sections of the mine in the vicinity of the shafts, and only by extending the No. 10 level and sinking the shafts below this level, can we attack the sections of rich ground which proved so productive in the upper levels.

A new shed, 70 feet by 30 feet, has been built over the main shaft and pump gear. The old building was blown down during the gales experienced in the rainy season.

At the time of writing, I may state the Silencio Mine has been in work since the 23rd January, and the No. 10 ends, north and south, are in operation, together with a rise in the back of south end. The latter is being carried up to expedite the communication to the Whim Shaft. The lode at all parts of this the deepest level is looking well, and though but little has yet been sent to the mill, a notable corresponding improvement in the returns has resulted. It is difficult to prognosticate, but, judging by present appearances, there is every prospect of the ditch and pumps keeping the mine dry for some little time. This will give us an opportunity of pushing on the ends and establishing the communication of the Whim Shaft at this level, when sinking operations below the No. 10 must be initiated without delay.

With the additional water about to be introduced by uniting the new Bolvia and Doña Ana ditches by syphon to the main ditch, the requisite power to work the dynamo at Maria Dama for transmission to the Silencio pump motor will be assured, there should then be no difficulty in keeping this important mine clear of water in future.

The new cog-wheels for the auxiliary pump gear have been placed in position, and the gearing is now ready for use.

The 24-inch piping, to make up the 300 feet of syphon, is here, and the work of riveting and building up the pipes will be started at once.

Maria Dama Cross-cut.—This trial cross-cut east was extended 24.20 metres in hard granite, which for the latter five or six metres became slightly impregnated with iron pyrites. At the date of writing I may add the following information:—On the 29th January a lode was cut which corresponds, according to survey, to the Salto lode, upon which but little work was done in the old days by tributers, and, according to report, good results were obtained. The lode, as far as it has been uncovered, averages about 18 inches in thickness, well defined, and has the appearance of turning out well. A level on its course to the north has been started, and a test crushing at the mill will be made of a small parcel of ore extracted. The lode matrix is well charged with pyrites, which in milling will be concentrated and treated by cyanidation.

La Salada.—During the month of July the water was in 24 days, and in August 18 days. The influx of water in the mine increased at this period two strokes per minute of the pumps. No developments were carried out in the lower workings.

Main Shaft.—On the 10th September this shaft, following the exceptionally heavy rains and other mishaps of more or less importance, caved in from surface, *i.e.*, all the timber sets from surface to the solid or bed rock, a depth of 58 feet, collapsed, carrying with them the sets down to the No. 3 Level and all the pump gear. At surface the balance bob loading and poppet head foundation were undermined. The latter, in order to prevent it going down the shaft, was at once dismantled as far as it could be done with safety, and then pulled over. The balance bob loading, which merely consisted of stones clamped together without any solid base to support it, tumbled over into the shaft. Loose stones retaining walls faced with lime, stood in close proximity to the shaft, these were built on loose debris and stones which acted as filling round the shaft sets, and consequently jeopardised both the safety of walls and shaft.

The occurrence of the serious mishap was the source of grave anxiety, measures were immediately taken to prevent as far as possible further caving in of the already gaping chasm, and thanks to the energy and promptness displayed by the staff, this was satisfactorily accomplished. A temporary head gear was constructed of heavy logs, and a large repairing cage was built to carry out the work of building up the shaft sets from the solid

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rock. The fixing of the leaning pieces and new timber sets of 12 inch square logs with 2-inch lagging boards commenced on the 20th October, and the work was continued uninterruptedly and completed to surface on the 11th December. I may say that in order to prevent a recurrence of the mishap, some 40 tons of concrete, consisting of stone, lime and cement, have been deposited round the bottom set above the bearers, and upon this foundation a thick wall of lime and stones, built up on all four sides of the shaft to the surface. This work, which was fraught with some difficulty and considerable expense, makes the shaft perfectly secure, and prevents any pressure of the loose débris which is packed behind the wall. Altogether it is an excellent and substantial piece of work, and I am glad to say was accomplished without mishap of any kind.

A solid basement for the balance bob loading is provided.

At the date of writing, the shaft is repaired to the adit level, a depth of 90 feet, dividings, ladders and skip-road fixed, and the hauling of the débris from the water adit, which is undergoing a thorough repair, is being effected.

The neglect and crushing of this adit resulted in a considerable quantity of water finding its way to the bottom of the mine. The work now in hand will provide for the proper and effective drainage of the surface water, which finds its way to the adit, and will result in much less work for the pumps when they are restarted.

Macho Lode.—The Salada Mine having shut down, the ores for the San Joaquin mill is being drawn from this outcrop. 1,176 feet of tramlines were laid to convey the mineral from this point to the San Joaquin mill, and some 1,720 tons were treated. The rock is easy for crushing, but of low yield, the returns however more than cover working costs.

CÓRDOBA DISTRICT.

Córdoba Mine.—Beyond keeping the main cross-cut timbered, it has not been possible to do anything towards opening up this old mine.

A new shed has been erected over the air shaft.

Tigrito.—In July the trimming of the waste heaps to the mill was suspended, and ore from the mine only extracted to keep the mill going.

A large section of ore ground was blocked out by the communication of No. 11 rise to the No. 5 level. All the operations in this mine were confined to the extension of the No. 6 or adit level, also the intermediate levels and the stoping of ore ground blocked above the adit. I regret to say the rock extracted proved of non-payable grade. At present, with the exception of actual development workings comprised in the extension of No. 6 or adit, intermediate level, and sinking of a winze below the adit, all other points are temporarily suspended. Chutes of payable grade ore have been opened up in the pass by the No. 6 or adit level, and were stoped away up to the No. 5 level. The trial winze at present being sunk below the adit is directed to attack one of the reported rich sections, and though but little can be done to expedite development below the adit till pumps and machinery have been installed, the sinking is being effected to the utmost by handpower.

New barracks for the accommodation of the workmen have been erected, and measure 44 feet by 24 feet.

Marmajito.—The work of opening up the No. 2 cross-cut or adit to get into this mine is in progress. It was found that by driving a side level to join the adit a long stretch of bad and heavy ground could be avoided, and the length of the adit or cross-cut shortened. Difficulties in the prosecution of this work have retarded operations, through big slides of ground caused by the heavy rains. This section is now passed and the advance is progressing satisfactorily. Owing to the crushed state of the old levels and the necessity of close timbering, the speed of the work at best is slow.

No. 1 Level West.—This is about 30 feet above the No. 2 adit, and is an old level which is being re-opened to recover some ore ground said to have been left by old workers. At the date of writing, a small vein of very rich ore has been struck, carrying visible gold. It is doubtless a section of the main lode near the surface. I hope the vein will prove continuous, and so help us out in the cost of opening up this rich mine.

A shaft for the hoisting of mineral, also as a means of ventilation, is being sunk to the No. 2 adit from surface and near the No. 1 level above referred to. This shaft is directed on the underlie of the lode, and will communicate with the No. 2 level in a line with a winze, which, according to a survey plan, has been sunk to a greater depth than the existing old workings. This winze will form a section and continuation of the shaft now being sunk.

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Mat Mapos is being worked on tribute at a royalty of 30 per cent. The returns show an improvement, but so far only irregular patches of vein formation have been met with. In order to cut the main lode, a deep cross cut must be driven in undisturbed ground.

Garibaldi.—The tributer at this mine has continued the extension on the course of the lode, but no appreciable improvement in the returns has occurred. The royalty is 25 per cent.

MILLS.

Maria Dama.—This mill is in a very dilapidated condition, and in view of the difficulty of getting the heavy parts of the new mill up from Zaragoza, some repairs must be done to keep this mill running.

Two arrastres in connection with this mill have been erected and kept in operation on the treatment of the sulphurets.

The foundations and retaining walls for the reception of the new 20-stamp mill are well advanced. The masonry of the retaining walls is constructed so as to form a portion of the bottom of the ore bins, and will do away with the use of heavy timbers, which are not only costly, but of short duration.

The preparatory work for this mill is good and of a permanent nature.

Salto.—The arrastres at this mill have continued on the treatment of Maria Dama sulphurets.

Several repairs have been carried out to the gearing and changing of muller stones.

San Joaquin.—This mill has undergone slight repairs, more repairs are needed, but the mill may be said to be in fair running order.

Two new arrastres have been erected at this mill, and are working satisfactorily in the treatment of some old stock pyrites.

Cyanide Plant.—Foundations for the reception of two more tanks have been built, and one tank completed and fixed, making a total of three tanks in operation.

Cottons.—Sundry repairs to this mill have been effected, also to the timber supports of the building. This mill is now in a fair working condition.

EL SILENCIO.

Summary of Work done in the Six Months ending 31st December, 1903.

Description of Work	Total. 31 Dec., 1903 metres	30 June, 1903 metres	Increase metres	Decrease metres	
Sinking—					
Hoisting shaft	.50	—	.50	—	
Rising—					
No. 2 rise, No. 9 level north	2.40				
„ 2 „ „ 9 „ south	3.65				
	6.05	4.50	1.55	—	
Driving—					
No. 10 level north ...	1.00				
„ 10 „ south ...	1.00				
„ 9 „ north ...	5.85				
„ 9 „ south ...	12.80				
„ 8 „ „ ...	22.50				
Intermediate level, east of No. 6 level north ...	3.00				
	46.15	11.45	34.70	—	
Cross-cutting—					
Cross cut east of Maria Dama Mill	24.20	18.50	5.70	—	
Stoping—					
No. 9 level south ...	36.65				
„ 8 „ „ ...	61.85				
„ 6 „ north ...	88.88				
	187.38	137.08	50.30	—	

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AVERAGES.

Average sinking to 31st Dec., 1903, 0.50 metres per month per sink
" 30th June, 1903, — " " "

Increase ... 0.50 " " "

AVERAGE OF TOTAL:—
Sinking to 31st Dec., 1903 ... 0.65 metres per month
" 30th June, 1903 ... — " "

Increase ... 0.08 " "

Average rising to 31st Dec., 1903, 2.02 metres per month per rise
" 30th June, 1903, 2.25 " " "

Decrease ... 0.23 " " "

AVERAGE OF TOTAL:—
Rising to 31st Dec., 1903 ... 1.01 metres per month
" 30th June, 1903 ... 0.75 " "

Increase ... 0.26 " "

Average Driving:
To 31st Dec., 1903 ... 3.07 metres per month per drive
" 30th June, 1903 ... 1.43 " " "

Increase ... 1.64 " " "

AVERAGE OF TOTAL:—
Driving to 31st Dec., 1903 ... 7.69 metres per month
" 30th June, 1903 ... 1.91 " "

Increase ... 5.78 " "

Average Cross-cutting:
To 31st Dec., 1903 ... 4.03 metres per month per cross-cut
" 30th June, 1903 ... 2.64 " " " "

Increase ... 1.39 " " " "

AVERAGE OF TOTAL:—
Cross-cutting to 31st Dec., 1903 ... 4.03 metres per month
" 30th June, 1903 ... 3.08 " "

Increase ... 0.95 " "

AVERAGE PRICES PER METRE FOR SINKING, &c., FOR THE SIX MONTHS ENDING 31ST DECEMBER, 1903.

Class of Work, Names of Levels, &c.	Total cost for 6 months.	Total metres for 6 months.	Average Price for 6 months.	Average Price for 6 months.
SINKING:	$ c.	metres	$ c.	$ c.
Hoisting Shaft	750.00	0.50	1,500.00	—
RISING:				
No. 2 rise, No. 6 level north.....	1,680.00	2.40	700.00	—
No. 2 rise, No. 9 level south.....	1,825.00	3.65	500.00	500.00
DRIVING:				
No. 10 level north ...	700.00	1.00	700.00	—
No. 10 level south ...	655.00	1.00	655.00	—
No. 9 level north.....	4,090.00	5.85	699.14	700.00
No. 9 level south.....	10,910.00	12.80	852.34	400.00
No. 8 level south.....	19,110.00	22.50	849.33	748.96
CROSS-CUTTING:				
East of Maria Doma Mill	23,060.00	24.20	952.89	700.00

LA SALADA.

SUMMARY OF THE WORK DONE IN THE SIX MONTHS ENDING 31st DECEMBER, 1903.

Description of Work	TOTAL: 31st Dec., 1903 metres	30th June, 1903 metres	Increase metres	Decrease metres
DRIVING:				
No. 3 level north...g ...	9.50			
No. 2 level south... ...	11.00			
Intermediate level north of No. 7 rise	3.50			
	24.00	31.70	—	7.70
RISING:				
No. 7 rise, No. 2 level south	10.05			
No. 5 rise, No. 2 level south	4.60			
Small rise in No. 2 stope, level south	19.30			
	33.95	34.10	—	0.15
STOPING:				
No. 4 old level north...	57.00			
No. 3 level south ...	10.00			
No. 2 level south ...	145.05			
	212.05	384.05	—	172.00

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CÓRDOBA DISTRICT.

SUMMARY OF WORK DONE IN THE SIX MONTHS ENDING 31ST DECEMBER, 1903.

TUERTO.

Description of Work	Total 31st Dec., 1903 metres	Total 30th June, 1903 metres	Increase metres	Decrease metres
DRIVING.				
No. 6 level west ...	11.05	—	—	—
Intermediate level West No. 11 rise	15.30			
Do., east No. 10 rise	9.30			
Do., east No. 9 rise	11.80			
	47.45	58.40	—	10.95
RISING.				
No. 12 Rise, No. 6 level west	23.20			
No. 11 Rise, No. 6 level west	11.60			
No. 9 Rise, No. 6 level west	1.80	36.60	19.45	17.15
STOPING.				
No. 6 Level west	1,082.15	332.35	749.80	—

COMPARISON OF ORE CRUSHED.

Six months ending 31st December, 1903	...	7,166 tons.
" " 30th June, 1903	...	7,753 "
Decrease	...	587 tons.

Made up as follows:—

	Mines.	Waste Heaps.	Outcrops.	Totals.
Silencio ...	984 ...	352 ...	— ...	1,336
La Salada ...	1,480 ...	— ...	1,673 ...	3,153
Córdoba ...	2,657 ...	— ...	20 ...	2,677
Total Tons	5,121	352	1,693	7,166.

Yield of Bullion per ton of Mineral crushed:—

Silencio	0.474 ozs.
Salada	0.162 "
Córdoba	0.259 "

RETURNS

	Gross. £ s. d.	Cost. £ s. d.	Loss. £ s. d.
July ...	1,146 6 7	2,505 8 8	1,359 2 1
August ...	4175 8 4	2,477 5 3	1,301 16 11
September	1,070 9 8	2,665 4 5	1,594 14 9
October ...	1,085 14 8	2,615 4 5	1,529 9 9
November	1,208 5 6	2,708 12 5	1,500 6 11
December	2,130 7 10	2,702 5 3	572 4 5
	£7,816 12 7	15,674 7 5	7,857 14 10.

Loss in the six months at the mines ... £7,857 14 10

BULLION PRODUCED PER MONTH.

July	517.30 ozs. bar gold.
August...	488.20 " "
September	459.40 " "
October	468.25 " "
November	493.15 " "
December	903.20 " "
Six months ...	3,329.50 " "

Made up as follows:—

Mineral crushed in Company's Mills	Ore and Sands	1,523.70 ozs.
	Copper Plates	375.55 "
Treatment of Pyrites		393.25 "
Cyanide Bullion		520.45 "
		2,812.95 ozs.
Tributers		504.05 "
Streamers		12.50 "
		3,329.50 ozs.

Total Bullion for 6 months ending 31st Dec., 1903 3,329.50 ozs.
" " " " 30th June, 1903 3,764.60 "
" " Decrease ... ... 435.10 ozs.

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TREATMENT OF PYRITES.

	Bar Bullion ozs.	Valued here at £ s. d.
July	72.25	162 14 2
August	67.60	173 0 3
September	51.20	135 16 6
October	59.65	150 5 7
November	66.65	170 4 4
December	75.70	204 3 2
Total ...	393.25 ozs.	£1,016 4 0

Totals for 6 months ending:	Tons	Bar Bullion ozs.	Value £ s. d.
31st December, 1903 ...	194½	393.25	1,016 4 0
30th June, 1903 ...	51½	219.55	570 3 9
Increase	52	173.70	£446 0 3

CYANIDE RESULTS.

	Bar Bullion ozs.	Value £ s. d.
July	105.50	138 11 0
August	56.00	73 1 11
September	102.25	132 [illegible] 2
October	63.00	165 6 1
November	69.10	94 [illegible] 4
December	146.10	260 18 [illegible]
Totals	520.45 ozs.	£854 10 2

Total for 6 months ending:	Bar Bullion ozs.	Value £ s. d.
31st December, 1903 ...	520.45	854 10 2
30th June, 1903	434.10	675 11 1
Increase ...	86.35 ozs.	£178 19 1

SULPHURETS.

We produced at La Salada, Silencio and Córdoba during the half year ending

June, 1903, ...	173½	tons, valued here at	£733	13 7
and in this half-year	94	" " "	621	14 4
Decrease	29½		£111	19 3

Also at La Salada we produced from the "Manto" outcrops "grey concentrates" 85 tons, valued at £131 0 5

Nearly all the Silencio and Córdoba sulphurets were ground down in arrastres month by month, as made, and a certain percentage of their value recovered.

Arrastre tailings have all been stored for further treatment. Salada pyrites and grey concentrates have also been stored.

TRIBUTERS.

	Ozs. Bullion	Value £ s. d.
July	67.05	169 17 6
August	75.35	201 2 7
September	60.10	158 18 10
October	97.90	259 11 11
November	105.90	277 9 0
December	97.75	254 4 3
	Ozs. 504.05	£1,321 4 1

Six months ending:	Bar Gold ozs.	Royalty £ s. d.	Total Value £ s. d.
30th June, 1903...	391.80	281 18 1	987 15 3
31st Dec., 1903...	504.05	388 7 0	1,324 4 1
Increase	112.45	£106 8 11	336 8 10

STREAMERS.

	Ozs. Bar.	Value. £ s. d.
July	1.80	£4 12 10
August	1.05	2 16 2
September ...	2.25	5 15 9
October ...	1.75	4 12 9
November ...	2.45	6 16 10
December ...	3.20	9 6 8
Total ozs.	12.50	£34 1 0

The above Streamers Gold is not "Purchased Gold," but the Company's royalty for streamers washing alluvial gold.

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SUMMARY OF BULLION FOR THE SIX MONTHS ENDING DECEMBER, 1903.

	£	s.	d.
From Company's Mines ...	4,587	13	4
„ Treatment of Pyrites ...	1,016	4	6
„ Cyanide Works ...	854	10	2
„ Tillaters	1,324	4	1
„ Streamers	34	1	0
Total value	£7,816	12	7

RESERVES.

APPROXIMATE QUANTITY OF ORE, 31ST DECEMBER, 1903.

SILENCIO MINE.

No. of Level	June, 1903 Dec., 1903		Increase	Decrease
	tons	tons	tons	tons
No. 10 level north, rich ...	365	365	—	—
„ 10 „ south, „ ...	276	276	—	—
„ 9 „ north, poor ...	110	134	24	—
„ 9 „ south, fair ...	238	459	221	—
„ 8 „ north, poor ...	24	24	—	—
„ 8 „ south, fair ...	64	382	318	—
„ 7 „ north, poor ...	211	211	—	—
„ 7 „ south, fair ...	20	20	—	—
„ 5 „ north, rich ...	50	50	—	—
„ 5 „ south, fair ...	85	85	—	—
„ 5 „ south, poor ...	771	771	—	—
Total tons ...	2,214	2,877	663	—

LA SALADA.

No. of Level	June, 1903	Dec., 1903	Increase	Decrease
	tons	tons	tons	tons
No. 4 Mid level north ...	92	64	—	28
„ 3 level north	36	62	26	—
„ 2 „ south... ...	3,497	3,452	—	45
„ 1 „ „	2,017	2,017	—	—
Adit Level	4,024	4,024	—	—
No. 4 Mid level "Manto"	160	114	—	46
„ 2 „ „	5,620	5,620	—	—
„ 1 „ „	2,332	2,332	—	—
Total tons ...	17,778	17,685	26	119

TIGRITO.

No. of Level	June 1903 tons	Dec., 1903 tons	Increase tons	Decrease tons
No. 6 level west	3,905	3,588	—	317
CÓRDOBA.				
As per previous statement	3,714	3,714	—	—

RESUMÉ.

Number of Tons standing as at 31st December, 1903:—

Silencio	2,877 tons.
La Salada	17,685 „
Tigrito	3,588 „
Córdoba	3,714 „
Total ...	27,864 tons

CONTRACT TIMBER.

SUMMARY OF SETS, &C., FOR THE SIX MONTHS ENDING 31ST DECEMBER, 1903.

Name of Mine.	Sets, Shafts.	Studdles, Shafts.	Sets, Drives, &c.	Studdles, Drives, &c.
El Silencio	16	46	578	1,651
La Salada	29	95	504	448
Marmajito	—	—	156	—
Tigrito	4	—	347	465
Córdoba...	—	—	107	—
Total, December, 1903 ...	49	141	1,692	2,564
„ June, 1903 ...	25	58	1,816	2,984
Increase	24	83	—	—
Decrease	—	—	124	420

WATERCOURSES.

Repairs and renewals of the aqueducts and flumes pertaining to the Pocumé and Tías ditches have received constant attention.

Many breaks of more or less magnitude occurred, and in the aggregate the water was cut off 367 hours.

The San Antonio aqueduct, 410 feet in length, was entirely renewed.

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[illegible] feet of boards and 5,500 feet of sawn and [illegible] timber were used in the renewals and repairs throughout. All the timber is hardwood, and has to be conveyed on men's shoulders and trolled long distances from the forest to the ditches.

The underlining of the tunnels over the course of the ditch has been attended to. The best class of round timber is being used for this purpose.

RAINFALL.

An increase of 26.67 inches as compared with the corresponding period last year is registered.

	1902.	1903.
July	7.42 inches.	14.75 inches.
August ...	10.25 "	16.53 "
September ...	7.71 "	19.57 "
October ...	14.31 "	8.34 "
November ...	9.11 "	10.56 "
December ...	7.87 "	13.62 "
	56.79 "	83.37 "

TIMBER.

To obtain the necessary supply of sawn timber for all purposes, more than ordinary difficulties were encountered. The scarcity of timber carriers and sawyers, and in consequence their independence, made it difficult to treat with them. The work is arduous owing to the increased distance the logs have to be carried on their shoulders and dragged through the forests.

The contracts for the supply of good timber for the underground workings on the various mines were fully complied with.

FARMS.

In addition to the maintenance of these for grazing purposes, several clearings have been made on the Company's property, and patches of corn sown, the benefit of which will result later. Several agriculturists have obtained permission and contracts for the clearing of suitable land on the Company's estate, with a view to the production of corn and other cereals. The price of these articles is an incentive to cultivators, and the Company will benefit by any work done by them on the estate.

The road to Cutuné grazing farm, 3 leagues distant, has been opened out. This farm is used for pasturage.

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INVENTORY OF LIVE STOCK, 31st DECEMBER, 1903.

	$ cts.	$ cts.
LA SALADA FARM.		
130 horses and mules	4,913.60	
50 cows	894.40	
37 calves	64 80	
23 oxen, working	572.00	
2 heifers	28.00	
2 steers	22.40	
5 bulls	140.00	
32 pigs, all sizes	244.80	
36 goats	14.40	
		6,894.40
CUTURÚ FARM.	$ cts.	
65 cows	939.20	
19 calves	36.00	
22 heifers	213.60	
17 steers	103.20	
10 oxen, working	138.40	
3 bulls	64.00	
18 bullocks	218.40	
		1,712.80
MASON FARM.	$ cts.	
37 cows	605.60	
27 calves	52.80	
16 heifers	168.80	
5 steers	24.80	
7 working oxen	160.00	
3 bulls	72.00	
17 oxen (bullocks)	248.00	
		1,332.00
		$ 9,939.20 gold.

SUMMARY.	$
130 horses and mules	4,913.60
152 cows	2,439.20
73 calves	153.60
40 heifers	410.40
24 steers	150.40
11 bulls	276.80
40 working oxen	570.40
35 oxen (bullocks)	466.40
36 goats	14.40
32 pigs, all sizes	244.80
or £1,987 16s 10d.	$ 9,939.20 gold.

CATTLE. (Fat Cattle.)

59 fat oxen for slaughtering ... $3,602.97 gold.

or £760 11s 11d.

Buildings.—The hurricanes and heavy rains caused considerable damage to several of the buildings, and repairs to these have been carried out.

Pocuné Power Ditch.—The grading of this ditch was commenced in September last, and up to the 24th December some 2,300 feet in length were opened out. Some bad sections of loose rock have been met with and these will require fluming.

The length of this ditch when completed will be about 6,000 feet, and will carry all the water required for the Pocuné Electrical Plant.

PROVISIONS.

Comparisons of Prices and Quantities of Food consumed in the Six Months ending 30th December, 1903, and June, 1903.

January to June.

		Quantity.	Value. $ Gold.	Value. £	s.	d.	Prices. £	s.	d.
Maize	... 63s.	1,249	3,151.94	686	7	9	0	12	0
Beans	... "	137½	1,438.22	287	12	11	2	1	10
Rice	... "	116½	1,191.99	238	19	7	2	1	0
Raw sugar	... "	61⅝	1,715.19	343	0	9	0	11	4
Lard	.. 6s	24½	1,516.67	303	6	8	1	6	1
Salt ...	... "	1,013½	618.90	163	15	7	0	3	2
Beef...	... "	5,707	15,520.32	3,104	1	3	0	10	11

Average price for ration 11 1d.
Average number of persons, 592.

July to December.

		Quantity.	Value. $ Gold.	Value. £	s.	d.	Prices. £	s.	d.
Maize	... 63s.	1,136½	6,146.46	1,229	5	11	1	1	7
Beans	... "	164	1,621.29	324	5	2	1	19	6
Rice	... "	148½	1,653.49	330	14	0	2	4	0
Raw sugar	... "	66⅞	3,137.12	627	8	6	0	18	9
Lard	... 6s	275½	1,819.97	363	18	4	1	6	5
Salt ...	... "	500	637.51	127	10	0	0	5	0
Beef	... "	5,640	19,012.83	3,802	11	4	0	13	5

Average price for ration 1s.
Average number of persons, 685.

A considerable rise in the prices of all articles, with the exception of beans, took place during the period under review. Notwithstanding this, the rations work out at 1/- per head, as against 1s 1d for the previous six months. The rigid rules established and the general reorganisation of the feeding department accounts for this favourable result.

DEAD WORK ACCOUNT.

Summary of Work done during the six months ending December, 1903:—

SILENCIO.

Cross-cut East of Maria Dama Mill—

		£	s.	d.	£	s.	d.
July	3.80 metres	8	13	6			
August	4.70 "	11	8	1			
September	2.20 "	10	4	8			
October	7.25 "	21	2	9			
November	2.25 "	8	1	5			
December	4.00 "	16	16	8			
	24.20 metres				76	7	1

MARIA DAMA.

New Mill—

				£	s.	d.	£	s.	d.
July ...	...	...	...	49	13	5			
August	...	...	...	54	11	11			
September	...	...	...	52	13	0			
October	...	...	...	54	7	8			
November	...	...	...	58	11	0			
December	...	...	...	22	9	3			
							292	0	3

Doña Ana Ditch—

				£	s.	d.	£	s.	d.
July ...	...	...	...	55	2	4			
August	...	...	...	41	10	6			
September	...	...	...	2	7	5			
October	...	...	...		—				
November	...	...	...	6	0	9			
December	...	...	...	10	9	4			
							115	10	4
Carried forward	...	...	...				£481	3	8

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Bolivia Hydro...

	£ s. d.	£ s. d.
Brought forward ...		434 3 3
July		
August		
September	4 9 1	
October	12 5 3	
November	9 18 0	
December	8 18 3	
	23 7 5	
		58 18 0

ELECTRIC PLANT.

September 255.42	Main Ditchwork, &c.	56 6 9	
October... 1,279.75	" "	99 9 6	
November 1,832.125	" "	142 14 9	
December 1,525.75	" "	146 9 4	
			445 0 4
			£503 18 4

NUMBER OF HANDS EMPLOYED.

European Officials	12
Columbian Officials	16
Miners	119
Pumpmen...	2
Mill Hands	100
Carpenters	6
Mechanics	4
Smiths	9
Engine Drivers	3
Timbermen	77
Fuel Carriers	16
Surface Hands	273
Electric Plant	637
	59
Total	696

(Taken from the books for December.)

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WAGES.

This item has increased nearly double as compared with the previous six months.

EXCHANGE

The average exchange for the six months was 9.792 per cent. as compared with 9.401 in the previous six months.

ZARAGOZA ROAD.

This is the main artery of this district, and joins the Port of Zaragoza on the river "Nechi," distant from La Salada 61,500 metres, or about 37 miles. This road was entirely abandoned during the revolution, and traffic of any description was rendered almost impossible. A petition to the Departmental Road Authorities for the repair of the road met with no success, the reason being that the Exchequer was empty and with no prospects of its being replenished. In view of this, and the urgent necessity of getting material and machinery in for the mines, this Company asked for a concession of the road, and this has been granted for 20 years. In August last the work of cutting and clearing the forest on either side of the road was commenced, and was completed over the entire distance, making a great improvement and facilitating traffic.

The road over certain sections was very bad, due to the existence of bogs and want of drainage. The work of repairing has been carried out as far as practicable, and a gang of men is constantly employed.

TRANSPORT.

The difficulties of getting machinery and stores conveyed to the mines are very great, and even under the most favourable circumstances *costly* and *terribly slow*. There is and has been a great scarcity of mules suitable for the Port traffic, and outside contractors with mules are few, notwithstanding the good rates paid.

The Company's mules allotted for this work are about 35 in number, and they make one journey a month and bring up about three tons weight in all, or at the rate say of 36 tons per annum. The question as to the economical means of transport should be considered. The road is an important one, and is the main artery to large districts.

Since the opening up of the road, the 42 tons of stores and machinery, which were delivered at the Port of Murillo, have been

*re*shipped to Zaragoza. Some of the stuff has been brought to the mines, but the heavy and bulky materials are still lying in the depôt at Zaragoza.

HEALTH.

No epidemic of any kind has occurred, and the health generally continued throughout.

GENERAL.

The six months under review, apart from the unsatisfactory results obtained, was attended by a series of misfortunes, the most serious being the caving-in of the Salada mine shaft, thus cutting off the ore supply for the San Joaquin mill, then again the frustration of all our efforts to keep in fork the Silencio mine for the winning of good ore for the Marla Dama mill. The visitation of frequent hurricanes and heavy rains caused a series of breaks on the ditches, and the aqueducts collapsed wherever they had not been renewed. The repairs and renewals effected not only to the ditches, but buildings and other plant occupied a large number of hands. I am pleased the general condition of things has now improved.

The power plant scheme is of prime importance to the development of the mines, and every effort to get this plant established with the least possible delay should be made. Good progress has been made on the grading of the Pocuné power ditch, and the site of the power station is cleared and a road connected to the main or Zaragoza road.

Other means than that of mules should be considered for the transport of machinery and materials required for the plant and mines from Zaragoza.

Mr. S. W. Stephens, a Director of this Company, who has now been here about ten weeks, has, in addition to minute investigations into all affairs pertaining to this Company's business, made a special study of the matter of transport, and is impressed with the importance of establishing some other means of conveyance of this Company's materials to the site of the operations.

I beg to record my appreciation of the services rendered by the staff during a most arduous and trying period.

I am, Gentlemen,

Yours faithfully,

ALFRED TILLY.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

MR. GEO. E. TILEY'S HALF-YEARLY REPORT

TO 25TH JUNE, 1904.

LA SALADA,

15th August, 1904.

To the Directors,

FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY, LIMITED,

184, GRESHAM HOUSE,

LONDON, E.C.

GENTLEMEN,

I have pleasure in submitting the usual Half-Yearly Report of the Company's Properties, dating from 25th December, 1903, to June 25th, 1904.

THE MINES.

SALADA.—It is a source of great disappointment that the sinking of the main shaft below the No. 10 level has not yet been initiated. Just at the time that the preparatory work for this purpose was on the point of completion, a very serious and prolonged stoppage happened to the pumps, which was caused by a series of breakages on the Pesuné ditch during the violent storms of the rainy season. Since that date we have had a period of unusually inclement weather, causing frequent and inevitable accidents, such as uprooting trees, landslips, &c., all along the

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Informe semestral de Mr. Tilley

a Junio 25, 1904

extent of the interposition, and, consequently, the pumping machinery was stopped at different intervals, aggregating 348 hours. The No. 10 level has only been free from water 36 days during the six months under review.

A Worthington triplex pump, worked by an electric motor, has been erected in the No. 6 level for the purpose of dealing with the water coming from the upper levels, which represents over one third of the mine water. This is a valuable auxiliary to the Cornish pump, for it means that we are again in the satisfactory position of having full control over the water. This will enable us to push ahead with the much-needed development work, the progress of which has been exceedingly slow of late years. There has been no sinking done for several years.

The No. 10 level north and south has been extended 15.95 metres in a lode varying from 2 to 3½ feet wide, and yielding from 13 dwts. to 1½ ozs. of gold per ton. Above the south end a rise has been put up to expedite a communication with the hoist shaft that has already been sunk 30 feet below the No. 9 level.

The No. 9 level south has been driven 22.10 metres, the lode being very variable both in quality and size, varying from 1½ to 5 feet in width and yielding from 5 dwts. to 1 oz. 8 dwts. per ton.

The No. 8 south was extended 27.60 metres, opening up fair quality ground.

The annexed tables will show the extent of development work effected throughout the mine. From them it will be also seen that the quantity of ground exploited below the No. 9 level is very insignificant, and this will explain the recoup of the low average grade of the ore sent to the mill.

The very unsatisfactory condition of the timberwork in the shafts and various levels rendered it imperative to make a heavy expenditure in putting it in thorough repair. This represents one of the heaviest items of cost.

MARIA DAMA CROSS CUT.—23.75 metres have been driven south of the cross cut in a well-formed lode, yielding from 18 dwts. to 1 oz. 4 dwts. of gold per ton, and averaging 1 foot wide. To the south 8.70 metres have been extended showing the lode to be exceedingly irregular in yield. Many samples taken in the course of the drivage gave excellent results, some assaying from 25 ozs. to 36 ozs. per ton and others only 18 dwts. and 1 oz. per ton. A rise is being put up for the purpose of procuring good ventilation. On the whole fairly good ground is being opened up, and judging from the characteristics of the lode, we may strike a rich zone of ore at any moment. The close proximity of this lode to the mill makes it very advantageous for cheap and expeditious exploitation.

LA SALADA.—A very substantial "poppet-head," 32 feet high, has been erected over the main shaft. All the new pumping equipment has been placed in the shaft, and in the course of a few days we shall start the unwatering of the lower levels, which have been flooded since the early part of September last year.

The opening up of this mine will be a slow and expensive operation, as it is pretty certain we shall find many of the levels caved-in after being so long under water. Probably the communications to the air shaft will be obstructed, and if this be so, the question of obtaining sufficient ventilation will give considerable difficulty.

The repairs to the adit level are being done with all available speed. They are taking much longer to accomplish than at first anticipated, owing to our having encountered long section of level completely "crushed," a condition which demanded much time and care in putting in the new timber work than otherwise would have been the case. This adit serves as a splendid drainage of the surface water, the influx of which is very considerable.

MAXIM LODE.—3,924 tons of low-grade mineral from the outcroppings of this lode were treated at the San Joaquin mill, which gave a small profit on the working costs. The treatment of this mineral will only be continued until we are able to resume stoping operations in the Salada Mine.

CÓRDOBA DISTRICT.

TORRE.—The extension of the No. 6 (e adit and intermediate levels gave very disappointing results. The lode is well formed, but of very low-grade ore. According to the plan, the present end of the adit is immediately under the Guayana valley, and consequently within a very short distance of the surface. This is probably the cause of the impoverishment of the lode, and it is likely that, after traversing the valley, we shall again meet with payable ground. Two winzes were sunk below the No. 6 level, but the increased influx of water made it too expensive to continue sinking there with hand power. The lode in the winzes produces good payable ore. As it was found impossible to further the development work profitably under the existing circumstances, it was deemed advisable to temporarily suspend operations pending the installation of the electric power plant, when the mine will be equipped with adequate pumping and hoisting-machinery.

MAGNARTO.—The abnormally heavy rains we have experienced greatly impeded the progress of the operations in this mine, but I am pleased to be able to mention that everything will be well advanced by the time the machinery arrives from England

The opening of the No. 2 cross-cut or adit is being pushed on with all speed, and the sinking of the shaft from surface to the No. 2 level. This will be a great convenience with old workings, and consequently we shall be able to make rapid progress.

No. 1 Level West.—In the course of driving this level we have occasionally met with some very rich strings of ore, but in many places the vein structure is entirely obliterated by the heavy decomposition of the rock. This is undoubtedly owing to the workings being so near the surface, and as the level is extended further into the hill, we shall find the lode in a more settled condition, and consequently more constant in yield.

Marmajon.—There are no changes worthy of mention in this mine, which is being worked on tribute at a royalty of 30 per cent. The returns have improved lately, but they are still very small. The tributer has put the native mill in fairly good repair, he is also extending a cross-cut in order to explore the lode below the present workings.

Carmelo.—This mine has given very poor results for the whole half-year. The tributer has confined operations chiefly to prospecting work.

MILLS.

Maria Dama.—Extensive and costly repairs have been executed throughout this mill. Of the four batteries, two are now in thorough good order, and the preparatory work for the repairs to the remaining two is well advanced. The Frue concentrators are being thoroughly overhauled, the worn parts are being replaced, and the old wood frames renovated. The foundation and retaining walls for the new 20-stamp mill have been completed, and new masonry work is in course of construction for the installation of the cyanide plant for which three filtering tanks, each one of 25 tons capacity, and one solution tank have been made.

Salto.—The treatment of the old stock of sulphurets having been completed, all work has been suspended at this mill, and portions of the arrastre removed for the purpose of putting in good order the various arrastres at the other mills.

San Joaquin.—The machinery, with the exception of the Frue concentrators, is in fairly good running order. An extra tank of 25 tons capacity has been added to the cyanide plant.

Corona.—A good deal of the timberwork in the mill requires changing, and timbers are now being brought in from the forest for that purpose.

EL SILENCIO.

Showing the Work done in the Six Months ending 30th June, 1904.

Description of Work.		Total 30 June, 1904 metres	Total 31 Dec., 1903 metres	Increase metres	Decrease metres
Sinking		50	—	50	
Rising—					
No. 1 rise, No. 10 level south	1.95				
„ 2 „ „ 9 „ north	1.10				
„ 3 „ „ 9 „ „	10.10				
„ 3 „ „ 8 „ south	4.60				
„ 7 „ „ 9 „ „	5.05				
„ 2 „ „ 8 „ north	2.50				
„ 7 „ „ 8 „ „	7.80				
Rise in No. 7 level north	5.10				
„ „ „ 6 „ „	2.00				
No. 2 rise, No. 6 level north	7.10				
		47.60	6.05	41.55	
Driving—					
No. 10 level north	8.50				
„ 10 „ south	7.45				
„ 9 „ north	5.50				
„ 9 „ south	22.10				
„ 9 „ south, intermediate	1.50				
No. 8 level south	27.60				
„ 1 „ „ Salto	8.70				
„ 1 „ north „	23.75				
		105.10	46.15	58.95	
Cross-cutting—					
Cross-cut east of No. 7 level north	1.20				
Cross-cut east of Maria Dama	4.95				
		6.15	24.20		18.05
Stoping—					
No. 10 level north	33.00				
„ 9 „ south	41.00				
„ 8 „ „	37.20				
„ 6 „ north	67.75				
		178.95	187.18		8.23

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AVERAGES.

Average sinking, to 30th June, 1904, 0.00 metres per month per sink
" 31st Dec., 1903, 0.50 " " "

Decrease ... 0.50 " " "

AVERAGE OF TOTAL:—
Sinking to 30th June, 1904 ... 0.00 metres per month
" 31st Dec., 1903 ... 0.28 " "

Decrease ... 0.28 " "

Average rising to 30th June, 1904, 3.22 metres per month per rise
" 31st Dec., 1903, 2.02 " " "

Increase ... 1.20 " " "

AVERAGE OF TOTAL:—
Rising to 30th June, 1904 ... 7.02 metres per month
" 31st Dec., 1903 ... 0.11 " "

Increase ... 6.91 " "

Average Driving:
To 30th June, 1904 ... 3.60 metres per month per drive
" 31st Dec., 1903 ... 3.07 " " "

Increase ... 0.53 " " "

AVERAGE OF TOTAL:—
Driving to 30th June, 1904 ... 18.10 metres per month
" 31st Dec., 1903 ... 7.09 " "

Increase ... 10.71 " "

Average Cross-cutting:
To 30th June, 1904 ... 1.54 metres per month per cross-cut
" 31st Dec., 1903 ... 4.03 " " " "

Decrease ... 2.49 " " " "

AVERAGE OF TOTAL:—
Cross-cutting to 30th June, 1904 ... 1.02 metres per month
" 31st Dec., 1903 ... 4.03 " "

Decrease ... 3.01 " "

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AVERAGE PRICES PER METRE FOR RISING, &c., FOR THE SIX MONTHS ENDING 30TH JUNE, 1904.

Class of Work. Name of Levels, &c.	Total cost for 4 months.	Total metres for 6 months.	Average Price for 6 months.	Average Price for 6 months.
RISES:	£ s.	metres.	£ s.	£ s.
No. 1 rise, No. 10 level south	1,140.00	1.95	650.00	—
No. 2 rise, No. 9 level south	770.00	1.10	700.00	—
No. 3 rise, No. 9 level north	3,080.00	10.10	300.00	—
No. 3 rise, No. 9 level south	2,190.00	4.60	600.00	—
No. 7 rise, No. 9 level south	4,040.00	5.05	800.00	—
No. 2 rise, No. 8 level north	1,750.00	2.50	700.00	—
No. 7 rise, No. 8 level north	6,240.00	7.80	800.00	—
Rise in No. 7 level north	2,470.00	5.40	475.00	—
Rise in No. 6 level north	1,000.50	2.00	500.00	—
No. 2 rise in No. 6 level north	4,260.00	7.10	600.00	—
	£32,240.00	47.00	662.00	677.00
DRIVES:				
No. 10 level north	8,500.00	8.50	1,000.00	—
No. 10 level south	6,450.00	7.45	950.00	—
No. 9 level north	2,565.00	5.50	466.00	—
No. 9 level south	17,620.00	22.10	800.00	—
No. 9 level south, Int.	1,500.00	1.50	1,000.00	—
No. 8 level south	20,625.00	27.60	740.00	—
No. 1 level south, Salto Rule	6,180.00	8.70	650.00	—
No. 1 level north, Salto Rule	22,410.00	23.75	940.00	—
	£86,910.00	105.10	818.00	828.00

Description of Work.	Total cost to 6 months	Total metres for 6 months	Average Price for 6 months	Average Price for 9 months.
	$ c.	metres	$ c.	$ c.
Crosscut east of No. 7 level south	915.00	1.20	850.00	—
Crosscut east of Maria Perla	7,920.00	4.80	1,600.00	—
	28,335.00	6.15	1,225.00	1,436.00
Stoping.				
No. 10 level north	6,306.50	33.00	193.00	—
No. 9 level south	8,255.00	41.00	200.00	—
No. 8 level south	3,720.00	37.20	100.00	—
No. 6 level north	11,032.50	63.75	160.00	—
	$29,314.00	178.05	138.00	163.80

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CORDOBA DISTRICT.

Number of Workings in the Six Months ending 30th June, 1904.

Tunnels.

Description of Work	Total	30th June 1904 metres	31st Dec. 1903 metres	Increase metres	Decrease metres
Driving.					
No. 6 level west ...	8.20	—	—	—	—
Intermediate level West No. 11 rise	16.40				
Do. east No. 9 rise	2.80				
	—	27.30	47.45	—	20.15
Rising.	—	—	36.60	—	36.60
Sinking.					
No. 1 winze west of crosscut ...	6.75				
No. 2 winze ...	8.20				
No. 3 winze west ...	1.65				
	—	16.60	—	16.60	—

Machacito

Description of Work.		Total 30th June, 1904 metres	31st Dec., 1903 metres	Increase metres	Decrease metres
Sinking.					
Hoisting shaft		18.00	—	18.00	—
Driving.					
No. 1 level west ...	69.80				
Intermediate level...	28.10				
	—	97.90	—	97.90	—
Rising.					
No. 1 rise, No. 1 level	20.30				
No. 2 rise, No. 1 level	13.80				
	—	34.10	—	34.10	—

Production of Ore Crushed.

Six months ending 30th June, 1904 ...	...	6,697 tons.
" " 31st December, 1903 ...	...	7,165 "
Decrease ...	...	468 tons.

Made up as follows:—

	Mines.	Waste Rock.	Outcrops.	Totals.
Silencio ...	1,528 ...	130 ...	...	... 1,715
La Salada ...	— ...	— ...	3,924 ...	3,924
Cordoba ...	1,055 ...	— ...	— ...	1,055
Total Tons	2,643	130	3,924	6,697

Yield of Bullion per ton of Mineral crushed:—

Silencio ...	...	...	...	0.911 ozs.
La Salada ...	...	...	...	0.093 "
Córdoba ...	...	...	...	0.362 "

RETURNS.

	Gross.			Cost.			Loss.		
	£	s.	d.	£	s.	d.	£	s.	d.
January ...	1,143	1	7	2,695	1	1	1,551	19	6
February	1,314	1	2	2,446	6	10	1,132	5	8
March ...	1,300	14	6	2,511	6	8	1,210	12	2
April ...	1,863	0	9	2,819	16	1	956	15	4
May ...	1,258	0	0	3,524	10	7	2,266	10	7
June ...	2,133	12	2	3,396	12	5	1,263	0	3
	£9,112	9	8	£17,383	13	7	£8,271	3	11

Loss in the six months at the mines ... £8,271 3 11

BULLION PRODUCED PER MONTH.

January ...	... ...	403.90 ozs. bar gold
February	... ...	550.60 „ „
March ...	... ...	608.55 „ „
April ...	... ...	785.70 „ „
May ...	... ...	534.60 „ „
June ...	... ...	297.45 „ „
	Six months ...	3,740.20 „ „

Made up as follows:—

From Mineral Crushed in Co's Mills ...	2,000.75 ozs.	
From treatment of Pyrites	500.60 „	
Cyanide Bullion	467.40 „	
From Sands	69.45 „	
Off Copper Plates (Half-yearly)	143.40 „	
		3,181.60 ozs.
Maranajito—Cogote		£4.55 „
Tributers		454.02 „
Diamicts		13.48 „
Purchased		6.57 „
		3,740.20 ozs.

Total Bullion for 6 months ending 30th June, 1904 3,740.20 ozs.
„ „ „ „ 31st Dec., 1903 3,329.50 „
Increase ... ... 410.70 ozs.

TREATMENT OF PYRITES.

	Bar Bullion ozs.	Valued here at £ s. d.
January	120.00	220 3 6
February	131.50	345 10 6
March	100.35	265 7 1
April	62.05	163 10 4
May	45.60	117 1 2
June	40.50	105 6 3
Total ...	500.60 ozs.	£1,216 18 4

Totals for 6 months ending:	Tons	Bar Bullion ozs.	Value £ s. d.
30th June, 1904 ...	120½	500.60	1,216 18 4
31st December, 1903 ...	101½	393.25	1,016 4 0
Increase	19	107.35	£200 14 4

CYANIDE RESULTS.

	Bar Bullion ozs.	Value £ s. d.
January	36.40	66 13 0
February	100.20	149 5 0
March	140.15	241 5 7
April	62.50	131 2 6
May	60.40	117 11 3
June	69.80	150 1 8
Totals	467.40 ozs.	£855 19 0

Totals for 6 months ending:	Bar Bullion ozs.	Value £ s. d.
30th June, 1904	467.40	855 19 0
31st December, 1903 ...	520.45	854 10 2
Difference ...	53.05 ozs.	£1 8 10

SULPHURETS.

Produced during the half-year at:

Silencio	21 tons
Córdoba	9½ „
	30½ tons

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The above were treated in amalgamating mills month by month as mined, about 45 per cent. of their total value recovered. The sulphuretic tailings were stored for future treatment.

In Salada only "Grey Copper cuttings" could be recovered, as the ore was all on ore from the "Manto" outcrop. 121 tons of these concentrates were recovered and stored for future treatment.

Most of the Silencio tailings were also partially concentrated and also saved, over and above the 21 tons of sulphurets already mentioned.

TRIBUTERS.

	Ozs. Bar.	Value. £ s. d.
January	90.35	236 10 6
February	103.25	269 6 4
March	47.80	122 1 5
April	81.40	203 17 11
May	65.35	167 17 1
June	65.85	166 11 0
Total ozs.	454.00	£1,165 4 3

	Bar Gold ozs.	Royalty £ s. d.	Total Value £ s. d.
6 months ending:			
30th June, 1904...	454.00	381 0 0	1,165 4 3
31st Dec., 1903...	504.05	388 7 0	1,324 4 1
Decrease	50.05	£7 7 0	158 19 10

STREAMERS

	Ozs. Bar.	Value. £ s. d.
January ...	1.90	5 4 6
February ...	2.23	5 19 2
March ...	2.50	6 16 2
April	2.90	7 18 11
May	1.90	5 2 1
June	2.15	5 8 10
Total ozs.	13.48	£36 9 8

	Bar Gold ozs.	Total Value £ s. d.
6 months ending:		
30th June, 1904...	13.40	36 9 3
31st Dec., 1903 ...	12.50	34 1 0
Increase	0.90	2 8 8

N.B.—Above Streamers Gold is not "Purchased Gold," but Company's Royalty for Streamers washing alluvial Gold.

PURCHASE GOLD.

Total for the Six months ...	6.37 ozs.	£21 9 8

SUMMARY OF BULLION.

	£ s. d.
From Company's Mines ...	5,413 9 5
" Marmajito-Cogote ...	214 5 10
" Treatment of Pyrites ..	1,216 13 4
" Cyanide Works ...	855 19 0
" Tributers	1,165 4 3
" Streamers	36 9 8
" Purchased	21 9 8
" Auriferous Copper Bars	189 2 6
Total value	£9,112 9 8

RESERVES.

APPROXIMATE QUANTITY OF ORE, 30TH JUNE, 1904.

SILENCIO.

No. of Level	June, 1904 tons	Dec., 1903 tons	Increase tons	Decrease tons
No. 10 level north, rich ...	365	365	—	—
" 10 " south, " ...	276	276	—	—
" 7 " north, poor ..	134	134	—	—
" 4 " south, fair ...	795	459	336	—
" 8 " north, poor ...	24	24	—	—
" 8 " south, fair ...	1,169	498	671	—
" 7 " south, poor ...	211	211	—	—
" 7 " south, fair ..	—	20	—	20
" 5 " north, rich ...	—	50	—	50
" 5 " south, fair ...	—	85	—	85
" 3 " south, poor ...	771	771	—	—
Total tons ...	3,735	2,877	1,013	155

Total Increase, 858 tons.

LA SALADA.

As in December, 1903, 17,665 tons.

TRIBUTERS.

No. of Level	June 1904 tons	Dec., 1903 tons	Increase tons	Decrease tons
No. 6 level west	3,238	3,588	...	350

CORALERA.

As at December, 1903 ... 3,714 3,714 — —

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RESUMÉ.

Number of Tons standing as at the 30th June, 1904:—

Silencio	3,735	tons.
La Salada	17,685	„
Tigrito	3,238	„
Cordoba	3,714	„
Total ...	28,372	tons.

CONTRACT TIMBER.

SUMMARY OF SETS, &c., FOR THE SIX MONTHS ENDING 30TH JUNE, 1904.

Name of Mine	Sets in Stope	Stemples in Stope	Sets in Drives, &c.	Stemples in Drives &c.	Rollers in Running Shaft.	Sleepers in the Roads.
El Silencio	54	78	1,567	3,048	85	1,500
La Salada ...	—	—	275	227	—	—
Tigrito... ...	13	55	375	355	—	—
Marmajito ...	10	—	292	—	—	—
Totals—						
30th June '04...	77	133	2,509	3,630	85	1,500
31st Dec '03...	49	141	1,692	2,564	—	—
Increase ...	28	—	817	1,066	85	1,500
Decrease ...	—	8	—	—	—	—

WATERCOURSES.

The repairs of the Pocuné and Tasa ditches represent a very costly item, and unfortunately there is no alternative as we are entirely dependent on the water power from these ditches for the working of the mines. Notwithstanding our strenuous efforts to keep everything in good order, there were several serious breakages which caused us considerable expense and anxiety. There are from 35 to 40 workpeople constantly employed in the upkeep of these ditches.

The Pinuva ditch has been completed, and from it we get a good increase to our water power.

RAINFALL.

An increase of 32.75 inches as compared with the corresponding period last year is registered.

	1903.	1901.
January ...	5.19 inches.	7.55 inches.
February ...	0.12 „	6.57 „
March ...	7.99 „	11.05 „
April ...	6.33 „	14.00 „
May	14.83 „	22.30 „
June	8.76 „	14.50 „
	43.22 „	75.97 „

TIMBER.

There has been a large consumption in the Silencio mine in the last three months of the half-year, and as the mines are being opened up there will be a greater demand for timber. The present method of bringing in the logs from the forest on mule-back is very slow and exceedingly expensive. With our new electrical power plant we shall be able to devise a cheaper and more expeditious means of transportation.

FARMS.

These have received due attention. Several clearings have been made over extensive patches of land and corn sown. The total number of heads on the farms and paluge is 524, and valued at $10,581 50 gold. A large shed is being erected at La Salada farm to give better accommodation for the mules. The Otural grazing farm is in good order. Here a small house for the man in charge is in course of erection.

INVENTORY OF LIVE STOCK, 30th JUNE, 1904.

LA SALADA FARM.

	$ cts.	$ cts.
74 horses and mules	2,743'20	
45 cows	1,165'50	
2 bulls	40.50	
7 bullocks	288 00	
51 calves	196.20	
29 pigs	158.40	
36 goats	32.40	
		1,533.20

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MAÑAN AND ARENAL FARMS.

	$ cts.
horses and mules	1,044.00
cows	922.50
1 heifers	40.50
calves	27.00
bulls	126.00
bullocks	342.00
pig	9.00
	2,511.00

PEPALES FARM.

	$ cts.
bullocks	171.00
cows	63.00
bull	45.00
calf	3.60
	282.60

OTTERS FARM.

	$ cts.
horses and mules	268.20
cows	1,017.00
calves	83.70
bulls	171.00
heifers	583.20
steers	522.90
bullocks	351.00
	2,997.00

POTRO FARM.

	$ cts.
mules	256.50
	256.50

$ 10,581.30 gold.

RESUMÉ.

	$
111 horses and mules	4,311.00
41 steers	522.90
44 heifers	623.70
141 cows	3,168.00
79 bullocks	1,152.00
11 bulls	382.50
70 calves	220.50
130 pigs	167.40
36 goats	32.40
	$ 10,581.30 gold

BUILDINGS.

Repairs have been done to all the buildings which absolutely needed them. The hospital and a few other buildings of minor importance are in a very dilapidated condition, and will have to be completely renovated.

POCUNÉ POWER DITCH.

Operations on this new work have been steadily kept going, but in consequence of the very precipitous section of hill over which we are now passing, considerably more rock has to be excavated in order to form the grading for the ditch. The tunnel has been extended 20 metres; the total length will be 76.70 metres. This tunnel is being made to avoid the extra expense of making the ditch over a very circuitous and dangerous piece of ground which we should have had to deal with had we followed the contour of the hill.

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PROVISIONS.

COMPARISONS OF PRICES AND QUANTITIES OF FOOD CONSUMED IN THE SIX MONTHS ENDING 30TH JUNE, 1904, AND DECEMBER, 1903.

July to December, 1903.

		Quantity.	Value. $ Gold.	Value. £ s. d.	Prices. £ s. d.
Maize	... cgs.	1,136½	6,146.45	1,229 5 11	1 1 7
Beans	... "	163	1,621.29	324 5 2	1 19 6
Rice	... "	148½	1,633.49	326 14 0	2 4 0
Raw sugar	... "	667½	3,137.42	627 8 6	0 18 9
Lard	... @	275½	1,810.97	36 19 11	1 6 5
Salt	... "	506	637.51	127 10 0	0 5 0
Beef	... "	5,646	19,012.83	3,802 11 4	0 13 5

Average price per ration 1s 0d.

Average number of persons, 685.

January to June, 1904.

		Quantity.	Value at Cost.	Value. £	s.	d.	Price. £	s.	d.
Maize	... cgs.	1,071½	9,583.23	1,916	12	11	1	15	9
Beans	... „	154½	3,034.00	606	16	4	3	18	3
Rice	... „	133½	2,314.59	462	18	4	3	9	5
Raw sugar	... „	609½	4,086.18	817	4	9	1	6	10
Lard	... „	262	1,219.49	243	17	10	0	18	7
Salt	... „	619	1,456.01	291	4	0	0	9	5
Beef	... „	5,119½	17,266.91	3,453	7	8	0	13	6

Average price per ration: 1s 3d.
Average number of persons, 671.

It will be seen that the prices of all the articles, especially those of maize, beans, and raw sugar, have risen considerably. This can only be attributed to the bad harvest which has been felt throughout the country. The rations for the six months work out at 1s 3d per head.

DEAD WORK ACCOUNT.

SILENCIO.

Cross-cut East of Maria Dama—

		£	s.	d.	£	s.	d.
January	1.35 metres	4	1	9			
February	6.05 „	22	16	2			
	7.40 metres				26	17	11

This is no longer considered as dead work.

MARIA DAMA.

New Mill—

January		21	15 10
		48	13 9

No further work was done on the new mill, the old one having been put into repair instead.

Doña Ana Ditch—			
January		5	11 9
Bolivia Ditch—			
January	27 17 1		
February	4 11 7		
March	12 0 3		
April	9 9 0		
May	62 19 1		
June	68 19 10		
	185	16	10
	240	2	4

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ELECTRIC PLANT.

Total cost as per Ledger $7,648.67
Balance as per 31st Dec., 1903... 2,265.44

Amount spent in 6 months ...$5,383.23 or £1,076 12 11

Made up as follows:

January	...$1,406.50 c/m	£202	10	5	
February	... 942.00 „	185	19	6	
March	... 905.50 „	157	13	10	
April	... 876.00 „	147	8	4	
May	... 710.00 „	197	9	5	
June	... 650.00 „	185	11	5	
	$5,490.00 c/m				£1,076 12 11

Electric Pump.

Cost of excavation for installation of the Pump in Silencio Mine, 32 c/m. ...	$1,050.00		
Tank for Pump, 6 c/m	5,790.00		
Fitting Shops	3,210.00		
La Salada Farm, local freights, &c., on pump	1,100.00		
Exchange at 9.100% (mean April to June)	$21,150.00	46	9 8
		£1,363	4 11

NUMBER OF HANDS EMPLOYED.

European Officials	12
Colombian Officials	16
Miners	130
Pumpmen	2
Mill Hands	101
Carpenters	10
Mechanics	4
Smiths	10
Engine Drivers	3
Timbermen	109
Fuel Carriers	22
Surface Hands	252
	671
Electric Plant	59
Zaragoza Road	15
Total	745

WAGES.

There are a little higher, and while there are such rapid fluctuations in the value of the paper currency, it will be difficult to fix a scale of wages, there being an upward tendency.

EXCHANGE.

The average for the six months was 10.000 per cent. as compared with 9.792 per cent. in the previous six months.

ZARAGOZA ROAD.

A gang of men is constantly employed in repairing the road, which, as roads are in this country, is in a very good condition.

There has been a fairly large amount of traffic, but, through the scarcity of contractors, we have been obliged to pay high freights, which average £20 per ton. The Company's mules were employed in bringing up the heavy and bulky materials. 16,619 lbs. were brought up by the Company's mules, and 86,944 lbs. by contractors' mules.

The cost of bringing up these 103,563 lbs. from Zaragoza was $445,561.10, or, say, £891 2s 5d.

HEALTH.

It is satisfactory to see from the medical reports that we have been free from epidemics, and that the health of the staff and workpeople has been generally good.

RESUMÉ.

With the completion of the new Bolivia watercourse, we have a very valuable increase to our water power, since it will more than replace any diminution of water that may occur in the Pocuro ditch. The new electric pump works satisfactorily, and we do not anticipate any immediate difficulty in being able to keep the mine dry.

The pumping equipment for the La Salada Mine is near completion, and in the coming six months we hope to be well advanced with the unwatering and opening up of the mine.

Better progress will be made with the opening of the Marmolejo Mine when the machinery now in transit is erected.

Our prospects are certainly looking brighter. With all the work accomplished in the period under review, we are now in a position to start the exploratory work that is so greatly needed in the Silencio Mine, and which is of vital importance for the benefit of the future. The sinking of the shafts and winzes and the extension of levels must be pushed on most energetically in order to enable us to keep the mill supplied with high grade ore, and, at the same time, carry through the mining operations systematically and cheaply.

In closing this report I would like to mention that the members of the staff have rendered their services in a most efficient and commendable manner. It is undoubtedly due, to a very great extent, to their indefatigable efforts that the Company has been able to overcome the enormous difficulties connected with the working of the mines, arising from the already well known cause, inadequate motive power, which will be effectually remedied when the new electric power is installed.

I am, Gentlemen,

Yours faithfully,

GEO. E. TILLY.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

MR. ALFRED TILLY'S HALF-YEARLY REPORT

TO 30TH JUNE, 1905.

LA SALADA,

15th *August*, 1905.

To the Directors,

FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY, LIMITED,

184, GRESHAM HOUSE,

LONDON E.C.

GENTLEMEN,

I have now the pleasure of submitting you the Half-yearly report of the Company's mines, mills, farms, &c., dating from the 20th December, 1904, to 20th June, 1905.

THE MINES.

SILENCIO.—Our efforts in getting the pump or main shaft sunk to the required depth for the establishment of the No. 8 level were seriously handicapped by the exceptional drought experienced during the period under review. With the addition of the Tias water supply, which we were able to rent from the Sucre Company, coupled with the fact of our having united the Bolivia and Doña Ana ditches to the main watercourse, placed us in the fortunate position of being able to keep the water of the mines in check. To this happy result was due in a great measure the immunity from breaks on the main ditch, and the consequent constancy of the water supply drawn from all available sources for the maintenance of the motive power of the pumps.

The triplex pump at the No. 6 level (which is worked by electric power generated at the Maria Dama mill) behaved

Informe semestral de Mr Tilly
a Junio 20, 1905.

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admirably, and with the exception of a slight mishap to the dynamo, which caused a stoppage of a few hours, this pump has without interruption night and day.

The Cornish pumps coupled to a crank motion of the water wheel worked satisfactorily, and, notwithstanding the great scarcity of water for the wheel, sufficient revolutions were maintained to keep the lower workings drained, and at irregular intervals the sinking of the sump shaft was proceeded with.

Both the pump and hoist shafts have undergone the necessary repairs, and the skip roads have been fixed to a point within easy access of sinking operations.

The annexed tabulated form shows the progress attained in the developments, and accompanying this Report is a tracing showing the extensions of the levels, &c., of the lower workings, which may be added to the London Office Plans of the Silencio and La Salada Mines.

MARIA DAMA CROSS-CUT, SALTO LODE.—The trial workings, which were being prosecuted on this lode were suspended in May last. The lode became narrow and the accompanying rock extremely hard, rendering the development slow and expensive. A trial crosscut driven from the southern extremity of the above workings has been projected to the east, and at a distance of 12 metres a parallel lode was struck. A level is now being extended on this lode to the south: it is of a promising appearance.

LA SALADA MINE.

SHAFT.—The progress in the clearing of the débris from this shaft was, unfortunately, attended with serious interruptions due to the prolonged drought, which resulted in an insufficiency of water to run the pump wheel the necessary speed for sinking purposes. At the date of writing, I am pleased to say this work is progressing below the No. 2 level. The pumps are working well, with abundance of water for the wheel.

The work of spalling through the long section of crushed ground in the main adit and consequent communication to the air shaft was duly accomplished. The completion of this piece of work which was carried out under great difficulties, has established a good ventilation for the mine, and furthermore, the taking up of the surface drainage by means of 700 feet of flunning laid in the level has eased the work of the pumps considerably.

PROSPECT WORKINGS.

TRES-VENDAS LODE.—During the period under review, three levels and two winzes were extended on this lode, which

gives every promise of becoming a valuable discovery. The drives and sinks aggregate some 150 metres, and the mineral produced was treated at the San Joaquin mill with the results given on annexed sheet of returns. The present aspect of the lode, which is yet of a superficial nature, gives every encouragement of improvement in grade as depth is attained.

BETUMEN LEVEL.—This has been extended on a strong and well-defined lode 23 metres. According to the plans of the property this lode corresponds in strike to the Garibaldi main lode. The mineral is not yet of pay grade, but indications are favourable to an improvement. This lode is located near the Tres-y-media workings, and the produce is conveyed to the San Joaquin mill.

CÓRDOBA DISTRICT.

MARMAJITO.—The opening up of the No. 2 adit and the sinking of the air shaft presented unforeseen difficulties, the work having occupied a longer period to accomplish than at first calculated. The erection in an underground chamber of the pumping gear together with the hoist engine, constitutes an excellent and substantial piece of work. The electric power for this machinery, which is generated by a dynamo driven in conjunction with the mill, is working satisfactorily, and the pump gear has been in operation since the 22nd of June. The water has been drained from the old workings below the adit, and stoping operations have been started below the intermediate level on Marmajito-Cogote joint account. The lode for the present is narrow, varying from 6 inches to 12 inches in width; the output of mineral is consequently small, there are, however, favourable indications of the lode becoming wider as the developments progress in a westerly direction.

MARMAJON.—This mine, with the native mill, is being worked by a tributer who pays a royalty of 30 per cent. on the gold returns.

GARIBALDI.—The tributer in this mine has discovered a new lode which promises fair returns. The old portion of the mine is poor, and for the present is abandoned.

GUAGUA.—This lode is located near the Córdoba mill, and is a parallel vein to the old Córdoba lode. A level with sinks and rises was extended a considerable distance, but the grade of the ore proved too poor to pay costs.

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MILLS.

MARIA DAHA.—The Nos. 1 and 2 batteries were put under repairs when the Nos. 5 and 6, which were completely renovated, were restarted. We have now 24 heads in operation. The timber for the mortar blocks of the new mill has been delivered.

Good retaining walls have been built for the support of the building of the old mill, and extension repairs to the building carried out.

CYANIDE PLANT.—The foundations for the six iron tanks were completed—the tanks with the necessary fittings, precipitation boxes, &c., fixed—the whole is now in operation and working satisfactorily.

SAN JOAQUIN MILL.—This mill, consisting of 20 heads, is in a fair condition. Two batteries have been kept working on mineral from the prospect workings.

Repairs to the buildings have been carried out, and are still proceeding.

CÓRDOBA MILL.—The No. 4 battery has been completely renovated and the No. 1 is now undergoing the necessary repairs.

EL SILENCIO.

SUMMARY OF WORK DONE AND AVERAGE PRICES PER METRE.

Description of work.	Total metres for 6 months.	Total cost for 6 months. Without rations.	With rations.	Average price for 6 months inclusive of rations.
		PAPER MONEY.		
		$	$	$ c.
DRIVING:				
No. 10 level north	17.40	15,080	23,505	1,350.86
No. 10 level south	10.40	8,140	13,640	1,311.43
No. 9 level south	31.60	25,100	32,450	1,026.89
No. 8 level north	2.30	1,380	2,955	1,285.—
WINZES:				
No. 10 level north	42.40	13,880	20,155	475.35
No. 9 level south	31.90	18,790	27,590	864.89
No. 8 level south	21.10	12,390	18,840	892.89
No. 6 level north	21.10	11,090	18,690	855.78
RISING:				
No. 9 level south	5.70	2,850	5,175	907.90
No. 8 level north	8.70	6,390	9,390	1,079.31
SAETA, MARIA DAHA:				
No. 1 level north	10.80	8,690	14,290	1,323.14
No. 1 level south	27.90	12,730	19,330	692.83
WINZES:				
No. 1 level north	1.60	1,120	3,170	1,981.25
No. 1 level south	2.10	770	1,970	1,790.90
SINKING:				
Sinking main shaft	9.10	47,250	64,550	7,093.40
Sinking hauling shaft	10.00	10,350	17,150	1,715.00
CROSS-CUTS:				
No. 1 level north (S.-ly.)	6.50	2,600	3,875	596.15
No. 1 level south	5.50	2,750	4,350	790.90
No. 10 level north	10.20	8,280	13,130	1,287.23
No. 8 level north	3.10	2,480	3,280	1,058.06
INTERMEDIATE LEVELS:				
No. 10 level north	2.50	1,250	1,950	780.00
No. 8 level north	3.30	1,980	2,805	850.00
No. 8 level south	6.20	3,720	6,170	995.16
RISING:				
No. 7 level north	8.80	3,950	5,675	644.89
No. 2 level north	22.20	12,950	22,725	1,023.64
STOPING:				
No. 1 level north	36.50	8,990	15,390	421.64
No. 10 level north	421.08	111,162	162,512	385.94
No. 10 level south	68.70	19,696	29,721	335.07
No. 9 level north	13.30	2,592	4,767	358.42
No. 9 level south	6.50	975	1,475	226.90
SINKING:				
Hauling shaft	160.30	46,835	66,135	412.57
No. 8 level south	85.00	22,165	33,090	389.29
No. 6 level north	35.50	8,670	13,220	372.39
No. 2 level north	53.70	13,425	21,850	406.89

MARMAJITO.

SUMMARY OF WORK DONE, AND AVERAGE PRICES PER METRE.

SINKING:				
Sinking main shaft	19.30	4,850	7,275	376.94
DRIVING:				
No. 1 level	9.10	2,730	3,980	437.36
No. 2 level	9.40	3,605	7,080	753.19
WINZE	26.30	9,440	15,565	591.82
INTERMEDIATE LEVEL	44.30	7,618	12,705	288.21
STOPES	175.15	23,787	39,112.50	223.30

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TRES-Y-MEDIA.

SUMMARY OF WORK DONE, AND AVERAGE PRICES PER METRE.

Description of work.	Total metres for 6 months.	Total cost for 6 months. Without bullion.	With bullion.	Average price per metre, including deduction of bullion.
		PAPER MONEY.		
		$	$	$ c.
Betumen level	21.80	3,660	5,785	265.36
Tres-y-Media, No. 1 level	53.81	6,589	15,889	295.11
Tres-y-Media, No. 2 level	38.28	6,036	11,331	296.02
Tres-y-Media, No. 3 level	35.02	4,224	9,858	281.49
Winze, No. 2 level ...	13.76	1,706	5,731	416.49
Winze, No. 3 level ...	9.10	1,365	3,815	419.23
Pecebre level	10.10	1,212	2,462	243.76
Cross-cut south of Pecebre	5.80	696	1,321	227.75
Cross-cut north of Pecebre	3.40	408	958	281.76
San Joaquin level ...	3.70	370	870	235.13

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COMPARISON OF ORE CRUSHED.

Six months ending 30th June, 1905 ... ... 7,506 tons.
" " 30th December, 1904 ... 8,687 "
Decrease ... 1,181 "

Made up as follows:—

	Mines.	Outcrops.	Totals.
Silencio	2,761	—	2,761
La Salada	361	1,221	1,582
Córdoba	231	2,932	3,163
Total tons	3,353	4,153	7,506

Yield of Bullion per ton of Mineral crushed:—

Silencio	2.810 ozs.
La Salada	0.279 "
Córdoba	0.123 "

NOTE.—Tres-y-Media per ton yielded 0.76 ozs. equal to 15 dwts. 13 grs. bar gold per ton.

BULLION PRODUCED PER MONTH.

	Ozs.	
January	1,479.75	Bar Gold.
February	1,340.45	"
March	1,257.55	"
April	1,736.15	"
May	1,772.20	"
June	2,015.40	"
Six months ...	9,601.50	"

Made up as follows:—

From Mineral Crushed in Co.'s Mills ...	7,887.85 ozs.
From treatment of Pyrites	277.25 "
Cyanide Bullion	412.35 "
From Old Mill Sands	69.15 "
Off Copper Plates	500.95 "
	9,147.55 ozs.
Tailings	426.65 "
Streamers	27.30 "
	9,601.50 ozs.

Total Bullion for Six Months ending June, 1905 .. 9,601.50 ozs.
" " " Dec., 1904 ... 7,192.90 "
Increase ... ... 2,408.60 ozs.

TREATMENT OF PYRITES.

	Bar Bullion. ozs.	Valued here at £ s. d.
January	46.25	112 12 2
February	45.15	113 18 10
March	61.85	148 3 5
April	36.45	89 2 4
May	41.20	102 10 6
June...	46.35	115 17 2
	277.25 ozs.	£682 8 5

Totals for six months ending—

	Tons.	Ozs.	£ s. d.
20th June, 1905 ...	100	277.25	682 8 5
20th Dec., 1904 ...	120½	330.05	806 9 10
Decrease	20½	52.80	£124 1 5

CYANIDE RESULTS.

	Bar Bullion. ozs.	Value. £ s. d.
January	46.00	84 19 3
February	45.00	62 0 5
March	...	.....
April	175.50	219 7 10
May...	145.85	270 9 6
June	...	.....
	412.35 ozs.	£636 17 0

Totals for the six months ending—

	ozs.	£ s. d.
20th June, 1905	412.35	636 17 0
20th December, 1904 ...	444.30	749 14 0
Decrease	31.95 ozs.	£112 17 0

SULPHURETS.

In Silencio (Maria Dama) all the Sulphurets concentrated from the Mill Sands were immediately treated, and the value recovered is included under the heading "Treatment of Pyrites."

Salada and Cordoba Mills were crushing mineral which yielded no Sulphurets.

Silencio Tailings were all saved, as usual.

OLD MILL SANDS.

	Bar Bullion. ozs.	Value. £ s. d.
January	12.20	31 12 3
February	9.00	24 2 7
March	7.10	18 18 1
April	10.95	28 9 2
May...	11.30	29 6 4
June...	18.60	48 0 7
	69.15 oz.	£180 9 0

TRIBUTERS.

	Ozs. Bar.	Value. £ s. d.
January	69.30	175 9 10
February	49.75	130 2 5
March	40.55	106 3 1
April	81.05	206 13 0
May	87.45	225 19 7
June	98.55	241 6 1
Total ozs.	426.65	£1,085 14 0

Six months ending:	Bar Gold ozs.	Royalty £ s. d.	Total Value £ s. d.
20th June, 1905...	426.65	398 3 6	1,685 14 0
20th Dec., 1904...	479.15	555 10 4	1,733 0 4
Decrease	52.50	£157 6 10	147 6 4

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STREAMERS.

	Ozs. Bar.	Value.
January ...	6.20	£17 0 1
February ...	5.60	14 10 3
March ...	1.90	5 8 8
April ...	3.10	8 9 4
May	4.00	10 16 2
June	7.10	19 9 6
Total ozs.	27.30	£75 14 0

Six months ending:	Ozs. Gold	Total Value
	ozs.	£ s. d.
30th June, 1905 ...	27.30 ...	75 14 0
30th Dec., 1904 ...	20.80 ...	58 4 10
Increase	6.50 ozs. ...	£17 9 2

Above streamers' gold is not "purchased gold," but the royalty paid to the Company for persons washing alluvial gold.

SUMMARY OF BULLION.

	£ s. d.
From Company's Mines ...	21,147 18 9
" Treatment of Pyrites ...	682 8 5
" Cyanide Works	636 17 0
" Old Mill Sands	180 9 0
" Tributers	1,085 14 0
" Streamers...	75 14 0
	£23,809 1 2

RESERVES.

Approximate Quantity of Ore, June, 1905.

Silencio.

No. of Level and quality grade	June, 1905 tons	Dec., 1904 tons	Increase tons	Decrease tons
No. 10 north, good ...	500	700	—	200
" 10 south, " ...	600	500	100	—
" 9 north, " ...	100	100	—	—
" 9 south, " ...	1,411	511	900	—
" 8 north, fair ...	50	50	—	—
" 8 south, good ...	1,059	1,059	—	—
" 7 north, poor ...	311	211	100	—
" 6 north, good ...	300	—	300	—
" 3 south, poor ...	771	771	—	—
" 2 north, good ...	400	—	300	—
Total tons ...	5,502	3,902	1,700	200

Total Increase ... 1,500 tons.

La Salada.—As in Dec., 1904 ... ... 17,685 tons.

Tigrito.—As in Dec., 1904 ... ... 3,238 "

Corduba.—As in Dec., 1904 ... ... 3,714 "

CONTRACT TIMBER.

Summary of Sets, &c., for the Six Months ending 30th June, 1905.

Name of Mine	Sets in Stope	Stancheons in Stope	Sets in Drives	Stancheons in Drives	Remains in Hanging (Cubic Feet)	Total Sleepers
Silencio ...	43	69	315	564	36	470
La Salada ...	1	49	277	18	25	—
Tigrito ...	—	—	287	56	—	20
Marmajito ...	—	—	167	58	—	199
Tres-y-medio..	—	—	198	10	—	—
Totals—						
June 30th, 1905 ...	44	118	1,244	686	61	689
Dec. 31st, 1904 ...	51	68	1,048	626	61	1,207
Increase ...	—	50	196	60	...	...
Decrease ...	7	—	—	—	30	518

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WATERCOURSES.

During the six months considerable renovations were effected on the Tias and Pocuné sections. New flooring to replace the old was introduced, principally on the aqueducts, and aggregated a measurement of 528 feet. A section of the Pocuné flume was re-timbered and secured for a length of 62 feet.

The necessary repairs to the upkeep of the Bolivia and Doña Ana ditches received due attention.

RAINFALL:	Inches 1904	Inches 1905
January	7.55 ...	2.25
February	6.57 ...	6.51
March	11.05 ...	0.73
April	14.00 ...	8.80
May	22.30 ...	17.48
June	14.50 ...	14.88
	75.97 ...	44.65

Showing a decrease of 31.32 inches as compared with the corresponding period of last year.

TIMBER.

The supplies for all purposes have been maintained.

FARMS.

These have received the usual attention. The grazing lands, which presented a scorched appearance during the prolonged drought, are now covered with grass.

Large tracts have been cleared of brush in the Pocuné valley and corn now growing will result in a couple of months.

INVENTORY OF LIVE STOCK.

LA SALADA FARM.	Gold Dollars.
84 horses and mules	3,426.50
34 cows	841.50
1 heifer	11.00
1 steer	22.00
16 calves	26.40
3 bulls	57.20
5 working oxen	187.00
19 pigs	135.30
27 goats	29.70
Carried forward ...	4,736.60

	Gold Dollars.
Brought forward ...	4,736.60
MASON AND ARENALES.	
56 mules	1,353.00
31 cows	866.80
8 heifers	80.30
6 steers	82.50
10 calves	14.30
3 bulls	110.00
1 working ox	22.00
	2,528.90
POTALES.	
12 working oxen	396.00
MANI FARM.	
2 mules	126.50
CUTURÉ FARM.	
8 mules	291.50
46 cows	926.20
38 heifers	448.80
41 steers	591.80
9 calves	24.20
4 bulls	126.50
8 working oxen	214.50
	2,623.50
	$10,411.50

SUMMARY.

124 mules and horses	5,197.50
114 cows	2,634.50
47 heifers	540.10
51 steers	696.30
35 calves	64.90
10 bulls	293.70
26 working oxen	819.50
19 pigs	135.30
29 goats	29.70
	$10,411.50

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PROVISIONS.

COMPARISONS OF PRICES AND QUANTITIES OF FOOD CONSUMED IN THE SIX MONTHS ENDING 30th JUNE, 1905.

Article.		Quantity.	Value in Gold. $ c.	Value. £ s. d.	Prices. £ s. d.
Maize	... cgs.	822½	4,822.23	904 8 11	1 3 5½
Beans	... „	126½	2,735.72	547 2 11	4 6 6
Rice	... „	137½	1,558.60	311 14 5	2 5 4
Raw sugar	... „	516½	3,880.23	776 0 11	1 10 .91
Lard	... 6	222½	1,050.85	210 3 5	0 18 4½
Salt ...	... „	496	556.61	111 6 5	0 4 6
Beef	... „	4,778	15,159.95	3,031 19 10	0 12 8½

Average price per ration, 1s 0d.
Average number of persons, 607.

July to December, 1904.

Article.		Quantity.	Value in Gold. $ c.	Value. £ s. d.	Prices. £ s. d.
Maize	... cgs.	1,035½	9,271.32	1,854 5 6	1 15 10
Beans	... „	146	3,051.75	610 0 11	4 3 7
Rice	... „	132½	1,987.50	397 10 0	3 0 0
Raw sugar	... „	590	5,261.04	1,172 10 7	2 1 5
Lard	... 6	166	830.80	166 3 0	1 0 9
Salt ...	... „	527	734.83	146 19 4	0 5 7
Beef...	... „	4,452	14,043.01	2,808 12 0	0 12 7

Average price per ration, 1s 3½d.
Average number of persons, 573.

DEAD WORK ACCOUNT.

JANUARY TO JUNE, 1905.

SILENCIO MINE.

SINKING MAIN SHAFT—

	$ Gold.	$ Gold.
January...	37.52	
February	32.37	
March	153.06	
April	81.74	
May	59.56	
June	99.19	
Carried forward		463.44

	$ Gold.	$ Gold.
Brought forward		463.44

LA SALADA MINE.

RE-OPENING UP THE MINE—

January...	865.19	
February	1,200.58	
March	1,317.77	
April	1,138.27	
May	1,024.43	
June	406.36	
		5,952.59

MARMAJITO MINE.

RE-OPENING UP THE MINE—

January...	682.09	
February	783.42	
March	755.30	
April	571.58	
May	537.04	
June	1,179.21	
		4,508.64

MARIA DAMA.

MILL—PERMANENT RENOVATIONS TO BATTERIES—

January...	827.81	
February	771.13	
March	377.91	
April	437.17	
		2,414.02

CYANIDE PLANT—

January...	313.28	
February	312.60	
March	135.00	
April	207.10	
May	640.57	
June	497.55	
		2,036.10

PELTON COLUMN—

April		132.00
Carried forward ...		15,506.79

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	$ Gold.	£ Gold.
Brought forward		15,506.79

MARMAJITO PLANT.

January...	62.14
February	128.86
March	318.57
April	182.34
May	183.33
June	132.80
	1,038.09

ELECTRIC PLANT—

January...	152.45
February	440.46
March	1,294.57
April	683.92
May	849.60
June	320.89
	3,741.29

ZARAGOZA ROAD—

January...	336.18
February	346.08
March	423.56
April	1,055.03
May	1,094.43
June	584.44
	3,839.72

PROPORTION OF MANAGEMENT CHARGES—

January...	427.28
February	242.60
March	288.40
April	302.36
May	295.42
June	301.49
	1,857.55
	$25,953.44

SUMMARY.

	£	s.	d.
January	740	15	9
February	837	12	5
March...	1,012	16	7
April	958	6	0
May	936	15	4
June	704	7	8
Total in the six months ...	£5,190	13	9

LIST OF HANDS EMPLOYED.

European Officials	19
Colombian Officials	13
Miners	138
Pumpmen...	6
Mill Hands	102
Carpenters	8
Mechanics	5
Smiths	10
Engine Drivers	4
Timbermen	101
Fuel Carriers	20
Surface Hands	241
	667
Electric Plant	4
Zaragoza Road	35
Total	706

BUILDINGS.

Dwelling houses, where necessary, have undergone complete renovation, and sundry repairs of a more or less important nature have been effected to others.

A new hospital has been built on a suitable site to replace the old building used for that purpose which was found to be past repairing and in a dangerous condition. The new hospital will be ready for use in the course of six weeks.

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POCUNÉ POWER DITCH.

The tunnel, measuring 203 feet, has been completed, and the grading of the ditch is now progressing.

The planks and frame timbers for the fluming of this ditch are being sawn on the spot where there is plenty of good timber.

A good substantial building, 60 feet by 30 feet, has been erected for the power house, also a dwelling house for the engineers, 50 feet by 25 feet, containing dining room and three bedrooms. This dwelling stands at a point 100 feet above the level of the power house.

All the half pipes have been delivered at the power house and the riveting of same has commenced.

WAGES.

The higher exchange ruling has favoured us in this item.

EXCHANGE.

The average for the six months was 9.796 per cent. as compared with 8.955 per cent. in the previous six months.

ZARAGOZA ROAD.

Considerable repairs have been carried out on this road, which covers a distance of 37 miles. There are many sections of the road good enough for cart traffic, and further repairs will be initiated on the worst parts to render the road suitable for wheel traffic to bring up the power plant machinery during the dry months.

FREIGHTS.

During the period under review 104,150 lbs. of material were brought up from Zaragoza, costing $2,501.37 (gold), which corresponds to £10 15s 0d per ton.

HEALTH.

According to the medical report the cases treated were principally fever patients. The beri-beri disease has almost disappeared.

The health of the staff throughout has been generally good.

GENERAL.

The foregoing figures, showing the results of operations for the six months are highly satisfactory, and reflect stronger than words on the value of the Silencio Mine, and especially at its deepest level. All endeavours were concentrated on deepening the shafts to the required depth for the establishment of the No. 11 level to avail of the rich section of ore ground through which the shafts are passing from that depth.

Unavoidable delays occurred in the prosecution of sinking operations, and furthermore the hardness of the rock in the main shaft retarded to a serious degree the progress.

With a run of good luck we shall attain the necessary depth by the end of September when the expansion of the level north and south will be pushed with all speed.

The clearing of the Salada shaft, for reasons already given, suffered a serious delay. The work is now progressing and with the opening up the No. 2 level south, ore ground will be available for milling.

The prospect workings comprised in the Tres-y-media lode and the Betumen tunnel are of importance. The indications of future developments proving of a satisfactory nature are decidedly encouraging. The gold returns from the above amounted to £760, and the total expenditure £205, showing a good credit to this young and promising mine.

The working of the Mamajito Coyote mine on joint account is now in operation, and with the prosecution of developmens we shall doubtless obtain satisfactory results.

The work in connection with the Pocuné power scheme is well in hand and will be carried forward with all speed with a view to completing by the end of next year. With the power that will then be available it will be possible to open up and work many lodes in the immediate vicinity, the value of which are known, but which cannot be profitably worked till a cheap motive power for the running of mills and pumps is introduced.

In conclusion I beg to tender my congratulations upon the improved position of affairs generally, and to accentuate my appreciation of the valuable services and co-operation of the whole staff who have worked assiduously in their respective departments.

I remain, Gentlemen,

Yours faithfully,

ALFRED TILLY.

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THE

FRONTINO AND BOLIVIA

(SOUTH AMERICAN)

Gold Mining Company, Limited.

Mr. ALFRED TILLY'S HALF-YEARLY REPORT

to 20th DECEMBER, 1904.

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LA SALADA,

16th March, 1905.

To the Directors,

FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY, LIMITED.

184, GRESHAM HOUSE,
LONDON, E.C.

GENTLEMEN,

I have pleasure in submitting you the usual Half-yearly report of the Company's mines, mills, farms, &c., dating from the 20th June to 20th December, 1904.

THE MINES.

SILENCIO.—In the early days of the period under review, the installation of the auxiliary stationary triplex pump at the No. 6 level was completed, with the electrical machinery for giving motion to same. In the starting of this new apparatus several delays of a more or less serious nature occurred, due to slight damages to the motor armature through exposure in transit. The necessary repairs were satisfactorily effected, and I am pleased to

I informe remesthed de Mr. Tilly
a Dic 20, 1904

...the installation (the last of its kind in this part of the country) ... satisfactorily.

The pumps, with a capacity of 150 gallons per minute is kept in operation night and day, with the happy results of which, you are already acquainted, viz.—the drainage and consequent development of the lower workings of this important and valuable mine.

The sinking of the hoist shaft below the No. 9 level was initiated in September last, and that of the main or pump shaft in October. The former was deepened 16 metres and the latter 7.50 metres.

The extensions of the various levels, inclusive of the No. 10 north and south, have progressed fairly well, and I am glad to say the lode has in each working proved regular, and the aggregate yield of the mineral mined is highly satisfactory.

It is gratifying to note that excellent results are being realised from the developments of the No. 10 (our deepest level). At it is horizontal, 275 feet of lode have been opened up longitudinally, and the value obtained, coupled with its regular formation, augurs well for the development of this mine in depth.

The timberwork of the hoist shaft has been renewed throughout, and in the pump shaft important repairs have been effected. Both shafts are now in good working order.

The annexed tabulated figures show the progress attained during the period under review, in connection with the workings of this mine.

Santa Elena Cross-Cut—Salto Lode.—The drivage north from the end of this crosscut aggregates 38.20 metres, and have opened up a section of lode of regular formation but somewhat poorer in yield.

Two winzes have been sunk, one in the north and the other in the south section, and so far the lode has proved regular.

Ore has been communicated to surface from the section above the crosscut, and the ventilation of the workings is now good.

LA SALADA.

Shaft.—The clearing of the debris resulting from the cave-in of the shaft previously has slowly, owing to the presence of ... which fall in from the top section of the shaft

tightly wedging the loose timbers, pumps, rods, &c, the whole being packed with fine sand. The latter caused considerable delays in the operation of the pumps (2 feet 9 inches bucket lifts) due to the constant choking of the valves, and the undue wear of the leather geared buckets, which in order to cope with the water, had to be frequently changed.

After a period of tedious and hazardous work, the removal of the big rocks was successfully accomplished, and I have reason to think we shall not be further hampered with this difficulty in future progress.

I may here state that the clearing of this shaft at the date of writing has reached a point 10 feet below the No. 1 level, making a total from surface of 140 feet and 100 feet more still to be cleared. Skip roads, ladder way and pump gear have been fixed to the No. 1 level.

The abnormal spell of dry weather experienced since November last, and still continuing, has affected our water power to the extent of it being inadequate to the requirements of the pumps for sinking purposes, or sufficient only to keep the water from rising.

The work of spilling through the long stretch of crushed ground in the extremity of the main adit towards the air shaft has, owing to the foul air, been seriously retarded, it being possible only to work a few hours during the night. The climatic influence due to the abnormal heat has proved unfavourable to the progress of this work.

Manto Lode.—During the period under review 4,627 tons were treated at the San Joaquin Mill, which resulted in a small profit on the working costs.

CÓRDOBA DISTRICT.

Mamajito.—The opening up of the main or No. 2 crosscut, which serves as an adit, was completed in December, also the communication of the hoist shaft (sunk on the dip of the lode) to the No. 2 level. The excavation of a chamber in solid rock 16 feet by 15 feet by 12 feet near the point of communication of the hoist shaft to the No. 2 level was further completed for the electrical machinery. This has since been completed,

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the foundations for the electric hoist and pump gear are now being built.

A winze below the No. 1 level and 150 feet west of the hoist shaft is being sunk to communicate with the No. 2 level for the purpose of establishing a good ventilation.

MARMATON.—This section is being worked on tribute at a royalty of 30 per cent. The returns have been less than usual, owing to the small shoots of ore having become exhausted, and no new discovery made. Latterly the native mill has been partially unemployed for the want of water.

GARIBALDI.—The Tributer at this mine has confined his operations to a prospect tunnel which has not yet struck the ore shoot he expected to do. Little or no milling has been done during the six months.

MILLS.

MARIA DANA.—The entire renovation of the Nos. 5 and 6 batteries was well advanced by December, and since these batteries have been completed, but owing to the drought there is not sufficient water to put them in operation.

The Nos. 1, 2, 3 and 4 batteries were kept going uninterruptedly.

CYANIDE PLANT.—The foundations for the wood filtering tanks of 25 tons capacity each were completed, and the tanks have been erected, including the stock solution tank. The waste solution tank is being erected, and this section of the plant for the treatment of concentrates will be ready for operation by the first week in May. The foundations for the six new iron tanks for the treatment of tailings are being got ready with all possible speed, and I hope to have these tanks in position for work early in June.

SAN JOAQUIN MILL.—The mortar boxes of the four batteries have all been renewed. This mill is in fair running order, and will continue for some time without repairs of a serious nature being necessary.

CÓRDOBA.—Of the four batteries three are in fair order, the fourth is being entirely renovated, with new mortar blocks, &c.

EL SILENCIO.

SUMMARY OF WORK DONE AND AVERAGE PRICES PER METRE.

Description.	Total metres for 6 months.	Total cost for 6 months. Without rations.	With rations.	Average price for 6 months inclusive of rations.
SINKING:		PAPER MONEY.		
		$	$	$ c.
Sinking main shaft ...	7.70	50,204	79,726	10,354.10
Sinking hauling shaft ...	10.60	13,708	25,482	2,548.20
WINZES:				
Winze in No. 1 level north	5.40	5,020	9,602	1,297.50
Winze in No. 1 level south	6.10	4,110	8,054	1,320.35
RISING:				
No. 1 rise, No. 10 level north	6.30	5,320	7,785	1,233.75
No. 2 rise, No. 10 level south	6.40	6,400	10,199	1,593.45
No. 3 rise, No. 9 level north	7.30	4,330	7,143	978.50
No. 4 rise, No. 9 level south	1.20	600	1,963	1,635.85
No. 5 rise, No. 8 level south	11.90	11,090	15,093	1,343.75
No. 6 rise, No. 6 level north	4.40	3,520	4,506	1,024.10
SANTO MARIA DANA				
No. 1 rise, No. 1 level south	25.30	12,990	19,776	781.65
DRIVING.				
No. 10 level north ...	12.40	11,400	19,984	1,611.30
No. 10 level south ...	6.50	5,440	8,572	1,318.75
No. 9 level south ...	10.40	6,450	9,988	960.35
No. 8 level north ...	7.60	5,630	8,887	1,169.35
No. 8 level south ...	4.95	2,570	4,571	923.45
No. 7 level north ...	18.90	12,889	26,826	1,101.90
No. 1 level south ...	19.30	11,520	19,147	992.10
	174.55	$172,872	$282,202	1,616.70

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Description of work.	Total length driven during 6 months.	Total cost for 6 months. Without Tailings.	With Tailings.	Average price per foot for 6 months inclusive of Tailings.
		PAPER MONEY.		
STOPING:		$	$	$ c.
No. 10 level north	... 70.40	17,600	29,093	121.75
No. 10 level south	... 27.00	5,200	8,925	326.85
No. 10 level south	... 164.80	31,407	58,029	352.10
No. 10 level south	... 21.90	4,161	6,806	310.50
No. 9 level north	... 150.80	32,579	44,208	293.15
No. 9 level south	... 81.30	21,840	34,223	420.95
No. 8 level north	... 13.00	6,470	3,833	294.85
No. 8 level south	... 191.00	47,042	66,211	346.65
No. 1 level north	... 13.60	1,890	3,746	297.30
	734.80	$263,180	$355,568	$348.70

MARMAJITO.

SUMMARY OF WORK DONE, AND AVERAGE PRICES PER METRE.

		PAPER MONEY.		
SINKING:		$	$	$ c.
Main shaft	... 16.20	12,755	25,051	1,543.50
DRIVES:				
In No. 1 level west	... 11.00	3,[illegible]	6,258	569.00
Intermediate Level in Level No. 1 east	... 12.80	6,400	7,821	611.00
DRIVING:				
No. 1 level west.	... 12.80	6,400	41,508	981.25
Rise in No. 1 level west.	29.50	14,750		
CROSS-CUTTING:				
Cross cut	... ... 21.70	10,850	19,811	913.00
	104.00	$54,455	101,549	965.80

LA SALADA.

Description of work.	Total length driven during 6 months.	Total cost for 6 months. Without Tailings.	With Tailings.	Average price per foot for 6 months inclusive of Tailings.
		PAPER MONEY.		
		$	$	$ c.
Clearing of shaft	... 15.00	6,378	15,161	1,010.00
Repairs and opening up of adit level	... 69.80	22,910	54,121	775.40
	84.80	$29,288	69,282	$817.00

COMPARISON OF ORE CRUSHED.

Six months ending 31st December, 1904 ... 8,687 tons.
" " 30th June, 1904 ... 6,697 "
Increase ... 1,990 "

Made up as follows:—

	Vein-heaps.	Outcrops.	Totals.
Silencio	2,659	---	2,659
Salada Manto	---	4,627	4,627
Córdoba ...	804	596	1,400
Total tons.	2,659	804	5,223

Yield of Bullion per ton of Mineral crushed:—

Silencio	2.071 oz.
Salada Manto	0.079 "
Córdoba	0.205 "

RETURNS.

	Gross. £ s. d.	Cost. £ s. d.	Profit. £ s. d.	Loss. £ s. d.
July	... 2,049 16 3	... 2,537 4 0	... ---	... 537 5 3
Aug.	... 1,869 11 7	... 3,005 15 7	... ---	... 1,135 1 0
Sept.	... 1,909 0 2	... 3,537 11 2	... ---	... 1,628 14 0
Oct.	... 3,299 8 7	... 3,442 11 2	... ---	... 143 2 7
Nov.	... 4,069 10 4	... 3,269 11 10	... 531 4 6	... ---
Dec.	... 4,361 17 5	... 2,801 12 6	... 1,580 4 [illegible]	... ---
	£17,559 13 4	*19,531 6 9	... 2,111 9 5	... 4,452 2 10

Loss in the six months at the mines ... £2,340 13 5

* The cost includes £2,901 for 91 ft. carried to Capital account.

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BULLION PRODUCED PER MONTH.

	Ozs.	
July	859.75	Bar Gold.
August	744.80	„
September	819.25	„
October	1,351.80	„
November	1,644.20	„
December	1,768.10	„
Six months	7,192.90	„

Made up as follows:—

From Mineral Crushed in Co's Mills	5,536.40	ozs.
From treatment of Pyrites	330.05	„
Cyanide Bullion	444.30	„
From Salts	95.35	„
On Copper Plates (Half-yearly)	277.20	„
	6,683.30	ozs.
Mamajito—Cogote	9.65	„
Tributers	479.15	„
Salts	20.80	„
	7,192.90	ozs.

TREATMENT OF PYRITES.

	Bar Bullion. ozs.	Valued here at £	s.	d.
July	39.30	104	2	9
August	35.75	93	15	4
September	34.55	89	15	4
October	58.60	148	11	8
November	86.80	188	17	8
December	74.05	181	7	1
	330.05 ozs.	£806	9	10

Totals for six months ending—

	Tons.	Ozs.	£	s.	d.
30th June, 1904	136	500.60	1,216	18	4
31st Dec., 1904	120½	330.05	806	9	10
Difference	15½	170.55	£410	8	6

CYANIDE RESULTS.

	Bar Bullion. ozs.	£	s.	d.
July	48.20	80	44	3
August	150.10	256	0	6
September	54.50	88	16	1
October	82.75	118	1	3
November	65.25	128	16	11
December	43.50	77	5	0
	444.30 ozs.	£749	14	0

Totals for the six months ending—

	Ozs.	£	s.	d.
30th June, 1904	467.40	855	19	0
31st December, 1904	444.30	749	14	0
Decrease	23.10 ozs.	£106	5	0

SULPHURETS.

Silencio	34 tons
Córdoba	6 „
	40 tons

The above were treated in arrastres monthly as made, and about 45 per cent. of their total value recovered.

At Salada only "grey concentrates" could be recovered, as the milling was all on ore from the "Manto" outcrop; 102 tons of these concentrates were recovered and stored for future treatment.

Silencio tailings were nearly all impounded and also stored for future treatment, only the fine slimes being allowed to escape.

TRIBUTERS.

	Ozs. Bar.	Value. £	s.	d.
July	57.10	145	12	6
August	45.10	116	8	10
September	73.60	183	7	11
October	79.60	206	13	0
November	136.15	353	17	9
December	87.60	227	0	4
Total ozs.	479.15	£1,233	0	4

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Six months ending:	Bar Gold ozs.	Bullion £ s. d.	Total Value £ s. d.
30th June, 1904...	454.00	311 0 0	1,165 4 3
31st Dec., 1904...	479.15	555 10 4	1,233 0 4
Increase	25.15	£244 10 4	67 16 1

STREAMERS.

	Ozs. Fine.	Value.
July ...	3.30	£8 14 1
August ...	1.70	4 12 9
September ...	1.05	2 17 0
October ...	1.85	5 0 4
November ...	3.00	8 1 5
December ...	9.90	28 9 3
Total ...	20.80	£58 4 10

Six months ending:	Ozs. Fine.	Total Value £ s. d.
31st Dec., 1904 ...	20.80	58 4 10
30th June, 1904 ...	13.48	36 9 22
Increase	7.32 ozs.	£21 15 2

SUMMARY OF BULLION.

	£ s. d.
From Company's Mines ...	14,419 6 8
„ Mattanjito Creek ...	24 4 0
„ Treatment of Tailings ...	806 9 10
„ Cyanide Works ...	749 14 0
„ Tributers	1,233 0 4
„ Streamers	58 4 10
	£17,290 13 4

RESERVES.

APPROXIMATE QUANTITY OF ORE, DECEMBER, 1904.

Silencio.	Dec., 1904 tons	June, 1904 tons	Increase tons	Decrease tons
No. 10 level north, rich ...	700	365	335	—
„ 10 „ south, „ ...	500	276	224	—
„ 9 „ north, poor ...	100	134	—	34
„ 9 „ south, fair ...	511	795	—	284
„ 8 „ north, „ ...	50	24	26	—
„ 8 „ south, „ ...	1,659	1,159	—	100
„ 7 „ north, poor ...	211	211	—	—
„ 3 „ south, „ ...	771	771	—	—
Total tons ...	3,902	3,735	585	418

Total Increase ... 167 tons.

LA SALADA.—As in June, 1904 ... ... 17,685 tons.

TIGRITO.—As in June, 1904 ... ... 3,238 „

CÓRDOBA.—As in June, 1904 ... ... 3,714 „

RESUMÉ.

NUMBER OF TONS STANDING AS AT THE 31ST DECEMBER, 1904.

Silencio	3,902 tons
La Salada	17,685 „
Tigrito	3,238 „
Córdoba	3,714 „
Total	28,539 tons

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CONTRACT TIMBER.

SUMMARY OF SETS, &c., FOR THE SIX MONTHS ENDING DECEMBER 30TH, 1904.

Name of Mine.	Sets in Stope	Stemples in Stope	Sets in Drives	Stemples in Drives	Timbers in Hoisting Shaft	Rail Sleepers
La Siberia ...	461	68	196	468	77	504
La Salada ...	—	—	250	25	14	250
Tigrito ...	—	—	217	92	—	—
Matanajito ...	5	—	165	41	—	453
TOTALS—						
31st Dec. ...	51	68	1,048	626	91	1,207
31st July ...	77	133	2,529	3,630	85	1,500
Increase ...	—	—	—	—	6	—
Decrease ...	26	65	1,481	3,004	—	293

WATERCOURSES.

The necessary repairs to the fifteen miles of ditch representing in the Puente and Tinajones, which serve the water power for the mills, stamps and mine have been attended to. The ditches are at present in good state of repair and no big outlay will be necessary in the upkeep of this department.

To the Bolivia Ditch was connected, by means of 100 feet of 12 in. tubing, the Punta Azul Ditch. This has proved a valuable adjunct to the supply of water for power in Maria Dana.

RAINFALL:

	Inches 1903		Inches 1904
July	11.75	...	10.91
August	10.53	...	9.69
September ...	16.57	...	10.55
October	8.34	...	17.46
November ...	16.56	...	5.05
December ...	13.62	...	2.47
	83.37	...	65.71

A decrease of 14.56 inches as compared with the corresponding period of last year.

TIMBER.

The necessary supplies for mining and other purposes have been forthcoming. Owing to the use of only the very best class of timber obtainable, the prices have increased somewhat; this is compensated in the lasting qualities of the timber. The inferior timber is of short durability, and especially for underground purposes.

FARMS.

These call for no special notice. The grazing lands have been kept clear of brush. Patches of land in the immediate vicinity of the mine have been cleared, and crops of corn for the rations supply and animals have been grown; apparently, there will be no scarcity of this article of diet during the present year, as experienced in the early part of the six months under review.

INVENTORY OF LIVE STOCK, 30th DECEMBER, 1904.

	Gold Dollars	
LA SIBERIA FARM.		
95 horses and mules	4,028.48	
43 cows	958.22	
6 bulls	127.11	
23 working oxen	645.38	
12 heifers	12.22	
1 steer	24.44	
14 calves	46.44	
53 pigs	265.22	
29 goats	85.44	
		6,142.60
MASON AND ARERAL FARMS.		
7 horses and mules	232.22	
40 cows	1,142.90	
4 working oxen	97.70	
3 bulls	116.11	
6 heifers	73.73	
1 steer	12.22	
5 calves	17.60	
		1,691.54
CUTZAC FARM.		
1 mule	36.66	
39 cows	514.66	
4 bulls	110.00	
42 heifers	550.77	
37 steers	294.66	
8 working oxen	155.69	
17 calves	44.00	
		1,509.44

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Result.

106 ingrafted mules...	... ...	4,207.36
122 cows ...	... ...	2,615.78
13 bulls ...	... ...	353.22
35 working oxen	... ...	901.75
50 heifers	... ...	492.32
38 steers	... ...	333.32
46 calves	... ...	107.44
53 pigs	... ...	265.22
29 goats ...	... ...	35.44
		£9,342.58

BUILDINGS.

The necessary repairs have been attended to. Many of the dwelling-houses are in need of extensive renovations, and some are now being fixed up during the dry season.

POCUNO POWER DITCH.

The grading of the ditch has been suspended during the latter months.

The driving of the tunnel, to avoid a precipice, progressed fairly well. The accelerated extension of the ends driving to meet has 38.50 inches having 18.30 inches to complete the tunnel. This piece of work will be terminated at the end of the present month, when the cuttings towards the latter end of the ditch will be gone.

PROVISIONS.

Article.		Quantity.	Value in Gold.	Value. £ s. d.	Prices. £ s. d.
Maize	... lbs.	1,035½	9,271.37	1,854 5 6	1 15 10
Beans	... "	146	3,051.73	610 6 11	4 3 7
Rice	... "	132½	1,987.49	397 10 0	3 0 0
Raw sugar	... "	566	5,862.64	1,172 10 7	2 1 5
Lard	... "	100	830.80	166 3 2	1 0 9
Salt	... "	527	734.83	146 19 4	0 5 7
Beef	... "	4,452	14,643.01	2,828 12 0	0 12 7

Average price per ration, 1s 3½d.
Average number of persons, 573.

January to June, 1904.

Article		Quantity.	Value in Gold. £ c.	Value. £ c.	Prices. £ s. d.
Maize	... lbs.	4,071½	9,583.23	1,916 12 11	1 15 9
Beans	... "	154½	3,034.08	606 16 4	3 18 3
Rice	... "	83½	1,314.59	462 18 4	3 9 5
Raw sugar	... "	1,736	4,086.18	818 4 9	1 0 10
Lard	... "	262	1,219.46	243 17 10	0 18 7
Salt	... "	619	2,456.01	291 4 0	0 9 5
Beef	... "	5,119½	17,266.91	3,453 7 8	0 13 6

Average price for rations, 1s 3d.
Average number of persons, 671.

DEAD WORK ACCOUNT.

Summary of dead work done in the six months ending 31st December, 1904.

SILUCIO.

SIRKIN MAIN SHAFT—		Gold.	Gold.
September	... ...	16.45	
October	... ...	291.20	
November	... ...	129.00	
December	... ...	85	30.17
ELECTRIC MAIN—			
July	... ...	17.08	
August	... ...	5.00	
September	... ...	5.00	
October	... ...	7	
November	... ...	45	
December	... ...	9.95	5

MARIA DAMA.

BOLIVIA DITCH—		
July	... ...	227.57
August	... ...	222.48
September	... ...	172.40
October	... ...	103.60
November	... ...	8.44 1.87
INDIA ANA DITCH—		
December	... ...	688.12

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	$ Gold.	$ Gold.
Felton Columbia—		1,668.47
September	46.94	
October	59.44	
November	365.61	
December	20.51	
		492.53
Renovations to Batteries—		
October	1,914.00	
November	1,363.00	
December	1,107.30	
		4,384.30
Cyanide Tanks—		
October	80.30	
November	244.14	
December	63.65	
		388.09

SALADA.

Re-opening of the Mine—		
July	1,059.44	
August	2,078.97	
September	1,659.74	
October	1,486.46	
November	1,531.77	
December	1,315.93	
		8,782.31

MARMATO.

Re-opening of the Mine—		
July	287.55	
August	551.32	
September	617.20	
October	761.18	
November	935.56	
December	957.31	
		3,750.12
Electric Plant—		
July	665.48	
August	550.05	
September	543.55	
October	317.45	
November	194.75	
December	130.98	
		2,402.29
		21,887 81

	$ Gold.	$ Gold.
		21,887.81
Zaragoza Road—		
July	90.68	
August	80.02	
October	1.30	
November	636.61	
December	728.50	
	1,536.11	
Less Cr. in September ...	107.87	
		1,428.24

MANAGEMENT CHARGES.

Proportion Charges.		
July	198.80	
August	200.72	
September	204.68	
October	199.81	
November	196.83	
December	190.90	
		1,192.14.
		23,508.19

£4,901 12 9

NUMBER OF HANDS EMPLOYED.

European Officials	16
Colombian Officials	14
Miners	128
Punpmen	6
Mill Hands	98
Carpenters	5
Mechanics	4
Smiths	9
Engine Drivers	3
Timbermen	13
Fuel Carriers	30
Surface Hands	165
	551
Electric Plant	4
Zaragoza Road	28
Total	583

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WAGES.

Owing to the average percentage of exchange, which was lower, the wages on the gold basis worked out slightly higher for the six months.

EXCHANGE.

The average for the six months was 8,956 per cent., as compared with 10,600 per cent. in the previous six months.

ZARAGOZA ROAD.

During the month of November, the work of opening up this road was started from the Zaragoza end. Owing to labour difficulties and scarcity on account of fever, sickness and the prevalence of beriberi, very little progress was achieved. In view of this and the recent great reduction in mule freights, I considered it advisable with the few hands to carry out general repairs only to the hard sections of the road. This is being done, and all stuff consisting of the pipe line is being delivered at the site of the power-house.

During the six months 314,705 lbs. of freights were brought up from Zaragoza, say 157 tons, costing $15,725.09 (gold), which corresponds to £22 per ton of 2,240 lbs.

HEALTH.

The medical report shows that amongst the work-people several cases were treated, principally for out patients.

The health of the staff, with the exception of slight attacks of fever, was generally good.

RESUME.

With the exception of the Triplex Pump at the No. 6 level in the Silencio mine, the workings were kept clear of water, and developments progressed at all the deepest points.

The sinking of the main or pump shaft below the No. 10 level, owing to the extreme hardness of the rock,

The deepening of the hoist shaft below the No. 9 level on the dip of the lode progressed favourably.

The opening of the Salada mine, the principal work being the clearing and refixing of shaft equipment, made satisfactory headway, but this work, I regret to say, has since been seriously retarded by the drought we are experiencing.

The preparatory work for the reception of the Maruajito electric hoist and pump plant, by the opening up of the old crosscut and the sinking of the hoist shaft from surface to the No. 2 level, occupied more time than at first calculated owing to delays caused by the presence of gas in the workings.

All the workings are now well ventilated, and the building of the foundations for the machinery in the underground chamber, is now in hand.

The driving of the tunnel which will constitute a part of the water-race for the Pocuyé Power Scheme was kept going uninterruptedly.

The development of this power scheme, which is of the utmost importance to the properties, is now being carried on with all possible speed.

STAFF.

I have great pleasure in placing on record the efficient and valuable services rendered by one and all.

GENERAL REMARKS.

In closing this report, I need scarcely allude to the recent marked improvement in the position of affairs generally, and which is principally due to the excellent grade of free milling ore derived from the development of the lower workings of the Silencio. The results of the past few months speak for themselves, and clearly demonstrate that in the "Silencio" we have a property of inestimable value. No efforts are being spared to open up this mine below the existing workings, and in the meantime to keep the present mills supplied with ore.

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With the prosecution of the proposed mines development, the introduction of the new power scheme, with further additions to the milling capacity and extensions to the cyanide plant, there is no reason why the Company should not enjoy a new and long lease of prosperity.

It is gratifying to note that energetic measures are being taken by the Government to ensure against future revolutionary outbreaks, and the general impression is that, at any rate, some years of peace may be relied upon.

ALFRED TILLY.

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