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## REPORTS

ON THE PROPERTY OF THE

# Riber du Loup Gold Mining Co.,

#### SITUATED ON VARIOUS TRIBUTARIES OF THE

## CHAUDIERE, RIVER,

## CANADA EAST.

12



### RIVER DU LOUP GOLD MINING COMPANY.

#### INTRODUCTORY BEMARKS.

THE extraordinary richness and productive character of the gold-bearing region of the Chaudière in Canada East, are now fully recognized; and have already attracted multitudes of adventurers in search of the precious metal.

The alluvial valley of the River du Loup—a large tributary of the Chaudiére—and the streams flowing into it from the east, have been ascertained to be especially rich and promising; and in addition to the alluvial deposits, the quartz veins traversing the rocks, which are, in all probability, the source of the gold found in the district, will yield a steady and reliable supply, and will afford abundant scope for profitable working by a Joint Stock Company.

The River du Loup Gold Mining Company have selected and acquired in fee-simple some of the choicest locations on these various tributaries. The following is a schedule of the lands thus acquired, which are all situated in the township of Linière :---

, Name of tribu	tary		N	o. of acres.	Frontage on river.
Mill Stream				24	One-eighth of a mile.
Grande Coudée				350	Two-and-a-quarter miles.
				100	One mile.
Traveller's Rest			•	221	Three miles.
Portage .	•	•	•	100 -	One mile.
Comprising	r in	all		795	Seven and three eighths miles

On many of the Company's lands actual discoveries of gold in considerable quantities have been made, and they confidently anticipate a continuous and increased supply, by the application of a regular and systematic method of exploration. The annexed reports contain a detailed statement, by competent scientific and practical authorities, of the nature of this goldbearing district, and of the results of actual operations, on a property in the immediate vicinity of those owned by the present Company. It should be explained, however, that since the date of these observations, the discoveries which have been made, and the success which has been attained, have greatly exceeded in importance the results which have been chronicled in these reports.

### EXTRACT

#### FROM THE

#### OFFICIAL REPORT OF SIR WILLIAM LOGAN,

#### PROVINCIAL GEOLOGIST,

ON THE

## RIVER DU LOUP GOLD MINES.

No further examination was last season made in the distribution of the auriferous drift on the south-east side of the mountain range of the Eastern Townships, but the Government having granted a letter of license to Mr. Richard Oatey, giving him permission to collect the metal over a strip of five miles on the Rivers Chaudière and du Loup, at their junction, with a breadth of a quarter of a mile on each side, and a number of men having been employed by him, *streaming* for it during several months of the summer and autumn, an opportunity was taken to visit the locality, with a view of obtaining facts, to form some estimate of the quantity the deposit might produce.

The working had been confined to a spot in the bed of the Rivière du Loup, about ten acres from its junction with the Chaudière. The stream is here about forty or fifty yards wide, and, like the rest of the country for a considerable breadth in this part, it is underlaid by clay-slates, interstratified with occasional beds of more or less calcareous sandstone, varying in thickness from a few inches to a foot. The slates of the spot cleave in the direction of the bedding, and the dip is about S. S. E. with a slope of sixty to seventy degrees. The ravine in which the river runs is in general narrow and deep, with some few open spaces, and the immediate banks often constitute precipices of 100 to 150 feet. At the spot chosen for working, the

higher banks recede a little as they turn towards those of the Chaudière, and a flat extends between them and the edge of the stream. The chief part of the work had been limited to a space in the bed of the stream, extending from the left bank to a distance of about twenty yards towards the middle, with a length of about a hundred and twenty yards along it. Here the slates crossed the channel obliquely and the river-drift was accumulated upon the uneven surface formed by them, to various degrees of depth. In some parts the rock was bare, and in others covered to the depth of a few inches, and in no part did the deposit exceed three fect, the average being about two feet. The whole of this loose material was removed, particular care being taken to scrape it from all crevices and deep holes ; but of the rock itself, in the cleavage joints of which scales of the metal sometimes descend two or three feet, little more than one fifth had been taken from its place, and none of it during my presence, an intention being entertained, as I understood, to work the top of the slate when a convenient quantity of it had been cleared. The detritus consisted largely of coarse material, with which sand and clay were mixed in various proportions in different parts. As shewn after washing, the coarser material consisted chiefly of pebbles and fragments of slate and sandstone exactly resembling those on which the gravel rested; many, both ragged and rounded, consisted of white quartz, such as composes veins that are met with in the clay-slates, and in the more talcose slate of the mountain range to the north.

In washing the detritus, the Cornish tye was used, which consists of a rectangular box about twelve feet long, two feet broad, and eight to ten inches high, open above, and supplied a few inches from the upper end with a division forming a well for the contrivance of a small side shuice to let off the stream of water when necessary; and at the other with a groove in which could be let down a number of successive stops, requirred as the box filled with the material operated on, to keep the surface of it an even inclined plane. The box being placed at a proper slope, with a proper platform of plank alongside of it even with the top, a gutter made to convey the water to the upper end from the main run, and the water let on and

allowed to fall over from the well into the box, a man with a shovel supplied the upper end with the gravel and other materials, which were brought from the excavations and laid down on the platform near him by two others. The water acting on the gravel, which was slightly adjusted with the shovel to loosen it and give an even surface, carried away the lighter particles, while another workman, behind the first, assisted the progress of the larger washed pebbles by the light and rapid movement of a rake, by this means also keeping an even inclined surface on the accumuulating material in the box, and thereby preventing unequal action of the water. The box being filled by this procedure, some nine or ten feet of the lower parts of the contents called the tail, were thrown out of the box as of no more use; the remaining two or three feet were divided into two parts of a foot or eighteen inches each; the lower one, or the second erop, was added to the pile coming from the excavations, and the upper or first crop was made a separate pile of. When, by repeating the operation many times, a sufficient pile was made of the first crop, this was washed over by itself in the same way; the tail was thrown away, the second crop put with the first crop of the first running or washing, and the first crop of the second running again piled separately; these first crops of the second running were again washed separately, the tails thrown away, and the second crops added to the first crop pile of the second running, and the first crop placed by itself to be the subject of a different operation. This was washing it on what is called a copper bottom. The copper bottom consists of a small two-eared or handled tub about fifteen inches in diameter, and six inches deep, the bottom of which is a finely perforated sheet of copper with the burr inside, the holes being sufficiently large to allow the point of a pin to go through, but not the head. The pile of the crops from the third running being by portions placed in this tub or sieve, the sieve is forced down into water held in a keeve or large tub or species of vat; in this it is by a jerking motion raised and depressed, and turned partially round; the water driving up through the holes of the sieve has a tendency to push up the material lying on the bottom, the lightest the farthest up, and the jerking movement assists this. The gold being the heaviest sub-

stance, soon gets to the bottom, and whatever is lightest to the top; the top is every now and then scraped off and thrown aside, to be sent to the tye, and more stuff is added to that in the sieve, and the operation continued until all the material from the third running is exhausted, or it becomes necessary to empty the sieve. The reduced material taken from the sieve, among which the gold is now very perceptible, is subsequently placed on a shovel and vanned or separated by means of a little water, and a peculiar motion given to the shovel, which only a person dexterous from long practice knows how to wield. Through the small holes of the copper bottom a large quantity of fine black iron sand escapes into the vat or keeve, over which the instrument is used, and a quantity of fine gold escapes with it, which would have to be subsequently separated by some other process.

The whole quantity of gold obtained during the season was about. 1900 penny-weights, and fifteen men were employed in the work, but it is not easy to state the exact time devoted to streaming. The full period of work was five months; but a considerable deduction must be made for accidents. The whole gang was for some time employed in constructing a dam, which, when it was nearly complete, was carried away by a freshet, and many difficulties were experienced when the river was lowest, (which should have been the best period for working,) through the want of a proper supply of water at the height required to keep the tyes in full action. Something is to be allowed for broken time occasioned by rainy days, and much more for all those difficulties which are unavoidable in starting a new work in a new place, where a knowledge of the natural local impediments is only to be gained by experience, and none of those conveniences exist, which rise up only after operations have been carried on regularly for some time.

My visit lasted a week, during one day of which a heavy fall of rain' prevented work; but for the remainder of the time a regular account was kept by me of the gold collected and the wages paid. The quantity of gold amounted to  $143_{2\frac{6}{4}}$  pen hy-weights, the price of which, stated to me subsequently by dealers in London, to whom a sample was submitted, was £3 10s. 6d. storling per ounce, or about four shillings and fourpence currency per penny-weight. This would give a total value of £31 3s.; the wages paid were £15, leaving a margin for profit of £16 3s., by which it would appear that the deposit was yielding about double wages.

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Resulting from the season's work on the Rivière du Loup there was about a ton of fine black iron-sand in the keeve or vat, over which the copper bottom was used. The unseparated quantity of gold in this after repeated trials, was ascertained to be 1.77 grains per pound avoirdupois ; this would give  $165_{\sigma^2\sigma}$  penny-weights to the ton, the gross value of which would be about £36. From among a few ounces of fine gold obtained from the sand, there were collected some small grains both of platinum and iridosmine, the value of the former being below, and of the latter double that of gold; almost all of this fine gold was at first of so white a color that it was considered probable the circumstance might be owing to the presence of a very large proportion of silver; some of the larger pieces also obtained from the copper bottom were spotted white from the same supposed cause; but Mr. Hunt, on heating this white gold, found that it quickly turned to a good golden yellow, and that the discoloration was occasioned by a thin coating of mercurial amalgam. As the spots were perceived on some of the larger pieces immediately on their being first obtained by vanning on the shovel, it is supposed they must have been spotted with the mercury while still undisturbed in the drift; and as no mercury had been used on the ground, it leads to the supposition that some ore of mercury may possibly be one of the mineral products of the country.

## REPORT

### OF EXPERIMENTAL OPERATIONS

## ON THE RIVER DU LOUP. BY MR. RICHARD OATEY, MINING AGENT.

### Although the presence of gold in the drift of Canada has been known for a considerable time, it is only lately that attempts have been made to ascertain whether the quantity in any locality is sufficient to promise a profitable return. The great area over which the auriferous deposit in the Province is now known to extend, makes it reasonable to suppose that the quantity may be so in many places; but to one of these in particular it is, that on the present occasion, I am to confine attention, streaming for gold on it having been prosecuted for the last two years under my superintendence.

Indications of an encouraging nature having been met with on the Fief St. Charles in the Seigniory of Aubert de l'Isle, an application was made to the Provincial Government for permission to collect the precious metal on a strip of about five miles on the Rivers du Loup and Chaudière at their junction, an arrangement having in the first instance been made with one of the *censitaires* on whose lots the indications were obtained. License to commence mining the ground was obtained from the Government on the 26th April, 1851, on the conditions of which a copy is hereto appended, and the area to be worked having been fixed as five miles and fifteen chains on the Rivers by a breadth of a quarter of a mile on each side, streaming operations were begun towards the end of May.

The system adopted for obtaining the gold was that practised in Cornwall in streaming for tin. By this a fall of water is required, and a small stream called Creig's Creek, near the position where the first indications were met with, was considered available for the purpose. Immediately that the water was applied to a sufficient quantity of gravel in a *streak*, a number of large and small pieces of gold were obtained, and it was soon perceived that the distribution of the metal in the part experimented upon was pretty uniform, and the quantity sufficient to encourage farther perseverance.

The streaming, however, had not been continued many days before it was perceived that the water in the creek diminished very much, and it so far dried up that only one streak and one tye could be kept in operation. Although the experimental facts ascertained by these were sufficient to authorise the opinion that, provided the rest of the location were like this part, there was gold enough on it to render the enterprise of mining it profitable, it was very evident that success would depend on obtaining water from some other source in sufficient quantity to work a much larger number of streaks and tyes.

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As the summer advanced the dry weather continued, and the water in the creek failing altogether, streaming had to be suspended. Advantage, however, was taken of the time to extend exploration to other parts of the location in order to ascertain more fully the distribution of the gold over it. The result of this was so far satisfactory that wherever a trial was made, such indications were obtained as to authorise the opinion that it is about equally abundant throughout, not only in the beds of the main streams but in parts extending up to ten feet above their level, and particularly in a flat of about twelve acres at this height over the River du Loup, a lease of which for mining purposes was subsequently obtained from the *censitaire*.

The interval of dry weather was also used for the purpose of colecting from the bed of the river and placing on the bank, a quantity of gravel for future washing, and before the expiration of the drought, an attempt was made to construct a wooden dam across the River du Loup, with a view of getting a head of water to work an effective number of streaks and tyes. Before, however, the dam could be finished and secured, a freshet which occurred carried the structure completely away, causing a loss of \$500, but towards the end of the season, wet weather once more permitted the creek to which had been collected, and a small additional quantity not previously moved.

The area worked over during the season, the thickness of the gravel being on the average about two feet, was, by actual measurement, found to be about three-eighths of an acre, and the quantity of gold collected from this (including a small portion derived from the general exploration) was 1947 dwts. 11 grs., among which were several pieces weighing from 1 to  $1\frac{1}{4}$  oz.; and besides this, there was a quantity of iron sand (about a ton) resulting from the last process in washing the gravel, which by experiment was found to contain about 160 dwts. of gold.

On comparing the value of the gold thus obtained with the wages expended in collecting it, (exclusive, however, of all charges for superintendence), the result is as follows :---

	dwts. grs.
Clean gold obtained	1947.11
Gold in one ton of iron sand	160.00

2107.11 at 86<sup>4</sup> cents-\$1826.46

Amount expended for labor in min-

ing, washing and cleaning from 25th April to 8th November ...

1644.33

Leaving a balance of ..... \$ 182.15

In the wages, however, is included the expense of constructing the dam carried away, and as this accident had nothing to do with the facts required to elucidate the general probable returns of the mineral location, the value of the gold over the wages may be considered as exceeding \$680, or about 42 per cent.

In 1852, mining operations were resumed in the end of May, and warned by the early drying up of the water in the creek the previous season, it was deemed prudent, while one party was occupied in streaming by aid of the creek, to employ another in constructing across the River du Loup a break-water, or dam of stones, brush and turf, with a view of raising and having ready such a head of water, as would keep streaks and types going when the creek should fail. From the commencement, however, the creek gave but a poor supply, and after expending a good deal of labor on the dam it proved to be unserviceable, as while the interstices among the stones used for a foundation on an uneven bottom were such as could not be stopped, they were found to be sufficient to permit the escape of all the water. The dam, therefore, had to be abandoned without any remuneration resulting from it:

This expedient failing, it was conceived that a continued supply of water for regular work might be obtained by procuring at a distance of about 900 feet up the river, and conducting it in launders to join the creek, which by this time was nearly dry, but still gave a small amount that by saving, was made available at intervals. Launders with a breadth of ten inches were consequently constructed, but by the time they were placed, the water in the river had fallen so much that it was found necessary to construct a head-way still a little farther up, to get the water into them, with a sufficient current to carry it the whole distance.

While the launders were in the course of construction and adjustment, which occupied nearly six weeks, and the dry weather continued, a party was employed to raise gravel from the bed of the river, and place it on the bank for future use. This was a judicious precaution; for though the gravel on the banks may hold nearly as much gold, yet it is proper to clean up the river first, as the working of the bank gravel must necessarily send the refuse resulting from it into the river, where it would obstruct the attainment of the river gravel, were not this washed first. The river gravel is only attainable during the dry weather, and it might have been again covered by the water, by the time the launders were completed; yet if the launders had been ready, this gravel might have been at once carried to the streaks and tyes, and one movement of it could thus have been saved.

The launders came into operation in the end of July, and though it was found they had scarcely enough fall to give at all times the quantity of water required, yet from that period to the termination of the season, concluding in the end of October, the work became pretty regular.

The area worked over during the season, was about five-eighths.

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The quantity of gold obtained was 2573 dwts. 7 grs., of an acre. in which were included the following nuggets :---

		dwts.	grs.
June	7	126	19
July	30	88	21
August	25	10	20
"	25	38	21
Septembe	r 7	98	21
- cc*	24	55	2
66	30	23	20
October	2	16	22
. 66	9	13	2 .

In addition to this, was the gold contained in the iron sand resulting from the copper bottoms in the last process of cleaning. This, however, was mixed up with that of the previous season, and the average of the two, tried by a sample of 25 lbs., is equal to 233. dwts. 18 grs. of gold per ton of sand. The quantity of this iron sand now on hand is about two tons, and deducting from the gold in it, 160 dwts. for the ton of 1851, there would remain 307 dwts. 12. grs. as the quantity in the ton of 1852.

Comparing as before, the value of the gold and the labor, exclusive of superintendence, the result is as follows :-

	dwts. grs.
Clean gold collected	2573. 7 -
Gold in one ton of iron sand	307.12

2880.19 at 862 cents-\$2496.69 Amount expended for labor from the 24th May to 30th October.....

1888 35

Leaving a balance of...... \$608.34

In the labor is included the time expended in making the launders but as these might be serviceable for several years, in justice to the experiment, the expense of making them should be distributed over these years, and it is therefore considered that an allowance of 50 cents for each of them should be made. The number of them, including those required for streaks and tyes, is 150, and the value of the gold over the wages would thus be about \$683 or about 36 per cent.

If, however, a comparison is made between the gold and the wages, from the time the launders came into operation until the end of the season, the result would be as follows :---

	awts.
Clean gold collected	2036
Gold in proportion of iron sand	242

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2278 at 863 cents-\$1974.35

Amount expended for labor for the week ending 31st July to the 30th Oct. . 1130.55

• • • •

From this, however, is to be deducted an allowance for the superior facility with which the gravel collected, while the launders were making, could be taken from the bank instead of from the river; this gravel gave about two weeks' work to the streaks and tyes, and the difference is about \$44, making the value of the gold over wages \$800, or about 70 per cent.

From the exploration and experiments that have thus been made on the location, it appears quite evident that it must contain a large quantity of gold. The superficial area of ground is about 2,000 acres, and from one of these acres there has already been obtained upwards of \$4,000 worth of metal. But it is also evident that to work the location effectually, operations must be carried on on a much larger scale. This would require some outlay. The only natural difficulties in the way are those connected with a supply of The supply by the present launders is insufficient; their water. breadth is too small, and while their fall is scarcely great enough, the height they gain above the river is not sufficient to carry them. above the reach of freshets; so that while they stand in some danger of being injured by such freshets as may occur during the working season, they must be removed whenever the winter sets in, and replaced in the spring. The slope of the river is much quicker bove the present launders, and a quantity of water large enough to work any required number of streaks and tyes, would be procured by conveying it along side of the River du Loup, from the highest point to which the location extends on this stream, by launders of six feet wide. The distance is about a mile, and the fall is sufficient to permit the launders to be carried for the chief part above the level of freshets. Such an arrangement would command the whole bed of the river, and nearly emptying it during dry weather, would give the opportunity of operating on the gravel at so many points at once, as would rapidly exhaust of their gold the bed (averaging 20 yards), the banks and flats in the whole distance down to the Chaudière, at the junction with which there is a wider flat than elsewhere, the produce of which it is expected will considerably surpass the average of the ground in other parts.

The Chaudière is fully double the width of the du Loup, and at the highest part of the location and within it on that stream there is a considerable cascade, called the Upper Falls of the Chaudière, from which any supply of water might be obtained for operations on the banks, either at the same time or subsequently to washing on the du Loup.

Your most obedient servant,

RICHARD OATEY.

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up, and at ream there Chaudière, operations to washing

DATEY.





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