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REPORTS

ON THE PROPERTY OF THE

Canada Lead Mining Company,

COMPRISING

300 ACRES OF LAND,

In Lansdowne, Leeds County,

CANADA WEST.

1863
(32)

CANADA LEAD MINING COMPANY.

The attention of mining adventurers in Canada has been hitherto directed mainly to the extraordinary discoveries of copper ore in the Eastern Townships; but an equally important and lucrative field of operations is presented in the lead mines which have been discovered and partially opened up in some parts of the Western Province.

The existence of several veins of galena at Long Point, in the township of Lansdowne and County of Leeds, Canada West, has been long recognized; and the official reports issued from time to time by the officers of the Geological Survey have established their important and promising character. They occur in true fissure veins cutting Laurentian limestone; such conditions, from experience in other places, being regarded as highly conducive to their persistence and productiveness.

The direction of these veins, which is transverse to that of the stratification, points in a straight course, on the one hand to the Rossie Lead Mine in St. Lawrence County, New York; and on the other to certain locations in the township of Bedford, C. W., where promising discoveries of galena have been made. The important character of these deposits may thus be inferred from the extent of country traversed by them, and from the number of parallel veins which have been discovered at this central part of their course; and the results of actual working have fully established the justness of this inference.

The property acquired by the Canada Lead Mining Company is traversed by at least three veins of galena which have been partially opened, with highly encouraging prospects. A full descrip-

tion of the property and details of the mining operations hitherto instituted upon it, are given in the following pages, embodying reports from competent and experienced geologists and miners. The report by Dr. Jackson refers to a lead mine immediately adjoining to the east, and on the run of one of the lodes which have been traced on this Company's property.

The great and increasing consumption of lead in this country and throughout the world; the diminished production of the Wisconsin and Iowa Lead Mines, and of most others on this continent, and the promising nature and convenient situation of those now brought under notice, render the present undertaking highly deserv- the attention of capitalists and mining adventurers.

REPORTS

ON THE PROPERTY OF THE

CANADA LEAD MINING COMPANY

REPORT OF MR. CHARLES ROBB,

MINING ENGINEER.

53 St. Francois Xavier Street,
Montreal, 24*th October*, 1863.

Gentlemen,—Having in the course of the present year visited your lead mining locations in Lansdowne, Canada West, and having been requestod by you to prepare a plan and description of the same, I beg now to hand you the accompanying report together with a plan of the property, and a small map showing the location, distance from shipping ports, &c.

Your property consists of the following lots, viz.:

1. East half of	Lot 3,	Concession	8th,	100	acres.
2. South half of	" 4,	"	"	100	"
3. North-east quarter of	" 4,	"	"	50	"
4. West quarter of	" 5,	"	"	50	"
Comprising in all,.....				300	acres.

The first of these lots is held by you in fee simple; the rest under a perpetual mineral lease free from all dues, and with all the usual privileges.

This property is traversed throughout a length of 2,250 feet by the veins of galena mentioned by Sir William Logan in his report for 1858, pages 49 and 50; and also in the report for 1863, page 688. These veins must be regarded as of great importance, from the facts of their being found cutting the Laurentian limestone, and

undoubtedly belonging to the same system of lodes which connect the Bedford and Rossie lead mines.

The geological age and conditions of the rocks underlying your property are highly congenial to the formation of lead ore, and to its concentration in veins or lodes; and the number of such veins which have been actually traced upon it, running parallel to each other, is not only of importance in itself, as multiplying the chances of opening up good mines, but affords the best proof of the mineral wealth of the district.

Considerable work has been done on the property in sinking trial shafts on, and costeening in search of the veins. The results of these operations, which are detailed in the reports by Messrs. Banfield and Smith, have established the important facts that the veins extend obliquely across all your lots, and that they improve in thickness and in productiveness on sinking upon them. Shafts sunk upon the same veins on the properties immediately adjoining yours in both directions have produced ore, the value of which is considerably in excess of the cost of working; and there can be little doubt that by the expenditure of an equal amount of labor on your property results equally favorable will be realized.

The reports by Messrs. Banfield and Smith (which I can fully corroborate from my own observations), together with Sir Wm. Logan's published reports already referred to, are so full and explicit as to render further details on my part unnecessary.

The lands in question are nearly all cleared and under cultivation, and are situated in a well settled country, with good roads, &c. The distance to a shipping port on the Rideau Canal is eight miles, and to the nearest station on the Grand Trunk Railway about ten miles. Ample convenience for washing and dressing the ore is afforded by one of the reaches of the Gananoque River, which bounds the lots to the south, and to which there is a gentle descent from the mines, admiting of the easy construction of a tram way.

I am, Gentlemen,

Your most obedient servant,

CHARLES ROBB.

EXTRACT FROM SIR WILLIAM LOGAN'S REPORT FOR 1858, pp. 49 and 50.

In the Report of 1851-2, Mr. Murray makes mention of the occurrence on the second lot of the eighth range of Lansdowne, of a vein composed of galena disseminated in a gangue of heavy spar and calc-spar, which had been unsuccessfully tried as a lead mine. Subsequent to his visit to the locality, a lode was discovered on the third lot of the same range from which specimens were obtained in 1855 for the Paris Exhibition. A trial shaft had been sunk on it to the depth, it was said, of fifty feet, and a sufficient quantity of ore obtained to pay the expense of sinking. The specimens procured by me, and the mass of ore exhibited to me, shewed a thickness of between two and three inches of pure galena associated with calc-spar. I was informed that other lodes existed in the neighborhood, but their position was kept secret. The two which had been tested are parallel to one another, with a bearing approaching to N.W. and S.E.

The bearings given by Mr. Murray to the three lodes examined by him in Bedford are N. 15 W., N. 32 W., and N. 85 W., the last being the course of the lode traced and tested farthest. The distance between the Bedford and Lansdowne lodes is not much over twenty miles; and considering the differences that may be allowed for the gentle windings which usually exist in the courses of metalliferous veins, it appears not at all improbable that the lodes of the two localities may be identical, or belong to one group, the bearing of the two positions being about N. 68 W. and S. 68, E. of one another. If a line from the Bedford to the Lansdowne lodes were continued twenty-five miles farther, it would cross the St. Lawrence and strike Rossie in Lawrence County, New York, where a group of well-known veins of lead ore exists, some of which, though just now abandoned, are not supposed to be exhausted, and two of which are known at one period to have yielded a great quantity of ore.

The rock cut by the lodes at Rossie is of the Laurentian series, but a line between Rossie and Landsowne would intersect the outcrop of the Potsdam sandstone which lies between Rossie and the St. Lawrence. It has been ascertained that a vein of lead ore cuts

through this sandstone at Redwood, which would not be far from the position of the line to Lansdowne. It is thus not improbable that there is a group of lead lodes running from Rossie to Bedford; and this metalliferous line appears well worthy the attention of explorers in search of lead ores. The dislocations in which the lodes exist are, of course, thus proved to be of a more recent age than the Potsdam sandstone, but this by no means establishes that the older rock may not be the source of the metal.

EXTRACT FROM SIR WILLIAM LOGAN'S REPORT FOR 1863, page 688.

Similar veins of lead ore are found in Lansdowne. One of these on the second lot of the eighth range, has been traced for a quarter of a mile, running nearly N. W. and S. E. and has an average breadth of two feet. Through the gangue, which is of calc-spar and heavy spar, galena is irregularly distributed in crystals and small masses; and it is also found disseminated in the crystalline limestone which forms the walls of the vein. Trial shafts were at one time sunk here; but the mine was abandoned. Another lode running N. 65 W., was subsequently found on the third lot of the same range. It traverses crystalline limestone, and has a breadth of from six to twelve inches. Through the gangue, which is of calc-spar, galena is found in masses sometimes five or six inches in diameter. A trial shaft of fifty feet, which was sunk upon this lode in 1854, on the land of Mr. Buell, is said to have yielded sufficient ore to pay the expenses of sinking. A branch lode diverges from the main one near the shaft; and in the same neighbourhood there occur four other lead-bearing lodes parallel with the main, the whole being included in a breadth of about 1000 feet. These run obliquely across the lots, and thus intersect the lands of several proprietors.

REPORT OF MR. E. BANFIELD,

MINING ENGINEER.

LANSDOWNE, *March 5th*, 1861.

GENTLEMEN,—In compliance with your request I have explored and surveyed your mineral lands, at Long Point, in the Township of Lansdowne. I now beg to hand you my report, and a map illustrating the position of the lodes, and the work done in the neighborhood.

There are three distinct lodes running with a N. W. and S. E. course, nearly parallel to one another, across the farms comprised in your property. The rock through which these lodes run is the lower limestone of the Laurentian series, and is the same strata as the Rossie mines were commenced in. The matrix of the lodes is calc-spar. The lead appears to make chiefly in the form of a nearly solid streak or vein, running through the centre of the lode.

Lode No. 1 seems to be a regular well-defined mineral course, improving as it goes east; and on the farm of Mr. Simmons, the adjoining location in that direction, some men from Kingston have been working this winter. In little over a month, three of them broke out 7 tons of 80 per cent. ore, worth $350.00, at a depth not exceeding 12 feet. The lode where they worked averaged about 4 feet in width, and appears to enlarge in going down, carrying with it heavy bunches of ore.

Lode No. 2 looks most promising. We have sunk a trial shaft on it to a depth of 20 feet. The lode on the surface is only three inches wide, but increases constantly as we get deeper, and at the bottom of the shaft is now 16 inches wide, with good stones of lead throughout.

On Mr. Buell's farm, the next to yours on the west, three miners from Wisconsin sunk a shaft 50 feet. The vein on the surface was small, but increased steadily as they got deeper. At the bottom of the shaft it has now over three inches of nearly solid galena, which would produce at least one ton per fathom. Besides the three above mentioned lodes, there are unmistakable signs of at least four others running in the same direction.

Taking every thing into consideration, I should consider the Lansdowne district as a very favorable locality for mining investment.

The fact of so many favorable lodes running parallel to one another with such regularity, the distance that each can be traced on the surface, and the fact that both to the east and the west, within a very few feet of the surface, paying quantities of ore have been raised, without any outlay for machinery, both from lodes 1 and 2, are quite enough to warrant the outlay of sufficient capital to effectually try them.

Your farm offers also very great advantages; very good situations for both workmen's and store buildings, large quantities of white oak, iron wood and pine, the former very useful for machinery framing, and the latter both for buildings and underground timber work. There is also water communication for barges from your farm to the Grand Trunk Railway through the Gananoque Lake. The country is well settled and healthy, and in the vicinity of a good saw mill, where good lumber can be procured for $6.00 per 1000 feet. There is also a water privilege that might be useful for manufacturing purposes.

The ore has been assayed, and contains 82 per cent. of metallic lead, besides a small quantity of silver. The rock through which the lodes run is soft and easily worked. Stoping could be done at about $15.00 per fathom, and I do not think the water would be very troublesome.

A vein of solid lead ore 2¾ inches wide will turn out a ton to a fathom, which at the shaft's mouth would be worth about $50.00; so that taking Buell's shaft as an example, stoping would leave a balance of

$50.00 ore per ton.
15.00 cost of stoping.

$35.00 balance per fathom,

which ought to pay all other expenses, and leave a very fair profit for the adventurers.

I remain, Gentlemen,
Yours obediently,

E. BANFIELD.

REPORT OF MR. HENRY S. SMITH.

LONG POINT—TOWNSHIP OF LANSDOWNE,
COUNTY OF LEEDS, CANADA WEST.

GENTLEMEN,—In compliance with your request, I have surveyed yours and the adjoining lots in the above township, in search of minerals. I beg to hand you my report, and the maps I have prepared to illustrate it.

The trial shaft alluded to in Sir Wm. Logan's Report, (See map—Shaft on Buells' lot) has been carefully examined by Mr. Banfield and myself. It contains two veins of galena, giving an average thickness of three inches of pure ore. This shaft was opened by three working men from the United States, and though they succeeded, by sinking 50 feet on the vein, in obtaining a large quantity of ore, (twenty tons) they were compelled to abandon it, not having sufficient capital to erect smelting works or to convey the ore to Wisconsin, the then nearest market. A vein which bears abundant evidence of being a continuation of one of the above, can be clearly traced in a N. W. and S. E. direction to shaft No. 2 on your lot; and although only a depth of 14 feet has been sunk, it gives every prospect of yielding an equal amount of ore, as the vein of calc-spar shows an average thickness of five inches, bearing a vein of pure galena showing a thickness of from one to one and a half inches. The ground rises some 15 feet from Buell's shaft, consequently the bottom of your shaft is not yet on a level with the top of his. I have no doubt that when we sink to an equal level we shall obtain an eqnal or greater amount of metal.

Shaft No. 1 is on a new vein, and is the most promising yet opened. The lode of galena is over two inches wide, and although gaps of dead ground occur, the appearance of ore is better every foot it is sunk. At a depth of 50 feet I confidently expect to strike a vein of galena equal, if not superior, to that on Buell's lot. I am strengthened in my opinion by the appearance of a small but very pure vein of copper ore, running parallel with the vein of galena. This vein of galena can be readily traced for 100 feet in an un-

broken line in the direction of the Townsend and Warren lots, in several places of which the vein again appears, and on being opened, has proved identical.

Shaft No. 3 has been only sank 8 feet. The slight angle of the veins on Buell's shaft would give the distance between them, i. e. 183 feet at the shafts 2 and 3. In consequence of the heavy fall of snow, Mr. Banfield has decided on not working shaft 3 until spring. There are two veins between 1 and 2, which we have not yet opened; and I feel confident that were a cross-cut made from 1 to 2, and from 2 to 3, many other veins would be intercepted, as the surface appearances give good indications of their existence. Unfortunately the heavy fall of snow so shortly after my arrival prevented my determining their exact position on the map. All the veins we have opened can be readily traced on the map through the adjoining lots, the mineral rights of which you have secured.

From the general appearance of the country, showing very little upheaval of strata; the enormous thickness of metalliferous rocks; the fact of the lodes lying in a direct line N. 68 W. S. 68° E. between Bedford and Rossie; and the small vein of copper—all indicate large quantities of ore. While the easy nature of the crystalline limestone for working, and the small quantity of water, most of which may be got rid of by surface draining, show that the works may be carried on in an economical manner, with far less outlay than many mines which are now yielding large and profitable returns.

Another advantage of much importance in mining exists on your lands in the abundance of small pine, which will yield a supply of charcoal for many years; so that beyond the expense of preparing it, there will be no outlay for fuel for smelting. There is also a large quantity of white oak and iron-wood, admirably adapted for machinery, shafting and other mining purposes; as well as sufficient timber to erect any number of storehouses, workmen's dwellings, &c., while the close proximity of the Falls Mills affords opportunity for procuring all planking at a very reasonable outlay.

In page 369 of Sir Wm. Logan's Report for 1856, we find Mr. Hunt of the Geological Survey giving 81 per cent. of metallic lead as the yield of the galena.

I am, Gentlemen, your obedient Servant,

HENRY S. SMITH.

REPORT OF C. T. JACKSON, M. D., ON THE LEEDS GALENA MINE, LOT No. 5, CON. 8, LANSDOWNE.

GENTLEMEN :—At your request, I have recently visited and examined the Leeds Lead Mine, in Canada West, and have now the honor of reporting to you my observations.

SITUATION OF THE MINE.

This lead mine is situated in the Township of Lansdowne and County of Leeds, and is No. 5 of the 8th range. It is nine or ten miles from the Lansdowne Station of the Grand Trunk Railroad, and eight miles from Seeley's Bay, which connects with the Rideau Canal.

The land in which the mine exists is an elevated table land slightly rolling and naturally well drained. All the country around is cultivated and settled on by a farming population, consisting of Irish and Scotch people.

GEOLOGY OF THE DISTRICT.

A singular granitoid rock, consisting chiefly of white felspar, with little quartz and no mica, is the prevailing rock formation. In this are numerous beds of highly crystalline limestone, or calcareous spar, not unfrequently mixed with crystalline and massive sulphate of baryta. In the veins or beds of calcareous spar, or of sulphate of baryta, occur considerable deposits of galena in bunches sometimes pretty thickly planted, and constituting a rich lead vein. Fluor spar is also found associated with the sulphate of barytes in some of the veins, and is of a green color.

THE MINE ON J. SIMMONS' ESTATE.

This is the most important vein of galena, and is the one most extensively opened. A trench fifty-feet in length has been opened along its outcrop, and it has been sunk to the depth of about eight feet. The vein stone is wholly calcareous spar, sometimes of a fine amethystine tint, and occasionally colorless and transparent, but more frequently yellowish and opaque. On measuring the thickness of the vein, I found it to be from two and four tenths to three and

eight tenths feet, the widest portion being at the south-east end of the cut. Its course or direction was found to be N. 61° W., S. 61° E., and the dip is nearly if not quite vertical.

An abundance of masses of pure galena are scattered through this vein stone, some of them weighing more than ten or fifteen pounds. This mode of distribution of galena in the calcareous spar veins is familiar to me, as it occurs in well known and worked mines at Rossie and Magoun Lead Mines, which I have had occasion to examine.

This mine, though the vein is not so wide as at the localities I have named, is much more heavily charged with galena, and appears to be a good and productive lead mine. From the excavation I have mentioned, five tons of picked lead ore have been taken, and it is now in Mr. Cowen's store, in Kingston.

So large a product from such a limited opening demonstrates the richness of the vein, as does the relatively small amount of waste left when the ore was dressed, this not being more than two tons of calcareous spar, but still containing a sufficiency of galena to make it worth the labor and cost of jigging for the ore.

When sinking the open cut above referred to, the miners broke through a shell of a rock and found beneath them a cavern which has not yet been entered. It will undoubtedly be found stored with larger masses of galena, the water having dissolved away the calcareous spar.

FUTURE WORKING OF THE MINE.

I am of opinion that open-cut work should at once be abandoned and regular shafts should be sunk on the vein, and levels at proper depths should be sent off along the course of the lode, so that on stoping down their backs large quantities of the galena may be obtained.

Then the ore should be sent to the nearest water to be crushed, washed and otherwise dressed for market. The nearest water is a deep lake eighty rods from the mine, there being an easy grade all the way from the mine to the shores of the lake, so that a tram road may be easily constructed for transportation of the ore. On the shore of the lake, a dressing house, with a steam engine to crush the

ore and to pump water should be built. The site is an admirable one for the purpose. The shore is low, the water very deep close to the bank, and the rise in the land is not such as to prevent free access to the water, nor would the water have to be raised by the pumps to any considerable height. A common lifting pump will raise all the water that is needed in the washing house, and a moderate sized plank reservoir in the building will hold an abundant supply, since the pump will keep it filled very readily and with very little expenditure of power. The chief duty of the engine will be to drive the crushing rollers and to work the plungers of the jigging frames. By means of pullies or chains, the same engine may be made to draw the cars to and from the mine, if the descent of the land is not found adequate for the working of self-acting inclines, such as are in use at our anthracite coal mines in Pennsylvania.

When the ore is worked clear it is to be dried, and then should be packed in strong canvas bags holding each 200 lbs., and then it is ready for market. It will cost $2 per ton to cart it to the Railway station at Lansdowne, and from thence it can be taken to Ogdensburg, New York, at a very moderate cost, say $2 per ton.

At Ogdensburg, a furnace should be erected for smelting the ore into pig lead, and then it is ready for sale on the spot. Wood fuel will be employed in the smelting operations, and the American or iron form of the Scotch hearth will be the smelting furnace. These cost but $250 each, and one or two furnaces will do the work. The building may be put up at a cost of $500, and split dry wood may be bought for $1.00 to $1.50 per cord.

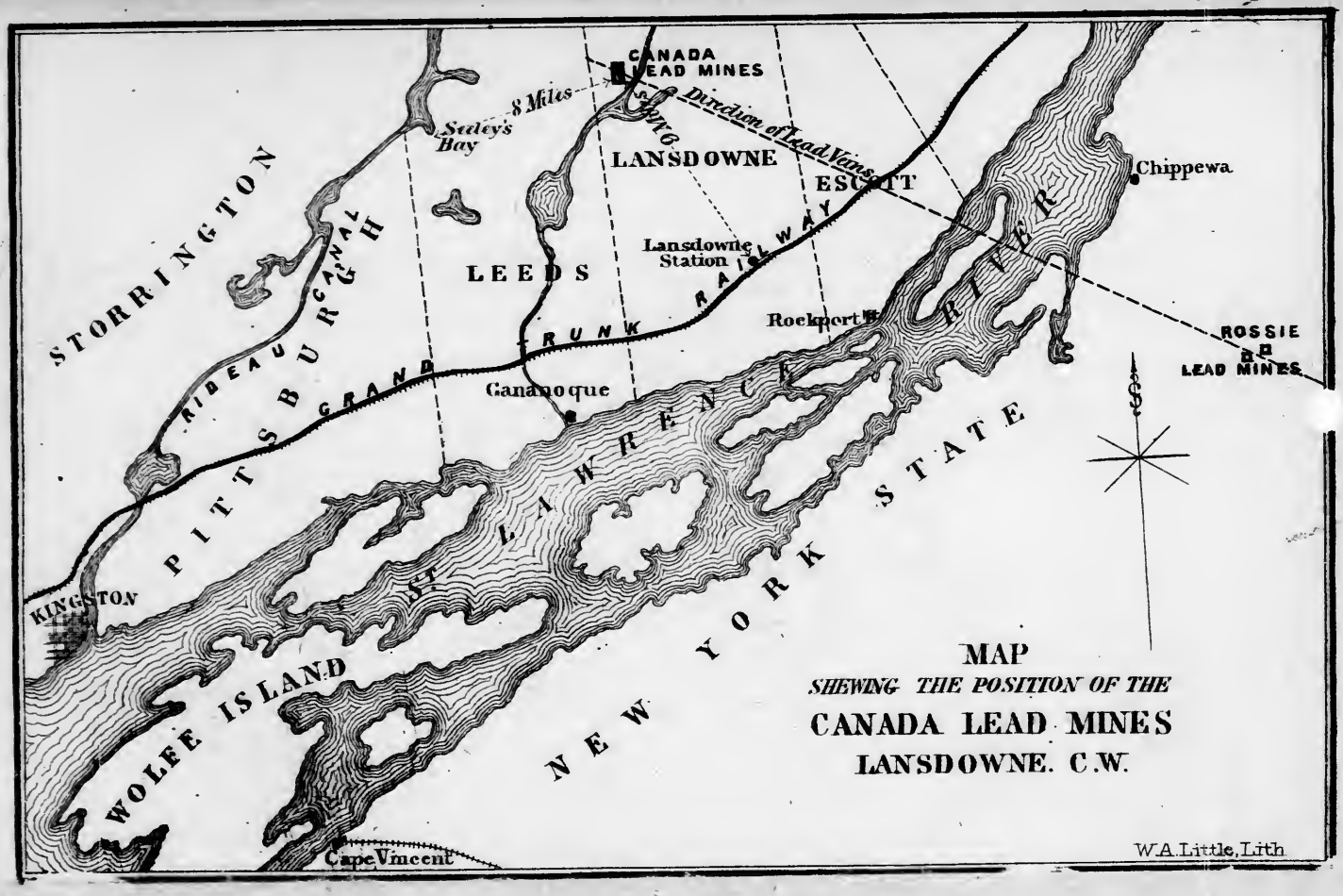
Your workmen, by making a visit to the Magoun lead mines and furnaces near Gouverneur, will be able to see what kind of works they will have to construct, and will learn more from such a visit than I could teach by many pages of description.

At the present price of lead the Leeds Lead Mines cannot fail to yield a handsome profit on a reasonable investment in working them, and I feel no hesitation in recommending immediate operations at the locality.

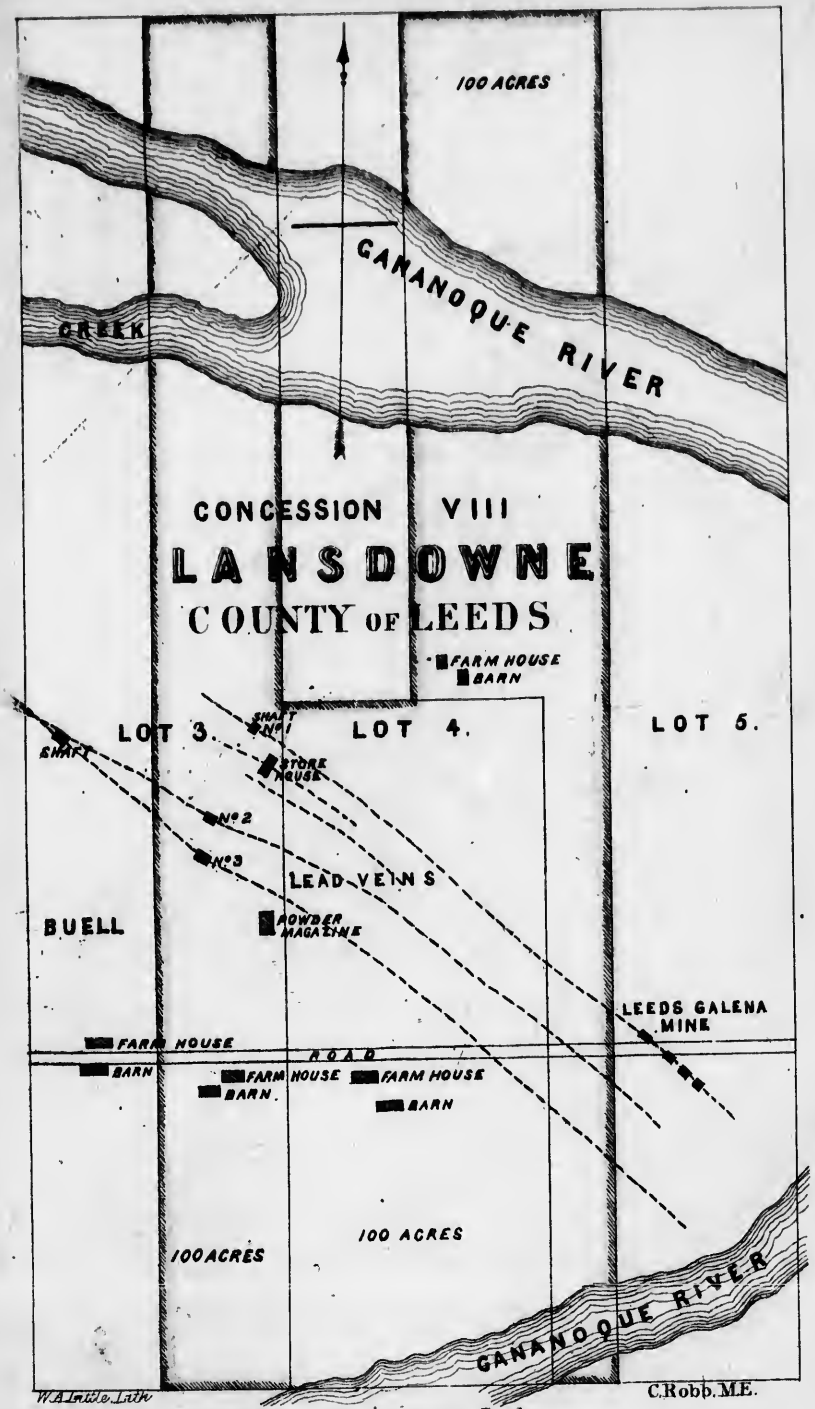
Respectfully, your obedient servant,

CHARLES T. JACKSON, M. D.,
Geologist and State Assayer.


Cape Vincent
W.A Little, Lith


CANADA LEAD MINES
8 Miles
Direction of Lead Veins
Seeley's Bay
LANSDOWNE
ESCOTT
Chippewa
STORRINGTON
RIDEAU CANAL
LEEDS
Lansdowne Station
GRAND TRUNK RAILWAY
Rockport
RIVER
ROSSIE
LEAD MINES
PITTSBURG
Gananoque
ST LAWRENCE
NEW YORK STATE
KINGSTON
WOLFE ISLAND
Cape Vincent
MAP
SHEWING THE POSITION OF THE
CANADA LEAD MINES
LANSDOWNE. C.W.
W.A. Little, Lith

PROPERTY OF THE
CANADA LEAD MINING COMPANY



Scale Fifteen Chains to an Inch