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# THE MINING REVIEW

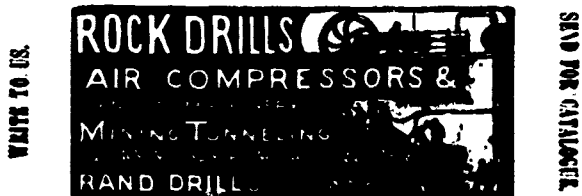
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Vol. VII.—No. 9.

1888.—OTTAWA, SEPTEMBER—1888.

Vol. VII.—No. 9

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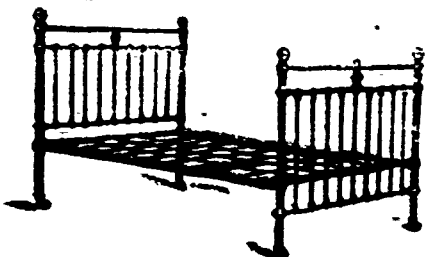
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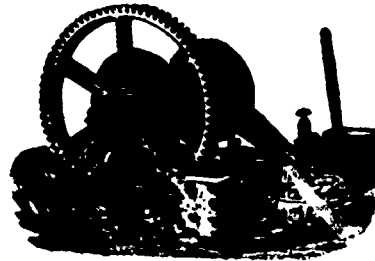
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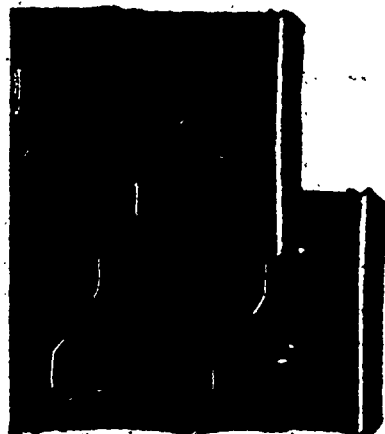
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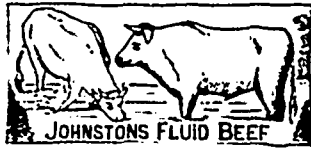
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Special attention given to Mining properties, having unusual facilities for disposing of same if really good. Shipper of Butter and Cheese to England; liberal advances made thereon. Money to loan on first mortgage or other property of any description. Valuable Copper Mine on hand for sale.

### Steel Manufacture in Nova Scotia.

Mr. J. H. Bartlett, M. E., (1) Montreal, sends the following description of the Nova Scotia Steel Works:—New Glasgow ranks among the most enterprising and progressive towns in the Maritime Provinces. It is situated at the head of navigation on the East River, which flows into Pictou Harbor. The famous Pictou coal mines are in the immediate vicinity, with all of which New Glasgow is connected by rail. The town is also connected with the Intercolonial Railway at Truro, by the Pictou Branch, with the Straits of Canso by Eastern Extension, and with Pictou by the Stellarton Pictou branch. With such an advantageous position and surrounded by a fine agricultural country, it is hardly a matter of surprise that New Glasgow is outstripping its sister town, Pictou, the shire town of the county. The principal iron works are at Trenton, about a mile below New Glasgow. Indeed the village of Trenton has grown up around the works since their establishment. The Nova Scotia Steel Works, which were established in 1882, have invested in them a paid-up capital of \$280,000, two-thirds of which stock is owned by citizens of New Glasgow. Some of the stock is also owned in Halifax, Pictou, Montreal and other places—Sir D. A. Smith being one of the Montreal shareholders. The works occupy about ten acres of land—the main building, 410 feet by 130 feet, covering over 80,000 feet. Extensions are being made to the buildings, which will cover 25,000 feet additional. Nearly two miles of railway track are in operation in and about the works, which will be largely increased by sidings not being laid down. The principal items of plant are the following: Two open-hearth steel-melting furnaces—one 15 and the other 20 tons capacity; five re-heating reverberatory furnaces; two re-heating Siemens gas furnaces. The machinery comprises one 26-inch cogging mill, fully equipped with live rolls, hot billet shears, etc.; a 22 inch sheet mill; a 17-inch nail-plate mill—these are driven by a pair of compound condensing engines of twelve hundred horse-power; a 16-inch bar mill; a 9-inch merchants' bar mill—these are driven by a high pressure engine of 800 horse-power; plate and cropping shears; one steam travelling crane of 10 tons capacity; a number of steam hammers—in all, there are 40 steam

cylinders in operation in the works from the 30 inch cogging mill engines down to 6-inch cylinders; one heavy roll turning lathe, driven by an independent engine. In the steel spring tempering department are heating and annealing furnaces, drop hammers and all other plant necessary for the rapid production, in large quantities, of springs and teeth for agricultural implements. In another department are the necessary shears and punches for the production, on a large scale, of railway fish plates, both bar and angle; tie plates, plow plates, etc. In the machine shop are all the usual and necessary plant for such an establishment, such as planers, lathes, drills, etc. The product of the works consists largely of steel for agricultural implements, together with the usual sizes of merchants' steel, in rounds, flats and squares, with angles and special sections. A large quantity of spring steel is also made. Rivet steel, of specially low carbon, is also manufactured, besides tramway and pit rails; nail and plough plate, and large quantities of "sections." The works are well supplied with water, the New Glasgow system having been extended to Trenton. Being situated, as already stated, on the Pictou Branch Railway, and along side the East River, the company has excellent facilities for shipment of products, both by rail and water. The bulk of the output, however, passes over the I. C. R. for consumption in the Upper Provinces. In 1884 the shipments from the establishment were only 2,270 tons; last year, 1887, they amounted to about 6,000 tons, and when the plant now being put in is completed, the works will have a capacity of 12,000 tons, and no difficulty is anticipated in disposing of the increased production. Gold and silver medals are held by the company from Dominion exhibitions. At the present time there are 225 men on the pay list, and the monthly pay is about \$3,000. The number of men will be increased to 300 when the additions to the works are completed. The company are paying dividends, both on its original and preferential stock. Its success is due largely to the fact that the directors are hard-headed, practical business men, while the managing director has a practical knowledge of the requirements of such an establishment, and gives close personal supervision to all departments of the work.

### Nova Scotia Collieries.

From a report printed by the Department of State at Washington, giving colliery statistics of Nova Scotia, for 1887, we obtain the following facts: Number of collieries 19; of this total, 3 belong to the Cumberland Company; 4 to the Pictou Company, 11 to the Cape Breton Company and one to the Inverness Company. At all the collieries there were employed above ground 1,885 skilled laborers, 680 laborers and 586 boys, the total number of labor days being 733,824, which is equal to 233 days worked by each employe during the year. There were employed above ground, 372 skilled laborers, 635 laborers, and 154 boys, the total number of working days being 304,820, or 262 days for each employe. There were employed in construction, 81 skilled laborers, 11 laborers and 3 boys, the average number of days worked by each being 245. The total number of persons employed underground, above ground and in construction, was 4,367. The average number of tons produced per cutter, ranged from 162 to 1,186. The average number of tons per day during the year, by each colliery, ranged from 27 tons to 1,622 tons. The number of days each pit was worked, ranged from 106 days to 296.

# The Canadian Mining Review

CONDUCTED BY . . . . . B. T. A. BELL.

OFFICES:

UNION CHAMBERS, 14 Metcalfe St.  
OTTAWA.

Vol. VI. SEPTEMBER, 1888. No. 9.

## Judge Burbidge's Verdict in the Frase Case.

The lands, the expropriation of which gives rise to the present claim, are situated in the Township of Portland, in the County of Ottawa and Province of Quebec.

They consist of three portions of lot number eight in the first range of the said township, and were required by the Crown for certain public works in course of construction on the River du Lièvre.

One parcel containing eleven one hundredths of an acre was situated on the south bank of the said river, and formed part of the south half of said lot number eight.

A second parcel containing 5.03 acres was situated on the north bank of said river, and also formed part of the south half of said lot.

The third parcel containing 14.43 acres, and adjoining the parcel last mentioned, formed part of the north half of said lot.

I shall refer to these several parcels in the order named by the letters A, B, and C respectively.

The plan and description, by the depositing of which the Crown acquired title to these parcels, were deposited in the office of the Registrar of Deeds for the County of Ottawa on the first day of August, 1887. By a notice dated December 9th, 1887, and filed with the registrar of this court on the 5th day of January, 1888, the Minister of Public Works notified such registrar of his readiness to pay to the persons entitled the sum of two thousand two hundred dollars, which in his opinion was sufficient compensation. The notice required by the Expropriation Act having been duly published, Alexander Fraser filed a claim to the compensation money, alleging that he acquired title to the said lands by deed on or about the first day of February, 1888, and that the amount offered by the minister was insufficient, and claiming forty thousand dollars. By the statement in defence the Attorney General denied that the claimant acquired title to the said lands on or about the first day of February, 1888, and alleged that he was not entitled to such compensation money.

To this the claimant replied that by virtue of the deed mentioned he was entitled to any compensation money which might be found to be payable to the person from whom he purchased the said lands, and issue was joined thereon.

On the trial claimant put in evidence: (a) A deed of parcels, "A," "B" and "C," from Donald McMillan, Angus McMillan and others to the claimant, bearing date February 1st, 1888, and registered on the 8th day of the same month. (b) A deed dated June 10th, 1865, and registered April 2nd, 1887, from Duncan McMillan to Angus McMillan.

The description of the several parcels mentioned in the deed from Donald McMillan and others to the claimant, corresponded exactly with that used in the plan and description deposited by the Minister of Public Works in the registry office on the first of August, 1887.

The land mentioned in the deed of 1865, from Donald McMillan to Angus McMillan, is described as being the eastern half of lot number

eight in the first concession of Portland. This deed was made, subject to certain charges, for the benefit and support of the grantor and his wife. In his evidence Angus McMillan states that his father, Donald McMillan, was possessed of said lot number eight for some twenty-two years before 1885, and that since that date he (Angus) had under his deed, aforesaid, been in possession of that portion of the lot which was north of the river, including parcels "B" and "C," the description in the deed being alleged to be an error. He also stated, the portion of lot eight, which included parcel "A," had been in the possession of his brother, Duncan McMillan, one of the parties to the deed to the claimants, for some twenty-seven years, being previously thereto in possession of their father.

At the conclusion of the claimant's case, I was of opinion that he had never acquired title to the lands in question, and that the deed to him from Donald McMillan and others was not an assignment of the compensation money due from the Crown, even if as against the Crown such compensation money could be effectually assigned. It was, however, perfectly clear, from the evidence, that the McMillans intended that the claimant should, as against the Crown, stand in their stead, except so far as the question of costs was concerned. It became unnecessary, however, to come to any conclusion on the questions as to whether or not the claim could have been and had been assigned, as, on motion of counsel for the claimant, I made an order to add the McMillans as parties, and this being done, the latter appeared and agreed to be bound by the proceedings taken, and consented that any moneys awarded herein should be paid to the claimant, Fraser.

With reference to the compensation, it will be seen from the evidence that the property, part of which was expropriated, was used as a farm and as a stopping place for travellers.

It is clear, too, I think, that apart from this the property on August 1st, 1887, had an additional value by reason of the indications of phosphate therein.

With reference to the value to the owner of the portions expropriated, apart from the chance of phosphate being found therein in paying quantities, the witnesses did not in their estimates thereof differ more than is usual in such cases. Angus McMillan, for the claimant, places their value at \$4,900.00, and for the defendant McNaughton, Brazeau and Woods at \$3,000.00, and Holland and Carroll at \$2,000.00.

With reference to their value for mining purposes, the estimates made by the witnesses, as was natural, differed more widely. Angus McMillan gives an unsatisfactory account of an offer of \$3,000.00 for the mineral rights in the property, and a more unsatisfactory account of a refusal of \$10,000.00 for the same. The general result of the evidence given by Stanislaus Franchot, is that on August 1st, 1887, the property expropriated might be considered to have been fairly worth \$10,000.00 for mining purposes. Robert Henwood, who did not see the property until February, 1883, and after the contractor for the Government had made excavations on the bank of the river at the place where the vein of phosphate was exposed, valued the property from \$20,000.00 to \$40,000.00. Mr. Henwood stated that while he could not put a value on the property as of August 1st, 1887, he estimated such value at \$10,000.00.

For the Crown it was shown that the vein of phosphate, the existence of which gave value to the property, had been partially but unsuccessful-

fully developed, and had been abandoned. Archibald McNaughton who, although called by the claimant, is, so far as this part of his evidence is concerned; to be treated as a witness for the defence, stated that he would not have given \$1,000.00 for the mineral rights in the property. Andrew Holland testified that he would not have risked more than \$5,000.00 therein, while Brazeau says that if he had owned the property he would have sold the portions expropriated for \$6,000.00, but would not have given that sum for them.

Apart from this we have the fact that the McMillans sold to the claimant for \$6,000.00. It might happen that one would accept evidence of this kind with suspicion, but in this case there is nothing to lead one to suspect that the sale was a pretended one, and made for the purpose of giving a value to the property.

Mr. Hogg, for the Crown, contended that as the claimant on his own case was not entitled to recover against the Crown, and as the McMillans did not file any claim, it was not open for them to attack the sufficiency of the amount offered by the Minister. It is possible that I did not give sufficient weight to this consideration in making the order to add parties, but having made that order, I think it was open to the claimants or any of them, to question such sufficiency. Looking again at the evidence, I think that Franchot's experience entitles his views to very careful consideration. It is to be borne in mind, however, that the value to the owners on August 1st, 1887, of the mineral rights in the properties expropriated was (as it still is) speculation and that it depended upon what was then known in respect to them. For the purpose, therefore, of fixing such values, the opinions of such witnesses as McNaughton, Holland and Brazeau, who had known the property, and who had had some experience, though not as great, or exactly of the same kind as Franchot's, are also to be carefully weighed. On the side, too, of their lower estimates, is the sale by the McMillans to Fraser, as well as the facts that this property was on the line of travel, that the indications of phosphates, such as they were, were readily observable at a short distance from the house, which was used as a stopping place, and that apart from the abortive attempt of Garrett & Roberts to develop the mine, there was evidence of no more substantial negotiations for the sale of such mineral rights than the alleged transaction with the stranger Barker.

On the whole evidence I think that \$6,000 is the maximum sum at which I would be justified in assessing the compensation moneys. If Fraser's purchase had been one in the ordinary way of business, either for the purpose of developing the mine, or for speculation therein as a mining property, and not an attempt to speculate in a claim against the Crown, I would have had less hesitation on this point. I assess the compensation money to be paid in this matter at \$6,000, to which will be added interest from August 1st, 1887. Each party will pay his own costs.

## The Sudbury Copper Mines.

The following evidence, given by Dr. Peters, of the Canada Copper Company, before the Ontario Mining Commission, contains some interesting information regarding the working of these mines. We reproduce it from the *Globe* :—

The ore throughout the country is uniform as far as I have seen. Whether it would pay for copper alone would be a toss-up. If coke could be got at \$6 a ton, a reasonable dividend

might be paid under good management. Mining would cost \$2 a ton, breaking 30 cents, calcining 50 cents, and smelting into matte \$2.50—that is, assuming a large quantity to be treated. A ton of matte containing 25 per cent copper would be worth \$40 to \$45 in the United States market; that is, taking into account the duty, but not the transport. If we were smelting for copper we would use ore with a higher percentage of that metal. The present price of nickel is 65 cents a pound, which I consider to be rather high; if it was 25 to 30 cents much more of it would be used. The present consumption is about 1000 tons annually, and that is principally used for plating. I think we might sell it with a handsome profit at 25 to 30 cents. I think there is an ample supply of ore here.

It is a hard country to prospect, as the rocks do not crop out well. If this was in the United States thousands of prospectors would be here on the strength of what has been already done. There seems to be some connection between the deposits in this section, but I do not think they could be called fissure veins. I would describe them as forming a mineralized belt, with the minerals concentrated at certain points. I think the Canada Copper Company have sufficient stock of ore on hand to represent every dollar they have expended here, and to build the smelting works besides. Of course, that is only an opinion, but it is based on pretty good evidence.

Dr. Peters said openings have been made in the Stobie, Evans and Copper Cliff mines, as well as at four or five other places to prove veins. At the Copper Cliff mine some \$25,000 or \$30,000 have been expended. We have sunk down about 350 feet on the vein, and drifts have been run at right angles to the shaft some 600 feet, besides which a great deal of surface clearing has been done. On the Evans vein the shaft has been sunk to a depth of 85 feet. At the Stobie mine two tunnels, 30 or 40 feet, have been run in, and a considerable quantity of ore has been quarried. There is at this mine a three-drill compressor, a large stone-breaker, the necessary pumps, etc. At the Copper Cliff we have a six-drill compressor, a large hoisting engine, a rock-breaker, a rock-house for separating ore, several pumps, and all necessary machinery. As regards the Evans mine, a three-drill compressor will be set up in about a week, also a breaker, which is on its way, and there will be erected a very large rock-house.

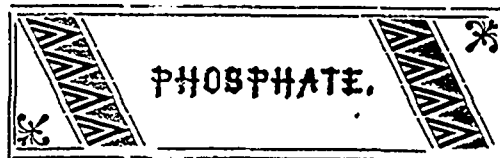
The company have not yet attempted to treat the ores, but about 3,000 tons have been shipped for treatment elsewhere. It smelts easily, but the combination of nickel and copper has not been met with before in such quantities as to require separation in a wholesale way. The only other mine of the kind in America is the "Gap" mine, of Pennsylvania, and there they use the old European way of dissolving in acids, which would never do for our works.

The process I approve of for treatment of our copper ores is the old German blast-furnace method, modified to suit American conditions. You first sort the ore, break it to the proper size, pile it upon wood in large heaps, and then set fire to the wood. It burns for two or three months, sending forth the sulphurous acid gas till about three-fourths of the sulphur is gone. The ore that originally carried 35 or 40 per cent should come out with 4 or 5 per cent. The iron is changed into oxide of iron, and is just like common iron ore, having lost its sulphur and taken up oxygen instead. The ore is then put into the blast furnace, treated on

the same principle as pig-iron, and the sulphur combines with the metallic constituents which form the matte.

The composition of the matte may be 30 per cent sulphur, 20 per cent nickel, and 20 to 25 per cent copper. Six tons of ore will produce one ton of matte. We are not yet in a position to say which of our mines is the most valuable, but as they now look I think the Evans promises to be better than any other. It carries about the same amount of nickel as the other mines, but the ore is more massive, and apparently there is a larger body of it. I think the Evans will show, taking an average of the whole mass, 3½ per cent nickel, 3 per cent copper, 40 per cent iron and 24 per cent sulphur, leaving say 30 per cent of rock. I consider the company justified in putting up large works, and have so advised them this spring. As a rule I only advise the erection of reducing-works when I see enough ore mined to pay their cost, and that is the case here. We shall have to get the matte refined elsewhere.

The sending of a large quantity of nickel matte into the States has never yet been tested, but Americans are so much more ready to alter their plant and undertake any new thing of the kind than Europeans that I think we shall be able to do better in the United States than anywhere else. In shipping to the States we have to pay duty on the metal that is of most value in the matte. Were the duty taken off it would of course be an advantage to that extent, unless the price falls and upsets the gain. I think we can dress a good deal of our ore to 20 per cent, and, speaking in the aggregate, I think it will show 2½ per cent nickel, and 3 per cent copper. I understand that before I came here three shipments were made, one of which went to England, two to the United States. The company did not realize one dollar a ton on the shipment to Swansea, the charges were so exorbitant there. The ore carried 12 per cent of copper, and the nickel in it was worth \$35 to the ton. But the smelters allowed nothing for the nickel, and on the thousand tons smelted there was a loss of \$35,000, a large quantity of which was shipped from the Copper Cliff. We figured up that the charge for smelting was \$50 a ton, whereas our eastern men only charge \$10 per ton.



Shipments.

The following are the Shipments from Montreal for month ending September 12th, 1888:—

Date.	Name of Vessel	Destination.	Shippers.	Quantity.
Aug. 21	Henry IV..	Bordeaux..	L. mer, Rich & Co	400

The very small quantity shipped is accounted for by the scarcity of phosphate tonnage from Montreal.

In General.

Mr. T. W. Hotchkiss, American Consul at Ottawa, has kindly furnished us with the following particulars relative to the value of phosphates shipped from the Ottawa district to different points in the United States. The quantities were all ground phosphate.

Phosphates exported for fiscal year ending 30th June:—

1884.....	Nil.
1885.....	\$775
1886.....	\$1,106
1887.....	\$5,467
1888.....	\$6,913

Perth District.

The Anglo-Canadian Co. are doing well with contract work at the Otty Lake Mines, North Burgess, and the Bobb's Lake Mines, Bedford, Ontario. At the latter, during the past month, 11 men and two boys mined, cobbled, and piled ready for market 150 tons of high quality phosphate, this mine being peculiarly rich in crystals. At Otty Lake 13 men mined 74 tons, this being about the average output of our best mines—six tons per month per man. Work was begun also for this company at their Lake Tassie Mines in the Gore of Templeton, and they are endeavouring to procure more men to take out phosphate there by contract.

Freights.

Owing to the rise in ocean freights and the diversion of tonnage from the St. Lawrence to Atlantic ports, where higher rates prevail, there is a scarcity of phosphate tonnage from Montreal. Twelve shillings and sixpence is asked for London, and the supply of room is very limited. There is a good deal of phosphate yet to go forward to fill contracts, besides some that is as yet unsold.

Markets.

Freights from Charleston have advanced considerably, and Carolina phosphate, which has been sold in England at 6½d. per unit, is now worth 9d. there. This occasions more demand for Canadian low grade phosphates, and considerable quantities of sixty to seventy per cent. might be sold. In the past few years the demand has been almost wholly for eighty per cent. Canadian, and our mines have been carefully selecting their ores and keeping up the quality, so that the supply of the lower grades is limited. The price at the main English ports is 8½d per unit for 70 per cent., with ½d per unit rise. For outports ½d more could be had. The price for 80 per cent. phosphate is nominal at 11d. and 11½d. per unit, as there have been no transactions in this grade lately. The French phosphate from the Somme district continue to be largely used in England in preference to all others, and as they analyse from 70 to 75 per cent., they are formidable competitors with Canadian, especially as they are softer, and are sold in a condition that requires, as a rule, no further grinding. It is believed, however, that the supply is limited, and that in two years, if the present rate of production is continued, it will be exhausted. The demand from the United States for Canadian phosphate is steadily increasing, and that market promises to furnish an important outlet for the production in the future.

Kingston District.

The present depth of the shaft at the Foxton mine is 115 feet. The vein is from 8 to 15 feet wide and improves as increased depth is obtained.

Lievre District.

Since our last, 140 tons of ground phosphate have been shipped to Chicago by the Du Lievre Milling and Mining Company of Seabury.

The demand for ground phosphate is steadily increasing. The mills of the Du Lievre Company are kept very busy, and night gangs have

been put on in order to work the mill, night and day, to its fullest capacity. We understand that the management have in contemplation the trial of a new grinder which promises to double the output. The management, we are glad to say, have a large number of orders on hand, and the new machinery, it is thought, will barely meet the demand for their ground phosphate, which seems to be growing in a most encouraging manner.

At High Rock the management have struck one of the richest shows ever found at these productive mines. Ninety tons of high grade ore were mined recently in one day.

The Canadian Company's Mines also never looked better. A fine show has been uncovered at the Dugway, and a very rich vein, 17 yards long by 4 yards wide, has recently been opened up, and gives promise of an abundant output of firsts. The new wire rope tramway has been completed and is giving satisfaction. The steamer River Belle has been refitted with new boilers, etc.

Captain J. E. Smith, for the past six years general superintendent of the old Union Co.'s mines, and later of the Canadian Company, has resigned his position, and will in future reside in the States. The familiar figure of the genial Captain will be missed on the river.

At North Star Mines there is a good force at work and large quantities of phosphate are being shipped.

We are glad to note an improvement in the quantity of output from the Emerald.

Mr. W. C. Kendall, of Bassin du Lievre, is reported to have opened up some exceedingly promising shows on his lots up the river.



We shall be greatly obliged to mine owners and superintendents for such authentic reports of their operations as may concern shareholders and the public.

**Nova Scotia.**

The following are the official returns so far received at the Mines Office for the month of August:—

District.	Mill.	Tons Crushed.	Ozs. Gold.
Sherbrooke	Miners	200	43½
Rawdon	United M. Co.	65	28
Stormont	Island G. M. Co.	252	29½
Wine Harbor	Napier	68	42½
Lake Catla	Oxford G. M. Co.	173	200½
Salmon River	Dufferin	390	252
Uniacke	Nieholls	106	15
Millispigat	Owens	3	4
Moose River	D. Touquoy	351½	59½
Cariboo	Lake Lode M. Co.	99	102
South Uniacke	Withrow	35	35½

Mr. E. Gilpin, Jr., Inspector of Mines, writes us as follows: "Our gold mining has not been very brisk this summer, but as several mines are approaching completion, I am in hopes that the returns will be increased before the fall."

The Northup Mines, at Rawdon, has had its plate crushing and the returns show about three ounces to the ton.

At South Uniacke a new crusher is approaching completion.

At the Malaga District, Queen's County, the Malaga Mining Co. have started their new mill, and it is confidently expected that this locality will replace Sherbrooke, which was the leading district for many years. The Provincial Government have given a large sum to assist in placing Malaga mining within easy reach of the seaboard by building a short-cut road.

At Lochaber, on the Sheet Harbor waters, an English company, represented by the manager of the Halifax Cotton Factory, has contracted for the immediate delivering of a 20-stamp mill.

No new discoveries of gold are reported, the unusually wet weather having kept the prospectors out of the woods.

Further explorations in the Pictou Iron Districts have shown a 15 foot bed of red hematite in an area belonging to Mr. S. H. Holmes, of Halifax.

The red hematite property owned by Messrs. Greener & Ingraham is being opened up to permit shipments of some trial cargoes. The ore is reported to be high in iron and low in phosphorus, and as being admirably adapted for the American market.

The gold mines of Nova Scotia continue to show fair yields, the returns from seven mines for the month of August giving 567 ounces of gold from about 1,280 tons of quartz rock put through the crushers. Some new mines have recently been discovered, and it is expected the output of the present year will show an increased activity in this branch of mining.

**New Brunswick.**

The Grand Lake Coal Company has been organized, with a capital stock of \$200,000; shares \$100 each. The chief place of business is to be Chipman, Queen's County. The incorporators are Dr. Louis G. DeBertram, of New York, John P. Ilsey, of Philadelphia, engineer; Thomas M. Williamson, of Buctouche, Kent County, civil engineer; Edward W. Clark, Jr., Edward E. Denniston, C. Ford Stevens, all bankers of Philadelphia.

**Quebec.**

Large specimens, some of them weighing 9 ounces, have been brought in from the McArthur gold property at Beauce.

The first meeting of the shareholders of Bell's Asbestos Company was held on Wednesday afternoon, 15th ult., at the Cannon-street Hotel, London, under the presidency of Mr. John Bell. The chairman said the company had completed the transactions for acquiring the asbestos mines in Canada, and they had now possession of one-third of the world's supply of the kind of asbestos known as Bell's asbestos, which was capable of being woven or spun into a material like flax. The company had already 15,000 customers among the general public on their books, and the material they traded with was of such a unique and important character that its use would sure to be soon applied to purposes at present unknown. The trade is expanding day by day, and he looked forward to the time when the use of this fibre, which is a fibre unique in every part of the world, unconsumable and incorruptible, will extend to a variety of pur-

poses that are unknown now; and whatever may be the good or evil fortune of their ordinary trade as manufacturers, the corporation was rapidly approaching the time when the produce of these mines will themselves constitute a permanent and splendid dividend on the capital of the corporation. A meeting would be held at the close of the year for the presentation of accounts and the declaration of a dividend.

So pleased were the shareholders with their interim dividend of 7s. 6d. per share, and the encouraging statement that the chairman was able to lay before them, that not a single question was asked. It should be borne in mind that this dividend of 7s. 6d. per share, or at the rate of 15 per cent. per annum, does not include any of the Canadian profits, which will come into the second half-year, and there seems, therefore, every probability that future dividends will be at a higher rate, for the company, as stated at the meeting, can now take front rank not only as manufacturers, but also as producers of the raw material. Mr. John Bell is a gentleman most thoroughly versed in the subject of asbestos and its uses, and was the first to spin it into yarn for weaving into cloth. The various specimens of crude and manufactured asbestos exhibited at the meeting were examined with much interest by the shareholders.

Mr. John Bell, President of the Company, has, since the meeting, arrived in Canada, and is at present visiting the company's properties in the eastern townships. Dr. James Reed, of Reedsdale, accompanied Mr. Bell on his tour through the mining districts.

There are stirring times at the Graphite City Plumbago mines near Buckingham; some twenty men are employed in rebuilding the mills, etc., under the superintendence of Mr. W. C. Kendall. A substantial new stone-built engine-house, 45 by 25, is also being built. The whole of the buildings are to be put in first-class condition. The tramway to mines is also to be rebuilt, and will be ready for next season's business. The most improved machinery will be used in crushing the material, which can be done at a much less cost now than with the old style of battering rams, formerly in use but now out of date.

**Ontario.**

The new terra cotta works being built at Deseronto by the Rathbun Company will be the largest in Canada. The main building is 252 feet in length and 77 feet wide. The south-east extension is 180x40 feet, with three storeys, and is chiefly used for drying purposes. The south wing is 170x96 feet, three storeys high. Part of its ground floor is fitted up with hot-air tunnels for drying red brick; the other floors are used for drying terra cotta ware. In the south wing the different floors give an area of 38,760 feet for drying purposes, and this, added to the 21,600 feet in the main building, gives a total area for drying purposes of 60,360 feet. A large trestle runs through the entire length of the main building, on which run the railway cars carrying in clay and fuel for the works. The new burning kiln has been finished, and will contain about 80,000 bricks. A track runs south of the large burning kiln for convenience in loading cars for shipment of material.

The grading of the line of the Pontiac & Renfrew Railway, which is being built with the special object of tapping the Bristol Iron Mines, will be completed, ready for the rails, by the end of the present month.



The Craig Gold Mine, in Tudor, has been bonded to Toronto parties for six months. This is a good property. The vein is about seven feet wide, and has been traced for a distance of about 800 feet. Assays made in Toronto and New York have given \$25 and \$13 in gold respectively.

Some parties have purchased the tailings of the Consolidated Company and are now washing and amalgamating them and are doing well.

The natural gas well at Thorold has now reached a depth of 320 feet. Work is very much retarded by water. Casing is now being put in to obviate this difficulty. The drill has struck, in addition to rock, the strata of salt; and at the depth of 230 feet a layer of apparently good soft coal twelve inches in thickness.

Gold is reported to have been found on lots 25 and 26 in the fourth concession of Stourington.

#### Sudbury District.

The Canada Copper Company have now six piles of copper ore burning, four of 250 to 300 tons, and two of 450 tons to 500 tons. Forty of the sixty-five feet of chimney is built, foundations for boiler and engines are ready, and everything points to rapid completion, and a start at smelting before winter. The Jenckes, Machine Co., of Sherbrooke, Que., are building the water jacket smelting cupola, which will be sent up here in sections. In mining, the management report an output last month of 3,000 tons of good smelting ore. The Copper Cliff has a depth of 385 feet on the dip, and a total length of drifts and cross-cuts of over 800 feet.

The Evans has a shaft 80 feet deep, at the bottom of which they have completed 30 feet of drifting. All this, shaft and drift is in good solid ore. In addition to this they have 100 feet face of good ore for quarrying.

At the Stobie the owners are still quarrying in ore, of which they have an enormous body.

Your correspondent has before mentioned the Ducharme property, in Blezard, to the north of the Stobie. The owner is at work with two men at present, and is making an open cut into the hill from the lowest point. This should, if appearances are not deceptive, soon show up a large body of good mixed sulphides.

The directors of the Vermillion Mining Company held a meeting at their property on the fourth of the month. A. J. Duncan resigned his position as manager, but still assumes control of affairs pending his replacement.

Mr. Jas Stobie recently sold a property on the Vermillion River, in Creighton, to Buffalo parties. The ore is a pyritous one, carrying good value in gold and silver, and will be worked to its best advantage.

#### Port Arthur District.

Great activity exists among prospectors and investors, and likely properties are being bonded with a view to development, but no marked improvement can take place in the mining region until operations on the railway to the mines are resumed. While it costs \$2.50 a hundred to take supplies and outfit into the silver properties west of Silver Mountain, none but the very richest silver outcroppings will be worked, and these only in a superficial manner, until the roads enables heavy machinery to be brought in.

The pumping and hoisting machinery for the Silver Mountain West End Mine is now on its way out, and when in place good progress will be made on this most attractive property. The principal shaft is being sunk in a point where the vein is about sixteen feet wide.

The East End Mine vein still holds out over six feet wide with abundance of metal, especially on the lower workings to the east.

Crown Point Mine still keeps a good showing.

The Beaver Mine has lately produced some very fine ore from the lowest levels, and is encouraging the management to look for another big haul.

The Badger still keeps the lead with surpassingly rich ore. The vein is still but valuable.

The Elgin Mine is under the control of Capt. Hooper, Superintendent of the Beaver Mine, who is putting matters here in a business shape, with a view of giving the property a good test.

The Silver Fox (264 T) is still progressing very slowly—the erection of the necessary buildings requiring most of the attention.

Negotiations for the sale of the Atik Lake and Silver Glance (R 230) locations still continue. The owners feel they have a good thing and are willing to wait for a railway if a reasonable cash offer is not forthcoming.

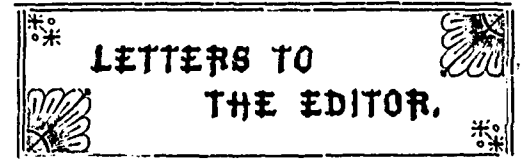
Development in the Bl. y lead mines is being pushed with good results, and the output of building stone (sandstone) from Nipigon Bay to Chicago is continually increasing.

The lands of the Silver Islet Consolidated Mining and Lands Company, which were sold by order of the Supreme Court of New York at public auction, in New York, on the 19th inst., were purchased by Mr. J. B. Anderson, of the American Exchange, National Bank, for \$5,000. Mr. Anderson refuses to state for what purpose this property, which is extensive, has been purchased. It is probable that he is simply the representative of parties who wish to conceal their identity.

#### British Columbia.

The Nanaimo Free Press reports that Messrs. Wm. Free, Geo. Tippet, Alex. Easson and Richard Prouse returned on Thursday last from Texada Island, where they had discovered valuable ledges of silver, copper, and iron ore. The discoverers brought with them several bags of specimens, rich and beautiful in appearance. The ledges are situated on the Nanaimo side of Texada Island, and a mile north of the Texada Iron Mine, now being worked by the Irondale Smelting Works Company, of Puget Sound. Several different ledges were discovered and prospected for a distance of over a mile, with every indication of extending for miles further; in fact, the discoverers are of the opinion that the upper end of the island is a mass of minerals. The ledges will pay from the surface, and they are but a few yards from deep water, where large vessels can lay and take in cargoes of ore, at the lowest possible expense. The discoverers have already recorded ten claims of the size allowed by law. Specimens of this ore have been sent to San Francisco for assay, and the returns are of the most favourable character. Some of the ore

was also sent to the Government Assay Office, but no returns have yet been received. Local experts pronounce the samples rich, one large piece being almost pure copper.



We invite Correspondence upon matters consistent with the character of the REVIEW. Be as brief as possible. The writers name in all cases required as a proof of good faith. One dozen copies of the issue containing his communication will be mailed free to any correspondent on request. We do not hold ourselves in any way responsible for the opinions expressed in this section of the REVIEW.

#### Our Mineral Resources.

TORONTO, 12th September, 1888.

The Editor

THE CANADIAN MINING REVIEW:

SIR,—A letter from Mr. Samuel D. Mills, in the last number of THE REVIEW, mentioning the ignorance of Canadians of their own mineral resources, suggests a few remarks. Such ignorance is unfortunately too prevalent. There are probably not a dozen people in Toronto who know anything about the iron ores which are found within 150 miles of their city, or who take any interest in them. Within the last fortnight I have received a letter from the General Manager of "The Cambria Iron Co.," in which he says: "Enclosed are analyses of the two qualities of ore you sent me. They are both first-class ores for making Bessemer metal or fine steel. They are unusually low in phosphorus and very high in iron, being:

No.	Metallic iron.	Phosphorus	Sulphur.	Silica.
No. 1.	68.55	0.003	Traces	1.96
" 2.	69.99	0.012	"	3.10"

These ores come from a large deposit not much more than 100 miles from Toronto, from which several hundred tons a day could be easily mined.

An analysis by Professor Chapman of another ore about 125 miles from Toronto gave iron 63.68, sulphur 0.03, phosphorus trace.

An analysis made by "The Bethlehem Iron Co." of ore from the Paxton mine in Lutterworth Township, less than 110 miles from Toronto, shows 60 per cent. iron, very low in phosphorus, and no sulphur, the chemist remarking, "This is an excellent Bessemer ore."

Prof. Chapman makes two analyses of different ores from Township of Galway, about 110 miles from Toronto, viz.:

No.	Metallic iron.	Phosphorus.	Sulphur.
No. 1.	62.87	0.01	Slightest trace
" 2.	62.60	0.008	Slight trace

Two analyses of other Galway ores made by Messrs. Heys and Rice gave:

No.	Metallic iron.	Phosphorus.	Sulphur.
No. 1.	65	0.04	0.02
" 2.	70.40	Trace	Trace

There is no Titanium in any of these ores. The railway freight to Toronto should not exceed 60 or 70 cents per ton, and the mining of these ores should not exceed \$1.50 per ton, so that the cost laid down in Toronto should be less than \$2.25 per ton, or much less than half what similar ores cost in Chicago.

Yet Chicago is one of the largest iron and steel manufacturing centres in the States, while not a ton is smelted in Toronto.

I can show samples of over 40 magnetites and about 25 hematites, all from different deposits in Canada, received within the last year, so that our country is remarkably rich in the extent and variety of its iron ores. All that is wanting is the enterprise to mine and ship them to market.

Yours, etc.,

T. D. LEDYARD.

**The Coalfields of Cape Breton.**

By E. Gilpin, Jr., F.G.S., F.R.S.C., Inspector of Mines.

(Continued from August issue)

Had the uplifted edges of the older rocks been straight, like a ruler, the coal-bearing strata would have dipped uniformly away from them, and remained parallel throughout the district. But nature abhors a straight line, devoid of beauty save to the mathematician. Owing to underlying spurs of the older strata projecting beneath the coal measures the uplifting of the former produced transverse subordinate tilting in addition to the general or continental inclination to the east. The effect of this has been to throw the seams into a series of curves, having the ocean as a secant. Taking the coal seams of the Sydney district as they are met at Cape Dauphin they are seen ridged up against the Syenite of the Cape, then lessening in the steepness of their dip they range across the Big and Little Bras d'Or to Sydney Harbor, where their inclination is about four degrees. As they cross the harbor they turn more to the north-east, and dip steeply until they turn again with the regular dip and run into the sea at Lingan. Emerging again they stretch in a regular curve for miles across Glace Bay Brook and Basin, and turning again toward the north-east with increasing dips enter the sea at the north head of Cow Bay. Hitherto the transverse subordinate foldings have not been marked enough to interrupt the continuity of the strata enclosing the coal beds, but here the upward movement has brought lower rocks to the surface, and there is an interval of rocks which do not hold coal seams.

In Cow Bay the same forces have formed another basin, called a synclinal, the seams dipping down on the Long Beach side and up again on the Gowrie side. But the axis or general inclination of the trough is still to the eastward.

Finally, the seams of the Cow Bay district, after crossing the narrow strip of land forming the north side of Mira Bay, pass under the Atlantic and are lost beyond the three mile limit.

Speculation as to the original extent of this coal field is profitless, if interesting. But we do know that, reasoning from a fair basis of facts, we have now but a remnant of the great coal field of the Gulf of St. Lawrence. When we consider the fringes of coal fields, and of carboniferous strata which occur around Cape Breton, on the west side of Newfoundland, in the Magdalen Islands, and along the northern shores of Nova Scotia and New Brunswick, we can scarcely realize that over that great guif the forests of the Carboniferous once spread, amid the voiceless and sullen lagoons of the mysterious country.

Owing to sudden pressure or other causes, the movements of the coal-bearing strata are sometimes accompanied by breaks or faults. Often great blocks of strata, miles in extent, thousands of feet in depth, and weighing myriads of tons, have been raised out of the continuity of the coal field, so that the miner suddenly finds in front of him a wall of stone. His coal bed has vanished, cut off by the irresistible force of the great lever which is continually raising and depressing continents. Much trouble is often experienced in finding the lost bed of coal, which is sometimes moved many feet away. In the Cape Breton coal field the faults are few and of little moment,—a fact which not only reduces the risk and expense of mining, but encourages the capitalist and engineer in starting new pits. There are few coal fields of which it can be said, as in Cape

Breton, that any seam can be located at any point inside the boundaries of the coal district with a margin of error not exceeding a few feet.

The question has often been asked me, "are the seams of the Cow Bay, Sydney, and Glace Bay districts distinct, or are they the same seams interrupted by the sea as the flexures of the strata approach and leave the shore. The answer is that they are the same seams although somewhat changed in character and size as they range over some twenty-five miles of country. The seams are identified by the thickness of the masses of intervening strata, some peculiarity of roof or floor, etc., etc. The Geological Survey have tabulated the seams of the different districts, and as their conclusions do not appear to coincide with the opinions of any of the critics, it may be assumed that they are pretty near the mark. The question, however, is one of geological rather than of economic interest, as the coal seams all vary slightly in their quality at intervals of a few miles.

**Coal.**

Having outlined the distribution of the Carboniferous of Cape Breton as laid down on the excellent maps of Mr. Fletcher's reports to the Geological Survey, the next task is the consideration of the minerals characterizing it. The principle minerals are coal, gypsum, limestone, and iron ore. As the first named is the most important, I venture to dedicate this paper to its consideration, and propose to describe the remaining minerals, together with those found in the other geological horizons, at a future time. This will prove more convenient for reference, as several of them, notably the iron ores, are common to several ages. In this Island coal beds are found most abundantly in the productive measures, but there are important deposits in the millstone grit. There are also beds of coal in measures referable possibly to the upper coal measures, and in the Richmond district coal occurs apparently in conjunction with the marine limestone measures. Examples are not wanting in other countries of valuable deposits of coal in these divisions of the Carboniferous, but so far as our information goes we are not warranted in looking to them as important sources of this mineral in Cape Breton.

I have already alluded to the fact that it is difficult to draw with distinctness the line separating the productive from the millstone grit measures, and will therefore consider the coals without regard to their geological position, a factor little affecting their composition.

Speaking in general terms, the Cape Breton coals are bituminous and coking. Many of the seams yield large volumes of gas of good quality, provided that a reasonable care be exercised in screening and picking. For domestic purposes they have proved acceptable wherever offered, as they kindle readily and leave little ash. For house use public opinion has selected the Sydney mines' main seam as the typical coal of the Eastern district.

These coals have been largely used for marine and railway steam raising, and compare favorably with any foreign competitors. They may be ranked between the best Welsh and the best Newcastle steam coals, judging from analyses and the reports of practical tests on English and French men-of-war. The tests recorded appear to prove the contention that the evaporative power of a coal is in proportion to the total amount of carbon contained in it, and that the greater the gas value the less the amount of water it is capable of evaporating. It is to be regretted that a series of rigid tests

of the coals now worked could not be made by an impartial authority, as they would undoubtedly show that with proper handling their evaporative powers are surpassed by few coals now used for marine boilers.

For coke-making these coals are well adapted, as they yield, from practical tests, a fuel excellently suited for iron and copper smelting. The adoption of any cheap form of washing would free the coal from the admixed stone and pyrites, and present a coke superior to that of Durham and Connelsville.

In presenting the following set of analyses of Coals of the eastern district I have followed the tabulation of the Geological Survey, altho' it differs from that of several writers, and have not attempted the correlation of the Gardner, Carrol, and other seams found underlying those at present being worked.

Pursuant to this arrangement the Hub and Crandal seams are grouped together. Next in descending order comes the seam known locally as the Block House, Harbor, Victoria and the Sydney Mines worked by the Block House, Glace Bay, Victoria, and Sydney Collieries. Below this comes the most extensively worked seam of the district known as McAuley, Phelan, and Lingan and worked by the Gowrie, Ontario, Caledonia, Reserve, Bridgeport and Lingan mines. The next seam to be noticed is that known as the South Head, Ross and Collins. Below this comes the Gardner, Tracey, Carrol and other seams to be again referred to.

The Hub seam is not now worked. Altho' its land area is limited, it has an extensive submarine development. It was well adapted for gas making, and yielded 9,500 cubic feet of 15 candle gas per ton. The following analysis will serve to show its character.\*

Volatile matter.....	53.21
Fixed Carbon.....	65.94
Ash.....	2.85
	100 00

The following table shows the composition of the second seam:

	Block House.	Harbor.	International.	Victoria.	Sydney.
Moisture.....	.60	.80	.87	.75	1.26
Vol. Comb. matter, slow coking...	20.48	27.85	35.41	26.85	33.81
"    "    fast    "	31.58	29.40		32.13	35.51
Fixed Carbon, slow coking.....	65.56	67.05	58.56	68.13	60.78
"    "    fast    "	63.46	65.50		62.85	59.11
Ash.....	4.35	4.30	5.16	4.27	4.11
Sulphur.....	2.63	2.32	trace.	.....	1.70
Specific gravity.....	1.29	1.29	.....	.....	1.31

\*Analyst unknown. Unless otherwise specified, the analyses in this paper are by the writer.

†Analyst Professor Chapman.

The coals referred to above are generally laminated with a pitchy lustre, and carry a good deal of mineral charcoal on the deposition planes. The primary planes cut those out of deposition at high angles, but the secondary planes are not so regular. The primary planes usually hold films of carbonate of lime and iron, which is less frequently present in the secondary planes.

The gas values vary from 8,200 feet of 8-candle power at the Sydney Mines to 10,000 feet of 16.5-candle power at the Block House workings. The gas values of the seam apparently increasing towards the south, while the northern openings produce, as at the Victoria and Sydney mines, an article better adapted for steam and domestic purposes.

As few ultimate analyses have been made of Cape Breton coals, the following of the Block House seam made for the Admiralty (analyst unknown) is of interest:

Carbon.....	\$2.60
Hydrogen.....	4.79
Nitrogen.....	1.20
Oxygen.....	4.10
Sulphur.....	2.51
Ash.....	4.80

The following is the result of a trial of the Sydney coal made by the American Government in 1844, and, so far as the writer is aware, it is the only practical test ever made of the evaporative power of any Cape Breton coal:

Moisture.....	3.13
Volatile combustible matter.....	23.81
Fixed carbon.....	67.57
Ash.....	5.49

Lbs. of steam to one of coal from 212°.....	7.90
Ash and clinker—per cent.....	6.00
<sup>2</sup> Theoretical evaporative power.....	9.25

The following table shows the composition of the ashes of the above coals:

Block House, Harbor, Victoria, Sydney.				
Iron peroxide.....	45.621	63.355	56.543	51.33
Alumina.....	3.250	8.280	6.456	4.84
Insoluble silicious residue.....	35.116	21.872	27.500	29.57
Manganese.....	.....	1.930	.....	.....
Magnesia.....	1.100	.....	.035	.23
Lime.....	5.425	4.640	2.598	3.05
Sulphate of lime.....	.....	.....	.....	10.98
Sulphuric acid.....	6.750	2.126	3.790	.....
Phosphoric acid.....	1.960	.514	.691	trace.
Alkalies.....	trace.	trace.	.150	trace.
Chlorine.....	.....	trace.	.....	trace.
<hr/>				
	99.156	100.787	99.693	100.00

The coal of the third seam to be noticed as worked at the Gowrie Colliery is black with a grayish tinge. On fresh surfaces the lustre is bright and pitchy, with very fine laminae of jet-like coal, and a good deal of mineral charcoal on the deposition planes. This coal sometimes exhibits four cleavage planes, sometimes holding films of calc spar. Coal tolerably compact, with nearly black powder and little visible pyrites. This description answers for it throughout the district, except at the Reserve and Bridgeport mines it is more pitchy and lustrous.

(To be continued)

\*From Regnault's formula.  
†Analyst, H. How.  
‡In this and following analyses alkalies are estimated only when in quantity.



SEALED TENDERS, addressed to the undersigned, and endorsed "Tender for Penetanguishene Works," will be received at this office until FRIDAY, 19th October next, for the construction of work at Penetanguishene, Ontario, in accordance with a plan and specification to be seen at the Department of Public Works, Ottawa, and on application to H. H. Thompson, Esq., Mayor of Penetanguishene.

Tenders will not be considered unless made on the form supplied and signed with the actual signatures of tenderers.

An accepted bank cheque, payable to the order of the Minister of Public Works, equal to five per cent. of amount of tender, must accompany each tender. This cheque will be forfeited if the party decline the contract, or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By order, A. GOBEL, Secretary.

Department of Public Works,  
Ottawa, 13th Sept., 1888.



SEALED TENDERS, addressed to the undersigned, and endorsed "Tenders for Post Office at Brampton, Ont.," will be received at this office until Tuesday, 5th October, for the several works required in the erection of Post Office at Brampton, Ont.

Specifications can be seen at the Department of Public Works, Ottawa, and at the office of Messrs. Peyton & Manning, Brampton, and after Tuesday, 12th September, and tenders will not be considered unless made on the form supplied and signed with actual signatures of tenderers.

An accepted bank cheque, payable to the order of the Minister of Public Works, equal to five per cent. of amount of tender, must accompany each tender. This cheque will be forfeited if the party decline the contract, or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By order, A. GOBEL, Secretary.

Department of Public Works,  
Ottawa, Sept. 15th, 1888.

# VALUABLE PLUMBAGO

AND OTHER

## Mineral Lands FOR SALE,

IN THE TOWNSHIP OF BUCKINGHAM, COUNTY OF OTTAWA.

1st.—Lot 28, in the 6th range, containing 100 acres, in addition to the salina of the lake.

2nd.—North half of lot 23, in the 5th range, containing 100 acres.

3rd.—Nine acres of lot No. 28, in the 5th range, with water privileges thereto appertaining, being site of mill dam, etc., etc.

The property formerly belonged to the Montreal Plumbago Mining Company, and was worked successfully for several years, until the company's mill was destroyed by fire, but the mill dam remains almost uninjured, and there are on the property several houses, sheds, etc., built for various purposes when mining operations were carried out.

### The Plumbago Deposits

upon the property are regarded as amongst the richest and most extensive in the Dominion. As to the quality of the Plumbago, it has been extensively used in the manufacture of crucibles, lubricating leads, stove polish, etc., etc., and given unbounded satisfaction. This is established by the experience of consumers, and by a certificate from the celebrated Battersea Crucible Works, London, England, a copy of which is open for inspection.

### MICA

has also been discovered in quantities. The lands are in the Phosphate region, and recent prospecting has disclosed a rich and extensive deposit of this mineral. There are unrivalled facilities for transporting the ore to and from the mines by the Ottawa River and C. P. Railway. Distance from mines to Railway Station 6 miles. Good road.

All that is required to make these valuable mines handsomely remunerative is a little capital and enterprise.

The Title is Indisputable.

For information apply to

WM. H. DICKSON,  
160 Waller St., Ottawa.

H. E. DICKSON,  
Russell House, Ottawa.

OR TO THE OFFICE OF

THE CANADIAN MINING REVIEW,  
OTTAWA.





Department of Inland Revenue.

**An Act Respecting Agricultural Fertilizers.**

The public is hereby notified that the provisions of the Act respecting Agricultural Fertilizers came into force on the 1st of January, 1886 and that all Fertilizers sold thereafter require to be sold subject to the conditions and restrictions therein contained—the main features of which are as follows:

The expression "fertilizer" means and includes all fertilizers which are sold at more than ten dollars per ton, and which contains ammonia, or its equivalent of nitrogen, or phosphoric acid.

Every manufacturer or importer of fertilizers for sale, shall, in the course of the month of January in each year, and before offering the same fertilizer for sale, transmit to the Minister of Inland Revenue, carriage paid, a sealed glass jar, containing at least two pounds of the fertilizer manufactured or imported by him, with the certificate of analysis of the same, together with an affidavit setting forth that each jar contains a fair average sample of the fertilizer manufactured or imported by him; and such sample shall be preserved by the Minister of Inland Revenue for the purpose of comparison with any sample of fertilizer which is obtained in the course of the twelve months then next ensuing from such manufacturer or importer, or collected under the provisions of the Adulteration Act, or is transmitted to the chief analyst for analysis.

If the fertilizer is put up in packages, every such package intended for sale or distribution within Canada shall have the manufacturer's certificate of analysis placed upon or securely attached to each package by the manufacturer; if the fertilizer is in bags it shall be distinctly

stamped or printed upon each bag; if it is in barrels, it shall be either branded, stamped or printed upon the head of each barrel or distinctly printed upon good paper and securely pasted upon the head of each barrel, or upon a tag securely attached to the head of each barrel; if it is in bulk, the manufacturer's certificate shall be produced and a copy given to each purchaser.

No fertilizer shall be sold or offered or exposed for sale unless a certificate of analysis and sample of the same shall have been transmitted to the Minister of Inland Revenue and the provisions of the foregoing sub-section have been complied with.

Every person who sells or offers or exposes for sale any fertilizer, in respect of which the provisions of this Act have not been complied with—or who permits a certificate of analysis to be attached to any package, bag or barrel of such fertilizer, or to be produced to the inspectors to accompany the bill of inspection of such inspector, stating that the fertilizer contains a larger percentage of the constituents mentioned in sub-section No. 11 of the Act than is contained therein—or who sells, offers or exposes for sale any fertilizer purporting to have been inspected, and which does not contain the percentage of constituents mentioned in the next preceding section—or who sells or offers or exposes for sale any fertilizer which does not contain the percentage of constituents mentioned in the manufacturer's certificate accompanying the same, shall be liable in each case to a penalty not exceeding fifty dollars for the first offence, and for each subsequent offence to a penalty not exceeding one hundred dollars. Provided always that deficiency of one per centum of the ammonia, or its equivalent of nitrogen, or of the phosphoric acid, claimed to be contained, shall not be considered as evidence of fraudulent intent.

The Act passed in the forty-seventh year of Her Majesty's reign, chapter 1 thirty-seven and entitled, "An Act to prevent fraud in the manufacture and sale

of agricultural fertilizers," is by this Act repealed, except in regard to any offence committed against it or any prosecution or other act commenced and not concluded or completed, and any payment of money due in respect of any provision thereof.

A copy of the Act may be obtained upon application to the Department of Inland Revenue, as well as a copy of a Bulletin which it is proposed to issue in April, 1888, concerning the fertilizers

E. MIALI,  
15th Dec, 1887. Commissioner.



**Ontario Mining Regulations.**

The following summary of the principal provisions of the General Mining Act of the Province of Ontario is published for the information of those interested in mining matters in the Algoma District, and that part of the Nipissing District north of the Mattawan River, Lake Nipissing and French River.

Any person or persons may explore for mines or minerals on any Crown Lands surveyed or unsurveyed, not marked or staked out or occupied.

The price of all lands sold as mining locations or as lots in surveyed townships is two dollars per acre cash, the pine timber being reserved to the Crown. Patentees or those claiming under them may cut and use such trees as may be necessary for building, fencing or fuel, or for any other purpose essential to the working of mines.

Mining locations in unsurveyed territory shall be rectangular in shape, and the bearings of the outlines thereof shall be due north and south, and due east and west astronomically, and such locations shall be one of the following dimensions, viz: eighty chains in length by forty chains in width, containing 320 acres, or forty chains square, containing 160 acres, or forty chains in length by twenty chains in width, containing 80 acres.

All such locations must be surveyed by a Provincial Land Surveyor, and be connected with some known point or boundary at the cost of the applicant, who must file with application surveyor's plan, field notes and description of location applied for.

In all patents for mining locations a reservation of five per cent. of the acreage is made for roads.

Lands patented under the Mining Act are free from all royalties or duties in respect to any ores or minerals thereon, and no reservation or exception of any mineral is made in the patents.

Lands situated south of the Mattawan River, Lake Nipissing and French River are sold under the Mining Act at one dollar per acre cash.

Affidavits showing no adverse occupation, improvement or claim should accompany applications to purchase.

T. B. PARDEE,  
Commissioner  
Department of Crown Lands, Toronto.



**MONEY ORDERS.**

MONEY ORDERS may be obtained at any Money Order Office in Canada, payable in the Dominion; also in the United States, the United Kingdom, France, Germany, Italy, Belgium, Switzerland, Sweden, Norway, Denmark, the Netherlands, India, the Australian Colonies, and other countries and British Colonies generally.

On Money Orders payable within Canada the commission is as follows:

If not exceeding \$4	2c.
Over \$4, not exceeding \$10	5c.
" 10, " " 20	10c.
" 20, " " 30	15c.
" 30, " " 40	20c.
" 40, " " 50	25c.
" 50, " " 100	30c.

On Money Orders payable abroad the commission is:

If not exceeding \$10	10c.
Over \$10, not exceeding \$50	20c.
" 50, " " 100	30c.
" 100, " " 200	40c.
" 200, " " 500	50c.

For further information see OFFICIAL POSTAL GUIDE.  
Post Office Department, Ottawa.  
15th Sept., 1888.

**The Polson Iron Works Co'y**

**TORONTO, ONT.**

**Manufacturers of the Celebrated "Brown Automatic Engine."**

**GENERAL DEALERS IN**

**MINING MACHINERY.**

**SPECIAL AGENTS FOR**

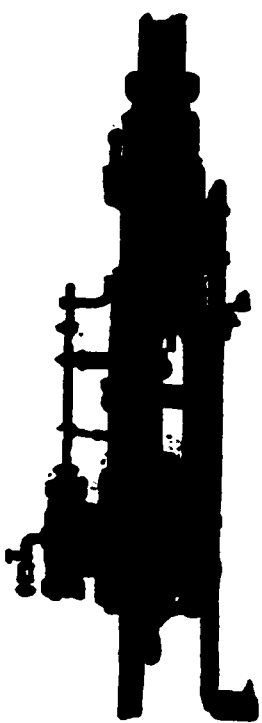
**Knowles' Steam Pumps,**

**B. T. Sturtevant's Blowers and Fans,**

**Burleigh Rock Drills.**

**Hoisting Engines and Boilers, Quartz Mills, Diamond Prospecting Drills, Rock Breakers.**

**Office and Works, Esplanade E.; Warehouse, 38 Yonge St., TORONTO.**





SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Post Office, Goderich, Ont.," will be received at this office until Monday, 15th October, 1888, for the several works required in the erection of Post Office, &c., at Goderich, Ont.

Specifications and drawings can be seen at the Department of Public Works, Ottawa, and at the office of the Town Clerk at Goderich, Ont., on and after Wednesday, 5th Sept., and tenders will not be considered unless made on the form supplied and signed with actual signatures of tenderers.

An accepted bank cheque, payable to the order of the Minister of Public Works, equal to five per cent. of amount of tender, must accompany each tender. This cheque will be forfeited if the party decline the contract, or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By order,  
A. GOBEIL,  
Secretary.

Department of Public Works,  
Ottawa, 31st August, 1888.



SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Port Arthur Work," will be received at this office until Friday, 19th October next, for the construction of a further length of breakwater at Port Arthur, Ontario, in accordance with plans and a specification to be seen at the Department of Public Works, Ottawa, and on application to William Murdoch, Esq., Resident Engineer, Port Arthur.

Tenders will not be considered unless made on the form supplied and signed with the actual signatures of tenderers.

An accepted bank cheque payable to the order of the Minister of Public Works, equal to five per cent. of amount of tender, must accompany each tender. This cheque will be forfeited if the party decline the contract, or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By order,  
A. GOBEIL,  
Secretary.

Department of Public Works,  
Ottawa, Sept. 17th, 1888.

# Van Duzen Steam Jet Pump.

MINING.—Our \$16 Pump preferred to a \$200 Steam Pump.

STATE OF MAINE ASSAY OFFICE,  
F. L. BARTLETT,  
PORTLAND, ME., June 21, 1883.



"GENTLEMEN,—The No. 5 'L.' (\$16) Steam Jet Pump I purchased of you I have used for raising water from a mining shaft fifty feet deep. I set it to draught twelve and force thirty eight feet. It worked very well indeed, although I was obliged to carry steam 150 feet from the boilers and in weather often below zero. I carried 75 pounds of steam at the boiler, and the Jet Pump took the place of a No. 3 K (\$200 Piston Pump), that I had to remove.

"Yours truly,  
F. L. BARTLETT."

Address for further particulars,

## CARTH & CO.,

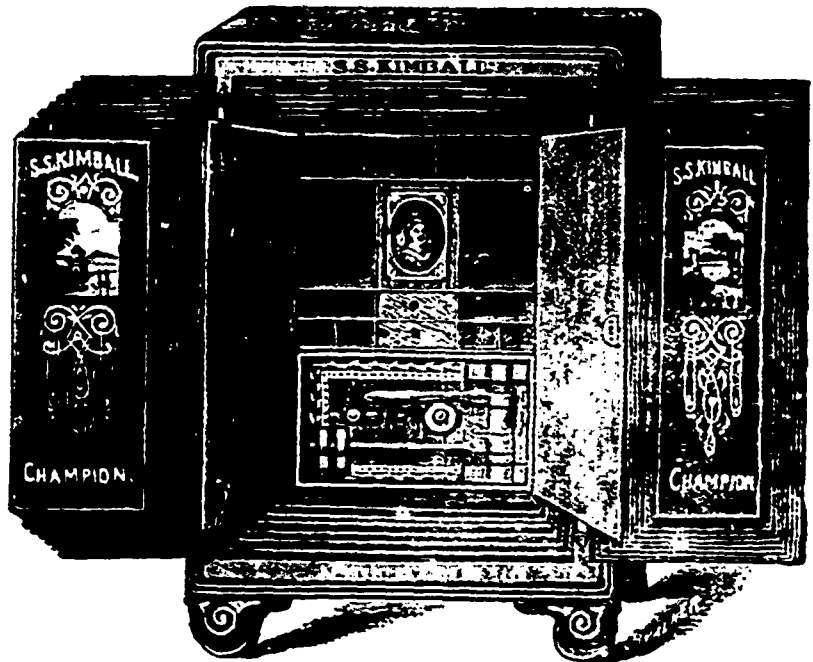
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Champion Fire and Burglarproof Safes.

These Safes have the best record of any in the Dominion. Price 30 per cent. cheaper than any other first-class Safe.

SEND FOR CATALOGUE AND PRICE-LIST.

S. S. KIMBALL,  
577 Craig St., Montreal.



# CHARLESWORTH & CO.,

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TORONTO, ONT.

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## BOOTS, SHOES, RUBBERS, SPORTING BOOTS, TRUNKS, VALISES, Etc.

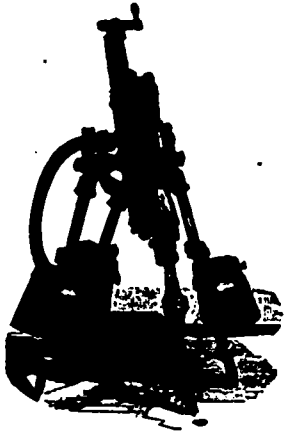
Will be pleased to supply Miners' or Lumbermen's Boots, Long Rubber Boots, &c., &c.

Our Patent FELT LAPLANDER is the best FELT BOOT made, as it is WATERPROOF as well as WARM.

We can supply any particular style if supplied with a sample, and shall be pleased to cater to the wants of mining and lumbermen's camps.

CORRESPONDENCE SOLICITED.

# CHARLESWORTH & CO.

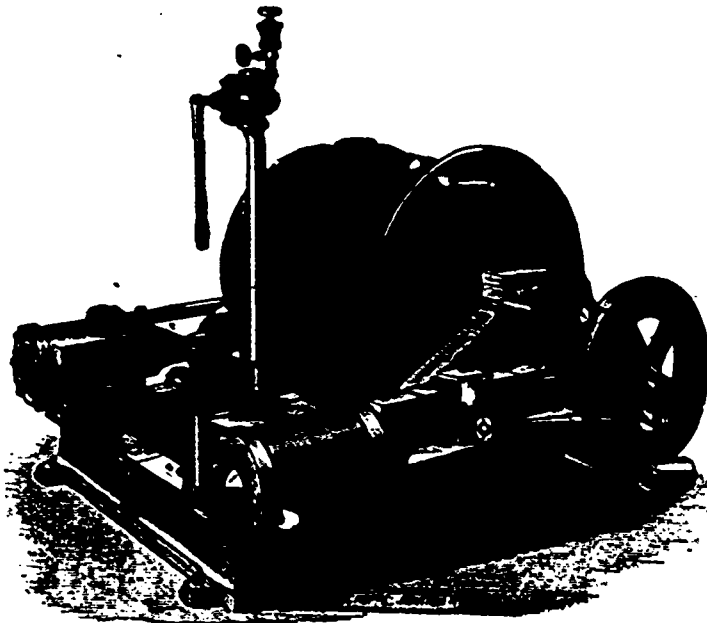


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**MANUFACTURERS OF**

Rock Drills,  
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—AND—  
Quarrying Machinery  
—AND—  
Contractors' Plant.



—ALSO,—



Drill Steel, Wire Rope,  
Derrick Castings,  
Steam & Air Hose & Couplings,  
Iron Piping, Fittings,  
—AND—  
**ALL KINDS OF SUPPLIES**  
—FOR—  
Miners & Contractors' Work.

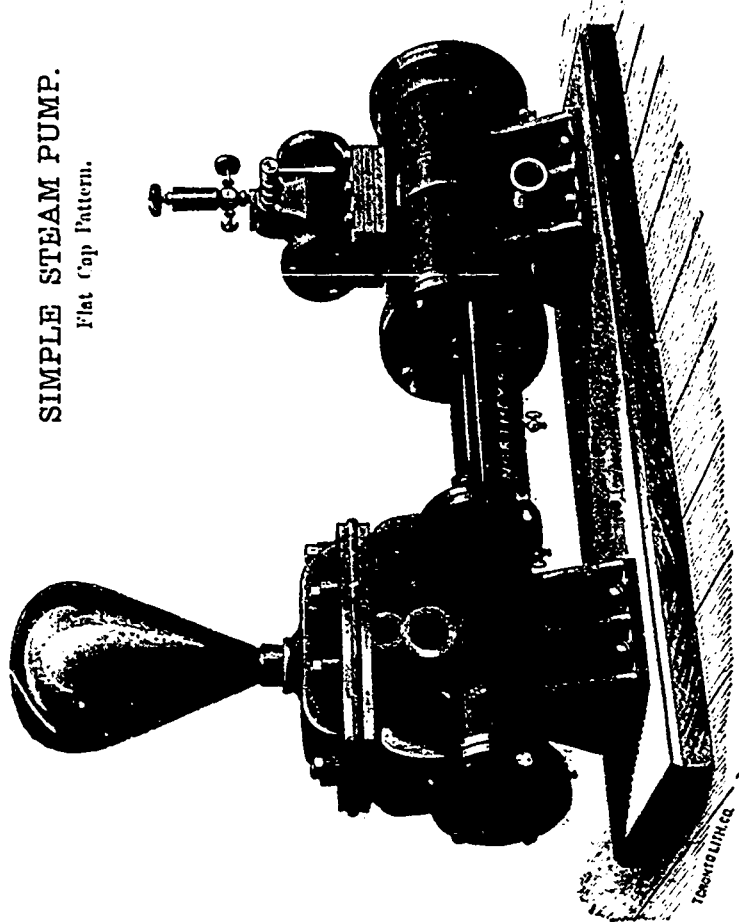
For Estimates, Catalogues and information address

**Ingersoll Rock Drill Co. of Canada,**

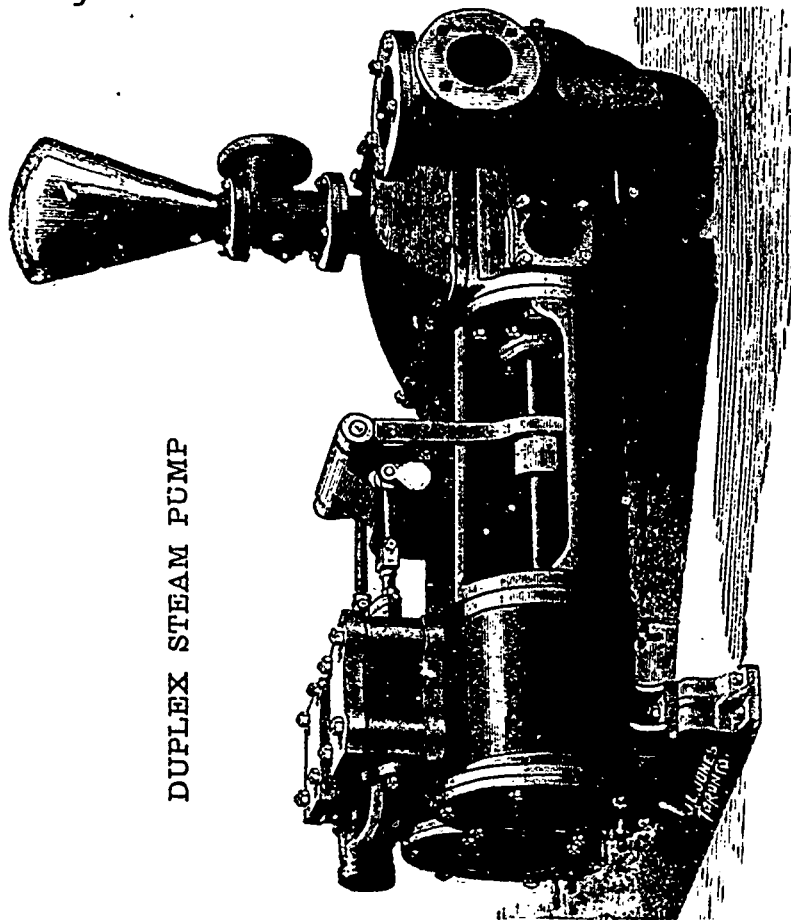
**204 St. James Street, or P.O. Box 1942, Montreal.**

# Northey & Co's Steam Pump Works, TORONTO, ONT.

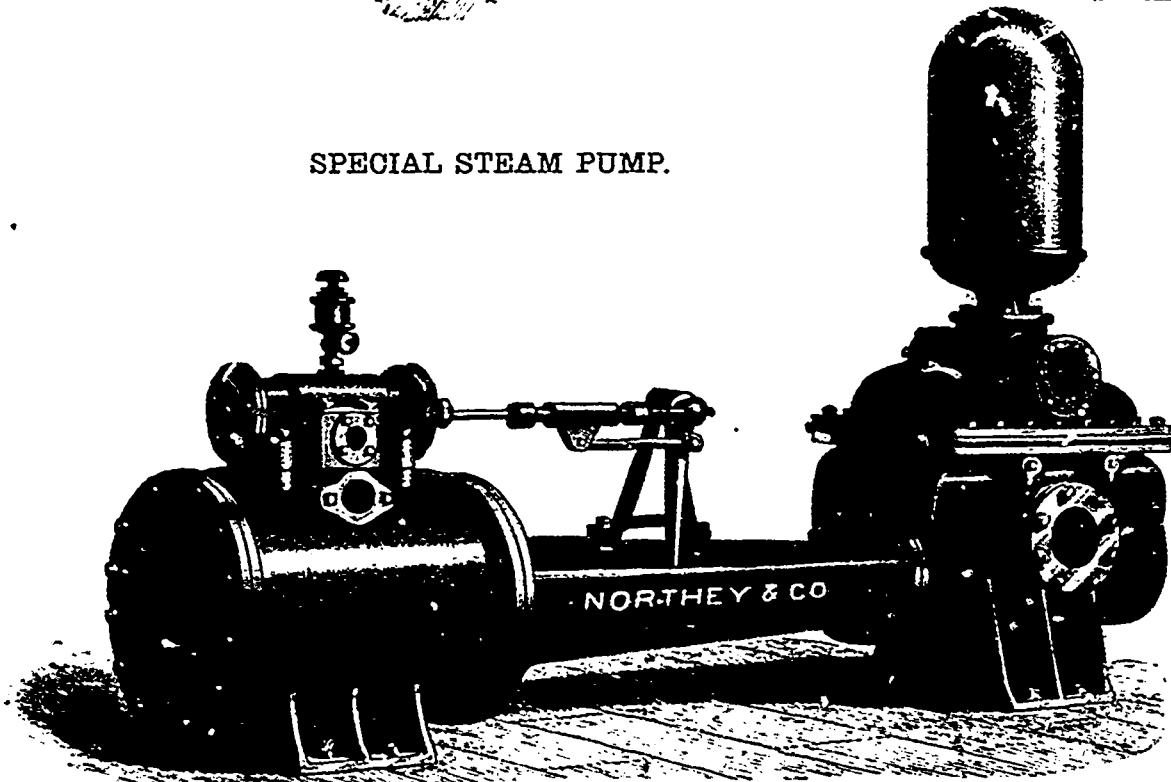
SIMPLE STEAM PUMP.  
Flat Cap Pattern.



DUPLEX STEAM PUMP



SPECIAL STEAM PUMP.



Steam Pumps of the best and latest designs for mining purposes, Boiler Feeding, Fire Protection, and General Water Supply, etc.

**NORTHEY & CO.,**  
Mechanical  Hydraulic Engineers,    Toronto, Ont.  
WORKS—COR. FRONT AND PARLIAMENT STS.



# Mining Regulations

TO GOVERN THE DISPOSAL OF

## Mineral Lands other than Coal Lands, 1886.

THESE REGULATIONS shall be applicable to all Dominion Lands containing gold, silver, cinnabar, lead, tin, copper, petroleum, iron or other mineral deposits of economic value, with the exception of coal.

Any person may explore vacant Dominion Lands not appropriated or reserved by Government for other purposes, and may search therein, either by surface or subterranean prospecting for mineral deposits, with a view to obtaining under the Regulations a mining location for the same, but no mining location or mining claim shall be granted until the discovery of the vein, lode or deposit of mineral or metal within the limits of the location or claim.

### QUARTZ MINING.

A location for mining, except for iron on veins, lodes or ledges of quartz or other rock in place, shall not exceed forty acres in area. Its length shall not be more than three times its breadth and its surface boundary shall be four straight lines, the opposite sides of which shall be parallel, except where prior locations would prevent, in which case it may be of such a shape as may be approved of by the Superintendent of Mining.

Any person having discovered a mineral deposit may obtain a mining location therefor, in the manner set forth in the Regulations which provides for the character of the survey and the marks necessary to designate the location on the ground.

When the location has been marked conformably to the requirements of the Regulations, the claimant shall, within sixty days thereafter, file with the local agent in the Dominion Land Office for the district in which the location is situated, a declaration or oath setting forth the circumstances of his discovery, and describing, as nearly as may be, the locality and dimensions of the claim marked out by him as aforesaid; and shall, along with such declaration, pay to the said agent an entry fee of FIVE DOLLARS. The agent's receipt for such fee will be the claimant's authority to enter into possession of the location applied for.

At any time before the expiration of FIVE years from the date of his obtaining the agent's receipt it shall be open to the claimant to purchase the location on filing with the local agent proof that he has expended not less than FIVE HUNDRED DOLLARS in actual mining operations on the same; but the claimant is required, before the expiration of each of the five years, to prove that he has performed not less than ONE HUNDRED DOLLARS' worth of labor during the year in the actual development of his claim, and at the same time obtain a renewal of his location receipt, for which he is required to pay a fee of FIVE DOLLARS.

The price to be paid for a mining location shall be, at the rate of FIVE DOLLARS PER ACRE, cash, and the sum of FIFTY DOLLARS extra for the survey of the same.

No more than one mining location shall be granted to any individual claimant upon the same lode or vein.

### IRON.

The Minister of the Interior may grant a location for the mining of iron, not exceeding 160 acres in area, which shall be bounded by north and south and east and west lines astronomically, and its breadth shall equal its length. Provided that should any person making an application purporting to be for the purpose of

mining iron thus obtain, whether in good faith or fraudulently, possession of a valuable mineral deposit other than iron, his right in such deposit shall be restricted to the area prescribed by the Regulations for other minerals, and the rest of the location shall revert to the Crown for such disposition as the Minister may direct.

The regulations also provide for the manner in which land may be acquired for milling purposes, reduction works or other works incidental to mining operations.

Locations taken up prior to this date may, until the 1st of August, 1886, be re-marked and re-entered in conformity with the Regulations without payment of new fees in cases where no existing interests would thereby be prejudicially affected.

### PLACER MINING.

The Regulations laid down in respect to quartz mining shall be applicable to placer mining as far as they relate to entries, entry fees, assignments, marking of localities, agents' receipts, and generally where they can be applied.

The nature and size of placer mining claims are provided for in the Regulations, including bar, dry, bench, creek or hill diggings, and the rights and duties of miners are fully set forth.

The Regulations apply also to

### BED-ROCK FLUMES, DRAINAGE OF MINES AND DITCHES.

The GENERAL PROVISIONS of the Regulations include the interpretation of expressions used therein; how disputes shall be heard and adjudicated upon; under what circumstances miners shall be entitled to absent themselves from their locations or diggings, etc., etc.

### THE SCHEDULE OF MINING REGULATIONS.

Contains the forms to be observed in the drawing up of all documents such as— "Application and affidavit of discoverer of quartz mine." "Receipt for fee paid by applicant for mining location." "Receipt for fee on extension of time for purchase of a mining location." "Patent of a mining location." "Certificate of the assignment of a mining location." "Application for grant for placer mining and affidavit of applicant." "Grant for placer mining." "Certificate of the assignment of a placer mining claim." "Grant to a bed rock flume company." "Grant for drainage." "Grant of right to divert water and construct ditches."

Since the publication, in 1864, of the Mining Regulations to govern the disposal of Dominion Mineral Lands the same have been carefully and thoroughly revised with a view to ensure ample protection to the public interests, and at the same time to encourage the prospector and miner in order that the mineral resources may be made valuable by development.

COPIES OF THE REGULATIONS MAY BE OBTAINED UPON APPLICATION TO THE DEPARTMENT OF THE INTERIOR.

**A. M. BURGESS,**

*Deputy Minister of the Interior.*

## TORONTO BAG WORKS

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# BAGS for CRES, PHOSPHATES, ETC.,

AND FOR ALL OTHER PURPOSES.

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11 and 13 Front St. East,

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# A. R. WILLIAMS,

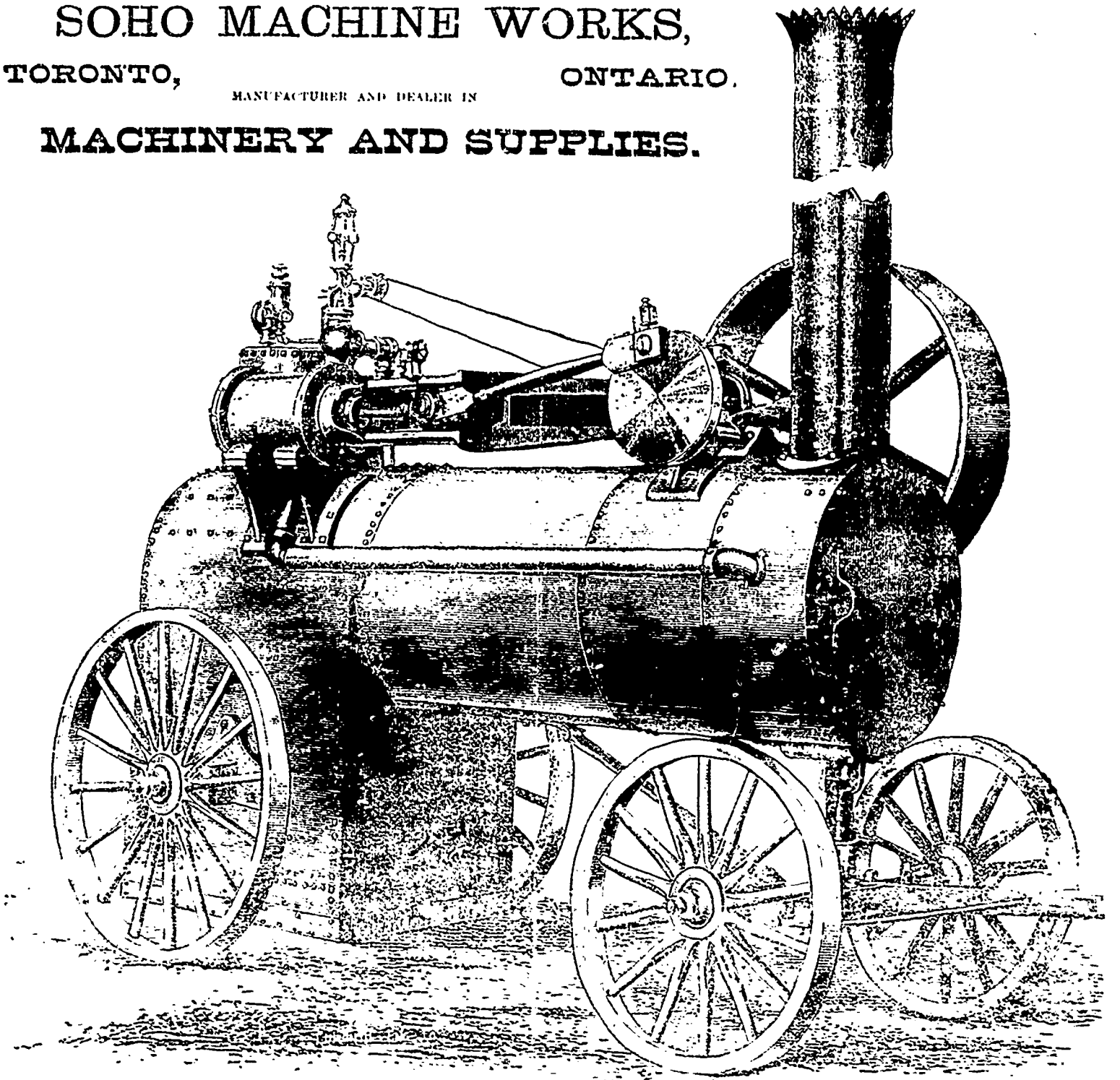
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MANUFACTURER AND DEALER IN

**MACHINERY AND SUPPLIES.**



Duplex Steam Pumps, all sizes. Every Pump Guaranteed.

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Portable Engines, Hoisting Engines, Stationary Engines, Iron and Wood Working Machinery, Ventilating Fans, Saw Mill and Shingle Mill Machinery. Full lines of Machinery and Supplies. Send for Catalogue.