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## MINING REVIEW

VOL. 2.—No. 6.

1884—OTTAWA, JUNE—1884

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## Canadian Mining Review.

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The CANADIAN MINING REVIEW is devoted to the opening up of the mineral wealth of the Dominion, and its publishers will be thankful for any encouragement they may receive at the hands of those who are interested in its speedy development.

Visitors from the mining districts as well as others interested in Canadian Mineral Lands are cordially invited to call at our office.

Mining news and reports of new discoveries of mineral deposits are solicited.

All matter for publication in the REVIEW should be received at the office not later than the 5th of the month it is to appear.

Address all correspondence, &c., to the Publishers of the CANADIAN MINING REVIEW, Ottawa.

## International Geological Congress at Berlin.

The following is the substance of a circular which has been forwarded by the Committee of Organization for the above Congress to the scientists throughout the world, dated at Berlin, May 15th:

"The International Geological Congress decided at its meeting on October 2nd, 1881, at Bologne, that the third session should be held at Berlin in 1884."

"The Committee of Organization, formed in Germany, has appointed the 25th of September for the opening of the session. The meetings will occupy from the 25th till the 30th of September, and geological excursions will take place between the 1st and 5th of October.

"An exhibition of geological collections and charts will be held during the session.

"The programme in detail of the meetings and excursions will be distributed in good time before the opening of the Congress."

The circular contains a request that those who desire to take part in the transactions of the Congress will, as soon as possible, forward their application for membership to the Secretary of the Committee of Organization at Berlin, giving name in full, vocation and address.



THE LATE HENRY G. VENNOR.

On the morning of the 9th of June it became the painful duty of the Press of this continent to announce the death of Henry G. Vennor, Esq., scientist and weather prophet, whose name had been made famous during the past few years of his life, and had become known throughout the entire civilized world. The fact that Mr. Vennor had been ill for some time had been generally known, and it had become apparent that there was little hope of his recovery. He passed away on Sunday evening, the 8th inst., and his death will have been a sad surprise to many. Mr. Vennor was born in Montreal, on December 30th, 1840, of English parentage, his father being a member of the firm of Budden & Vennor, an

old established hardware house. He was educated at Philip's School and the High School there. During his boyhood that preference for natural science which led to his celebrity of late years manifested itself, and while yet at school he collected and exhibited specimens which gained honourable mention at a provincial exhibition, and which is now in McGill College University. After a course in the zoological and geological classes of McGill, and a session of the classes in provincial land surveying and civil engineering, Mr. Vennor tried, in the year 1860, mercantile life in the wholesale warehouse of Frothingham & Workman. After five years, however, he gave up that and received an appointment as assistant to the late Sir W. E. Logan, taking part in all the surveys of the geological commission for fifteen years after his appointment, serving directly under Sir W. E. Logan, Dr. T. Sterry Hunt and Dr. A. R. C. Selwyn. In 1870 he was elected a fellow of the Geological Society of England. Mr. Vennor's revised classification of the old Laurentian Rocks of Canada, which were his especial field of survey, gained him a reputation as a scientific observer, and in 1872 his ability gained further recognition by his researches into the phosphate resources of Ottawa County. In 1880 Mr. Vennor resigned his position on the survey, having during his connection with it rendered the country and science at large valuable service. But useful as these services were, and stamping him as they did, as a man of marked ability in his profession, it is rather to his prognostica-

tions regarding the weather that Mr. Vennor owed his fame which dated from the correctness of a prophecy that the Christmas of 1875 would be a green one, followed by a muddy New Year's Day. Following up his success and adding to his celebrity, he published the first of *Vennor's Almanac*, since then published yearly, which among other kindred matter, contained, as is of course well known, monthly forecasts of the weather for the entire year, and which he supplemented with the *Monthly Weather Bulletin*. Mr. Vennor was also widely known as a student of ornithology; his work on "Our Birds of Prey," published in 1875, is a valuable one, and his collection of raptors (birds of prey) is one of the most complete on the American continent. Born, as above stated, in 1840, Mr. Vennor had reached but the age of 43 years and 6 months at the time of his death. The sad result removes from our midst a thoughtful student of science, whose work will live after him.

In the May number of the REVIEW attention was called to the dissatisfaction which some of the clauses in the Dominion Mining Regulations had created among miners and others interested in mining industries in the North-West Territories. We took occasion at the same time to point out the advisability of the representative mining men in the North-West meeting together and formulating their objections to the clauses in the regulations, forwarding the same to the Minister of the Interior for his consideration, and pointing out to him wherein they are distasteful, and the nature of

the alterations that would make the regulations generally acceptable to the miner and at the same time be reasonable in the interest of the Government. Since the publication of the article referred to, Mr. Burgess, Deputy Minister of the Interior, on the 3rd instant, left Ottawa for Winnipeg, and being most anxious that all dissatisfaction among the miners of the North-West should be speedily dispelled, he proceeded on the 16th inst. to Calgary, where he is now in conference with the leading practical mining men, with whom he will engage in an exhaustive discussion of the various points at issue, and there exists no doubt that Mr. Burgess, who is invariably disposed to act impartially, will agree to any feasible and advisable alterations in the regulations that will have a tendency to encourage the prospectors and miners and to advance the mining industries of the North-West, which promise to become of so great importance in the country.

In the Rocky Mountain district mining matters are rather quiet, pending the return of the army of prospectors who are at present exploring the Purcell and Selkirk ranges. The latter range is considered to be the richer in mineral, probably because it has been more explored, and years ago a considerable amount of mining was carried on there, but, on account of the great distance from other mining centres, it was abandoned, as less than "ounce diggings" did not pay. The western slope of the Rockies is the objective point for the majority of prospectors who have flocked from British Columbia and from the East in hundreds since the opening of spring; nevertheless a fair force of miners and prospectors will operate on the eastern side in the foot hills.

In the September, 1883, number of the REVIEW we published the opinion of Mr. J. S. Phillips, Mining Engineer and Metallurgist, of New York, respecting the mineral wealth of

our north western country. Among other important remarks made by Mr. Phillips he gave expression to the following:

"The trans-continental railway of Canada will enter into and cut its way across—or in a mining manner, coast—the whole mountainous portions of the country, and will soon enter the wide and most interesting mineral zones of the Rocky and Wasatch mountains, where intelligent observations and explorations will, in my opinion, cause Old England to be once more proud of Colonial wealth.

"This field for mining, with mountains running over 1,000 miles northerly, the whole breadth of the Canadas, will probably extend across the longitudes of Western Dakota, Montana and Idaho, of the United States of America, but for lode or vein mining will not reach so far west as Cariboo in British Columbia, as the Sierra Nevada chain of mountains is thereabout broken and detached for a few hundred latitudinal miles. This does not prevent the possibility of auriferous discoveries in gravel formations, which are very likely to be found in many valleys that have received the water washed debris from the western declivity of the previously named mountains along the route. I have been frequently questioned by letters from England: Where is the best place to explore for minerals? and I answered both Englishmen and Canadians—Prospect the breadth of the Canadas on either side of the advancing railway, but more particularly opposite to Western Dakota, Montana and Idaho, for vein mining, and thence westward for gravel and placer gold, where vast mineral areas lie unexplored.

"When this railway is sufficiently far advanced, the north and south branches of the Saskatchewan River, the Athabaska, and Peace Rivers, and the Rivers Liard, Peel, and McKenzie, will be found also convenient for both prospection and power for mining this 1,000 miles long of the east slope of the Rocky Mountains, whilst the five branches for mining the head waters of the great Yukon River may be utilized for the north-western slope with its spurs and parallel range. A few brave and strong men may make immense fortunes along this range of mineral-bearing strata. I know of no other unexplored belt in North America that ex-

poses superior inducements, and there is probably nothing on this continent but the unexplored eastern slope of the mighty Andes, which extends 4,000 miles from north to south through the several rich countries of Columbia, Ecuador, Peru, Bolivia, the Argentine Republic, and Patagonia; but Canada has the great advantages of your own language, laws, and flag; whilst these are mostly inaccessible, and more particularly so to foreigners."

### CANADA'S PHOSPHATE TRADE.

The reports that have reached us from the mines during the month are of a most satisfactory nature, and the managers of the different properties predict a very large output for the year. Besides the more extensive mines in operation many smaller ones have been opened since the snow left the mountains and new ground is being broken daily throughout Ottawa County, revealing the fact that the Townships of Buckingham, East and West Portland, Derry and Bowman are likely, for the future, to be the chief phosphate producing localities. Some of the mines in Templeton and Wakefield, whose reputations have already been established, will, in all probability, continue productive for years to come; notably, those owned by Messrs. McLaurin & Blackburn, J. A. Gemmill and M. Haldane & Sons. The industry has been placed on a more permanent basis than formerly, and proper attention is now being directed to practical mining and to shipping the output of the mines in as pure a state as possible, by separating the mineral from foreign matrix so far as it can be done by hand manipulation. Some of the large producers contemplate the erection of suitable machinery that will supersede hand cobbing and bring the output of their mines up to a high state of purity at a much reduced cost.

It was expected by some that the reduced value of raw phosphate rock that ruled in the English market at the beginning of the year would have had a tendency to discourage the miners, but such has not been the case, and the mines have been as actively worked during the past six months as at any time since this industry was started in the country. Those who availed themselves of the low rates of freight from Montreal at the opening of navigation were en-

abled thus to realize almost as good a price for their shipments as was obtained last year. Assuming that the present price of phosphate in England and on the continent of Europe should not vary, and that freights should continue to rule at the average for the past five years, it would be difficult to point out any industry or mining venture that will return a handsomer profit than phosphate mining when directed by good management and economy. According to the present English quotations for Canadian apatite, 80 per cent. mineral is worth, say at Buckingham Station, eighteen dollars per ton, and the average cost of mining and delivery at this point, from all the mines in the Rivière du Lievre district of the County of Ottawa does not exceed ten dollars per ton; thus returning to the miner the very handsome profit of \$8 per ton, equivalent to 80 per cent. on his outlay. The experience of the past few years has proved these figures to be practically correct, and the owners of mines are thus enabled at the close of each day's work to estimate to a nicety the result of their operations.

### THE MINES.

*High Rock Mine.*—Since the arrival of Mr. Pickford, President of the Company that owns this valuable property, from England, last month, important changes have been made at the mine, and an entirely new management organized; steam-drills, hoists, etc., have been introduced, and it is thought that a larger quantity of phosphate will henceforth be raised, and at a reduced cost. Some extensive deposits have been discovered on the property during Mr. Pickford's visit and are being opened up. Under the new organization Mr. P. H. Smith controls the Mining Department, and Mr. S. Hicks has the general superintendence of transportation from the mine to Buckingham Railway Station, from which point the output of the mine is consigned to Messrs. Wilson and Green, of Montreal, the appointed general managers and agents.

*Star Hill Mine.*—Mr. W. H. Williams, of New York, President of the Union Phosphate Company, recently returned from the company's property and reported everything going ahead to his entire satisfaction. This company began work about a year ago, and up to the present time the operations have been confined to a very limited space, within an area of about two acres, from which upwards of 3,500 tons of excellent phosphate have been raised and the deposits are becoming more productive. The Union Company owns 1,300 acres of

valuable phosphate land, and has thoroughly equipped its property. We are informed that the President, during his recent visit, signed a contract for the construction of a tramway from the mine to the River du Lievre which will greatly facilitate the transportation of ore.

The *North Star Mine*, belonging to the Dominion Phosphate Company, continues very productive and the quality of the phosphate is of a higher grade than that of any other mine in the district; when separated from the gangue rock the mineral is found to be quite free from refractory matter, and little dressing is required. This mine will be a steady producer for many years to come.

The *Little Rapids Mine*, owned by W. A. Allan, Esq., of Ottawa, is turning out a quantity of excellent phosphate that will compare favourably with that from the *North Star* mine. At the bottom of one of the shafts, down about 135 feet, a body of solid phosphate stretches from side to side and from the surface down, for the full distance, broad veins of mineral are visible on each side of the shaft. At two different levels stoping has been begun in the veins and the phosphate that is being produced is of a pale bluish-green colour, apparently free from objectionable foreign matter.

The *Emerald Mine* gives employment to a large number of miners and other workmen, and the output of the mine depends entirely upon the force employed. The mineral is there in sight in thousands of tons and powder and fuse is all that is required to convert it into a merchantable commodity. Several of the stock holders and directors of the Ottawa Phosphate Company visited the mine during the present month, and those who had not seen the property before were much surprised at the sight that met their eyes and congratulated each other upon the prospective handsome profits from their investment.

The *Lansdowne Mine*, adjoining the *Emerald*, the property of the Dominion Phosphate Company, is developing well, but as the miners have been, up to the present time, engaged in stripping, there is nothing more to report than was published in the May number of the Review. This property is certainly a very valuable one and will improve with development.

The mines above named give employment to about 375 men, all told, and the output aggregates, as nearly as can be estimated, 100 tons daily. The output from the *High Rock*, the *Star Hill* and the *Emerald* mines is being forwarded in scows to Buckingham landing and thence in waggons to the Railway Station.

Four hundred and fifty car loads of Phosphate were shipped over the Canadian Pacific Railway from Buckingham to Montreal during May, aggregating 7,000 tons.

#### PHOSPHATE QUOTATIONS.

The most recent London quotation for Canadian apatite is 1s. 1½d., for 75% mineral, with one-fifth of a penny rise, with advices that the market is stiffening. A London, England, correspondent writes: "As regards Canadian Phosphate of Lime, one shilling per unit for 75% is the lowest price we have seen. Charleston, S.C., people are combining to raise their prices, in which we think they will succeed to some extent, as it has been mainly their pushing to sell on a rather weak market that brought prices down all along the line." Better prices will doubtless be obtained later in the season.

### Facilitating Transportation of Phosphate.

#### Improvements on the du Lievre.

#### Short Line Railway from Buckingham Village to connect with the C. P. R.

Engineers, employed by the Department of Public Works, have completed the necessary survey for a lock at the Little Rapids on the Riviere du Lievre, and when the detail plans have been prepared tenders will be invited for the construction of the work. The drawings are now being made, and, in all probability, the contract will be given out in time for the contractor to proceed with the work when the water in the river has sufficiently receded to enable him to put in the foundations for the masonry. The lock will be built of stone and should be completed by the opening of navigation on the river next year. This will be a great convenience to the phosphate miners as it will afford sufficient water for large vessels to ply between the High Falls and Buckingham landing, the northern terminus of the proposed

#### SHORT LINE RAILWAY

to connect with the Canadian Pacific Railway at Buckingham station. That this connecting link will be constructed is now an assured fact. Mr. W. H. Williams, President of the Union Phosphate Company, has stated that he is co-operating with a few other capitalists who purpose building these four miles of railway as a private enterprise, and that work will be begun by them within a month or so. The officials of the Canadian Pacific Railway Company inform us that Mr. Van Horn, the General Manager, has carefully considered the feasibility and advisability of constructing this branch and that he has decided to begin work on it almost immediately in order that the line be in running order for the accommodation of phosphate shippers during the autumn, when the bad condition of the waggon road

between Buckingham Village and the railway station renders the transportation of ore so difficult. There now exists little or no doubt that this work will be proceeded with during the summer either by Mr. Williams and his associates or by the C. P. R. Co., and of the two it would be more desirable that the line become the property of the latter corporation than that of private individuals. The present road over which the output of the mines has heretofore been hauled has been a serious obstacle to the phosphate producers in the du Lievre district, and the progress of construction of a railway will be eagerly watched by them.

#### MICA IN CANADA.

Systematic searching during the past year has resulted in the discovery of many important deposits of this valuable mineral and the quality of some of the specimens received at this office is equal to any that has been mined in the United States or in any other part of the world in point of clearness and its resistance of heat. As to the size of crystals many of the surface specimens will yield perfect plates measuring as large as 5x9. It is a true *muscovite* and was not known to exist in Canada in economic size or quantity until within the past year.

One of the most important discoveries yet made is in the Township of Villeneuve, Ottawa County, within two and a half miles of the Riviere du Lievre, and the quantity of merchantable mica visible on the surface, imbedded in a gangue of quartz and feldspar, is sufficient to make the property one of great value. A party of miners have begun to open up one of the veins, and we are informed it is developing most satisfactorily.

In the Township of Palmerston, County of Frontenac, some extensive deposits of very fine mica have been found, and we have received some beautiful specimens of *muscovite* from the Nipissing district, with a report descriptive of the deposits, and showing that it exists there also in paying quantity and in merchantable size.

At Sydenham, Province of Ontario, a fair quantity of mica, of an amber or wine colour, is being mined and Mr. Allan's mine in Burgess, County of Lanark, has produced a large quantity of excellent mica. From the mines at present in operation, and from those that are now being opened the Canadian market can be supplied and dealers will not, henceforth, be compelled to import their stock from the United States.

Applications will be received by the Michipicoten Copper Company, Michipicoten Island, Lake Superior, from miners and mine labourers for contract work.

## Lake Superior Silver Mines

SATISFACTORY WORK AND RICH ORE AT THE RABBIT MOUNTAIN.

### THE TWIN CITIES MINE.

THE HURONIAN WORKING IN 8 FEET OF PAY ORE IN BOTH DRIFTS.

### WORK AT LAMBERT ISLAND.

The Zinc Mines to be Opened up.

During the past few months much attention has been directed towards this rich mineral district which has been visited by a number of practical mining men and experts who have been unanimous in predicting a brilliant future for the industries already established. The *Lake Superior Mining Journal* of a recent date publishes an article under the above headings and remarks that the Rabbit Mountain and Huronian districts are attracting most of the visitors on account of there being about \$100,000 worth of silver ore now lying in the bins and on the dumps of the two mines.

Several of the owners of the *Rabbit Mountain Mine* were on their property during the present month and have expressed themselves well pleased with their venture. A new shaft has been started and from it wonderfully rich ore is being taken.

The *Twin Cities Mine* is progressing with the greatest satisfaction to the owners. Their vein is well defined and they are taking out very rich high grade silver ore and native silver, associated with zinc blende, which also assays very high in silver. The assays of this have gone from \$100 to \$2,600 per ton.

Arrangements have been concluded for the working of other mines in the Rabbit Mountain region in which silver has been found. This section of country has evidently been the centre of several violent disturbances of the earth's crust, as unlike other parts of the country where the veins run parallel, the fissures are here found to run in every direction, with the formation, diagonally and directly across it, and running with and cutting the numerous trap dykes which intersect that part of the country. These dykes have had a great influence on the mineral bearing features of the district.

A party of miners in charge of Capt. Wm. Wheeler have started for Lambert Island in Thunder Bay to commence work there.

Arrangements have also been made which will result in the immediate working of the zinc mines on the north shore. The zinc blende, the black jack of the miners, taken from a wonderfully large deposit yielded

to the Assayer for the Dominion Geological Survey 54 per cent. of metallic zinc.

The famous Huronian is a steady, reliable producer of both gold and silver ore. The mill is doing splendid work. The shaft is down

over 70 feet and there are over 100 feet of drifts. The miners are working in 8 feet of pay ore in both drifts and the sylvanite seems more plentiful and the vein looks even better than the splendid showing it made at surface.

## Gold Mining in Beauce.

Although mining has been going on in this section of Canada, more or less, during the past thirty years, few people have any idea of the richness of many of the gold bearing localities in that portion of the Province of Quebec known as the County of Beauce. Owing to the great uncertainty heretofore existing as to the validity of the mining rights held by miners in the territory of Rigaud-Vaudreuil, mining operations have been very seriously retarded. A recent judgment of the court, however, in the *DeLery patent case*, a test case, has removed this uncertainty and Col. Duchesnay, Government Inspector for the Chaudière Mining Division, in his official report for 1883, has expressed it as his opinion that the mining industry will now assume a flourishing condition and even attain great importance in the district. Col. Duchesnay also remarks that the conviction appears to be more firmly held than ever that the gold and silver mines of Beauce are as valuable as those of any other country. The thousands of dollars which have been already collected from alluvial workings, of the most primitive and insufficient description, are a proof of this; and the numerous quartz veins discovered in these alluvial workings, and at many other places, prove, through the frequent assays that have been made, that rich results may be expected from operations in this branch of mining. The preliminary expenses of this latter industry are very great, and, therefore, the proprietors of the soil did not dare to incur them before knowing that they could continue the work, a question which has been settled by the DeLery judgment referred to.

Some important work is at present being done at various points in the district by chartered companies and by individuals. The

### CANADA GOLD COMPANY (LIMITED),

up to the close of 1883, had not resumed its ordinary operations since the destruction of its shafts in the fall of '82; it has only employed a few men to wash over the tailings of previous years; but this work, which is generally profitable, could not be so for this company, as it uses pulverizing machines before the first washing. The quantity of gold obtained was, however, more than sufficient to cover expenses. At the close of last year it was the intention of this company to have resumed work this season with a force of several hundred men, but to what extent operations have been resumed we have not yet learned.

### NORTH EAST RAPID COMPANY.

In October last this company re-opened some old workings that had been abandoned for nearly twenty years, and though they had been, up to the close of 1883, only making repairs and explorations, they had the good fortune to meet with some nuggets of considerable size, and the best possible indications of gold bearing quartz as well as alluvium.

### THOMAS RICHARDS & CO.

are working in St. Charles concession, River Gilbert, and give employment to an average force of forty men. In the spring of 1883 they constructed a long aqueduct which crosses the valley of the Gilbert on trestles and furnished the necessary supply of water for washing, after driving an immense water wheel which assisted a steam pump in draining the underground workings. A nugget, weighing nearly twenty-two ounces was recently found on this claim, which is one of the richest in the district, and its yield, especially during the last few months of the past year has been quite a fortune. A number of rich quartz veins have been crossed by the galleries, and it is proposed to work them during the present year.

### MESSRS. ALLAN & HUMPHREY

During last autumn these gentlemen reached the bottom of a second shaft at a depth of one hundred and seventeen feet, and found enough gold to show that they had fallen upon an alluvial deposit. As this shaft appeared, however, to be on the very edge of the deposit, they found it necessary to sink another more towards the centre. In this shaft (No. 3) they have struck the gravel at a depth of about one hundred and forty feet, and about three feet above bed rock. For some distance above the gravel they penetrated a heavy layer of fine sand which, when washed for test, was found to carry gold in paying quantity, a certain indication that the gravel will prove to be very rich.

The only work hitherto done at the Ruisseau d'Ardoise has been of a superficial character. This stream flows near the workings of Messrs. Allan & Humphrey, and the discovery lately made by these gentlemen has opened

to the mining industry an immense field, extending over the whole valley of the Famine. "Gold has been found at several places on the Famine" is stated in the Canada Geological Report for 1866. Since that date there has been but little done in the way of exploration, but the precious metal has always been found, especially on the river Veilleux, one of its tributaries, though scattered through the gravel, and not in compact deposits as on the Gilbert. The result of the recent workings of Messrs. A & H., leads to the supposition that the searches heretofore made on the Famine had been confined to the unproductive side of the valley, and that by following the natural lay of the land from their claim upwards, along the left bank of the river, there would have been a greater probability of success.

### GOLD MINING ASSOCIATION OF CANADA.

This wealthy English Company, which owns a large extent of gold bearing lands on the River du Loup, was enabled to wash uninterruptedly during last summer by means of its hydraulic power. The richness of the du Loup has long been established by the product of the mining operations which have been going on since 1850, but the bed of auriferous gravel being nearly all above the level of the present flow of water, the hydraulic power cannot be made to work upon it with all the advantage that was expected.

The total product of gold in the Chaudière mining division during last year was larger than usual in proportion to the amount of work performed.

From the 1st of April, 1879, to the 30th of September, 1883, there had been collected on the left bank of the Gilbert alone, in the space of a mile long by one hundred feet wide, 7902 oz., 2 dwts., 4 grs. of gold, worth, @ \$17.75 an ounce, \$140,262.30, according to the sworn monthly reports furnished by the miners. In view of the small number of men employed, and the loss of at least thirty per cent. by a defective system of washing, this is an excellent result, yielding a reasonable profit to those engaged in the work after paying all expenses.

It is generally admitted, however, that alluvial gold mining, especially on the Gilbert, will soon be superseded by quartz mining, of which so many rich veins have been found. This will give employment to a much larger number of men, and will be the means of introducing greater activity into a district which has not, heretofore, received the attention from miners that it has deserved.

## The Central Ontario Iron Mines.

On the morning of the 4th instant a special train left Trenton for a run over the line of the Central Ontario Railway, having the following gentlemen on board: Senator Payne, of Cleveland, Ohio, a director of the Central Ontario Railway and the Coe Hill Mining Companies; Mr. James McLaren, of Ottawa, who is largely interested in both companies; Mr. S. J. Ritchie, of Akron, Ohio, President of the Railway, and also largely interested in the Coe Hill and other iron mines contiguous to it; Mr. Wm. Chisholm, of Cleveland, Ohio, President of the Coe Hill Mining Company; Mr. Samuel Mitchell, of Marquette, Mich., an iron operator in the Lake Superior district, and interested in the Coe Hill Mine; Mr. F. A. Bates, a mining expert of Cleveland, Ohio, who has assumed the management of the Baker Mine, a portion of the C. O. Railway Company's property; Mr. Preston of Pittsburg, Ohio, another mining expert representing Pittsburg capitalists; Messrs. Arthur Coe and Geo. W. McMullen, Directors of the C. H. Mining Co., and Mr. James B. McMullen with others interested in the railway and the mines.

After leaving the G. T. R. Junction at Trenton the train proceeded to Weller's Bay, the shipping port for the railway on Lake Ontario. Here the company owns a water front of over 150 acres, bordering the entire deep water on the north-eastern shore of the bay, thus giving it access to one of the most desirable harbours on the lake, covering upwards of four square miles of deep water.

The party first visited the new dock, a portion of which will soon be in readiness for the reception and discharge of freight, and when completed will be 2,000 feet in length by 28 feet wide, covered with a massive superstructure, the crest of which will be 36 feet above the water. This superstructure will consist of a deck with double tracks and openings between the rails, communicating with 150 ore pockets, from which the ore can be dropped directly into the holds of vessels lying at the dock. After a careful inspection of this terminus of the railway and a visit to the roundhouses, at Weller's Bay and at Trenton, and the locomotive repairing and car shops, the party reached Picton towards evening, and on the following morning the journey was commenced over the newly constructed portion of the road. The line of the railway follows the valley of the River Trent as far as Chisholm's Rapids. From this point it takes a northward direction and traverses the townships of Sidney, Rawdon, Marmora, Madoc, El-dorado, Tudor, Limerick, and, entering Wallaston, the road terminates for the present, at the

COE HILL MINE.

Arriving at this point the excursionists were greatly astonished at the sight it presented. On the hill over-looking the ore platform were no less than 50,000 tons of carefully selected rich magnetic iron ore, neatly piled, and beyond this the workings on the vein. These extended some 2,000 feet in a broad irregular gash along the course of the vein, which appears to have an average of about 40 feet in thickness from wall to wall. The slopes are not steep, and one can only account for the enormous stock pile that has been taken from them by the fact that almost every pound that has been taken from them is good marketable ore. Three shafts have been sunk to a depth of 55, 58 and 68 feet respectively, and these indicate that the vein is becoming thicker as lower levels are reached. Several prospect holes have been sunk by the diamond drill, the deepest of which has cut the iron at a depth of 280 feet from the surface. At this depth the vein still carries its full thickness, and it is fair to assume that this enormous deposit will prove persistent to as great a depth as that to which it can be worked at a profit. But even assuming that the vein were cut off short at the depth to which it has been tested, and that the strong indications shown east and west of it, which have not been tested, should prove valueless (two well nigh impossible contingencies) there would still remain practically in sight not less than 2,000,000 tons of good ore.

The expense of putting this ore on the market may be estimated as follows, care being taken to put the cost of every item at the highest figure:

	per ton.
Mining and delivering on cars.....	\$1 00
Freight to Weller's Bay and delivery on vessels.....	1 00
Freight to Cleveland and Lake Erie ports.....	75
Duty.....	75
Insurance and commission.....	15

Total cost per ton delivered in U.S. market.... \$3 65

The lowest rate for this grade of ore during the past ten years at Cleveland has been \$6 and the highest \$12 per ton. Thus, judging by the past 10 years, \$2.35 per ton profit on this enormous quantity of ore in sight is about the most unfavourable estimate that could be made, while \$6 per ton is quite within the range of possibility, and an average of \$3 per ton may safely be counted on.

The following analysis of the Coe Hill ore was made by the chemist of the Cleveland Rolling Mills:

Phosphorus.....	0.023
Silica.....	3.70
Sulphur.....	0.91
Metallic Iron.....	66.40

It will thus be seen that the success of this mining venture is well nigh established, and that, in the face of a specific duty of 75c. per ton, these railway and mining companies (the proprietorships of which are for the most part identical) have expended over \$2,000,000 with a view to recouping themselves by the sale of Canadian iron ore in the American market.

The party next visited the

BAKER MINE

where very little work has been done beyond mere prospecting. That this deposit is an extensive one there exists no doubt. The needle attractions indicate the presence of a body of ore varying from 40 to 70 feet in thickness, extending without a break, for fully a mile. A strong outcrop of excellent ore is traceable for the whole distance, and each of the numerous test pits which have been sunk along the vein has uncovered a large body of it.

The following is an average of the analysis made of the samples of the ore taken from different portions of this vein:

Silica.....	5.50
Phosphorus.....	0.08
Sulphur.....	1.00
Metallic iron.....	66.28

It has been feared that the amount of sulphur might possibly interfere with the value of this ore for shipment in its raw state, but from statistics obtainable regarding the treatment of poorer ores (carrying a similar percentage of sulphur) in Pennsylvania it is evident that in a country like this, where supplies of firewood and charcoal are practically unlimited, this will not prove a serious obstacle. In fact it is probable that the cost of desulphurization would be more than balanced by the reduction in the cost of carriage of the ore thus treated as compared with raw ores.

At the Cornwall Mines, in Birks County, Pa., the cost of roasting, in the leading furnaces, magnetic hematite ore carrying in iron from 40 to 46 per cent., and from 3 to 5 per cent. of sulphur, varies from 18c. to 30c. per ton.

In the case of the Baker ore (should it need roasting) charcoal would be used which, under existing circumstances, would render the desulphurizing process less expensive.

Mr. F. A. Bates has just assumed the management of this mine, and in a short time it will no doubt be sending out large quantities of ore. He also contemplates the erection of charcoal reduction works in this region, and when these are in running order much of the ore, which is now useless, as being of too low a grade for shipment and for the payment of specific duty, can be worked at the pit's mouth at a fair profit.

THE EMILY MINE,

which is only a few miles from the Baker, is quite as promising as either of those already described, and besides these there are many others in the townships of Tudor, Limerick, Wollaston, and Chandos that only await development to prove their value. In fact the iron industry of North Hastings has now obtained such a footing that its speedy development into a lasting source of revenue to the Province may be counted on. Much of the credit due to the accomplishment of this very desirable consummation must attach to Mr. Wm. Coe, of Madoc, who in spite of all sorts of discouragements has stuck steadfastly for the past fifteen years to his purpose of developing the iron interest of North Hastings.

After devoting two days to this pleasant and interesting excursion the entire party returned to Trenton in high glee over the prospects for their enterprises.

The Geology and Economic Minerals of Hudson's Bay and Northern Canada.

In reporting the valuable memoir on the above subject, read by Professor Bell, Assistant Director of the Geological Survey, at the meeting of the Royal Society lately held in Ottawa, we propose to give principally our notes on the portion of the paper which referred to the economic minerals. We understand that the article will be published at length in the Transactions of the Society. Dr. Bell has devoted so much time and attention to investigating the geology and minerals of Hudson's Bay and our northern regions generally, that whatever he says on these subjects is of interest. He illustrated his remarks by a large geological map of Northern Canada, which he said extended into the polar regions of North America, or to the most northern points explored. A description was given of the character and distribution of each of the groups of rocks as far as they are yet known in these territories. They embraced the following, in ascending order: The Laurentian, Huronian, a pre-Cambrian formation, the Animikie and Nipigon series, the Silurian, Devonian, Carboniferous, Liassic, Cretaceous, Tertiary and post-Tertiary. In regard to the Laurentian, Dr. Bell said that the great area which it occupied in Northern Canada and Greenland, had a somewhat circular outline, with patches of newer rocks in the centre or around Hudson's Bay. The Huronian was the great metal-bearing formation of Canada. It was intimately associated with the Laurentian and was mostly found within the same general limits. Speaking of the Devonian, he said that although it extended through an immense distance in the North-West Territories, it did not appear to occupy so great an area as had been supposed, as much of the rock which had been taken for Devonian had been found by Dr. Bell to be really Cretaceous. Referring to the post-Tertiary period, he thought that in some part of our northern territories we might find stores of fossil ivory like those of Siberia, as he had obtained the remains of both the mammoth and the mastodon around Hudson's Bay; and the tusks of elephants were not uncommon in the banks of the Rat River in the far North-West.

A great variety of rocks and minerals of economic value had been already noted in the regions referred to. Among those of a non-metallic nature were limestone, dolomite, granite, slate, flag-stone, marls, clays, oolites, cement stone, gypsum, stone and sand for making glass and porcelain, soapstone, mica, plumbago, asbestos, phosphate of lime, common salt, etc., etc. Fine dolomites and quartzites and limestones were abundant on the Eastmain coast of Hudson's Bay, and limestone was found on the islands in its northern parts. Gypsum formed the banks of the Moose River about forty miles up and was said to occur between Moose Factory and Albany. It was also met with near the Slave River. A pure quartzite, like fine white marble, occurred on Marble Island and to the west of Hudson's Bay. Soapstone was found near Mosquito Bay and used by the Eskimo for making their lamps, kettles, etc. Mica was reported as abundant in Chesterfield Inlet and Hudson's Strait. Specimens of pure plumbago had been brought on board ships passing through the Strait by the Eskimo. Lumps of it had also been picked up on Athabasca Lake. Phosphate of lime had been found near the Coppermine River, and Dr. Bell had also discovered it to the north of Lake Superior. Pure salt, ready for use, was found in great quantities on the surface at one place on the Slave River, and salt springs were common on the Athabasca and the Mackenzie. Dr. Bell had found some rare minerals and a number of ornamental stones around Hudson's Bay. Among the former were lazulite, axinite, etc. The lignites of the North-

West extend throughout the great valley of the Athabasca-Mackenzie and were abundant along the shores of the Arctic sea between the Mackenzie and the Coppermine River. Lignite had been found by Dr. Bell on the Moose and Albany Rivers, and it was also said to occur near Cumberland Bay. Bituminous coal was reported by the Arctic explorers on Bathurst, Melville and Prince Patrick's Islands and Bank's Land. Anthracite existed on Long Island in Hudson's Bay, but the quantity might not be great. Petroleum promised to be one of the most abundant mineral products of the North West. It was found at the surface in a more or less thickened condition along the Athabasca, Peace and Mackenzie Rivers and around Great Slave Lake, as well as at several localities in the interior. Dr. Bell considered that it was derived from the Devonian rocks, which constituted the great petroleum-producing system in Ontario and the United States, and he had no doubt but that good oil wells would be found by sinking down to these strata. The overlying sands and marls, of cretaceous age, were saturated with immense quantities of inspissated petroleum, even to a thickness of 150 feet. This mass would burn like coal, and it yielded large quantities of oil on distillation. The world might be supplied from these very extensive asphaltic deposits.

As to the metallic ores, those of iron were first noticed and the inexhaustible stores of carbonate of iron and manganese of Hudson's Bay were described. The ore is spread over the surface of thousands of acres on the Manitowick Islands, which are close to the east coast. Dr. Bell had also found a great deposit of spathic iron with limonite at the surface, on the Mattagami River and another of magnetic on Knee Lake. He had induced the Indians of Athabasca Lake to search for iron ore, the result being the discovery of a mass of magnetic ore of fine quality. Captain Dawson of the circumpolar commission, at Dr. Bell's request, had looked for minerals on Great Slave Lake and had found a vein of specular iron. Massive iron pyrites, suitable for the manufacture of sulphuric acid had been discovered at Inari on Hudson's Bay. Copper pyrites had been met with on the east coast and near Lake Mistassini at the head of the Rupert River. The native metal was known to be abundant on the Coppermine River in rocks like those which contain it on the south shore of Lake Superior. Galena was found in masses, some of them of large size, disseminated through a bed of limestone, thirty feet thick, at Richmond Gulf and Little Whale River. Antimony had been noted by Richardson in the north, and zinc, manganese and molybdenum had been found by Dr. Bell on Hudson's Bay. He had also discovered traces of gold and silver in veins on the Eastmain coast. The extensive mountainous region between the mouth of the Mackenzie River and the Pacific Ocean, bordering on Alaska, was spoken of as a very promising one for the precious metals. Gold had been already discovered there. The conditions resembled those of Nevada and Colorado, and this great territory might one day become to Canada, as a mining region, what these States are to the American Union.

## GENERAL MINING NOTES.

The Tolima gold mine of the Republic of Colombia, owned by an English company, is reported as having a gross product of \$88,817 for March of this year, at a cost of \$35,287, leaving a clear profit of \$52,530. At this rate the product for the year should be at least \$1,000,000, with a profit of about \$625,000.

The Ellen Harkins gold mine of Gympie district, Queensland, Australia, recently yielded in five weeks work from 71 tons of ore as much as 1,168 ounces of gold or about \$89,000 from which a dividend was paid of \$74,200.

El Callao, the famous gold mine of Venezuela, is reported as having produced and remitted to London for the month of April 18,038 ounces of gold worth about \$360,000 from which a dividend of \$6 per share was paid.

Investments in California gold mines are estimated at \$150,000,000; it is further estimated that up to January, 1884, the value of the total amount of gold mined has reached upwards of \$1,200,000,000.

Favourable news has been received from the lead and silver mines at Placentia, Newfoundland, which are said to be in a promising condition, the quality of the ore being excellent.

It is said that the Lake Superior region, embraced within the boundaries of the State of Michigan, has mined iron and copper to date to the value of \$370,000,000.

## BRITISH COLUMBIA.

**NANAIMO GOLD MINES.**—Last fall a number of Chinamen were engaged in mining on the Nanaimo River and its tributary Boulder Creek. Last week Messrs. L. Page and J. Allen of Nanaimo visited the head waters of the River and its tributaries. They found that the Chinese had abandoned the diggings, apparently leaving in disgust. On Boulder Creek they had done but little work, while on Nanaimo River work was of an extensive character. There they had erected two large and substantial log houses, packing the timber at least a half a mile. On the gravel bank they had sunk ten or

twelve prospect holes down to the bed-rock, through tightly packed gravel and large boulders. The Chinamen had also run a tunnel a short distance into the hill. In neither place did they meet with any satisfactory results. Messrs. Page and Allen saw the rockers, long toms and sluices left by the Chinamen, also a pick stuck in a prospect hole.

This gravel bed is about a mile above Nanaimo River Falls and consists of packed gravel and boulders, while on the opposite bank of the river are high, almost perpendicular, bluffs of conglomerate rock.

Page and Allen did considerable prospecting but could only find the colour of very fine gold, which it would never pay to mine in such hard ground.

The Mongolians were led away by finding a good pocket or two when they first commenced operations, and consequently went into operations quite extensively. From the work done it is estimated there must have been from twenty to thirty working for several months.

The general impression is that paying diggings will yet be found on the Nanaimo River, and even now men are out there prospecting.

## NOVA SCOTIA.

**NOVA SCOTIA CONSOLIDATED GOLD CONCENTRATING COMPANY.**—The work at Montague and Waverley will start up this month. This company was formed with a capital of \$100,000, by the consolidation of the interests of the Nova Scotia Gold Concentrating Company and of J. G. Foster & Co, for the purpose of working the quantities of rich mill tailings which abound in the various gold districts of the province. At present, the company has a concentrating plant at both Waverley and Montague, and chloridizing-work will be established on tide-water, at Dartmouth, during the summer. The Company is putting in two Golden Gate concentrators, five of the Embrey pattern, and two of Browne's patent. It has already bought upward of 100,000 tons of tailings.

**WEST GORE ANTIMONY MINES.**—Parties interested in these mines are trying to effect a sale. The mines, which up to the present time have been operated only in a small way by private means, are not yet developed sufficiently to demonstrate the character and probable extent of the vein, and a large quantity of ore being already exposed, the property has a present as well as a prospective value. The vein is a true fissure. As far as developed in the mine, or prospected on the surface, it shows an average width of thirteen inches solid metal. Two shafts, 120 feet apart, have been sunk on the vein to a depth of 110 feet, and short drifts of from 20 to 30 feet have been run east and west on the 60-foot level, while the two shafts are

connected by a drift at the bottom. Returns from three shipments of ore, aggregating 100 tons, made to Bath & Son, London, Eng., show 60 per cent. pure antimony, and netted a profit of \$30 per ton. From twenty to thirty tons a day can be mined with the present facilities, and the capacity of the mine can easily be increased by further development and improved methods of working. The mines are situated in Rawdon Township, Hants County, about fifteen miles distant from stations on either the Intercolonial or Windsor and Annapolis railroads. —(*New York Engineering and Mining Journal*).

## EXPEDITION TO HUDSON BAY.

All arrangements for this important expedition have been completed and the *Neptune*, a wooden sailing steamship of about 600 tons, has been chartered from Job Bros., of St. John, Newfoundland, for the purpose. The vessel will sail from Halifax on or about the 15th of July and after coaling at Pictou will sail north. The expedition will be under command of Lt. Gordon, R. N. who will establish observatories and locate the parties, about six in number, at different points, the object of the expedition being to examine into the condition of the Hudson Straits during the winter months. Dr. Bell of the Geological Survey will accompany the party in the capacity of scientist and surgeon and will take assistants with him to aid in examining into the geological formation and mineral resources along the coast of Hudson Bay. This party will constitute a distinct branch of the expedition and will return about the end of October. The other six parties attached to the expedition will winter in the north and the *Neptune* will return for them in the spring.



## NOTICE TO CONTRACTORS.

**SEALED TENDERS**, addressed to the undersigned, and endorsed "Tender for Wilson's Rock Works," will be received until Monday, the 30th day of June next, inclusively, for the construction of a block and beam on Wilson's Rock, so called, River St. Mary, Georgian Bay, Ontario, according to a plan and specification to be seen on application to Adam Dudgeon, Inspector of Harbor Works, Collingwood, and the Department of Public Works, Ottawa, where printed forms of tender can be obtained.

Persons tendering are notified that tenders will not be considered unless made on the printed forms supplied, and signed with their actual signatures. Each tender must be accompanied by an accepted bank cheque, made payable to the Honourable the Minister of Public Works, equal to five per cent. of the amount of the tender, which will be forfeited if the party decline to enter into a contract when called upon to do so, or if he fail to complete the work contracted for. If the tender be not accepted the cheque will be returned.

The Department will not be bound to accept the lowest or any tender.

By order,  
F. H. ENNIS, Secretary.

Department of Public Works,  
Ottawa, 4th June, 1884.

**Professional Cards.**

**T. EDWIN BARRON,**  
Assayer and Chemist,  
14 Bank Block, Cor. Griswold &  
Congress Streets.  
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Will examine and report on Developed Mines  
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**J. F. McANDREW.**  
Expert in Gold, Silver, Copper, Iron,  
Plumbago and Phosphate Mining.

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Mineral Lands examined and reported on.  
ADDRESS:  
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104 & 106 Washington St., N.Y.,  
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Ores Sampled, Working Test by any Process,  
Assays, Analyses of Ores, Mineral  
Waters and Products, Mines  
Examined and Mills  
started.



**NOTICE TO CONTRACTORS.**

SEALED TENDERS, addressed to the un-  
dersigned, and endorsed "Tender for Coal,  
Public Buildings," will be received until  
MONDAY, 21st JULY next, for Coal supply,  
for all or any of the Dominion Public Build-  
ings.  
Specification, form of tender and all neces-  
sary information can be obtained at this  
Department on and after the 24th instant.  
Persons tendering are notified that tenders  
will not be considered unless made on the  
printed forms supplied and signed with their  
actual signatures.  
Each tender must be accompanied by an  
accepted bank cheque, made payable to the  
order of the Honourable the Minister of  
Public Works, equal to five per cent. of the  
amount of the tender, which will be forfeited  
if the party declines to enter into a contract  
when called upon to do so, or if he fails to  
complete the work contracted for. If the  
tender be not accepted the cheque will be  
returned.  
The Department will not be bound to  
accept the lowest or any tender.  
By order  
F. H. ENNIS  
Secretary.  
Department of Public Works, }  
Ottawa, 21st June, 1884. }

**NOTICE TO MINERS.**

POWDER, DUALIN, FUSE, DETONATORS,  
STEEL, IRON, CHAIN, ROPE,  
SHOVELS, PICKS, WHEELBARROWS,  
And all Miners' Supplies For Sale at  
**THOS. BIRKETT'S,**  
Rideau Street, - - - Ottawa, Ont.



**ADVERTISEMENT.**

TENDERS will be received by the under-  
signed up to the hour of 12 o'clock  
noon on FRIDAY, the 11th day of July next,  
for the purchase of what is known as the  
**Pincher Creek Indian Supply  
Farm**  
situated some 30 miles south-west of Fort  
McLeod, in the district of Alberta, North-  
West Territories, containing about 3,000 acres.  
The farm has been occupied and cultivated by  
the Indian Department as a supply Farm for  
the Piegan Indian Reserve, and will be sold in  
one block, with the improvements thereof.  
During the past year it was leased by the  
Halifax Ranching Company. The soil is de-  
scribed by the surveyor who laid out the farm  
as being of superior quality, the herbage rich,  
and the water abundant and good.  
The grain crops upon the farm are stated by  
the farmer of the Indian Department in  
charge, to have been excellent and to have  
ripened well.  
There are upon the land a dwelling-house,  
granary, blacksmith's shop, cattle and hay  
corrals, sheds, barbed wire fence enclosing  
fifty acres, a deep well, and the land is par-  
tially drained.  
Payment will be required to be made one-  
fourth in cash, and the remainder in three  
equal annual instalments with interest upon  
the unpaid balances at the rate of six per cent.  
per annum.  
Each tender must state clearly the amount  
per acre offered, and must be accompanied by  
a cheque marked good by one of the chartered  
banks of Canada for 10 per cent. of the  
total amount of the price offered, the differ-  
ence between 10 per cent. of the purchase  
money and the first instalment of one-fourth  
to be paid to the credit of the Minister of the  
Interior, on or before the 15th day of Sep-  
tember next.  
The lowest or any tender not necessarily  
accepted.  
A. M. BURGESS,  
Deputy of the Minister of the Interior.  
Department of the Interior, }  
Ottawa, 6th May, 1884. }



**NORTH-WEST MOUNTED  
POLICE.**

SEALED TENDERS marked "Tenders for  
Hay and Straw," and addressed to the  
Hon. the President of the Privy Council,  
Ottawa, will be received up to noon on WED-  
NESDAY, the 28th day of JUNE next, for  
furnishing Hay and Straw to be delivered at  
the Mounted Police Barracks, at the follow-  
ing places.

Regina	200 tons hay, 130 tons straw.
Fort Calgary	300 " " 130 " "
Fort McLeod	300 " " 130 " "
Manle Creek	75 " " 25 " "
Medicine Hat	75 " " 25 " "

Printed forms of tender, containing full  
information as to the articles and quantities  
required, may be had on application to the  
Department.  
No tender will be received unless made on  
such printed forms.  
The lowest or any tender not necessarily  
accepted.  
Each tender must be accompanied by an  
accepted Canadian Bank Check for an amount  
equal to 10 per cent. of the total value of the  
articles tendered for, which will be forfeited if  
the party declines to enter into a contract  
when called upon to do so, or if he fails to  
complete the service contracted for. If the  
tender be not accepted the cheque be return-  
ed.  
No payment will be made to newspapers in-  
serting this advertisement without authority  
having first been obtained.  
FRED. WHITE,  
Comptroller.  
Ottawa, 8th May, 1884.

**PERKINS' FOUNDRY  
OTTAWA.**  
FORGINGS AND CASTINGS

OF EVERY DESCRIPTION, TRUE  
TO PATTERN.

Wheels and Axles for Tram  
Cars, Derrick-fittings, Hoisting  
Gear, Shoes, Dies, Hammer-  
heads, Iron Pipe and Gearing  
of all kinds. Also Boilers and  
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| F. E. SMITH.....    | Secretary.      |

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**NOTICE TO CONTRACTORS.**

SEALED TENDERS addressed to the un-  
dersigned, and endorsed "Tender for  
Painting Ironwork, Parliament Grounds,  
Ottawa," will be received at this office until  
Thursday, 26th instant, inclusive, for  
Painting Ironwork of Fences,  
Lamps, Gates, etc.  
PARLIAMENT GROUNDS, Ottawa  
Specifications can be seen at the Depart-  
ment of Public Works, Ottawa, on and after  
Monday, 16th instant.  
Persons tendering are notified that tenders  
will not be considered unless made on the  
printed forms supplied and signed with their  
actual signatures.  
Each tender must be accompanied by an  
accepted bank cheque, made payable to the  
order of the Honourable the Minister of  
Public Works, equal to five per cent. of the  
amount of the tender, which will be forfeited  
if the party declines to enter into a contract  
when called upon to do so, or if he fails to  
complete the work contracted for. If the  
tender be not accepted the cheque will be re-  
turned.  
The Department will not be bound to  
accept the lowest or any tender.  
By order,  
F. H. ENNIS,  
Secretary.  
Department of Public Works, }  
Ottawa, 13th June, 1884. }



**NOTICE TO CONTRACTORS**

SEALED TENDERS, addressed to the under-  
signed, and endorsed "Tender for a Break-  
water, Port Arthur," will be received until  
Monday the 30th day of June next, inclusive,  
for the construction of a

**BREAKWATER**

AT  
**PORT ARTHUR, THUNDER BAY,**

according to a plan and specification to be  
seen on application to John Niblock, Esq.,  
Superintendent, Canadian Pacific Railway,  
Port Arthur, and at the Department of  
Public Works, Ottawa, where printed forms  
of tender can be obtained.  
Persons tendering are notified that tenders  
will not be considered unless made on the  
printed forms supplied, and signed with their  
actual signatures.  
Each tender must be accompanied by an  
accepted bank cheque, made payable to the  
Honourable the Minister of Public Works,  
equal to five per cent. of the amount of the  
tender, which will be forfeited if the party  
declines to enter into a contract when called  
upon to do so, or if he fails to complete the  
work contracted for. If the tender be not  
accepted the cheque will be returned.  
The Department will not be bound to  
accept the lowest or any tender.

By order,

F. H. ENNIS,  
Secretary.

Department of Public Works, }  
Ottawa, 22nd May, 1884. }



**NOTICE TO CONTRACTORS.**

SEALED TENDERS, addressed to the un-  
dersigned, and endorsed "Tender for  
dredging River Kaminstiquia," will be re-  
ceived until Monday the 16th day of June  
next, inclusive, for dredging across the  
shoal at the mouth of the River Kaminsti-  
quia, Thunder Bay, Lake Superior, according  
to a specification to be seen on application  
to John Niblock, Esq., Superintendent, Cana-  
dian Pacific Railway, Port Arthur, and at the  
Department of Public Works, Ottawa, where  
printed forms of tender can be obtained.  
Persons tendering are notified that tenders  
will not be considered unless made on the  
printed forms supplied, the blanks properly  
filled in, and signed with their actual signa-  
tures.  
The Department will not be bound to accept  
the lowest or any tender.

By order,

F. H. ENNIS,  
Secretary.

Department of Public Works, }  
Ottawa, 22nd May, 1884. }

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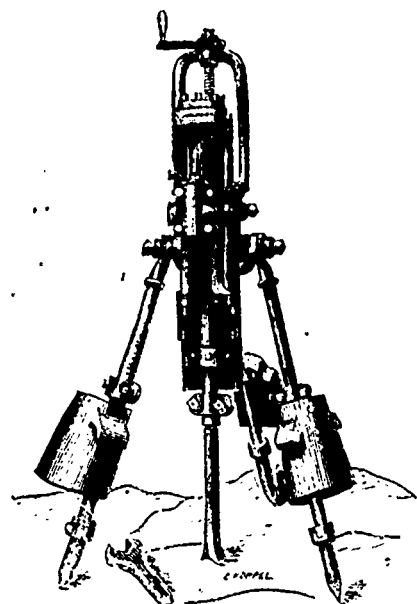
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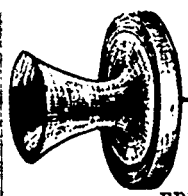
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