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MINING REVIEW

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1884—OTTAWA, OCTOBER-NOVEMBER—1884

VOL. 2.—No. 10

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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 20th of the month.

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

Beginning with the December number the CANADIAN MINING REVIEW will be published on the first of each month, and for that reason we issue this October-November edition.

The meeting in Canada of the British Association for the Advancement of Science will have no insignificant effect upon the future development of our mining industries. From Nova Scotia to British Columbia the mining sections were visited by some of the members of the Association, and many of the mines examined by scientific gentlemen, who, as geologists and mining engineers, have attained the highest positions in

their respective professions in England and on the continent of Europe. The universal opinion expressed by these gentlemen was to the effect that Canada had a great future before her as a mineral producing country. In the magnitude and variety of her mineral deposits nature has been liberal indeed, and this being the case it can be but a question of time when the necessary capital will find its way from the money centres of the world to aid in their development. The Nova Scotia gold mines; the gold and asbestos mines of Beauce, in the Province of Quebec; the copper mines of the Eastern Townships; the phosphate mines of Ottawa County; the iron mines of Eastern Ontario; the coal mines and extent of the coal beds in our easternmost and westernmost provinces; and the great variety of building stone available from one end to the other of the Dominion, quite surprised these learned men from the older world, and opened their eyes to the fact that outside of Canada our great natural resources have been, to a great extent, unheard of. The holding of the meeting of the Association for the Advancement of Science in Montreal will, therefore, afford us many advantages that, otherwise, could not, or might not have been procurable. The many letters that have appeared in the English press from the pens of these scientists, descriptive of what they saw, and repeating what they heard while they were visiting Canada, are evidences that they had been more than favourably impressed, and that their desire is that the world should know it.

In our next number we will publish a full and correct statement of the year's output of the Canadian phosphate mines, together with a statement showing to what ports it was consigned.

Mr. A. C. Lawson, employed on the staff of the Geological Survey of Canada, has completed his operations, for this season, in the Lake of the Woods District. He expresses the opinion that the section of the country examined by him during the past summer is rich in mineral.

The Phosphate Trade.

The shipping season for this year is closed and mine owners are now turning their attention to preparing for the winter's operations. Since phosphate mining was first started in this district the industry has never given such promise of rapid growth as it does to-day. The mines that have been in operation during the past few years are now supplied with machinery and other plant necessary to proceed with mining on a large scale and to the best advantage, and the mines are capable of yielding an annual output nearly double what has been produced, heretofore, in a single year. In addition to those mines that have already been developed there are many promising properties being opened and the outlook for a largely increased production is very encouraging.

The past season has seen many important changes at the mines, notably at "High Rock." Mr. Pickford, President of the Phosphate of Lime Company, of London, England, owners of this valuable property, has been at the mine for some time this autumn, where he has personally directed important reforms. Steam power was introduced at High Rock during the summer, and has, quite recently, been added to; a systematic principle has been laid down for future working, and with these addi-

tions and improvements Mr. Pickford is sanguine that, before the close of the shipping season of 1885, he will be able to mine and ship quite 10,000 tons of phosphate, or about double the past year's output of this mine.

No change of any importance has been made in the plant of the Union Phosphate Company, whose property was thoroughly equipped when work was started, about eighteen months ago. The development of this company's mines has been very satisfactory, and there should be nothing to hinder the manager from producing a largely increased output during the next twelve months.

The Dominion Phosphate Company's "North Star" mine continues to yield about 10 tons daily, and the phosphate, as we have frequently stated, is of a very high grade.

The "Little Rapids" mine has improved during the past few months more than any mine in the district, and in all the openings and shafts large bodies of bright green ore are exposed. Some new openings have been made within the past month that have uncovered very large beds of mineral. The deposits on this property have the appearance of fissure veins more than in any other section of the phosphate district, and the mineral has been followed to a greater depth than at any other phosphate mine in Canada.

At the "Emerald" mine another commodious boarding-house has been erected for the accommodation of the miners, and it is the intention of the manager to employ a largely increased force. As it only requires labour to produce mineral from this mine, it is to be expected that the output will be increased correspondingly with the extra force of miners employed.

At the "Lansdowne," adjoining the "Emerald," a great deal of dead work has been accomplished during the past six months, and the miners are now

working on mineral. The owners of this property, the Dominion Phosphate Company, are well pleased with the way it has developed, and are sanguine that it will yield abundantly when thoroughly opened up.

The Lièvre River Phosphate Company, incorporated in July last, are now engaged in active mining operations. At their "Battle Lake" mine, in Templeton, 23 men are employed, who are turning out a fair quantity of high grade phosphate, and at their "Prospect" mine, in Portland East, 9 men have begun to open up some promising deposits from which they extracted from the surface a ton a day per man; this average is, however, not likely to be maintained as they sink deeper.

The Templeton and Wakefield mines will continue to contribute their quota to the output of the County of Ottawa.

The complete returns of the year's shipments of phosphate from Ottawa County has not yet reached us, but we have no reason to think that 23,000 tons, the amount we mentioned as the probable total output, will be much astray. The Perth and Kingston districts have contributed about 2,000 tons additional.

Phosphate Quotations.

At this season of the year there is little or no movement in Canadian Phosphate abroad, and late sales are, therefore, not an indication of the general market. Our latest advices quote one shilling for seventy-five per cent. mineral with one-fifth of a penny rise.

Facilitating Transportation of Phosphate.

RIVIERE DU LIEVRE IMPROVEMENTS.

Short Line Railway from Buckingham Village to C.P.Ry. Depot under Contract.

There has been an unaccountable delay in beginning work on the Little Rapids Lock, but the surveys have been made by the Engineers of the Department of Public Works, and the plans are completed. The Government have not, as yet, invited tenders for its construction, but it is not unlikely that this will be done shortly and that work will be begun on the lock before the close of the year. That it should be built is very important to the phosphate miners in the Lièvre district as it will enable them to float their mineral down the river in large vessels for transportation to the

SHORT LINE RAILWAY

at its terminus at the landing, north of Buckingham Village, and thus connect with an all-rail route over the Canadian Pacific Railway from this point to Montreal. This branch railway will be built by the C.P.R. Company under its charter for the Northern Colonization Railway and the contract has been awarded to Mr. Thos. Raeside, who has already a force of men employed clearing the right-of-way, and it is expected that he will put a sufficient force to work at the grading to have the road-bed ready to receive the rails by the first week in December. This branch line will be a boon indeed to the phosphate men, and by the time the output will have begun to move in the winter the necessity of hauling their phosphate from Buckingham Village to the railway station will be a disadvantage of the past.

With the lock completed at the Little Rapids, and this short line railway constructed to the landing, the transportation of ore from the mines to Montreal, both in winter and summer, will be greatly facilitated.

A New Mining Company Organized.

A meeting of the shareholders of the Lièvre River Land and Phosphate Company (Limited), recently incorporated, was held at the company's office, No. 41 St. Francois Xavier Street, Montreal, on the 14th of October, and the following gentlemen were elected directors: Robert C. Adams, W. R. Elmenhorst, Wm. T. Costigan and Peter Lyall, of Montreal; Charles H. Trask, of New York; and A. F. Freeman, of Boston. At a subsequent meeting of the directors Robert C. Adams was elected President; W. R. Elmenhorst, Vice-President; Wm. T. Costigan, Treasurer; and J. Keith Reid, Secretary. As has been stated in a former issue of this journal, the L. R. L. & P. Company, limited, has acquired extensive areas of phosphate lands in Ottawa County, in the townships of Templeton, Portland west and Portland east. The company is now engaged in active mining operations.

THE MICA MINES

It is gratifying to hear the satisfactory reports that reach us almost daily from the mica mines that are in operation. The mines are improving with development in a marked degree, not only as concerns the increase in the quantity of mica obtainable, but the mineral in all cases has improved in quality as lower depths are reached. Near the surface the leaves of many of the crystals were discolored and thus impaired in market value; but it would seem that these defects almost entirely disappear at a depth beyond atmospheric influence. At one

mine in particular, where the mica was very generally discolored by oxide of iron, it is only in exceptional cases that crystals thus affected are now met with. In the township of Loughborough, Province of Ontario, a mine, producing mica of an amber shade, is being profitably worked, and from mines in North Burgess a quantity of excellent mica is being shipped each month. In the townships of Palmerston and Miller a fine quality of mica occurs but as yet the deposits are quite undeveloped. In the township of Villeneuve a very valuable mine is yielding mica in large quantity and in quality unexcelled on this continent: this mine, when more developed, will be a heavy producer, as the deposit is very extensive and the crystals well formed.

Asbestos Mining in Canada.

An article under the above heading appeared in the last number of this journal, and we are now in receipt of a communication, from a gentleman residing in the district where the industry is being so vigorously developed, requesting us to add the following facts: The Megantic mines have produced, up to Oct. 1st, one thousand tons of asbestos, the principal operators being—The

Boston Asbestos Packing Company, The Johnston Company, King Brothers, J. G. Ross, Senator and Wards, whose mines are in the township of Thetford; L. A. Senecal, Charles Lyonais and James Reed, in Coleraine; and the Chalmers Spence Company in the township of Broughton. The yield from all these mines has been most satisfactory to their owners, and the output has been disposed of at such prices as to leave a large margin of profit. The late discoveries on the property of Mr. Lyonais, in Coleraine, are said to be of much importance to mine owners in that section, and our correspondent adds that facilities for mining in Coleraine are all that can be desired, and that this township will, with the further development of its mines, contribute largely to the general output of this asbestos producing district. The mines have been visited during the season by a number of scientists and experts from Europe and the United States, all of whom were most favourably impressed. Strange to say that, up to the present time, no officer of the Geological Survey has visited these mines this year, and it is to be hoped that before the mining season closes some one of the staff will be sent through the district to collect complete information and to report progress in this important industry.

LAKE SUPERIOR MINES.

NEW DISCOVERIES REPORTED.

MINING OPERATIONS ACTIVE.

In an effort to boom the mines in Port Arthur District, the reports that have been circulated, respecting the richness and inexhaustible quantity of the ore that is being raised, sound like wild romance to the practical miner and the cool and collected, calculating capitalist. That the discoveries made during the past eighteen months are of much importance no one can question, and the result of the development work that has already been done, up to the present time, on some of the lodes, has been such as to warrant preparations for permanent mining operations; but any attempt to mislead the public by foolishly exaggerated reports will serve no good, practical purpose to the district, though it may be the means of putting money into the pockets of a few speculators.

The Rabbit Mountain Silver Mining Company are at work again on its location, and if the miners should be fortunate enough to work into a series of pockets of rich ore, such as the one that was first met with, the property must yield a handsome profit to its owners. From this one pocket, which occurred quite near the surface, the original proprietors of the mine extracted upwards of \$100,000 worth of silver, chiefly in the form of black silver nuggets, at small cost, and on which the reputation of the mine was established. We now hear that at the depth of 80 feet, in a drift, the miners have come upon another body of rich ore. The excitement of the moment has led people to circulate the report that this new pay-streak measures two feet in width and yields ore assaying 4,000 ounces of silver to the ton. This is certainly a wonderful strike, if report be true. Referring to the "Rabbit Mountain," the N.Y. *Mining Record*, in its issue of October 18th, remarks that "this Canada silver mine was referred to not many months ago, by one of the remarkable people who purvey editorial matter for the leading daily newspapers of this city (New York), as likely to increase the already too large output of silver in the United States." This property is now in the hands of men who are amply capable of providing all the facilities necessary to proceed with active operations to the best advantage, and with Captain John Trethewey, formerly of Silver Islet, as superintendent, there exists no reason why the mine should not, henceforth, be worked in a thoroughly mining-like and practical manner, and the public will, at all times, be pleased to hear sensible reports of satisfactory progress.

A new discovery of silver is now reported to have been made within seventeen miles of the "Rabbit Mountain Mine," which has been styled SILVER MOUNTAIN, and if the description of the location be correct it deserves the title, for we are told that in richness it excels the famous "Rabbit Mountain," and that the lode is sending forth nuggets of black silver weighing sixteen pounds and upwards, while the ore is streaked with silver, native and black.

It is also reported that yet another discovery has been made quite recently within easy distance, by rail, from Port Arthur, and that the ore assays upwards of \$80 in gold, over \$20 in silver, to the ton, and carries free gold.

It is also stated that native mercury has been found in the same district.

Summing up all the general information and actual facts that we have been able to gather from time to time, and from various sources, we cannot but be convinced that the Port Arthur District is destined to develop into one of the richest mining regions in the Dominion. Up to the present time, however, we do not hesitate to say that in our opinion the "Huronian Mine," though not quite so accessible as some of the others, is the most valuable mine that has yet been opened in the district, for the work that has already been accomplished on the lode has been sufficient to prove that, for many years to come, it can be, if carefully managed, a steady producer of ore carrying gold and silver in sufficient quantity to leave a large margin of profit to the shareholders. This company is well organized and controlled by steady-going, practical business men, who are offering no stock for sale and consequently are not desirous of booming the property.

NOVA SCOTIA MINING NOTES.

BLUENOSE GOLD MINING COMPANY.

This company, whose property is situated in the Montague district, opened a promising lead last fall, and erected an engine, pump, and other machinery necessary to thoroughly test it. The concentrating mill, which had been burned down, was rebuilt, and experiments were made with a set of Embrey concentrators which solved the problem as to the practicability of re-working Nova Scotia quartz tailings. The workings which have been re-opened by the Bluenose Company are on the site of the old De Wolf Mine, and, after nine months of unsuccessful prospecting and mining, they cleared out the old shaft, eighty feet deep, and sunk it thirty-five feet further, but it is only within the last three months that paying leads have been worked. Of these there are three running parallel and nearly together, one about three inches, another six inches, and a third over eighteen inches wide. Another shaft has since been sunk, and is now about thirty feet deep, and in a third the lead has been struck a short distance from the second. The property is equipped with an eight-stamp mill and a regular series of attachments, quicksilver plates, etc. The Bluenose Mine was visited by a number of the members of the British Association for the Advancement of Science, when the lode was showing some handsome nuggets. They were much interested in the company's method of crushing the ore, and expressed themselves highly pleased with what they had seen.

COXHEATH COPPER MINING COMPANY.

At this mine, situated near Sidney, Cape Breton, a vein of good ore has been struck in the 190-foot level of shaft No. 2, and, together with the ore already in sight on the 140-foot level, the ability of the mine to permanently keep reduction-works supplied with pay ore is considered settled. The company has adopted the same process for leaching all its ore under 6 per cent. copper as is in profitable use at the Tharsis and Mason & Barry mines in Spain, whose product, in the form of precipitate, is sent to the same market at Swansea, Wales, as the product of the Coxheath mine will be shipped to. The company proposes to erect leaching-works, and is in the market for funds. Up to September 1st, 1884, there had been expended in the enterprise \$141,564.13. July 1st, 1883, the company authorized the issue of \$100,000 first mortgage bonds, bearing 8 per cent. interest. Sixty thousand dollars of these bonds have been placed for cash at par, and the remaining \$40,000 are now to be placed. A stock bonus of 10 shares is to be given with each \$100 bond. Besides the accrued interest on the bonds from July 1st, 1884, the company claims to be able to produce copper at a profit with copper at even a lower price than the present.

BRITISH COLUMBIA MINING NOTES.

On Sunday morning, 12th Oct., an explosion of gas took place in No. 2 mine, Southfield, in that part of the mine known as the level, and which is being driven for the purpose of connecting No. 2 with No. 1 mine. From what can be gleaned it appears that on the morning in question David Morgan proceeded into the mine and down the slope as far as the entrance of the level, which is covered with a curtain,

when he sat down and awaited the arrival of the fireman, M. J. Price, who arrived shortly afterwards. The fireman was about lighting his safety lamp prior to testing the level for gas when from some cause or another the gas in the level took fire and exploded with considerable violence. Price, Morgan, Macfarland and a Chinaman were knocked down and severely hurt. Dr. Walkem, of East Wellington colliery, and Dr. Davis, Dr. Chinross' assistant, were sent for, by whom the wounds of the unfortunate men were dressed.

The Southfield Mine is a new mine started by the Vancouver Coal Company, about four miles to the south of Nanaimo.

News from the gold mines on Lorne Creek, Skeena River, is very encouraging. Mr. B. W. Washburn, who arrived at Victoria, B.C., from that district on the 16th instant, says that himself and a party of four took from their claim \$3,000 worth of gold in one month. Six or seven claims have been thoroughly worked, and all are doing well, from \$3,000 to \$7,000 being taken out of each claim during the past month. Mr. Washburn has exhibited some nuggets, to the value of \$250, which were coarse pure gold, showing that Lorne Creek is not as worthless as some people predicted it would be. Those claims that have not as yet been properly worked are not doing so well, but still the output is anything but discouraging.

The Indians are still in a troublesome state, but the miners fear no harm from them, as they, the miners, are well armed and prepared to maintain their rights. Mr. Washburn holds the opinion that Lorne Creek abounds in mineral wealth and that a great future is in store for the country thereabouts.

Advices to the *British Colonist*, from Lorne Creek, Skeena River, state that miners are doing well in that region. Forty or fifty men arrived from Victoria during the months of August and September, and a good deal of excitement is felt along the creek. One of the first locators writes that his claim is panning out about an ounce a day to the man. Other creeks in the same region look very favourable and the country will be thoroughly prospected.

For eighteen months the tunnel of the Burns Mountain Mining Company has been steadily progressing and when work was stopped had penetrated 820 feet into the mountain. The object of the tunnel was to strike what is known as the "Luck Cap" ledge from which, in former years, a large amount of gold is said to have been taken by means of a shaft sunk on the ledge for 45 feet, but the shaft had to be abandoned on account of water and the tunnel above referred to was undertaken. A survey just completed shows that the tunnel has reached the distance of the shaft at a depth of 170 feet below. The ledge is said to dip away from the tunnel at 18 feet per hundred, so that, at most, another 50 or 75 feet would decide the question. We would bespeak for this enterprise the attention of those of our fellow citizens interested in one of our great future industries—quartz mining—and wish the Burns Mountain Company that success which energy and perseverance commands.—*British Colonist*.

GOLD MINING IN BRITISH COLUMBIA.

A valuable paper on the Gold Mines of British Columbia was lately read by the Hon. H. Holbrook at Liverpool, his object being to draw attention to the gold mining industry, more especially, also, to the hydraulic gold washing resources, their great extent, and the profits derived from similar undertakings in California; to the quartz leads and their extent, and to gold mines generally. The chief want of the district is a white population to settle on the lands and white labour on the railroad works. Great advantages are offered to both, as well as to capital for the mining industry. The climate is good and corresponds with that of Kent. Railroad communication is rapidly extending, and British Columbia is now confederated with Canada. Upon the progress of the territory the author waxes eloquent; "The colony was first created by revocation of the crown grant to the Hudson Bay Company on the 3rd of November, 1858, succeeded by a proclamation issued by the Governor, Sir James Douglass, on the 19th November, 1858, providing for the Government of British Columbia, and declaring English law in force in the colony. From 1858, the progress of the country was brilliant, resembling the marvellous career of California and Australia after the discovery of gold in those countries. Thousands upon thousands flocked to these golden shores to improve their condition. The original deposits of gold, however, from which the shallow bars and benches of the Fraser River were fed, were not discovered then, nor indeed have they, in the opinion of many scientific men and experienced miners, been discovered yet. The mines on the Fraser were, therefore, soon exhausted; and being unable to sustain the multitudes flocking to them, were to a great extent deserted." Mining was begun on Fraser River at Hope, a place ninety-six miles from its mouth. The nature of the deposit and the character of the gold were invariably the same; that

is, the deposit was shallow and the metal light, or what is commonly called "float gold." Gold in paying quantities was found along the Quesnelle River. Roads were constructed into the interior at immense cost of time and money; and public works on a large scale were constructed and carried on. He describes the yield of gold from the mines as something wonderful. Up to 1862, he says, it is safe to say, there never could have been at any one time over 5,000 miners engaged (and the return say only 4,000) in working the mines, and yet the annual yield was nearly £1,000,000, including, over the bank returns, the estimates of the gold taken away in private hands, a *per capita* average without parallel in the world. Taking the period from 1858 to 1882, he has prepared a table showing the actually known and estimated yield of gold, the number of miners employed, and average earnings per man:

YEAR.	Amount received by Banks and Private Hands.	Number miners employed.	Average earnings per man.
1858 } 6 months }	\$ 520,000	3,000	\$173
1859	1,615,072	4,000	403
1860	2,228,543	4,400	506
1861	2,666,118	4,200	634
1862 } 1863 }	4,246,266	{ 4,100 4,400	{ 517 482
1864	3,735,850	4,400	849
1865	3,491,205	4,294	813
1866	2,662,106	2,982	893
1867	2,480,868	3,044	814
1868	2,372,972	2,390	992
1869	1,774,978	2,369	749
1870	1,336,956	2,348	569
1871	1,799,440	2,450	734
1872	1,610,972	2,400	671
1873	1,305,749	2,360	567
1874	1,844,618	2,868	643
1875	2,474,904	2,024	1,222
1876	1,786,648	2,282	783
1877	1,608,182	1,960	820
1878	1,275,204	1,883	677
1879	1,290,058	2,124	607
1880	1,013,827	1,955	518
1881	1,046,737	1,898	551
1882	954,085	1,738	548
	\$47,141,711		

Williams Creek is estimated, in a territory of $2\frac{1}{2}$ miles, to have yielded five millions sterling. The Black Jack, in the Cariboo District, realized in two years £10,000, with an expenditure of £10,000; the Cunningham in four years gained £1,000,000, at a cost of £20,000; the California, the same; and the Steel Company gained £150,000 at an expense of about £50,000. All this, it should be borne in mind, was obtained without science or machinery, and with only the gold prospector's skill. On the Antler Creek, at a depth of less than five feet, men made from £10 to £50 a day regularly. What is now wanted is machinery, science and skill. It is also necessary to explore and thoroughly prospect the country for new diggings, or rediscover the old deposits in the surrounding hills.

NORTH-WEST COAL.

A very interesting article, entitled "King Coal," from the pen of Professor C. D. Wilber, formerly State Geologist of Illinois, has appeared in the *Chicago Mining Review*. Professor Wilber is personally known to us and has been a frequent visitor at our office. He bears the reputation of being one of the recognized authorities in the United States on coal; he is an able statistician and a powerful writer. During the past year he has directed some attention to the mineral resources of Canada and has carefully investigated the coal beds of our North-West Territories. After dwelling upon the development and distribution of coal in the Western and North-Western States and Territories, the sources of supply for the great agricultural areas destitute of coal, the relation of low coal rates on railroads to immigration and the recent discoveries of coal in Dakota, Wyoming and Colorado, he proceeds to speak of coal in the British possessions north of the 49th parallel, in terms as follows:—

"Taking our course north from Mexico, and comparing each political division or territory with the one south of it, we are certain to notice the

great preponderance of coal north of the 30th parallel. Large deposits of coal from 10 to 15 feet in thickness are found 400 and 500 miles north of Montana and Idaho. It is probable, however, that in the extreme north, bordering on the Arctic Ocean, we shall find a corresponding limit of coal, the cause of which is referable, as before stated, to the climatic conditions of vegetable growth.

"It will be interesting, especially to Canadians, to know the sources of coal for the vast region now intersected by the Canadian Pacific Railway. This area comprises the Provinces of Manitoba, Assiniboia, Alberta, and British Columbia. Here is an immense wilderness of both flat and rolling prairie, of grassy plains and magnificent rivers, having a soil both capable of husbandry and herding, as is proven to-day by thousands of new farms where so recently prevailed the wild and hopeless monotony of Nature.

"Into this unmeasured domain nearly 2,000 miles in length, east and west, by at least 500 in width, north of the 49th parallel—the international boundary—are coming, with the facilities of this new trans-continental railway, now being constructed by the Government, hundreds of thousands of the more hardy populations of northern latitudes—of Ontario, Quebec and Northern Europe, already accustomed to long winter terms.

"A colony of families from Iceland,' says a Winnipeg paper of recent date, 'have settled in Manitoba, and are so delighted with their new summer-land that they have sent greetings to their friends, with advice to come and possess the fertile acres of Manitoba, 'without money or price.' It is pleasant to anticipate them and their cousins, the Greenlanders, removing from the 75th to the 50th parallel, and rejoicing in the sunshine of a warmer climate, where even 40° below zero is to them a foretaste of ethereal mildness.

"Coal supplies for the eastern portion of this new region will come from the Souris River lignites already referred to. The middle region can be supplied from the Medicine Hat and Belly River coal districts which also afford lignites. The last named coals are inferior in quality, i.e., not compact, having a heavy per cent. of ash and moisture, and easily disintegrated in the open air. But notwithstanding they are the lowest order of cretaceous coals, yet the necessities of a six months' winter will compel their use and distribution by rail on an extensive scale.

"Beyond Calgary, which is destined to become the leading city of the North-West Territory, coal is found of a quality far superior to the lignite of the plains just referred to.

"A field of anthracite coal has recently been found near Cascade Mountain on the Canadian Pacific Railway 900 miles west of Winnipeg. It has been traced in a direct line, on its outcrops, for several miles, and at intervals pits or shafts have been dug to prove the regularity and persistence of this anthracite stratum. About 300 tons have been mined and shipped to the East, and from this amount, sufficient tests have been made, to prove not only its great value, but also its identity, as a true anthracite coal.

"In the Western States and Territories it is a universal fact that the grade of coals, in quality or value, increase towards the Rocky Mountains as follows:—

1. We have loose or spongy lignites;
2. Compact or solid lignites;
3. Semi-bituminous;
4. Anthracite.

"A correct outline map of the productive coal limits of the Western States and Territories must be vague and uncertain especially on the south. Western Texas, New Mexico and Arizona should have areas indefinitely shaded with frequent doubtful signals—thus (?)

"But the coal area rapidly enlarges with every succeeding parallel going north. This area is over 200 miles wide in Southern Colorado. While in northern Colorado from Greeley westward, across North Park to the coal fields of Utah in Great Salt Lake region, the width of the coal area is nearly 600 miles.

"Through Wyoming, beginning in the Black Hills Region, the coal area extends into Idaho, and includes several deposits of great size and value, notably one near Evanston on the Union Pacific Railway, having a thickness exceeding 40 feet; easily traceable several miles northward in the Bear River Valley. But, on the other hand, it is quite contrary to expectation, yet a fact, that the country nearly 900 miles west of Ogdon, including both Nevada and California, is almost, if not quite destitute of coal.

"We find the greatest width of coal area is spanned by the 40th parallel, or the international boundary, reaching from the Souris River coal system to the Pacific coast, with considerable areas intervening that are destitute of coal, both in northern Idaho, Montana and Manitoba.

"North of this line we have already followed the route of the Canadian Pacific Railway, with results as above stated. Still further to the north-west, 200 miles north of Calgary, in the vicinity of Edmonton, are found large areas of excellent coal, exceeding 12 feet in thickness, extending thence west to the head waters of the Athabasca, and across again to the Pacific coast.

"So varied are the above described coal areas, in their quality, quantity and surroundings, that the man who reads the mute but sure

prophecies of nature can readily locate the future great centres of those industries that are based upon coal and iron."

In concluding his "King Coal" article, Prof. Wilber, worked up to a high pitch of enthusiasm by his review of long study and personal observation, finds expression for his feelings in the following words:—

"Based upon the facts that faithfully describe these resources of the Great West, undeveloped and unlimited, no speech can be considered extravagant that sets forth the possibilities of ultimate America.

"Even here is the grandest arena on earth for realizing the beautiful vision of the Apocalypse.

"And the City lieth four square, and the length of it is as large as the breadth. And he measured the city with a reed, 12,000 furlongs (or 1,500 miles square). And the nations of them which are saved shall walk in the light of it, and the kings of the earth do bring their glory and honor into it."

FOREIGN SOURCES OF LEAD PRODUCTION.

Numerous applications have reached us during the past few months, from people who are the owners of, or are interested in Galena deposits in various localities in the Dominion, for statistical information respecting the lead production in foreign countries, and as there appears to be a disposition on the part of these gentlemen to develop their galena deposits, we reprint, for their information, an interesting article which has recently appeared in the *New York Mining Record* bearing on the production of lead outside of the United States, as follows:—"Our production of lead, especially from argentiferous ores, is so steadily increasing in commercial importance that it becomes of immediate interest to our readers to have at least an approximate knowledge of the production of other countries; and especially of Great Britain, at once a considerable producer as well as importer of lead. According to the *London Mining World*, the total output of lead by the mines of the United Kingdom, for 1883, was 39,190 tons, of the aggregate value of \$2,527,000. This was a considerable falling off in the number of tons produced, as will be seen from the following statement of the quantity of lead produced in the United Kingdom for the ten years ending 1883 the quantities imported and exported and the amount left for home consumption:—

Year.	Produced from British ores. Tons.	Imp't and lead obtained from foreign ores. Tons.	British and foreign lead exported. Tons.	Available for home consumption. Tons.
1874	58,777	74,351	41,321	91,807
1875	57,435	89,705	38,624	108,516
1876	58,667	91,010	42,685	106,992
1877	61,403	105,472	47,785	118,990
1878	58,020	112,977	36,478	134,519
1879	51,635	117,014	36,776	131,873
1880	56,949	107,211	33,531	130,609
1881	48,587	106,593	43,109	112,071
1882	50,328	100,331	37,375	113,784
1883	39,190	118,521	59,287	118,424

Thus, the amount produced during 1883, was 11,138 tons short of the output of 1882, and 16,563 tons less than the average annual product for the preceding nine years. At the same time, however, the amount of lead imported or extracted from foreign land ores is 18,199 tons greater than for 1882, and 18,003 tons greater than the average yearly imports for the preceding nine years.

As for the exports of lead for 1883, they exceed those of 1882 by 1,912 tons, but were only somewhat greater than the yearly average exports for the preceding nine years, while the amount left available for consumption in the British Islands, only exceeding by 4,640 tons that for 1882, fell below the average yearly amount. The lead product in the ore treated was thus distributed as to sources, for 1883:

	Tons.	Cwts.
England and Wales	35,217	1
Scotland	3,613	12
Ireland	358	18
Total	39,189	11
Silver ounces		344,052

The highest price for English pig during 1883 was \$70 and the lowest \$59. The quantity of pig lead exported was 23,583 tons, the most of which went to China and Russia, but only 326 tons to the United States. The chief imports of lead ore into the United Kingdom during 1883, were from France, 2,763 tons; Spain, 2,906 tons; Italy, 5,386 tons and Peru 141 tons. For the last five years included in the

first table given above, we are able to give the chief quarters to which the lead was exported from the United Kingdom, namely:

	1879. Tons.	1880. Tons.	1881. Tons.	1883. Tons.
Russia	10,487	7,318	8,355	5,702
China	5,879	10,011	12,824	11,704
Australia	3,133	1,929	4,715	5,226
France	3,384	2,417	3,390	1,046
British India	3,282	2,589	3,349	3,116
Germany	1,171	1,069	1,041	1,236
United States	1,022	258	598	517
Other Countries	8,418	7,966	8,837	8,468
Totals	36,776	33,551	43,109	37,375
				39,287

But while, as appears in the foregoing, Germany has been importing yearly about 1,090 tons of lead from England during the four years ending with 1883, she has also been a heavy producer of lead, or to the understated extent:

Year	Tons.
1880	85,928
1881	86,729
1882	85,860
1883	94,930
Yearly average	88,361

The product for 1883 was not only larger than for any one of the four years, but 6,568 tons greater than the yearly average product for the four years. At the same time, there was a production of litharge to the understated extent:

Year	Tons.
1880	3,923
1881	4,514
1882	4,170
1883	5,044
Yearly average	4,413

As valued at the spot lead and litharge together, we have the following figures:

Year	Value
1880	\$6,310,213
1881	6,006,736
1882	6,207,040
1883	5,647,275

Thus we see, that although the production in 1883 was actually greater than that of 1880, by 9,000 tons, its money value was \$662,938 less, because of the fall, meanwhile, in the market price of lead.

But the largest foreign source of lead production and exportation in Spain, as may be seen from the following statement of her exports for the ten years and her estimated total product for the ten years ended with 1883:

Year	Exports tons of 2,240 lbs.	Estimated amount consumed at home.	Estimated product tons.
1874	84,384	10,210	94,600
1875	91,739	10,962	102,700
1876	98,705	11,790	110,000
1877	110,051	13,148	123,200
1878	88,068	10,432	98,500
1879	106,830	12,770	119,600
1880	92,399	10,901	103,300
1881	110,420	13,180	123,600
1882	116,132	12,868	130,000
1883	123,000*	14,000	137,000

In the absence of any present information as to the domestic consumption of lead in Spain and her colonies which must be material for a nation that has so considerable an army and navy with large colonial possessions as Spain, and having a merchant marine of 2,236 vessels including 347 steamers in 1881, we have felt justified to add to the amount of lead exported every year a fraction under 12 per cent. to reach the total product of the lead mines of Spain, which rationally would seem rather under than over the product in view of the exports.

Now for the last four years the product of Great Britain, Spain and Germany has been, say as follows:

Year	Great Britain. tons.	Germany. tons.	Spain. tons.	Total tons.
1880	56,950	86,000	103,300	246,250
1881	48,600	86,800	123,600	259,000
1882	50,400	86,000	130,000	266,400
1883	39,230	95,000	137,000	271,250

During the last ten years the ancient silver-lead mines of Laurium, in Greece, have been contributing lead to the European supply and Italy has exported a good deal of lead ore doubtless included in the lead and ores embraced in the first of the foregoing tables of this article. As yet, we have found no data about either the production or the consumption of lead in France.

*For eleven months exports reported at 116,341, have estimated last month. †124 steamships of war of all classes with 462 guns and an army of 90,000 men.

OUTLOOK FOR THE IRON TRADE.

The tone recently adopted by the leading authorities on iron and steel manufacturing in the United States points to the theory that this important industry has already begun to revive, and that the almost unprecedented stagnation which has characterized the iron trade during the past year is likely to be followed, in the near future, by a more encouraging condition of things. That the prospects are brightening is evidenced by the following article which has appeared in a recent number of the *Iron Trade Review*, of

"Last week we printed a list of 26 iron concerns throughout the country at which reductions in wages, varying from 4 to 20 per cent., had been made on or about October 1. Like all pictures, however, there are two sides to this one as well, and this week we propose giving some facts on the more encouraging side. In the first place, we notice that the following works, which have been shut down for a longer or shorter period, have, within the past week, resumed work with full complements of men. The Fort Pitt Iron and Steel Works, Pittsburgh, employing several hundred hands; the Sharon Iron Co., of Sharon, Pa., employing several hundred men; Oliver Bros. & Phillips, Pittsburgh, 3,000 men; and Dilworth, Porter & Co., Pittsburgh, also a very large establishment. In the two latter instances, a notice of reduction of wages amounting to 12½ and 10 per cent. respectively, had been given, but was afterwards withdrawn. It is, of course, to be presumed that none of these works would have resumed had not the receipt of sufficient orders justified such action; and this surmise is borne out by the fact that several large contracts have been placed the past week with other parties, among which we may mention a \$4,000,000 contract with a Buffalo manufacturer for 50,000 tons of steel pipe, the sale of 13,000 tons of car wheels iron at Chattanooga, and a large sale of pig iron at Birmingham, Ala., at 50 cents advance on prices previously prevailing, coupled with the fact that every furnace in that region is expected to go into blast within the next four weeks. With such indications as these, business would not seem to be in the desperate straits that some would have us believe.

Calumet and Hecla.

It will be learned with surprise by those who, for many years, have been familiar with the phenomenal success of this world renowned copper mine, that the company has determined to pass the November quarterly dividend. The effect of this decision by the management must inevitably be a still further reduction in the market value of the

company's property. It will be remembered that no dividend was paid in May last, and but one half of the usual quarterly dividend was declared in August, the consequence of which was a rapid depreciation in value of the stock. At the close of 1883 the stock of *Calumet and Hecla* was quoted at 240 and in May, 1884, it had fallen to 170; in consequence of this latest decision of the management of the company, its stock sold down to 120 on October 20th. Where this downward course will stop is a matter for the future to decide.

Silver in the Selkirks.

It is reported that Dr. Dawson has examined and pronounced a favourable opinion on a quantity of specimens of silver ore brought into Calgary by Mr. Broderick and his party who went out prospecting in April last and have lately returned. He has taken up, it is reported, a number of claims, which are alleged to be situated about twenty-two miles south of the main line of the Canadian Pacific Railway

A Marvellous Feat in Unloading.

What is said to be the greatest feat in unloading ever performed has been accomplished on the docks of the North Chicago Rolling Mill Co., at South Chicago. Work was begun at 6 o'clock a.m. on the steamer *Massachusetts*, and at 12 o'clock precisely her cargo of 1,618 gross tons Ludington ore, was all on the dock. After an intermission of half an hour for dinner, the same gang went into the steamship *Merrimac*, and at 7 p.m. her cargo of 1,581 gross tons, Cleveland, ore was all out, and she was ready for her return trip. Allowing half an hour for supper, each boat was unloaded in six hours, making a total of 3,199 gross tons in 12 hours. This gives an average of 266½ tons per hour.

A ROMANCE IN MINING HISTORY.

Under the Spanish regime in Peru, as far back as 1660, one of the richest silver mines was that known as the Manto, owned by two Andalusian Spaniards, the brothers Jose and Gasper Salcedo, and the mineral was found in large deposits of virgin silver which was sent directly to the Mint at Arequipa just as it came from the mine. Quite a large city, San Luis de Alva, soon grew up around the habitations of the Salcedos, to which resorted the wild, adventurous spirits from all quarters of Peru in quest of some share of the wonderful output of silver, whether by craft or force. Soon a feud broke out between the Andalusians and the Biscayans who had come to outnumber the former.

Bitter conflicts took place, and in one of these it is said, as many as a thousand men of the two parties were left on the field of battle. These incessant bloody disturbances finally provoked the Spanish Vice-Roy, Don Pedro, Fernandez y Andrade Conde de Lemos, to go to the scene with a considerable force in June, 1668. He burned San Luis de Alva to the ground and took away from it the title of City, which was transferred to the neighbouring village of San Juan Bautista, with the name San Carlos de Puno. Don Jose de Salcedo sought to placate the Vice-Roy by the present of the bars of silver with which he had paved the pathway from San Luis to his own house, for the Vice-Roy to walk upon, but while the silver was accepted, the unfortunate Salcedo was placed in irons. The same night there was affixed to the door of the lodgings of the Vice-Roy these words:—

Conde de Lemos	Count de Lemos.
Amainemos.	Abate your zeal.
O si no veremos.	Or if not we shall see.

This pasquin, so to speak, having been carried to the Vice-Roy, he wrote beneath it:—

Mataremos	We shall kill.
Morcaremos.	We shall hang.
Despues veremos.	Afterwards we shall see.

This was then reattached to the door, the chiefs of both parties were hung, and Don Jose de Salcedo was strangled at the mouth of his rich silver mine which was confiscated to the Crown of Spain.

The other brother, Don Gasper, who meanwhile had fled to Spain, demanded restitution of the property and justice before the Council of the Indies, for the execution of Don Jose, by whose death he declared the Spanish Crown was a great loser, inasmuch as the mine when worked by them had paid to the King, in the preceding two years and a half, as much as \$1,774,000 as the Crown's share of the whole product of \$8,760,000. After seven years of solicitations he gained his suit and recovered possession of the property. But, meanwhile, all his fortune had been spent in Spain, the mine having been left unworked was filled with water, consequently, he was wholly unable to meet the heavy expense of reopening and working it. So he died in poverty after having been possessed of an enormous fortune. Subsequently, others were ruined in the effort to rid El Manto of the water, until it fell into possession of English parties who have managed to work it profitably again.—*N. Y. Mining Record.*

It has been stated that the Roberts' Iron Company, which has, for some years, been engaged in iron mining at Robertsville, Frontenac County, Ontario, has purchased an iron property in the Township of Bristol, County of Pontiac, Quebec, and has already begun mining operations. We will be pleased to receive more definite information on the subject.

General Mining Notes.

Fifty-six incorporated gold, silver, lead, copper and mica mining companies of the United States paid dividends this year, up to the close of September, aggregating \$7,171,797.

THE INTERCOLONIAL COAL MINING COMPANY (limited) paid a dividend on October 15th of seven per cent. on the preferred stock; and a dividend, in preferred stock (acquired), at the rate of four per cent. on the ordinary stock.

The mines of Guanajuato, Mexico, are estimated to have produced, since the year 1827, about \$260,000,000, coined in the same city, to say nothing of the unworked ore and bar silver exported; and from the time of the conquest to the present time the total amount is calculated at the enormous figure of \$900,000,000, of which the famous Valenciana mine, situated on the Veta Madre, has contributed about \$160,000,000.

EL CALLAO.—This celebrated Venezuelan gold mine produced 15,735 ounces of gold during July of this year, worth about \$270,000, and making a total product for seven months of 1884 of about \$2,175,000. The monthly dividend paid was \$5.50 per share, aggregating \$177,100. The product of this wonderful mine for the month of August was 15,594 ounces valued at \$307,000. The August dividend was \$5.60 per share, aggregating \$180,000.

THE COMSTOCK LODE.—The work of delving into the bowels of the earth to the depth of 2,800, 3,100 and 3,200 feet is still continued on the Comstock. It is a conundrum as to what it is done for, as it has been demonstrated that the deeper this work is carried down the less prospect there is of developing a body of paying ore. Before the workings in the mine had gone below, say, the 1,700 foot level, it was a mooted question whether it would be possible that bonanza bodies of ore would be discovered at greater depths. Now, as the fact has been fully demonstrated by continuing the work, until the present lowest records have been attained, it seems that to continue to sink further is the height of folly, so far as any favourable results are concerned. It has been stated that the managers of the mines are doubtless of the same opinion, but that they are working in the interest of the "Gold Hill and Virginia Water Company," who supply water and ice, and also the railroads drawing a large business from the transportation of wood, timber and other supplies. However, as long as outsiders will continue to pay assessments the work will go bravely on. Thus writes an authority of Virginia City.



NOTICE TO CONTRACTORS.

SEALED TENDERS, addressed to the undersigned, and endorsed "Tender for Post Office, &c., Orangeville, Ont.," will be received until Thursday, the 23rd day of October next, inclusive, for the erection of

Post Office, &c.,

AT

ORANGEVILLE, ONT.

Plans and specifications can be seen at the Department of Public Works, Ottawa, and at the Post Office, Orangeville, on and after Monday, the 6th day of October next.

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 Honorable 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, Sept. 8th, 1884.

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NOTICE TO CONTRACTORS.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Timber," will be received at this office until Monday, the 17th day of November next, inclusive, for the supply of timber required in connection with the Dredging Plant of the Department, according to a specification to be seen at the Department of Public Works, Ottawa, where printed forms of tender may 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 order of the Honorable the Minister of Public Works, for the sum of \$150, 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, Oct. 23th, 1884.

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Notice to Contractors.

SEALED SEPARATE TENDERS (including plans and specifications), addressed to the undersigned and endorsed respectively: (1) Tender for Heating Apparatus, Three Rivers, P.Q., Post Office; (2) Tender for Heating Apparatus, Sherbrooke, P.Q., Post Office; and (3) Tender for Heating Apparatus, Cornwall, Ont., Post Office, will be received at this office until **FRIDAY** the 10th October next, for the completion of the above works.

Copies of plans of the buildings proposed to be heated and a memorandum of requirements will be furnished to those desiring to tender, who will be required to indicate the arrangement, &c., of their apparatus and furnish a fully detailed specification.

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 Honorable the Minister of Public Works, equal to 5 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, 8th Sept., 1884.

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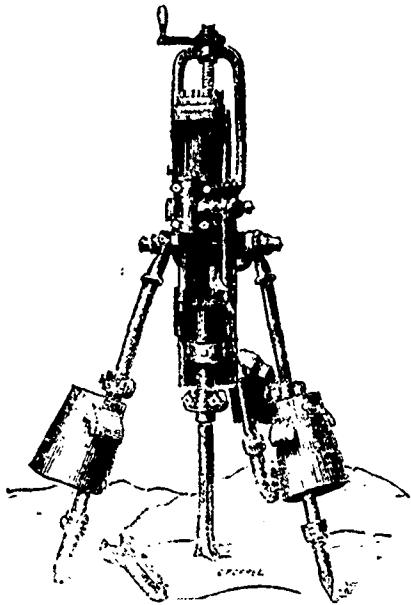
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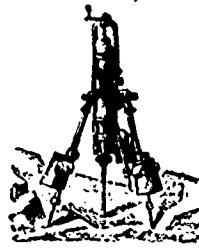
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