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MINING REVIEW

VOL. 2.—No. 3.

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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.

The various mining industries throughout Canada, from Nova Scotia to British Columbia, have been given practical and substantial impetus during the past few months through the investing of capital, varying in amounts, by syndicates and private companies organized in the United States, England and this country. This has been the long sought and necessary assistance that has occupied the attention of owners of mineral deposits in the country, and now that it has been forthcoming in so many instances there is likely to follow an era of prosperity for Canadian mining industries. In Nova Scotia,

coal mining has for years been a source of large revenue to the Province, and the development of her gold fields is now going ahead with most satisfactory results. In New Brunswick, numerous recent discoveries of economic mineral deposits have been reported, and attention is being drawn to others long since known to have existed, but which, through want of enterprise, have been allowed to continue in their virgin state. In the Province of Quebec, large forces of miners are now engaged in the successful developing of the asbestos mines, and this industry has grown into one of much importance. In the Beauce district, of the same Province, the alluvial gold deposits are being vigorously worked and are yielding gold so freely as to warrant the investment of further capital for more extensive operations. The phosphate mines of Ottawa County continue very productive, and many of the owners of undeveloped properties are awaiting the disappearance of snow to organize for active operations. In Ontario, the phosphate mines, though not of so much importance as those of Ottawa County, are returning handsome profits, and the iron deposits of the central portion of the Province are attracting much attention, and capital is coming from the United States for their development. Some of the mines in operation have become very valuable, owing to the ore-beds having greatly increased in extent, and to the improved quality of the ore, as lower levels have been reached. Encouraging reports have come recently from the Lake Superior Native Copper Company's Mine, and the Huro-

nian Mine is said to be developing to the satisfaction of the stockholders, and at the Lake of the Woods Gold mines, work will be resumed in the spring on a more extensive and substantial basis than formerly. In the North-West Territories, coal mining has, in some instances, been successfully continued during the winter, but all other mining has been suspended for the past four months, owing to the severity of cold and depth of snow, against which miners had not had the opportunity to provide themselves. A great rush is expected to the Rocky Mountain District in the spring, and it is said that in the vicinity of Kicking Horse Pass, British Columbia, the excitement in mining circles is growing intense and that the late gold discoveries at Canyon Creek, opposite the mouth of Kicking Horse, are very rich. The Selkirk and Maine Ranges, it is stated, will prove exceptionally rich, and will, in course of time, yield a mineral output that will equal that of any territory of the United States. Mining in Canada is surely growing in importance. Let miners see to it that the industry is established on an honest and practical basis.

It was with much regret that we learned that Mr. A. A. Humphrey, so well known in Canadian mining circles, had been the victim of an accident, at his Beauce gold mine, by which his leg was broken. Mr. Humphrey's numerous friends will rejoice to know that he is rapidly recovering from the injuries he received, and that he will soon be sufficiently convalescent to attend to his important duties.

A movement is on foot which, if brought to a successful issue, will be the means of attracting more attention to the apatite deposits of Canada than they have ever before received outside of the immediate districts where the deposits exist. The first step taken was in the form of a letter received during the present month by a gentleman of Ottawa known to be largely interested in the phosphate mining industry of Ottawa County, as follows:

MONTREAL, March, 1884.

W. A. ALLAN, Esq.
Ottawa.

DEAR MR. ALLAN,

I have suggested that the British Association should make an excursion next summer to the Emerald Mine, giving them interesting experience and knowledge which might prove directly or indirectly of value to Canada. My plan is that they should leave early in the morning by C. P. R. from Montreal, take steamer to the mine, towing barges if more room is needed, and get to Ottawa in time for dinner in the evening. Lunch could be served at a Buckingham hotel or at the mines.

I thought I would suggest to you the advisability of mentioning it to the proprietors if you are in contact with them and see what response they make, and if an invitation would be issued. It struck me it might be well worth their while to take the matter up handsomely.

Yours very truly,
ROBERT C. ADAMS.

We are informed by Mr. Allan that he has laid the matter before the Manager of the Emerald Mine, who has promised to contribute liberally towards entertaining the members of the Association in a manner that will make their trip to the mine one of enjoyment as well as of interest. With the co-operation of Mr. Allan, of Ottawa, and Mr. Frauchot, of the Emerald Mine, there exists little doubt that Mr. Adams will be enabled to carry out his proposed programme.

CANADIAN PHOSPHATE TRADE.

For the past ten months a report of progress at the phosphate mines has been regularly published in the REVIEW, and as no change of any importance has occurred in the condition of the mines since the last report, it will, no doubt, be of greater interest to those engaged in the industry to learn something that bears more directly on the outlook for the future profitable working of the deposits. A movement has been afloat in Montreal to circulate exaggerated and incorrect statements concerning the present condition of the phosphate market in Great Britain and Europe, and by using the press for this purpose, the would-be manipulators hope to alarm producers to such an extent as to induce them to dispose of the output of their mines at a price much lower than they could get for it by shipping direct to buyers across the Atlantic. This movement has been inaugurated by a few of the middle men in Montreal, who played their first card in an article which they caused to be published in the *Gazette* of that city on the 8th instant, which read in substance as follows:—

"COMPLETE BREAKDOWN OF THE PHOSPHATE MARKET—Latest cable advices report that the phosphate market is so overstocked that business is impossible at any price. Offers of Canadian phosphate of 80 per cent., at one shilling per unit had been declined by manufacturers; that continental orders have all been cancelled on this market, as English manufacturers are trying to dispose of their surplus on the continent, and a further decline is expected."

The incorrectness of the above statements were only too apparent to all those who had had an opportunity of posting themselves on the condition of the trans-Atlantic phosphate market. At the time of the publication of the article in the *Gazette*, from which we have quoted above, this office was in possession of the most recent information concerning the condition of the English market. A general

dullness characterized the fertilizer trade, but, notwithstanding this, there was no falling off in the demand for Canadian apatite, and the price quoted for it was more than sufficient to warrant owners of mines in working their properties to their greatest capacity. Though early in the season, one sale of 1,000 tons had been reported at 1s. 3d. for 80 per cent. mineral and a standing offer for 2,000 tons additional at same price was left with seller, who retains it under consideration. About the middle of the present month, a letter was received at this office from a firm in Great Britain, who deal extensively in Canadian phosphate, expressing a readiness to enter into contract to purchase 20,000 tons of our mineral, for delivery during the next twelve or fifteen months, and on the 14th instant, an offer was received by cable for 5,000 tons of 70 per cent. Canadian phosphate at 1s. per unit with one-fifth of a penny rise. These facts should be sufficient to completely upset the Montreal bear movement, and to prove that the statements made in the *Gazette*, in its issue of the 8th instant, and reiterated in the same paper on the 19th instant, are unfounded, and totally at variance with fact. Let the phosphate producers of Canada avoid middle men who thus attempt to bring about a serious injury to this important industry for their own selfish temporary benefit. It has been stated that the miners who can forward but a small output are at the mercy of buyers on this side, as they cannot ship direct in small quantities, but such need not be the case if the larger producers will but co-operate with them, and pool their outputs for direct shipment. A letter recently received from Montreal from a well-known authority on phosphate mining and shipping, contains the following:—"Our miners need to pay special attention to maintaining the quality of their product, and they should be cautioned not to ship it before sold, as open consignments have a bad effect on prices."

This is good advice, and we publish it for the benefit of the phosphate miners of Canada.

THE MINISTER OF AGRICULTURE

*In his Annual Report for 1888
thus speaks of*

CANADA'S PHOSPHATE INDUSTRY.

"It is not many years ago since Canadian phosphate began to attract notice in the United States and Europe. Of late years Americans have kept a steady lookout for property in Canada which they could work themselves for the requirements of their own factories. The importance of the fertilizer trade in its present condition, and the proportions it promises to assume in the near future, are the principal causes of this diversion of interest.

When Canadian phosphate first came on the market, some eight years ago, practical men shook their heads at the hard and unpromising looking material. Many of the mills then in use in fertilizer-works were the bhrstones used to pulverize coprolite and other comparatively soft material. The difficulty of grinding has now been overcome, and it is no longer a source of danger to workmen and of perplexity to manufacturers. Instead of using it as they did coprolite, it is mixed largely with other softer materials, which enables the operating chemist to first saturate the raw phosphate with sulphuric acid, and use Canadian phosphate as a drier.

Being a more concentrated phosphate than any other in the world, it has very naturally been sought for to bring up the acid phosphate fertilizer to high percentages of phosphoric acid.

The amount of phosphate shipped from the Port of Montreal during the past calendar year was, in round numbers, 19,000 tons. This industry, in its production, materially benefits the country generally, as the men employed at the mines, the teams that haul it from the place of production, the freightage of it by rail or boat, the transshipment at the seaboard and ocean freight, all represent a certain amount of capital expended by its agency. It is expected that 21,000 tons will be shipped from Canada to Great Britain during 1881.

I have in previous reports remarked that the removal by crops impoverishes the soil and prevents it from yielding as abundantly as formerly, unless the loss is compensated by supplying phosphate fertilizers. In the districts where cattle raising is not carried on the absence of ordinary manure must be compensated for by some artificial stimulant, and experience goes to prove that for the production of cereals of every description, as well as for the strengthening and renewal of worn out lands, no available fertilizer is known that can produce such beneficial results as phosphate when subject to a chemical process, and known to the trade as super-phosphates.

The grain exported from the Port of Montreal in a single year has been estimated to contain 2,574 tons of phosphoric acid, which implies the total exhaustion, so far as phosphates are concerned, of 75,000 acres, the renewal of which necessitates the application of some 6,000 tons of phosphates.

United States statistics of commerce and navigation for 1882-83 show that 1,264 tons of raw, and 7,766 tons of manufactured phosphate were imported into that country from Great Britain direct; whilst only 254 tons of raw phosphate were imported into the United States from Canada, and it is thought highly probable, by a mining engineer who has had long experience in the phosphate industry, that much of the material

which was mined in Canada and exported to Great Britain, is returned either in the raw or manufactured condition to the United States. This circumstance points to the fact that the utmost confidence is placed by American buyers in the thorough system of inspection of the raw material in England, which guarantees the standard by careful analysis, and is the only true means by which can be avoided the substitution of inferior for higher grades, when the raw material is purchased in bulk. A reliable authority on phosphates informs me that raw Canadian phosphates contain 89-91 per cent of tribasic phosphate of lime, according to the most authentic analysis that we have on record from picked samples selected as being the most free from admixture with foreign mineral matter. Cargo samples analysed in England have returned 85 to 86 per cent. from Canadian phosphate mines. As capital increases, and the consumption of fertilizers becomes more general, competition will be keener and our phosphate bearing districts will be worked to a larger extent than at present, naturally tending to further cheapening of production. In a comparative table of the analytical composition of phosphate from the various countries producing it recently published in the *New York Mining Journal*, with the exception of three deposits in the West Indies and one in Spain, Canada ranks the highest. Such a fact as this should have the effect of causing our phosphate producers to open up a direct trade for the raw material with the United States, and show the advantages which would accrue from the establishment in our country of works for the manufacture of super-phosphates."

Phosphate Quotations.

The existing state of the market in England and Europe renders it difficult to quote any definite value, at present, for Canadian phosphate, though the most recent advices from the former country are of an encouraging nature. The latest sale reported is 1000 tons, at 1s. 3d. per unit for 80 per cent mineral, with one-fifth of a penny down, and an offer from same buyer for 2000 tons additional at same price, which is yet under consideration of seller. An offer was received by cable from England, on 14th inst., for 5000 tons of 70 per cent. mineral, at 1s. per unit with one-fifth of a penny rise; this is equivalent to about \$28.25 per ton for 85 per cent phosphate in Liverpool, or \$23 in Montreal, with latest reports that the market is strengthening. One thousand tons have been placed at last mentioned figures, and miners should be cautioned not to dispose of their output until they are made aware of the tendency of the market abroad during the next two weeks.

Riviere du Lievre Improvements.

The plans for the lock and other works to be constructed at the Little Rapids have been completed and are in the hands of the Chief Engineer for approval. They have been designed so as to provide for the ample accommodation of such vessels as the navigation of the river will demand, and all necessary facilities for the driving of saw-logs.

and square timber have been carefully considered and supplied. Tenders will shortly be invited for the construction of the lock, etc., by the department of Public Works, and work will be begun thereon as soon as the ice leaves the river, and the spring freshets will have subsided. This will certainly, when completed, prove a great boon to the du Lièvre district, and of invaluable importance to phosphate miners, as it will enable them to ship their ore during the summer months at a very much reduced cost from formerly.

Sale of a Phosphate Mine.

The most recent sale that has been reported took place during the month, when Mr. W. A. Allan, of

Ottawa, purchased the phosphate lot number seven, in the first range of the township of Portland East, adjoining the "Rapids Mine," formerly known as the "Watt Mine." This recently acquired mine will be a valuable addition to the many phosphate properties owned by Mr. Allan, and in purchasing it he has displayed his usual good judgment and foresight. The openings on the lot expose extensive deposits of mineral of high grade, and the convenient location of the property is an important advantage. Being situated within a quarter of a mile of the Rivère du Lièvre, at the Little Rapids, the ore can be transported at small cost both winter and summer, an advantage possessed by but few other mines in the Ottawa district.

THE OCCURRENCE OF PHOSPHATE DEPOSITS.

Abstract of a Lecture delivered before the Ottawa Field-Naturalists' Club on the 28th February last, by
Geo. W. Dawson, Esq., D.S., F.G.S.
Assoc. R.S.M., etc.

Specially reported for the MINING REVIEW.

This gentleman, one of the best known and most efficient officers of the Geological and Natural History Survey of Canada, made a valuable addition to the literature of the subject of phosphate in his lecture.

He was introduced by the President of the Club, Dr. Small, and began by showing that phosphatic materials were essential to the life of both plants and animals, and that the natural cycle of rotation of these substances was interrupted by man, who withdrew from the soil, and transported to other places, large quantities of matter which would, if undisturbed, return to it. The removal of crops impoverishes the soil and prevents it from yielding as abundantly as when first cultivated unless the loss is compensated by supplying phosphatic fertilizers. The grain exported from Montreal in a single year has been estimated to contain 2,574 tons of phosphoric acid—a quantity implying the total exhaustion, in so far as phosphates are concerned, of 75,000 acres, to renew which would require the application of some 6,000 tons of apatite manufactured into super-phosphate. Under these conditions there must always be an extensive demand for phosphatic materials, and it becomes necessary to enquire where specially concentrated natural sources of supply may be found.

The occurrence of such deposits was then traced from the most recent in geological time to the oldest formation known—the Laurentian. First comes the accumulation of guano now going on wherever the climate is sufficiently dry to prevent the washing away of the bird excretions, notably on the Pacific coast of South America where rain never falls, and where not only the phosphatic, but also the nitrogenous constituents of the excrements are preserved. Next we find extensive beds of mussel shells in the estuaries of the Prince Edward Island rivers, where the deposits are known as mussel mud, and are extensively excavated by the farmers and spread without preparation over their lands. If this mud became part of a stratified deposit in the course of geological changes phosphatic nodules would be found amongst it, resulting from concretionary action, a slow process of drawing together of like particles in the mass, which is not in all cases fully understood. When the material is abundant, such concretions frequently form almost continuous layers.

In North Carolina are beds of shells, bones, and other organic remains, referable to the Tertiary period, in which this concretionary action has occurred. In some places these beds have been lifted above the level at which they were deposited, and are worked by a system of trenching and washing; in others they are yet below water, and are obtained by dredging.

Still going back in geological time, we find the coprolite beds of the South of England, in the cretaceous rocks, with new associations of animal remains. These are extensively worked, and furnish 25,000 tons of phosphate annually.

In the yet older rocks of Canada, nodules occur in the strata of the Silurian period in the Quebec group of rocks, and nodular masses are found in the primordial shales, and although these are not of economic importance in Canada, beds of similar age are worked in other countries, as Poland and Wales. These instances go to show that in whatever age large quantities of organic materials were accumulated phosphatic deposits were made from them. Following this analogy into the Laurentian series, we find vast beds of sediment deposited as in more modern formations, but these have since been so completely metamorphosed that they have entered into new chemical combinations among themselves, and become entirely crystalline—limestones crystallizing into marbles, coaly materials into graphite, and phosphatic, coprolitic, or nodular layers into calcic phosphate or apatite.

Some of the Laurentian beds are found to be comparatively rich in apatite, and particularly those containing the pyroxenic rocks, in which it seems generally distributed, while certain layers, almost like beds, of nearly pure apatite occur. In other places, distinct veins and fissures are filled by processes of segregation, and frequently in connection with crystals of other substances.

The exportation from these Canadian deposits, although not fully developed, has attained considerable proportions. Dr. Sterry Hunt states that 17,840 tons were shipped from Montreal in 1883, of which the greater part went to British ports. 15,000 tons of this were mined in Quebec, the remainder in Ontario. The shipments for this year Dr. Hunt estimates will reach 24,000 tons.

The most striking fact developed in the mining of our apatite is the great irregularity of the deposits, which is easily accounted for by the extremely disturbed character of the Laurentian rocks, deposits once horizontal being folded and twisted in all directions, producing large pockets and masses of apatite, connected only by narrow and twisted seams, or entirely isolated.

Can, then, a geological survey aid in tracing these deposits? It has already been found that large tracts or zones (principally shown by Mr. Vennor) contain most of the large deposits, while intervening bands are comparatively barren, and much can yet be done in defining and mapping them down, while the further work of utilizing special deposits thus defined must always remain the work of enterprising and skilled private parties desiring to utilize them.

In the discussion which followed the lecture, Mr. Fraser Torrance, being called upon by Dr. Dawson in consequence of his long experience as a mining engineer in the neighbourhood of Ottawa, gave a very interesting description of the Ottawa Valley workings, endorsing the lecturer's statements respecting the irregularity of the deposits. He described the most productive belt as following the banks of the des Lièvres, and stated that the apatite occurred in large irregular masses, generally in connection with pyroxenic rocks, that no true veins or beds could be said to exist, the apatite in pseudo-veins gradually changing from masses to crystals scattered amongst pyroxene, while apparently well-defined beds and veins joined together to form one irregular pocket, the one passing into the other without any regular transition. No systematic attempt by sinking shafts, driving adits, or diamond-drill boring had yet been made with a view of testing the presence or extent of lower deposits, and the manner of conducting the present surface workings was calculated to throw serious difficulties in the way of any future mining of lower deposits, literally threatening to fulfil the famous prophecy of Louis XV, "Après moi le déluge."

Mr. Torrance stated, on the authority of Mr. Nimmo, Chief of the Bureau of Statistics, that during the past year the United States had imported from Canada 251 tons of apatite, from Great Britain 1,264 tons (much of which probably came originally from Canada), from Germany 14,000 tons, and 7,766 tons of super-phosphate. The speaker had some years ago examined super-phosphate manufactured in Canada, and considered that the failure of the industry was due to the lack of technical skill evinced, no thorough chemical analysis of the ingredients being made, and the products consequently varying so greatly in quality as to destroy all confidence in them. Tests with super-phosphate at the Agricultural College, Guelph, showed, he understood, great pecuniary advantage from the use of a good article.

Mr. H. B. Small stated that experiments were being made in the direction of applying, as a fertilizer, apatite and nodular phosphate, ground to an impalpable powder, without chemical preparation, and, he understood, with favourable and lasting results.

Dr. Dawson thought the experiment would not succeed, as the apatite was insoluble under ordinary conditions in soil, and that at best the method would be wasteful.

Mr. F. D. Adams, of the Survey, stated that he had detected, attached to a specimen of apatite received from Arnprior, a species of hornblende rock, which was so intimately associated with the apatite deposits of the Laurentian rocks of Norway and Finland as to be known as the "apatite-bringer," and which had never previously been found on this continent.

GOLD MINING IN BEAUCE.

At the alluvial gold diggings in the County of Beauce, Province of Quebec, the result of last summer's work, which was carried on but to a limited extent, was so satisfactory that the coming season will, doubtless, be one of unusual activity. The ground now being worked by Messrs. Humphrey and Allan, in St. George Concession, promises to yield gold in large quantities. From the bottom of their shaft, now about 140 ft. in depth, according to the most recent reports received, pay dirt is being raised, although the level is some 8 or 10 ft. above the gravel. Steam-pumps and hoists have been recently erected at the shaft, and work, henceforward, will advance more rapidly. In the spring they will begin to wash up, and the value of the dirt will then be ascertained. That the gravel above the bed-rock carries gold in large quantities there is no reason to doubt, and the opinion expressed by miners of long experience in the placer mines of California, is that this property will prove to be of greater value than its owners dare to hope for. In the St. Charles Concession, the Gilbert River Gold Mining Company are carrying on operations, under the superintendence of Capt. Richards, with a force of 28 miners, and their property has yielded a large amount of gold per man employed. During the months of July, August, September, part of October, and fifteen days in November, of last year, the wash up, according to sworn testimony of superintendent, returned eighteen thousand dollars, the biggest day's work amounting to thirty-two and one-half ounces—equivalent to about \$585. The company have two shafts sunk on this property, this winter's output from which will be washed in the spring.

NOVA SCOTIA GOLD FIELDS.

The "Mount Uniacke," "Lake Catcha," "Oxford," and the "Salmon River" mines are producing gold in large quantities and at a fair profit—the yield per man varying from three to seven dollars per day. The result of the past year's development has been of such an encouraging nature that the various companies engaged in active operations are erecting modern machinery of the most suitable design for crushing the quartz and abstracting the gold therefrom. In days gone by gold mining in this province was carried on on very primitive principles, and in a great many instances valuable properties were abandoned, after much money had been unprofitably expended through mismanagement, extravagance and absolute want of experience and knowledge on the part of the owners. Many of these properties are now falling into the hands of practical men, and in

almost every case where mining operations have been resumed the work has returned a large percentage of profit. Within the last year some new and important discoveries have been made in different localities in the province—notably the "Millesegate Gold Field," in Lunenburg County, which derives the name from a lake in the vicinity, on the borders of which gold-bearing quartz has been discovered by Micmac Indians. The existence of gold in the numerous quartz veins distributed through Lunenburg County was made known some twenty years ago, but before any practical development of the lodes had been accomplished mining operations ceased, owing to the causes already hinted at. In this recently discovered Millesegate district, mining operations were begun a few months ago, by some gentlemen of Bridgewater, N. S., and have been continued up to the present time with encouraging results. A shaft is being sunk at the "Owen" mine, cutting three distinct veins of quartz, measuring five, nine, and fifteen inches in width respectively, and through which coarse free gold is plentifully disseminated. No machinery has, as yet, been erected on this property, but we are informed by a gentleman recently from the mine, that about six tons of selected quartz taken from the shaft had been crushed, and produced no less than within a fraction of one hundred ounces of gold. If the quartz was all as rich as specimens from the mine forwarded to this office and said to be fair average samples, such a result might not unreasonably be expected.

On the opposite side of the lake, about three-quarters of a mile from the "Owen" mine, on a property known as the "Birch Brook," several openings, of about eight feet in depth, have been made at intervals on a lead extending over a distance of some eight hundred feet. The vein shows from two to three feet in width, and free gold is to be seen in all of the pits. Work on this property was suspended last autumn, pending the erection of crushers and other machinery in the spring, when it is expected that mining operations will be vigorously resumed, and it is predicted that as greater depth is reached at "Birch Brook" and the "Owen" mines they will develop into very valuable properties, capable of yielding gold in large quantities at small cost. It is not improbable that the "Millesegate Gold Field" will rank high among the gold producing districts of the Province of Nova Scotia.

Periodical information concerning the condition of the Nova Scotian Gold Mines will be thankfully received by the publishers of the CANADIAN MINING REVIEW. The names of parties forwarding such information should be attached to their reports.

ASBESTOS MINING IN THE EASTERN TOWNSHIPS.

This industry is growing in importance year by year, and, although the output of the mines at present in operation is by no means insignificant, there exist numerous undeveloped properties throughout the district capable of yielding a very large quantity of excellent asbestos. That part of the Province of Quebec known as the Eastern Townships is the only locality in Canada where asbestos mining has as yet been carried on. In the Township of Thetford, the Boston Asbestos Packing Company's and the Johnston mines are the most productive, in fact, with the exception of a limited quantity taken from the Ward mine, near by, these properties made up all of last year's output from that immediate district. At Danville, the Jeffery mines are very rich in mineral, but are not so vigorously worked as those first mentioned. In Broughton, the asbestos that has been mined is of a very superior quality, both as regards texture and length of fibre, and a property in this township, recently purchased by the Chalmers, Spence Co., of New York, will be actively worked during the approaching summer.

Asbestos mining is not followed as is the mining of other mineral deposits—it is not mining, but quarrying, and the peculiar nature of the mineral and its associated rocks renders it unprofitable to proceed with operations during the winter months, the cold and depth of snow in the Eastern Townships being excessive. Labour in the district is plentiful and wages run at about one dollar per day for labourers and \$1.25 to \$1.50 for experienced quarrymen or drillers. The output from the mines above mentioned during the summer of 1883 aggregated about 1,100 tons, about 200 tons of which brought \$50. to \$60, the balance \$75 to \$80 per ton, and a small quantity from another section was sold for \$100 per ton. The Quebec Central Railway affords easy communication to and from the most important mines in operation, they being situated within a few hundred feet of the line and are connected with it by short tramways, over which the output is forwarded to the Q. C. R. cars for transportation.

A Gold Medal to the Asbestos Company.

A gold medal has been received by the Quebec Asbestos Company, as a first-class prize, for the finest specimen of crude and manufactured goods shown at the late Boston Exhibition. The medal bears several inscriptions and a picture of the Exhibition buildings. The company has its works on St. Charles street, and will, no doubt, earn laurels in

the markets of Europe, through this success. The manufacture of asbestos is steadily increasing.

A London, England, journal contains the following advertisement of one of the largest asbestos goods manufacturing companies in Great Britain:—"Important notice. We now supply, but do not recommend packing, millboards, etc., made from Canadian asbestos, as a second class article, at low prices. Italian asbestos is the best." There appears to be a desire on the part of English manufacturers to cry down the Canadian asbestos, but as the Italians are bidding for the product of the Canadian mines it is not at all improbable that, if exported to that country, it would find its way to England as the best Italian article, and the above announcement, which appeared in the Quebec *Telegraph* of a recent date, is conclusive evidence of the superiority of Canadian asbestos.

MINING REGULATIONS.

To govern the disposal of Dominion Mineral Lands other than Coal Lands.

The full text of these Regulations was published in the *Canada Gazette* on the 10th inst. They apply to all Dominion lands containing gold, silver, cinnabar, lead, tin, copper, petroleum, or other mineral deposits of economic value, with the exception of coal. Any person may explore vacant Dominion lands, not appropriated or reserved by Government for other purposes, and may search therein, either by surface or subterranean prospecting, for mineral deposits, with a view to obtaining under the Regulations a mining location for the same, but no mining location or mining claim shall be granted until the discovery of the vein, lode, or deposit of mineral or metal within the limits of the claim. Any person, having discovered a mineral deposit, may obtain a mining location therefor, under the Regulations, and the conditions under which such locations may be held are clearly set forth.

Quartz-mining, Placer-mining, Nature and Size of Claims, Rights and Duties of Miners, Leave of Absence, Administration, Bed-Rock Flumes, Drainage of Mines, and Ditches are all provided for in the Regulations, and the *General Provisions* thereof embody the *Hearing and Decision of Disputes, Forfeiture* and miscellaneous clauses defining the power of the local agent.

The patent for a mining or mineral location shall reserve to the Crown, for ever, a royalty of two and a half per cent. on the sales of the product of all mines therein, and returns shall be made by the grantee, sworn to by him, or by his agent or other employé in charge of the mine, at monthly, or

such other intervals as may be required by the Minister of the Interior, of all products of his mining location, and of the price or amount he received for the same.

CORRESPONDENCE.

To the Editor CANADIAN MINING REVIEW.

SIR,—Allow me a few comments on the Mining Regulations recently issued in the *Gazette* by the Department of Interior.

One would think that with the immense mineral tracts in the States in immediate competition with our own, the mining policy of our Government should be at least as liberal as that of the Americans, but I find the lately issued regulations calculated in many ways to strongly discourage the prospectors who have, as a class, been the direct cause of the wonderful development of the mineral interests across the line. Among these sections more particularly inimical to the interests of the prospector (who is generally a poor man) are sections 5, 6, and 7, wherein it is laid down that a miner must expend during the first year \$500 in actual operations on his claim, pay \$55 in fees, and \$200 for a patent, a total of \$755; now this is an impossibility to the vast majority of prospectors, so that they must sell out at ruinous sacrifice (which will be difficult of accomplishment within a year), or forfeit their rights. Surely it will be admitted that the system common in the States of requiring an annual expenditure on the mine of one hundred dollars is fairer to the struggling miner, for then he can manage to earn sufficient, by working in other mines for wages, to fulfil the requirements, and he has time to look for a purchaser, or, by a gradual development of his claim, to become himself an independent operator (a common thing in the States).

Then in sections 79 and 80, it is provided that the Minister may declare any region a "Mineral District," and sell the claims therein to whom he may see fit; and it is elsewhere provided (section 8) that he, the Minister, may so sell claims forfeited by the first discoverers or claimants. Now, under these sections, what is of more likely occurrence than the following suppositious case? I, a prospector, having spent my last dollar on my season's outfit, strike a rich lead, say in May; I do not reach the Local Agent to fyle my claim till sometime in August; I proceed to look up a purchaser; I find a capitalist willing to send a trusted expert to examine the location, but, under various pretexts, more or less reasonable, the expert's report is not made until my year is almost up; then I am completely at the mercy of the purchaser; I must sell at his price or forfeit, for I cannot cause competition between buyers, as they will not send experts to examine my claim unless I bond

it to them for a certain time. If I refuse to sell at the buyer's price, I have no time to look up another purchaser, and must forfeit. Then the capitalist, by a little clever management, may buy from the Government for \$200 what it cost me a year's labour and \$1,000 to find. Is not such a case more than possible? Will any sensible man deny that these sections place the prospector completely in the hand of the capitalist; and will any one for a moment hold that it is wise thus to discourage the prospector?

Much might be said of the difficulties in connection with the administration of mining affairs by the Local Land Agent, but I will conclude with the question of "Royalty." The two and a-half per cent. is sufficiently absurd and out of date as applied to quartz mining, but it will be simply impossible to collect it from placer miners; this fact must be evident to anyone who knows the way in which gold miners work and live; if a miner washes out \$50 worth of gold dust in a day and gambles it away at night, who is to know it or collect the royalty? Clearly not the Local Agent; so that only the hard working, saving and scrupulously honest miner would be taxed.

Yours, etc.,
PROSPECTOR.

CALGARY March, 1884.

MINING NOTES.

Work at the Allan & Humphrey Gold Mine in Beauce, Province of Quebec, goes ahead apace. A large quantity of pay-dirt, raised from the shaft during the winter, awaits washing, and the manager is very sanguine of what the result will be. Rich gravel has been struck some feet above bed-rock.

Reports have been circulated that recent developments at the Canada Consolidated Gold Mining Company's Mine, in Hastings County, Province of Ontario, have been of a satisfactory nature, and that their property will prove valuable under good management. This fact might have been ascertained long ago at a great saving of expense.

The Mica Mine in Burgess Township, Province of Ontario, owned and operated by Mr. Allan, of Ottawa, is becoming more and more valuable as the output improves in quality and increases in quantity month by month. Already a large quantity has been exported to the United States and some sold to dealers in Canada.

The Millesegate Gold Mine, in Lunenburg County, Province of Nova Scotia, is developing well, and it is stated on good authority that the gold recovered during the past winter in prospecting new ground will more than cover expenses. The owners are preparing for

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active mining operations and will proceed with them early in spring.

A full report of the present condition and past history of the Lake Superior Native Copper Company's Mine has been received at the office of the *Review*. It is replete with interesting information concerning the company's experience in preparing for mining operations, their determination to thoroughly test the value of their property, their expenditure and the result of their labour. Want of space necessitates holding over, until next edition, the full text of the report.

THE IRON DEPOSITS OF CENTRAL CANADA.

(Continued from Page 6, Vol. 2, No. 2)
THE LOUISA MINE.

The following is a brief description of this mine made by Mr. Chapman. "This property comprises Lots 55, 56 and 57 of the Free Grant District, Township of Tudor. It is very densely timbered throughout its whole extent, and is held in fee simple. The main outcrops of ore occur upon a thickly wooded slope, and indicate without question a very large supply, apparently forming an imbedded mass or "stock," the principal axis of which extends in a general east and west direction, and is traceable throughout a length of at least 1,400 feet. Seven or eight trenches have been opened across the face of the slope, in very solid ore, from the base to within a short distance of the summit, in lengths of from 60 to about 160 feet, but outlying exposures show the mass of ore to extend much beyond these limits. The ore is strongly magnetic, and holds over 60 per cent. metallic iron, but unfortunately contains titanium. The amount of the latter is said to be quite low in samples obtained from some of the exposures; but in the samples analyzed by the writer 8.08 titanic acid was obtained, equivalent to 5 per cent. titanium. The complete analysis yielded:

Ferrous Oxide.....	25.85
Ferric Oxide.....	57.51
Titanic Acid, 8.08 = Titanic Sesquioxide.....	7.30
Phosphorous.....	0.01
Sulphur.....	0.06
Silicious Rock matter.....	9.31
	100.04

Metallic Iron--30.36 per cent." This mine has been condemned because of the amount of titanic acid in the ore, but ores containing much more than this percentage of titanium are successfully worked in Europe, by mixing them with other ores, and Dr. Hunt, of Montreal, one of the best authorities, asserts that when the mixed ores do not contain in all more than eight per

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cent. of titanic acid they can be successfully worked and without any impairment of the value of the product. It is confidently believed that by mixing 50 per cent. of this ore with that from Wallaston there will be no difficulty in working it, and that the very small amount of phosphorous and sulphur will render it one of the most valuable ores to be used in combination with other ores. It should be added that the company does not intend to work this mine, and do not regard it as of any value.

Mr. Chapman also furnishes the following description of THE BENTLIFF MINE OF THE TOWNSHIP OF MARMORA.

This property—held in fee simple—forms the west half of Lot 13, in the 10th concession of Marmora. It comprises 200 acres, partly cleared, but consisting in chief part of richly timbered land, lying about six miles from the present terminus of the North Hastings Railroad, and two miles from a projected line of railway. Its distance from Madoc (by road) is about eleven miles, and from Marmora, six miles. With the exception of five or six trial pits at considerable distances apart, this property remains undeveloped; but as all the pits show ore, there is evidently a considerable amount upon the lot, although this is more or less thickly capped by quartzite in some places. But the ore itself is of so remarkably a fine quality that any expenditure in opening up the ground would be warranted. It consists of an almost chemically pure hematite or specular iron ore, holding, according to my analysis, 69.30 per cent. metallic iron, with less than one per cent. of intermixed rock-matter, mere traces of sulphur and phosphorus, and no traces of titanium. It presents a steel-grey color and dark-red streak, and its structure under the microscope is seen to be finely porous. The ore is thus more or less permeable to gases, and would work kindly in the furnace. My analysis yielded:

Ferric oxide.....	99.07
Manganese oxide.....	trace
Titanium.....	none
Phosphorous.....	trace
Sulphur.....	trace
Silicious Rock-matter.....	0.89
	99.96

These constitute but a small part of the known locations of ore on the property opened up by the O.C.R.R. Widely separated as they are, and yet all plainly connected by the geological formations, it is fair to assume that they constitute but a small fraction of the valuable deposits of ore; that when the territory is fully developed it will not be excelled in mineral wealth by any other territory on the continent, not even by the wondrously rich deposits of the Lake Superior region.

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Incorporated Dividend-Paying Mines of the United States.

NAME AND LOCATION.	Latest quotation per share.	Current value of Mine.	Number of Shares.	Par Value.	Capital Stock.	Last Assessment.			Total Assessment to date.	Last Dividend.			Total Dividends to Date.
						Date.	Amount per Share.	No. of Assessment.		Date of Payment.	Amount per Share.	No. of Dividend.	
Amie Con. Mining Co., Col.	\$ 09	\$ 45000	500000	\$10	5000000					October 2, 83	7	\$330000	
Atlantic Copper M. Co., Michigan	8 00	320000	40000	25	1000000	April 5, 75		180000		Feb. 1, 84	1 00	267000	
Bassick Mining Co., Colorado	8 25	825000	100000	100	10000000					March 5, 84	1 00	425000	
*Black Bear Quartz Gold M. Co., California			30000	100	3000000			15000		Dec. 28, 83	20	887000	
Boston & Montana Gold M. Co., Montana			200000	10	2000000					Jan. 10, 83	05	310000	
Bodie Con. Mining Co., California	9 50	950000	100000	100	10000000	December 21, 83		200000		April 5, 84	50	1470000	
Bulwer Con. Mining Co., California	2 00	200000	100000	100	10000000	December 12, 77		30000		Jan. 31, 84	10	175000	
Bonanza King, Colorado	10 50	1050000	100000							March 5, 84	25	100000	
Consolidated Gold Mining Co., Georgia			100000	5	500000	not assessable				October 10, 83	02	106000	
California Gold Mining Co., Gilpin Co., Col.			130000							August 13, 83	25	65000	
Calumet & Hecla Copper M. Co., Michigan	233 00	23300000	100000	25	2500000		15 00	1200000		Feb. 15, 84	5 00	24850000	
Carbonate Hill Mining Co., Col.			200000	10	2000000					April 1, 84	05	80000	
Catalpa Mining Co., Leadville, Col.	35	105000	300000	10	3000000	not assessable				June 15, 83	10	240000	
Central Copper M. Co., Michigan	10 00	200000	20000	25	500000	Sept. 10, 61	65	100000		Feb. 1, 84	2 00	1710000	
Christy Mining Co., Silver Reef, Utah			60000	100	6000000					Feb. 9, 83	10	90000	
*Contention Company, Arizona			250000	50	12500000					Dec. 21, 83	25	1125000	
Copper Queen Mining Co., Bisbee, Ariz.			250000	10	2500000					Jan. 17, 84	40	1125000	
Crescent Mining Co., Utah	16	60000	600000							October 25, 83	05	4 150000	
Deadwood-Terra Mining Co., Black Hills			200000	25	5000000	not assessable				Jan. 20, 83	10	26 5900000	
Dean Mining & Prospecting Co., of Col.			100000							Dec. 1, 82	50	1 50000	
Deebee Blue Gravel Mining Co., Cal.			100000							March 15, 84	10	2 20000	
Dunkin Mining Co., Col.	21	42000	200000	25	5000000					October 2, 83	16	210212	
Evening Star Mining Co., Col.			50000	10	500000	not assessable				October 25, 83	50	56 1400000	
Eureka Con. Silver M. Co., Nevada	1 25	212500	50000	100	5000000	Jan. 15, 81	1 00	750000		July 27, 82	25	25 4817500	
Father DeSmet Con. Gold M. Co., Dakota	2 60	260000	100000	100	10000000	Nov. 11, 78		200000		March 31, 84	20	31 740000	
Franklin Copper Mining Co., Mich.	11 25	195000	44000			June, 77		360000		Jan. 1, 84	2 00	320000	
Grand Central Mining Co., Tombstone, Ariz.			100000	100	1000000					December, 82	50	16 800000	
Great Western Quicksilver M. Co., Cal.			50000	100	5000000	August 25, 73	15	35500		October, 82	25	262500	
Hecla Con. Mining Co., Montana			30000	50	1500000					Feb. 1, 84	50	582500	
Homestake Mining Co., Deadwood, Dakota	9 50	1187500	125000	100	12500000	April 8, 78		200000		March 25, 84	20	67 2312500	
Holyoke Mining Co., Idaho			200000							Nov. 19, 83	02	14 58000	
Horn Silver Mining Co., Utah	7 50	3000000	400000	25	10000000	none		none		Feb. 15, 84	75	12 3100000	
Hope Mining Co., Montana			8000							Dec. 31, 83	1 50	124330	
*Idaho Gold M. Co. (Glass Valley) Cal.			5000	100	500000					Feb. 9, 84	5 00	71 3430150	
*Indian Queen Mining Co., Nevada	20	60000	300000	2	600000	Feb. 11, 80	15	12000		July 2, 83	03	31 374000	
Iron Silver Mining Co., Leadville, Col.	1 30	650000	500000	20	10000000					Jan. 9, 84	20	13 1220000	
Jocunita Mining Co., Mexico			100000	100	10000000					Feb. 29, 84	50	11 1000000	
Kentuck M. Co., Nevada			30000	100	3000000	Nov. 23, 81		342000		Mar. 19, 84	10	44 1285000	
La Plata Mining & Smelting Co., Col.			200000	10	2000000	not assessable				October 2, 82	30	35 610000	
Leadville Con. Mining Co., Col.	50	200000	400000	10	4000000					Dec. 20, 83	05	18 370000	
Lexington Mining Co., Montana			40000	100	1000000					Feb. 23, 81	2 00	30000	
Little Chief Mining Co., Col.	50	100000	200000							Jan. 22, 84	10	9 740000	
Mt. Diablo M. Co., Nev.	2 50	125000	50000							November 25, 83	25	4 50000	
Mt. Pleasant M. Co., Cal.			150000	1	150000					Dec. 27, 83	20	4 90000	
Morning Star Con. M. Co., Leadville, Col.			100000	10	1000000					Nov. 22, 83	25	19 715000	
Napa Con. Quicksilver, M. Co., Cal.	50	50000	100000	7	700000	not assessable				November 1, 83	20	30 310000	
Navajo Mining Co., Tuscarora, Nevada	3 00	300000	100000	100	10000000	March 7, 82		10 255000		May 14, 83	25	9 225000	
*New York Hill Gold Mining Co., Cal.			50000	100	5000000	March 26, 78	20	55000		August 10, 82	10	21 215000	
Northern Belle Milling & Mining Co., Nev.	07	3500	50000	100	5000000	June 30, 84	8 00	425000		April 16, 83	50	71 2512500	
Ontario Mining Co., Utah	28 00	4260000	150000	100	15000000			none		March 31, 84	50	93 5375000	
Oscoda Con. Copper M. Co., Calumet Dis Mich.	16 00	800000	50000	25	1250000					April 1, 84	50	18 1035000	
Original Mining Co., Butte, Montana			60000	25	1500000	not assessable				March 7, 81	05	31 93000	
Oxford Gold Mining Co., Nova Scotia			100000							Dec. 10, 83	10	30000	
Paradise Valley Mining Co., Cal.			100000	100	10000000					Jan. 28, 84	10	1 10000	
Pleasant Valley Mining Co., Cal.			100000	100	10000000	Sept. 8, 83	15	30000		Dec. 15, 82	05	6 50000	
Plumas Eureka Gold Mining Co., Cal.	7 50	304687	140623	10	1406250					October 12, 83	50	1617175	
Plymouth Con. M. Co., Cal.			100000							March 3, 81	50	10 500000	
Prussian Mining and Milling Co., Col.	45 00	1800000	40000	25	1000000			15 00		Jan. 15, 83	10	10 132000	
Quincy Copper Mining Co., Michigan	21 25	1147500	54000	25	1350000			200000		Feb. 20, 84	1 50	31 3790000	
Richmond Con. Silver M. Co., Nevada			50000							August 10, 83	1 25	36 3974887	
San Francisco Copper M. Co., Cal.			50000							Feb. 20, 83	05	11 27500	
Sierra Buttes Gold M. Co., Cal.	6 25	765625	122500	10	1225000	paid up				October 12, 83	25	1344975	
Sierra Grande M. Co., New Mexico	75	300000	400000							October 2, 83	25	7 700000	
Silver King Mining Co., Arizona	6 00	600000	100000	100	10000000					Dec. 15, 83	25	43 1300000	
Standard Con. Mining Co., California	2 50	250000	100000	100	10000000					March 12, 84	25	80 4450000	
Silver Cord Silver M. Co., Colorado			500000	10	5000000					Nov. 1, 83	10	3 225000	
St. Joseph Lead Co., Missouri			100000	10	1000000					Dec. 20, 82	20	22 390000	
Smuggler Con. M. Co., Colorado			60000							August, 83	20	10 66700	
Socorro M. & M. Co., New Mexico			2500	100	250000					March 15, 82	1	2 4000	
Syndicate Mining Co., Cal.			100000	100	10000000					March 5, 81	10	2 20000	
Total Wreck M. Co., Arizona										May, 83	1	1 50000	
United Gregory M. Co., Gilpin Co., Col.			300000	1	300000					April 1, 83	04	3 38250	
United Verde Mining Co., Arizona			300000							March 10, 84	20	2 97500	

*Shares not in market. †Latest London quotations. ‡Price bid. §The Deadwood has previously paid \$275,000 in eleven dividends, and the Terra \$75,000. ¶Only paid on 450,000 shares. ¶¶This company as the Western up to Dec. 10, 1881, paid \$1,475,000.

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NOTICE TO CONTRACTORS.

SEALED TENDERS addressed to the un-
dersigned and endorsed "Tender for
Additional Cell Wing, Boiler House, &c.,
Manitoba Penitentiary," will be received at
this office until MONDAY, the 17th March
next, inclusively, for the erection and com-
pletion of

**ADDITIONAL CELL WING, BOILER HOUSE,
&c., AT**

Manitoba Penitentiary.

Plans and specifications can be seen at the
Department of Public Works, Ottawa, and
at the Dominion Public Works Office, Winni-
peg, Manitoba, on and after MONDAY, the
11th February 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 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 on to do so, or if he fails to com-
plete the work contracted for. If the tender
be not accepted the cheque will be returned.
The Department does not bind itself to ac-
cept the lowest or any tender.

By order,

F. H. ENNIS,
Secretary.

Department of Public Works, }
Ottawa, Jan. 9th 1884.



NOTICE.

TENDERS will be received by the under-
signed until Tuesday, the 5th April,
prox., from persons desirous of leasing the
privilege of ferrying across the River Ottawa
between the Village of St. Thomas d'Alfred
in the County of Prescott, in the Province of
Ontario, and Montebello, in the County of
Ottawa, in the Province of Quebec, subject to
regulations approved of by Order in Council
of the 3rd March, inst., copies of which can
be procured on application to the under-
signed, or to M. Batlle, Esq., Collector of In-
land Revenue at Ottawa.

Each proposal must be accompanied by a
cheque marked good on one of the chartered
banks doing business in Ottawa for one-half
the amount of one year's rent. In the case of
the accepted tender this cheque will be de-
posited on account of the first year's rent.
The cheques accompanying all unsuccessful
tenders will be returned, but in the event of
the withdrawal of any tender the amount will
be retained.

E. MIALLE,
Commissioner of Inland Revenue.
Department of Inland Revenue,
Ottawa, March 14th, 1884.



NOTICE TO CONTRACTORS.

SEALED TENDERS, addressed to the un-
dersigned and endorsed "Tender for Drill
Hall, Quebec," will be received at this office
until WEDNESDAY, the 6th day of MARCH
next, inclusively, for the erection and com-
pletion of

DRILL HALL, QUEBEC.

Plans and Specifications can be seen at the
Department of Public Works, Ottawa, and at
the Dominion Public Works Office, Post Office
Quebec, on or after Friday the 15th instant.

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.

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 on to do so, or if he fails to complete the
work contracted for. If the tender be not ac-
cepted 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 Feb., 1884.

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— CHICAGO, ILLS. —

DUFF PORTER, Editor.

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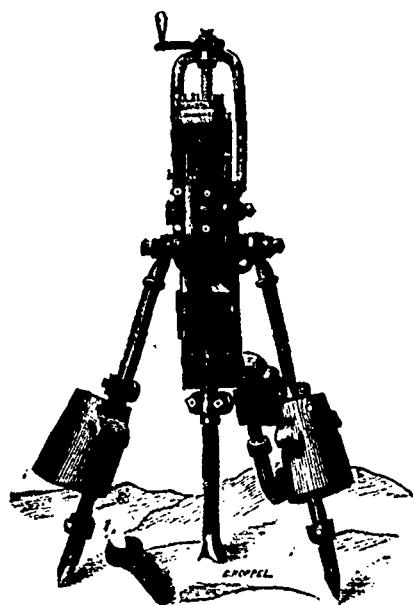
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N $\frac{1}{2}$ and S. E $\frac{1}{4}$	19	15	23
S $\frac{1}{2}$ and N. E $\frac{1}{4}$	15	16	23
E $\frac{1}{2}$ of N. W $\frac{1}{4}$	15	16	23
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 " " on Lot No. 23, in the
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 " " " No. 26, in the
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