

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/  
Couverture de couleur
- Covers damaged/  
Couverture endommagée
- Covers restored and/or laminated/  
Couverture restaurée et/ou pelliculée
- Cover title missing/  
Le titre de couverture manque
- Coloured maps/  
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/  
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/  
Planches et/ou illustrations en couleur
- Bound with other material/  
Relié avec d'autres documents
- Tight binding may cause shadows or distortion  
along interior margin/  
La reliure serrée peut causer de l'ombre ou de la  
distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear  
within the text. Whenever possible, these have  
been omitted from filming/  
Il se peut que certaines pages blanches ajoutées  
lors d'une restauration apparaissent dans le texte,  
mais, lorsque cela était possible, ces pages n'ont  
pas été filmées.
- Additional comments:/  
Commentaires supplémentaires:

- Coloured pages/  
Pages de couleur
- Pages damaged/  
Pages endommagées
- Pages restored and/or laminated/  
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées
- Pages detached/  
Pages détachées
- Showthrough/  
Transparence
- Quality of print varies/  
Qualité inégale de l'impression
- Continuous pagination/  
Pagination continue
- Includes index(es)/  
Comprend un (des) index

Title on header taken from:/  
Le titre de l'en-tête provient:

- Title page of issue/  
Page de titre de la livraison
- Caption of issue/  
Titre de départ de la livraison
- Masthead/  
Générique (périodiques) de la livraison

This item is filmed at the reduction ratio checked below/  
Ce document est filmé au taux de réduction indiqué ci-dessous.

|                          |                          |                          |                          |                          |                          |                          |                          |                                     |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| 10X                      | 12X                      | 14X                      | 16X                      | 18X                      | 20X                      | 22X                      | 24X                      | 26X                                 | 28X                      | 30X                      | 32X                      |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

# CANADIAN MINING REVIEW

VOL. 1.—No. 9.

OTTAWA, JULY, 1883.

VOL. 1.—No. 9

Canadian Mining Review.

PUBLISHED MONTHLY.

ANNUAL SUBSCRIPTION - - - \$1.00  
ADVERTISING RATES—15c. per line (12  
lines to 1 inch).

OFFICE:  
UNION CHAMBERS, 14 Metcalfe Street.

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

Visitors from the mining districts  
as well as others interested in Cana-  
dian 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 it is to appear.

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

## CANADIAN MINERS IN THE COUNTY OF OTTAWA.

Of the total output of Phos-  
phate for the year, it is noticeable  
that about 60 per cent. will have  
been mined by Canadian firms,  
the principal contributors to  
which are Messrs. J. A. Gemmill  
& Co., Haldane & Co., McLaurin  
& Co., Gillespie, Moffatt & Co.,  
Jackson, Rae & Co., J. H. Post  
& Co., Adams & Co., McLaren  
& Co., and W. A. Allen & Co.  
The mines owned by these firms  
are situated in the Townships of  
Wakefield, Templeton, East and  
West Portland and Buckingham;  
they are all very valuable prop-  
erties, but the most productive

of them are those owned by  
Messrs. W. A. Allan & Co., and  
McLaurin & Co., and from them  
an almost unlimited quantity of  
the highest grade ore can be  
raised. This season's shipments  
by both these firms will yield  
85 per cent. of phosphate of lime,  
and have commanded the highest  
prices. It is very important that  
miners should be careful to have  
their phosphate well cobbled and  
brought to a high standard be-  
fore shipping. By this means  
they will establish a reputation  
for their mines and create a pre-  
ference for their output. Care-  
lessness on this point is frequently  
attended by serious results, if  
one shipment fails to come up to  
the standard, the buyer will be-  
come prejudiced in his future  
dealings with the shipper, and  
the mine will be unfavourably  
advertised. A case of this kind  
has been brought to our notice  
this season and has resulted pro-  
judicially to the owner of the  
mine, who asserts that after the  
delivery of his output at the  
point of shipment it was mixed  
with a quantity from another  
mine of a lower grade, the buyer,  
however, will not admit that  
such is the fact, and no settle-  
ment of the case has yet been  
arrived at.

## AMERICAN CAPITALISTS

Visit their Phosphate Mines in  
Ottawa County.

On July 10th, the following  
names were registered at the  
Russell House, Ottawa:—Messrs.  
W. H. Williams, W. White, C. S.  
Henry, F. Platt, Jos. A. Marsh,  
B. H. Campbell, W. R. Bailey, J.  
N. Galway and General Jordan,  
(one of the Editors of the *N.Y.  
Mining Record*). All these gen-  
tlemen, with the exception of  
General Jordan, are Directors or

Stockholders in the Union Phos-  
phate Mining and Land Com-  
pany and were *en route* to their  
property in Portland West, few  
of them having ever before  
visited the phosphate district of  
the County of Ottawa. Leaving  
the city on the following morn-  
ing, by the Canadian Pacific  
Railway, they reached Bucking-  
ham Village at 9.45 a.m., and  
proceeded thence by steamer 18  
miles up the Aux Lièvres River,  
arriving at the company's dock  
about noon; here they were  
joined by Messrs. J. E. Smith  
and Wm. McIntosh, managers  
for the company, and escorted  
by them to the mines, where  
they were afforded an opportu-  
nity of witnessing a large force  
of miners, carpenters and other  
mechanics and workmen busily  
engaged in their several occupa-  
tions. The piles of phosphate at  
the mouth of the pits, the  
machinery that has been erected  
and the buildings that have been  
constructed presented a scene  
such as few of the visitors had  
looked for. That the property  
owned by the "Union" Com-  
pany is a valuable one is  
indisputable, and as the men  
entrusted with the super-  
vision of mining operations are  
conspicuous for their energy and  
ability as well as for their  
practical experience in mining  
Canadian apatite, it is but rea-  
sonable to predict prosperity for  
the company, and a good divi-  
dend in the near future. The  
property of the company, cover-  
ing an area of 1,300 acres, in the  
Township of Portland West, was  
purchased from Mr. Thomas  
Preston, of Orange, N.J., it is  
divided into two locations known  
as the "Dugway" and the "Star  
Hill," and the preliminary work  
was not begun until the first  
week in April of this year; since  
then the following improvements  
have been made.—at the "Dug-  
way," a boarding-house, 37 by  
18, two stories high, has been  
erected; at the "Star Hill" there  
is another two story building 50  
by 24 feet, with 24 by 18 feet,  
and wash-room 20 by 16 feet,

capable of accommodating one  
hundred men, a commodious  
stable, a storehouse and black-  
smith's shop of large dimensions.  
The buildings are all constructed  
in a workmanlike manner, of sea-  
soned timber and lumber, with  
a view to comfort, convenience  
and permanency. There are also  
at the mines, 2 derricks, 2 steam  
drills and hoists (manufactured  
by Graydon & Denton, N.Y.),  
and a 20 horse power boiler from  
the Ames Iron Works, Oswego,  
N.Y. The company has also  
built two substantial docks, one  
at a point on the Aux Lièvres  
River, a mile and a quarter from  
the mines, and the other at  
Buckingham Village, three miles  
from the railway station. A  
waggon road has been graded  
from the mines to the river bank  
(1½ m.), on which there are some  
substantial bridges, and one of  
the company's managers is now  
purchasing material for the  
immediate construction of a  
tramway from the mine to the  
upper dock. In the absence of  
this tramway, the output, which  
at present amounts to about 600  
tons of high grade ore, will be  
forwarded to the river in wag-  
gons, and thence by scow to  
Buckingham Village, where it  
will be again loaded into wag-  
gons and carried to the railway  
station. It must naturally  
appear that this mode of trans-  
portation and the frequent hand-  
ling of the mineral would con-  
stitute a great additional expense  
to the cost of mining, and so it  
does (about \$2.50 per ton), but  
the day is not far distant when  
there will be railway communi-  
cation from the mines, and in the  
meantime miners must be con-  
tent with present profits. The  
Union Phosphate Mining and  
Land Company is composed of a  
body of American gentlemen,  
whose positions in the commer-  
cial world of the United States  
is sufficient guarantee of their  
ability to prosecute operations  
with profit to themselves and  
others interested with them.  
On the return to Ottawa of the  
above named gentlemen, after

their visit to the mines, they expressed themselves greatly pleased with what they had seen and more than satisfied with their investment.

## AMERICAN MINING COMPANIES

Operating in Ottawa County.

### THE AMERICAN PHOSPHATE MINING AND LAND COMPANY

was organized in January, 1882, and has carried on active operations in the Township of Templeton since September of the same year. In the early part of this season the company shipped 400 tons of first quality phosphate direct to London and 200 tons are now at the mines awaiting shipment. The property owned by this company is distributed over the Townships of Templeton, Portland East and Loughborough, and covers an area of 900 acres of carefully selected mineral lands. In the last two mentioned townships no work has yet been done beyond prospecting, but it is the intention of the local managers to extend operations during the present season. The company, whose head-quarters are in Philadelphia, has for its President Mr. J. Marshall Stoddart, Secretary and Treasurer, Mr. Fred. L. Pitts, both of Philadelphia, with five Directors, representative commercial men of Philadelphia and New York.

### THE INTERNATIONAL MINING AND LAND COMPANY

is not yet engaged in active operations. The company's property consists of 1,700 acres of phosphate land situated in the 11th and 12th Ranges of the Township of Templeton and in the 3rd Range of Portland East, and was purchased by a syndicate from the Quebec Government in November, 1881, at auction. In January, 1883, the present company was organized and assumed the above title. With the disappearance of the snow last spring prospectors were engaged to thoroughly examine the several locations. The officers of the company state that many valuable deposits of apatite have been discovered and that they have reason to be satisfied with their purchase. They are making preparations to begin mining at an early date, when an opportunity will be afforded to test the extent of the deposits. Mr. Willis P. Hazard and Mr. A. G. Elliot occupy the positions of President and Secretary, respectively, and the Board of Directors is composed of gentlemen of high standing. All the officers are business men of Philadelphia, where the company has its headquarters.

### THE DOMINION PHOSPHATE MINING COMPANY,

incorporated under the Canadian Joint Stock Company's Act, is virtually an American organization, with Mr. T. C. Kcefer, of Ottawa, and Mr. A. F. Riddell, of Montreal, Canadian Directors, on a board of seven, the other five being residents of Fanwood, N.J., and Brooklyn, N.Y. The Company's property, situated in the Township of Portland East, is a very valuable one and is being successfully operated by a New York firm of contractors. To put the mine in proper shape for future development a considerable amount of dead work was necessary, the contractors have made an open cut several hundred feet in length, 10 feet wide and 40 feet deep running into the Mountain towards the main body of phosphate, and have crossed several minor veins. They have now reached the objective point and are taking out a large quantity of mineral daily. To make this cutting has required the expenditure of considerable money but now that it is accomplished the advantages it affords will be felt by the contractors in their mining operations hereafter.

### THE UNION PHOSPHATE MINING AND LAND COMPANY

has on its Board of Directors men of influence and capital from the principal cities of the United States. New York, Philadelphia, Cincinnati, Detroit, Chicago and Kansas City being all represented. This company is carrying on active mining operations in Portland West, and a full description of its property will be found in another column.

### THE "HIGH ROCK" MINE

adjoins that of the "Union" Company and is one of the most productive properties yet developed in the county. It is owned by an English company and has been successfully worked by them during the past three years. Quite 10,000 tons of high grade ore have been shipped from this mine and it continues to yield liberally under the management of Mr. A. McIntosh.

## PHOSPHATE MINING.

This comparatively new Canadian industry continues to attract much attention at home and abroad, more particularly in England, France and the United States, and during the past month a number of capitalists and experts from these countries have visited the mines in operation in Ottawa County, and have examined many undeveloped properties, with a view to engaging in what has been proved to be a very profitable investment. Those of them who have devoted sufficient time and patience to make a searching examination of the phosphate bearing district of the county have satisfied themselves that the quantity of apatite, existing in paying deposits, is enormous, far exceeding

anything they had anticipated. That this conclusion is a correct one there can remain no doubt, and it has given rise to careful enquiry into the question of supply and demand. England and Germany have been, and still are, the chief bidders for Canadian mineral phosphate, and in each of these markets a ready sale can be found for a much larger quantity than this country can hope to produce for years to come. In the United States also a considerable quantity has been used, and some small lots have been shipped to Denmark. The experience of shippers heretofore has been that better prices can be procured in Germany and Denmark than in any of the other foreign markets, but the uncertainty of procuring cheap and direct tonnage from the Montreal or Quebec ports to those countries stands as an obstacle to making contracts ahead. Recent advices from London and Liverpool are of a very satisfactory nature and should suffice to counteract the disquietude occasioned in the minds of miners by the discouraging theorizing of the Montreal buyers, the majority of whom are bears, and naturally so. Some of the more extensive operators are having their eyes opened to the fact that they can realize much better prices by shipping direct to the foreign market, wherever it may be, than by dealing with Canadian middle men; others will see the advantage of this, and if the Montreal shippers do not evince a disposition to deal more liberally they will soon have to content themselves with handling small lots, the output of properties in the hands of irresponsible men.

The exports of phosphate from all parts of Canada during the past fiscal year amounted to 17,181 tons, distributed as follows:—Great Britain, 13,197 tons; to the United States, 2,080 tons; to Germany, 1,469 tons; and to Denmark, 435 tons. This year's shipments will be somewhat in excess of those of last year, but were they to be double or five times the quantity it would in no manner effect the current prices abroad.

### Quotations.

During the past month there has been no perceptible fluctuation in value of Phosphate, though some sales of small lots have been reported at low figures. Such lots, however, were not guaranteed and were the output of unimportant mines owned and operated by men who had been compelled to realize on almost any terms. Owing to the scarcity of tonnage offering at present from Montreal to Liverpool the local buyers have not been bidding and, though the foreign market continues firm at 1s. 3d. for 80 per cent., shippers are not anxious for consignments.

Fifty thousand dollars' worth of copper ore has been shipped this year from Canada to Great Britain.

## Introducing Steam Power.

That phosphate miners in Canada have awakened to the advantages of employing steam power is made apparent by the fact that steam drills and hoists are in use at no less than five of the more important mines in Ottawa County. A fifteen-horse-power boiler, steam-drills and hoists have recently been shipped to one of the mines on the Aux Lièvres River by the manufacturers, Messrs. Millar Bros. & Mitchell, of Montreal, and have been erected under the personal supervision of the senior member of the firm. Everything has the appearance of excellent workmanship and will doubtless perform good work.

### Stock Watering Kettles.

At a recent meeting of the Farmers' Club, at Elmira, N. Y., a newly designed kettle for stock-watering purposes was exhibited and highly approved of.

Many of the mining companies of this continent would do well to provide themselves with these useful vessels.—[Ed.]

### A Disappointment.

A specimen of Asbestos, of rather an inferior quality, was brought to Ottawa recently by a man who claimed to have discovered a vein on his farm and described it as being of unusually large dimensions. A careful examination of the locality by an expert resulted in no Asbestos of any consequence being met with and the owner of the property could not direct him to the spot from which he professed to have taken the specimen referred to.

## HAYCOCK IRON MINES.

The London *Iron Trade Exchange*, in its number of July 7th, publishes in full Mr. R. Howson's report on the Haycock Iron Mine, dated Middlesbro, 21st May, addressed to the Directors of the Ottawa Iron and Steel Manufacturing Company, and says that the report on the Haycock Iron Mines, Timber Limits, etc., which has been specially prepared by Mr. Howson, a well known expert, confirmed as is by other authorities, needs no comments beyond stating that the Ottawa Iron and Steel Company appears to have almost unlimited resources for the production of the best qualities of charcoal steel and iron. Mr. Howson made a personal examination of the various properties of the company in April last and expresses himself satisfied that the representations made in his former reports thereon are of a bona fide character. His report is very complete and intelligent and, in the main, coincides with the most favourable reports of Professor Chapman and Mr. Birkinbine—He enters fully into detail for further operations and concludes his report by stating that he had several interviews with Professor Chapman and Mr. Birkinbine, both of whom

gentlemen of high character, and that he agrees with them that by prompt and energetic action, combined with careful management, the property of the Ottawa Iron and Steel Company will prove to be a source of considerable profit.

Mr. Fraser, the Secretary of the above company has returned within the last few days from England where he has been for the past six months endeavouring to place the company's property on the London market. He states that he has succeeded in organizing a new company with a capital of £350,000, that they will begin operations this fall and that it is the intention of the company to engage in the manufacture of steel rails.

The Robert's Iron Company of Robertsville, Frontenac County, has suspended operations in its mine owing to the depression of the iron trade and the consequent falling off in the demand for ore on the other side of the border. This company has for some time past been raising about 100 tons of ore daily and employing a number of experienced miners. It is to be hoped that this trade may soon revive in order that active operations may be resumed.

## ECONOMIC MINERALS

IN THE

PROVINCES OF ONTARIO AND QUEBEC.

### COPPER.

Copper constitutes one of the most important of the mineral treasures of the Dominion of Canada, and is destined to occupy a very important rank among its resources. Its ores are distributed over vast tracts of country in Ontario, in the Eastern Townships of Quebec, in Nova Scotia, British Columbia, and traces of it are met with in New Brunswick.—Thus writes Dr. Small in his hand-book for 1882.

ONTARIO.—The richest copper producing section of this Province is that embraced by the northern shores of Lakes Superior and Huron. On the north shore of the former, especially, is very rich in this mineral, where it frequently occurs in the form of native or metallic copper. Excavations of aboriginal mines are occasionally met with, and the stone implements used are also found in them. An open cutting, supposed to have been made by the early French explorers, was found near Mamainse Point, the marks of the drills being still visible, and old shafts are here and there met with, but its history is completely lost. On the south shore of Bachewaning Bay, the cliff is stained with blue and green carbonates of copper; at Mamainse Point, veins of gray sulphurate occur, and prisms of native copper; at Pointe Aux Mines,

numerous veins occur; and at Mica Bay considerable money was spent in testing a vein, which, though rich in ore, was not lasting enough to be productive of results that would warrant a continuance of mining operations. A number of localities on Michipicotin Bay and Island are rich in copper; among them is Fletcher's Mine, from which large quantities of ore have been extracted, and veins appear along the coast east and west of Otter Head, The Island of St. Ignace, Black Bay, Flour Island, Simpson's Island, Point Porphyry, Edward's Island, Thunder Cape, Prince's Bay and Spar Island, on the north-west shore, are all rich in copper, native copper being abundantly found in these localities. Pigeon River and the district south-west of the Kamistiquia River give evidence of the existence of copper in large quantities. It is asserted that the Superior district contains the most extensive copper deposits in the world, capital being the one thing necessary for their development. Along the shores of Lake Huron, copper is abundant, in fact no very large area within this region is destitute of copper-bearing veins. The Bruce Mines, the Wellington Mine, and the Huron Copper Bay Mine are here situated, and have produced a large amount of very rich ore. Numerous veins occur at the mouth of Whitefish River, and at Spanish River, and the district contiguous to it; at Echo Lake, on the east branch of Cariboo River, at Limestone Point and at Root River, there are abundant shows of copper. The ore found at the above named points is chiefly pyrites and yellow sulphurets, and the indications are rich enough to lead to the belief that ere long the Lake Huron district will be one of the most important mining sections of this country.

In Eastern Ontario, in the County of Hastings, in Hungerford Township, and Anglesea, west of the Addington road, and occasionally scattered elsewhere, traces of copper in the form of pyrites have been found, but of no economic value as far as known at present.

QUEBEC.—In Eastern Canada, the native copper, which is so abundant in the Superior district, is met with but in few cases. Sir William Logan describes the copper deposits of this part of Canada as similar in point of structure and mode of occurrence to those of Norway and Sweden. In some of the localities in this Province the ore met with is a sulphuret, but these veins are seldom continuous for great distances. At the outset of copper mining in this section a great rush was made for mining rights; companies were formed, the majority of which sank a great deal more money than they could afford and had to yield to the pressure of the times before realizing any return on their outlay. Despite all this there has been sufficient development to prove

that in several districts copper mining could be carried on successfully. The extraordinary number of 557 locations have been enumerated in the Eastern Townships where copper exists and has been traced. The Acton, the Harvey Hill, the Prince of Wales, the St. Francis and the Lower Canada Mines, as well as one at Garthby, were being worked at one time. The Coldspring, the Balrath, the Brompton Gore, the Ascot and Belvedere; Victoria, Reid Hill, Warrington, Griffiths and Ham Mines gave good evidences of copper, but were respectively abandoned. Copper has been traced through the Townships of Potton, Bolton, Stakeley, Oxford, Brampton, Melbourne, Cleveland and Shipton; and in numerous other localities, such as Wickham, Durham, St. Flavien, Sutton and Halifax, the existence of ore, in the form of sulphuret, rich in copper, has been discovered. In the Ascot district the Hartford, the Crown and the Albert Mines have been for some time worked, and the Sheffield and Hepburn Mines were opened under favourable auspices last year.

The Eastern Townships ores demand a peculiar metallurgical treatment, and to separate the copper gangue they require additional power and more sulphurous ore in the smelting works. It is stated that the quantity of fuel required by the present mode of treating the ores is such that the richer ores must be carried to the vicinity of coal; hence it is not unlikely that these from Eastern Canada will eventually find their way to the coal fields of the lower Provinces.

### MICA.

Mr. H. G. Vennor in his published letters, thus speaks of this valuable mineral:—

"The constant new uses to which mica is being put year by year, keeps it continually in demand and ensures a good price always for a good article. A "good article" in mica must possess at least two qualities, viz., clearness of colour and size of crystals, characteristics not always found together. Clearness of colour alone is of little importance, if the size is insufficient; and the latter by itself is nothing without the former.

Mica occurs all through the stratified upper portion of the Laurentian series of rocks, but chiefly in a finely divided and disseminated form in the gneiss and schists. In fact it is as much a component part of the rocks as is the quartz, feldspar or hornblende.

The economic deposits, however, are all towards the summit of the series and in connection with the phosphate of lime rocks; but by some unaccountable process or agency the mica in these deposits has been "faulty" from its birth. For besides being in the majority of instances of a very dark colour it is affected by "joints" or cleavage

planes at right angles to what may be termed the *plate cleavage*, which being often accompanied by a slight displacement or dislocation, produces a very uneven natural fracture. Wrinkles or corrugations likewise spoil very many of the large crystals and render them entirely unfit for the market. Hence, out of one hundred and more localities examined, where mica occurred in considerable quantities, only some two or three were found to yield anything like a suitable article."

As illustrative of the quality of mica required by mica men we give the following from the *Manufacturer and Builder* of a recent date:—

"This mineral, simple in itself, is but an aggregation of infinitesimal crystals, which by some unknown natural process have united in a massive form, with a laminated structure capable of being subdivided on a plane with its axis to such an extent that one cubic inch can be subdivided by the eye into about 180 superficial inches, and the same be again subdivided by the aid of the microscope until one cubic inch of mica is made to cover four or more superficial feet. This capability of subdivision in plates or laminae is not its only peculiarity. It varies from transparency to translucency."

The demand for mica, however, alone, is greater than the present supply, thus causing an unintermittent demand. To the uninitiated it may appear strange, but mica is a staple article of commerce, and the fact that mica is so extensively used placed almost annually a steady demand. Recently a man patented its application to the manufacture of a class of glass whereby soles and other articles are rendered waterproof. And whenever the quantity of mica produced is sufficient to meet the demand, and the price is raised, then new uses and applications of it will arise, and the manufacturer it stands prepared to meet to its non-frictional qualities.

It will be thus seen that in mica mining we have an industry worthy of development, and one which requires no expensive manipulation of the product subsequent to excavation.

The largest and altogether the most important deposits of mica yet discovered in Canada occur in Ontario. Here the mica is without the usual association of phosphate of lime, and is of an unusually clear colour and suitable size.

In Ottawa County, Province of Quebec, the deposits are innumerable, and mica constitutes a large part of the debris thrown out of nearly every opening made in search of phosphate, but the majority of this is worthless stuff.

All of the large-plated mica occurs in one particular plane of bedding or horizon, which would appear to lie just between the apatite and plumbago-bearing rocks.

The neighbourhood of Gronville,

abounds in mica of fair quality and as no deposits of phosphate of lime of any importance have yet been discovered in this direction, it would seem to indicate that this latter economic belongs to a higher portion of the rock series, which has not been deposited to any extent in this section. In fact, this truth has already been established in Ottawa County, the mica-producing rocks always having been observed to "come in" before those in which the phosphate of lime occurs.

### GALENA IN FITZROY.

It has been rumoured in Ottawa that a property was purchased not long since in the Township of Fitzroy by some American gentlemen. This property is said to be very valuable owing to the presence of an extensive deposit of galena having been discovered thereon, supposed to carry a large percentage of silver. It is stated that \$16,000 is the price that was paid and that it is the intention of the present owners to begin mining operations at once.

We cannot vouch for the correctness of these statements and will be pleased to receive authentic information in verification of current reports. — [Ed.]

### MINING IN WESTERN CANADA.

(From the *Montreal Star*.)  
The Lake Winnipeg and the Keewatin Gold Mining Companies have received their charters from the Manitoba Legislature. The former company, the latter, was in the city of Winnipeg, en route for Nova Scotia, when he goes to the city of Winnipeg and engage in the mining companies. He is a *Star* reporter, and regarding these two enterprises. Both companies are composed of Canadian and American capitalists, the Board of Directors of each being the same. The subscribed capital of each is two million dollars. The Lake Winnipeg Company's mine is situated on the Big Black Island, in Lake Winnipeg, about seventy-five miles north of the mouth of Red River. The island is about nine miles wide and thirteen long, and the Saskatchewan steamers pass it regularly on their route, thus affording easy communication with Selkirk via the branch of the Canadian Pacific Railway from Colville Landing. The company began work last fall and have sunk a shaft to a depth of 56 feet all the way through "pay rock." Operations have not yet gone far enough to enable a calculation to be made of the probable extent of the lode, but where it crops out at the bank it is about 20 feet deep. The company intend to sink another shaft further back, to strike the lode about 200 feet below the sur-

face. The assays which have been made of the ore yielded from \$90 to \$150 of gold per ton; a single, very rich specimen gave \$300 per ton. The ore will have to be reduced by what is known as the "washer" process; there is some free gold in the mine, but a great deal is refractory ore.

"When will you be ready to begin to work the mine?"

"Everything is waiting for the machinery. The company have constructed a wharf at which any steamer on the lake can land, and all the necessary buildings for working the mine—boardinghouse, machine and blacksmith shops, etc., are built; but we won't begin to take out ore until the other shaft has been sunk. I don't think it pays to commence operations before we are fully prepared."

"Do you expect to get the machinery you require manufactured in Nova Scotia?"

"The purpose is to get all the machinery we can in the Dominion, and we hope to find what we require in the gold districts of Nova Scotia. I am also going to engage miners there, where they are to be found in large numbers, for men who have had the experience are the most profitable to employ."

"By whom was this mine discovered?"

"By Messrs. Anderson and Guest. They also discovered iron in abundance and of excellent quality on this island, part bog ore and part hematite. There are indications of coal in the island, too."

"What about the Keewatin Company's mine?" "It is on Hay Islands in the Lake of the Woods, nine miles south of Rat Portage, where the Canadian Pacific Railway touches the lakes. This is one of the richest mines in the Dominion. There are at least some thousands of tons of ore right inside of it. It crops out of the side and you can hardly pick up a piece of stone but you can see free gold in it. The lode can be traced for about half a mile very plainly. About a thousand feet distant from these cropings, the company have sunk a shaft 62 feet deep; and the ore looks better the deeper they go. This can be made a paying mine right away, and it is intended to put up the mill the first thing as soon as it reaches the place. The company expect to pay a dividend on the first operations, besides paying all the expenses of working the mine. It is hoped that the mill will be running in the course of three or four months from now, everything else being ready for operations, and about four hundred tons of ore having already been taken out."

"What are the prospects for mining generally in Manitoba?"

"The only obstacle in the way of the speedy and extensive development of the mineral resources of the province is the lack of confidence on the part of the men who have

the money to invest, and that is a serious difficulty. A great many persons speculated largely in land during the great boom about a year and a half ago, and many of them were badly bitten, too. The capital invested in this way is now locked up, while those who have available funds are afraid to invest it. There is a great deal of the country yet unexplored, which, I believe, will yield immense mineral wealth. The native Indians are continually bringing in specimens of gold and silver ore astonishingly rich, but they cannot be induced by any means to tell where the ore is taken from. It is, no doubt, somewhere between Lake of the Woods and Lake Winnipeg. The country is now being slowly explored, and shows a large mineral belt. The other mines in Manitoba already in operation are in a prosperous condition, and their owners seem confident of success; all they want is capital to develop them."

Captain Robbins, President of the Eureka Mines, Nevada, visited Port Arthur recently, and, it is said, while there, representing the Bullion Club, of New York City, he purchased the property at Clearwater Bay, known as the "Joe Thompson location" for \$35,000. It is further stated that Captain Robbins will at once erect an \$80,000 stamp mill at Rat Portage, for his own use, and capable of working up the output of other mines in the district.

Mr. Langdon, of Langdon, Shepard & Co., contractors on the Canadian Pacific Railway, arrived in Winnipeg about the middle of July from the end of the track, with a car load of curiosities. He brought a specimen of lignite coal of a bright, clear character, some of which had been used for the engine driving piles in the Saskatchewan River. It burned excellently, retaining its character of forming no clinkers. Mr. Langdon will experiment with the specimen he has with him when he reaches St. Paul and, if it comes up to his expectations, a car-load will be forwarded at once.

In addition to coal, he brought some very interesting specimens of petrified pine, showing perfect formation of the ancient tree, clinging to which there were clusters of quartz, showing indications of gold. A quantity of buffalo bones and some very handsome antlers formed a portion of this curious cargo.

Early in July Saskatchewan coal was tested on the Canadian Pacific Railway and was pronounced to be of very superior quality for steam purposes. It is said to burn without forming "clinkers."

Negotiations are afloat to organize a company to engage in extensive coal mining operations in the Souris district. The owners of the location are sanguine of success.

### GOLD MINING ON THE LAKE OF THE WOODS.

(From our Special Correspondent.)

RAT PORTAGE,  
July 24th, 1883

Your correspondent has just had an opportunity of visiting some of the gold mines of the Lake of the Woods, and has obtained the most recent reliable information in regard to the others. The following notes will, therefore, give a pretty good idea of what has hitherto been done and of the present condition of mining up here.

I may promise that there is now less activity than existed two months ago, but this arises from the difficulty of obtaining money in Winnipeg, where the mines are owned and not from any failure or diminution of confidence in the mine themselves. Most of the discoveries so far made are situated around Big-stone Bay, in the northeastern part of the lake, and near Clearwater Bay, in the northern part. Hay Island, which has become well known on account of its gold-bearing veins, lies on the south side of the former bay.

The *Winnipeg Consolidated Mining* is on the south-eastern side of Big-stone Bay, about twelve miles from Rat Portage. The vein, including some green schist, is from two to four feet wide and runs about north-east. The main shaft is down 100 feet. At 80 feet from the surface an adit is driven 30 feet N.E., and 20 feet S.W. The ore is a fine-grained granular porous quartz containing copper and iron pyrites, with free gold. The accompanying schist also holds gold. At the mine are a wharf, shafthouse, boarding-house and stamp-mill containing a battery of five stamps in position, and another ready for putting in a similar number. In April, the mill made an experimental crushing of about 17 tons which yielded some \$45 to the ton, and the tailings were found to contain \$16 to the ton, the loss having been due to the imperfect amalgamation on the plates and the want of other means of saving the gold. A grinding pan and amalgamator have just been put into the mill. Work was begun at this mine in October, 1882. About 40 men were employed in April and May, but the sinking and driving are now almost at a standstill from the cause already mentioned.

The *Canada Mining Company* vein is a continuation of the Consolidated. They are working with five men and are down about 30 feet.

The *Lake of the Woods Company* are working a further continuation of the same vein. Their shaft, which is down 20 feet, is all within the walls of the vein, which is here about 8 feet wide.

The *Keewatin Mine* is on the north end of Hay Island. A shaft

## NEW DISCOVERIES.

It is currently reported that a phosphate deposit of more than ordinary importance has been discovered by prospectors in the 11th Range of the Township of Hull, near Kirk's Ferry.

New discoveries of mica are daily reported, and some of the deposits are capable of yielding an almost unlimited quantity, but the quality of the mineral is very inferior. A few specimens of really good quality of mica have been sent to us, but it is said not to occur in paying quantity.

Another rich lead, measuring 6 inches in width, is said to have been quite recently discovered at Chezetcook, in the vicinity of the Oxford Gold Mining Company's claim. During last year important discoveries were made in this district, to the north and west of the Oxford property, by Mr. Stather, Mr. McKay and the Messrs. Vaughn.

It is stated that in the neighbourhood of Sooke, Vancouver, B.C., a vein of copper ore has been traced a distance of 20 miles, and that a company has been organized to work the lode. So far the names of the owners of the property and the promoters of the company, as well as a description of the ore, have been withheld.

Early in the month of June information reached us of an important new discovery of gold in Halifax County, N.S. We have endeavoured to obtain definite information on the subject, but have not succeeded in gathering more than the following bare facts. The discovery has been made on the DeWolf property, in close proximity to the well known Rose lead of the Montagu Mines. Three veins measuring 7, 10 and 35 inches, respectively, have been found at a depth of 12 feet from the surface, and are said to bear indications of unusual richness.

The *Chicago Mining Review* of July 19th refers to the discovery of a copper lead on Hay Island, in the Lake of the Woods, measuring 30 feet wide.

The same Journal, in its number of July 12th, calls attention to reported coal discoveries in the County of Ottawa. No report of this nature has yet reached us. The non-existence of coal in the Provinces of Quebec and Ontario has long been an established fact, but being situated favourably in their proximity at all points to other carboniferous regions, and the facility of conveyance afforded by the Lakes, Rivers, Canals and Railways of the respective Provinces, it is easily procurable, and the deficiency is supplied by the vast areas of coal districts in the Maritime Provinces and on the Pacific Coast.—[Ed.]

PROJECTED RAILWAYS  
TO PENETRATE  
MINERAL SECTIONS OF CANADA.**The Kootenay Railway and Transportation Company.**

During the last session of the British Columbia Legislature a bill was passed incorporating the above company and donating 750,000 acres of land to its promoters, including all mineral lands other than gold or silver. This railway will penetrate a section of the Province known to be rich in mineral and farming lands, and the only reason why it has been neglected, heretofore, has been its inaccessibility. The object of the railway is to connect Kootenay Lake with the navigable waters of the Columbia River and to act as a feeder to the Canada Pacific Railway. That the company's charter is a very valuable one, it is admitted on all sides, but the fact that the land grant and franchise have fallen into the hands of Americans has created much local dissatisfaction, so much so, that on the 23rd of April a public meeting was held in the City Hall, at Victoria, B.C., for the purpose of considering the grounds upon which exception was taken to the passing of the Act of Incorporation. The meeting was largely attended and resolutions then passed were submitted on the 28th of the same month to the Lieutenant Governor for transmission to Ottawa. The meeting protested against the Act of the Local Legislature and invoked the intervention of the Dominion Government. Since then the matter has been fully commented on by the press, one journal going so far as to state that the charter had been disallowed. That this has not been done is apparent by the fact that such disallowance has not appeared in the *Canada Gazette*. The resolutions referred to, and many communications in connection therewith, have been received by the authorities at Ottawa, and the matter has been reported on by the Minister of Railways and Canals and the Government Chief Engineer, but no action has yet been taken. It is not in the least improbable, however, that the Minister of Justice who, with the Government Engineer, has proceeded to British Columbia on public business will, while there, discuss the question at issue with the local authorities, and it may result in certain features, objectionable in a Dominion point of view, being eliminated from the bill during the next session of the Local Legislature.

That the construction of this railway will be a boon to the Kootenay district, and of much benefit to British Columbia, is acknowledged on all sides, and it is universally admitted that the Local Legislature has been most generous to the promoters in granting them the fran-

chise and in its land subsidy, but it would seem that the greatest grievance the petitioners have exists in the fact that the successful applicants are Americans.

It appears that these gentlemen are personally interested in the development of the district into which the railway will penetrate, having become owners of the largest deposits of silver bearing galena yet discovered on the Pacific Coast, situated on the east side of Kootenay Lake. Therefore, nothing is more natural than that they should seek substantial Government aid to enable them to open up a section of country in which they are so deeply interested. The company to construct the railway has been organized with \$5,000,000 capital stock, divided into \$50,000 shares of \$100 each; \$4,000,000 has already been subscribed and the balance will be allotted in California. Are there any local men capable and prepared to undertake the construction of this work on similar terms to those that have been granted to Messrs. Ainsworth? If not, then it is short sighted policy that will permit sentiment or prejudice to delay the opening up and development of the natural wealth of our Pacific Province or of any other Province of the Dominion.

**Ottawa and Gatineau Valley and Ottawa Colonization Railways.**

The contract for the construction of the Ottawa & Gatineau Valley Railway has been awarded to Messrs. Macdonald, Bray & Jones, of Toronto, and work will proceed about the first week in August, the entire line to be finished within three years. The Ottawa Colonization Railway will be under construction within a few weeks and vigorously prosecuted thereafter. The company of course depends upon the active assistance of property owners and taxpayers and, after making the regular location survey, will ask the Townships to manifest their desire to get a railway by granting small bonuses, and the property owners to grant right of way. We would urge every public spirited ratepayer to work indefatigably in the interest of the enterprise, as it will be the making of this portion of the county. We congratulate the promoters of the railways upon the progress already made and feel confident that success will crown their efforts.

**AMBER AND ITS ORIGIN.**

According to a recent volume on the flora of the amber-bearing formations of East Prussia, by Messrs. Gueppert and Menge, there must have existed in that part of Europe in ancient days a group of conifers which comprised specimens from almost all parts of the world. There were present such magnificent repre-

has been sunk here to a depth of about 60 feet on a vein four inches wide. Near the shaft a bunch of quartz has been discovered carrying free gold and measuring about 20 feet in diameter. Formerly this company employed about 20 men, but their staff is now reduced.

*The George Heenan Mine* is situated on the east end of Hay Island between the last mentioned mine and the Consolidated. Here three shafts (the deepest only 20 feet) have been sunk on a narrow but rich vein, the quartz showing many small nuggets. About half a dozen men are employed. A quartz vein carrying considerable copper pyrites intersects the gold vein.

*The Boulder Island Mine*, situated on a small island in the middle of Big-stone Bay is abandoned at present.

*The Minnisabic Mine* is on another island in the same bay, midway between Boulder Island and the Consolidated Mine. Two shafts, down 25 and 15 feet respectively, are being sunk by contract. Two veins occur here, one running N.E., and the other due N. They measure 8 and 18 inches, and both contain free gold.

*The Canadian Comstock Mine* is situated at the head of Pine Portage Bay on the north side of Big-stone Bay. The vein is known as "The Whale." It is from 3 to 10 feet wide, and lies on the bottom of a little canyon, and so far only open cutting has been carried on in the bottom of it. The largest stamp-mill in the region has been erected at this mine. One battery of five stamps has been placed and everything is on hand for three more of the same capacity, or 20 stamps in all. The machinery is by Fraser and Chalmers of Chicago. About 15 men are employed at the mine and mill. This mine is owned by Messrs. Dobbie and Palmer.

*The International Mining Location*, owned by Messrs. Wm. Young and D. Morrison is on a small island in the bay next east of Pine Portage Bay. Here a vein 2 feet wide shows fine gold, but it has not yet been worked.

*The Argyle Mine* is situated on a point in Clearwater Bay, lying three miles south-east of Lake Deception. The vein is from 1 to 3 feet wide and runs east and west. A number of pits or shafts have been sunk, the deepest only 25 feet. At one time the company employed about 30 men, but they are now working with a smaller force, in sympathy with the general retrenchment. The stamp mill, which is erected here ran for a short time on the ore which had been taken out. There are also two Frue Vanners and a Blake stone-breaker. Captain F. S. Miller is President of the company and General Manager of the works.

representatives of the Californian Coniferæ as the Red Wood, the Sugar Pine, the Douglas Spruce; the scarcely less majestic Bald Cypress, Red Cedar, Thuja and *Pinus rigida* of more eastern States; the Chilian Incense Cedar, the Parasol Fir, the Arbor-Vitæ, the *Gyptostrobos* and the *Thuyopsis* of the eastern coasts of Asia; the Scotch Fir, the Spruce and the Cypress of Europe, and the Callitris of Southern Africa. The causes which led to the dispersion and extinction in Europe, in relatively recent times, of so considerable a group of coniferæ would be interesting to trace out. From generations of these resin-bearing trees along its shores have been produced the deposits of amber for which the Baltic is noted. The richest deposits are situated along a strip of coast between Memel and Dantzic, but the real home of amber has been supposed to lie in the bed of the Baltic between Bornholm and the mainland. It rests upon cretaceous rocks, and consists chiefly of their debris, forming a peculiar mixture known as blue earth, which appears to exist throughout the Province of Samland at a depth of eighty to one hundred feet, and to contain an almost inexhaustible supply of amber. This strip of blue earth extends along the coast for sixty miles, with a breadth of twelve miles and an average thickness of ten feet. Immense quantities of amber are washed out to sea from the coast, or brought down by rivulets and cast up again during storms or in certain winds. The actual yield by quarrying is 200,000 to 300,000 pounds a year, or five times the quantity estimated to be cast up by the waves on the same coast.—*Mail*.

### A Submerged Forest.

#### A Wonderful Formation at the Bottom of Lake Tahoe.

Carson (Nev.) Appeal.

For some years there has been a bank in Lake Tahoe, which in clear weather has generally been taken for moss formation. It lies at the right of the steamer's course between Tahoe City and Tallac, about two miles beyond Idlewild. It looked as if a lot of trees had sunk to the bottom of the lake and that moss and slime had collected there till the whole presented a wavy, semi-transparent appearance, about fifty feet below the surface. During the past few weeks the moss and debris have disappeared and now when the water is clear a forest of pine trees can be plainly seen, with every limb and twig perfect. Recently some fishermen went out there in a boat and, lowering grappling irons, secured several splendid pieces of the petrification. One is a pine branch about three feet long, which, when held a few feet from the eye, has the appearance of a pine branch just taken

from a living tree and apparently fresh and green, the brittleness and weight distinguishing it from the freshly cut bough.

The specimens brought to Mr. Kinney's were speedily disposed of to tourists. The largest piece was purchased by Henry Townsend of San Francisco for \$25. This is said to be the first thing of the kind ever found in the lake. The forest occupies about two acres and seems like a forest just immersed, except that its stony branches are forever still and tall weeds and vines which cluster about the trunks of the giant trees are as motionless as the rocks. No wind ever stirs this strange verdure and the birds which once sang in the branches centuries ago have given way to fish, which swarm through the forest in thousands.

### A PETRIFIED FOREST.

The *Albuquerque* (N.M.) *Journal* thus describes the appearance of a petrified forest near Corrizo, on the Little Colorado River:—

"The road, at a distance of ten miles from Corrizo, enters an immense basin, the slope being nearly a semicircle, and this inclosed by high banks of shale and white fine clay. Half an hour's good driving from this point takes one to the heart of the forest. The petrified stumps, limbs, and, in fact, whole trees, lie about on all sides. The action of the waters for hundreds of years has gradually washed away the high hills roundabout, and the trees that once covered the high table lands now lie in the valley beneath. Immense trunks, some of which measure five feet in diameter, are broken and scattered over a surface of three hundred acres. Limbs and twigs cover the sand in every direction, and the visitor is puzzled as to where he shall begin to gather the beautiful specimens that lie within easy reach. There are numerous blocks or trunks of this petrified wood, which have the appearance of having been just cut down by the woodman's axe, and the chips are thrown around on the ground so that one instinctively picks them up as he would in the log camps of Michigan and Pennsylvania. Many of the small particles, and even the whole heart of some trees, have now become thoroughly crystallized, and the beautiful coloured cubes sparkle in the sunshine like so many diamonds. Every colour of the rainbow is duplicated in these crystals. The grain of the wood is plainly shown in nearly every specimen."

Siberia now ranks only barely below the United States and Australia as a gold producing country. The best Russian authorities think its mines will yield nearly or quite \$25,000,000 worth of the metal this year, and the out-put is steadily increasing.

### HOW HE GOT HIS START.

#### The First Big Hit made by Jones, of Nevada.

Many remarkable anecdotes touching the life of Senator Jones, of Nevada, have appeared, from time to time, in the American journals. The following history of his early experience in the gold diggings has appeared in the *Washington Sunday Herald*, and may be of interest to some of our readers:—

"Jones had gone to California with thousands of others when the wonderful discovery of gold in that far-off land thrilled every hamlet and village. Among those who went to seek their fortunes there was a man named Hayward, from Vermont. He was rather the superior of his associates in education and totally unlike them in habits. They were working in pretty good pay dirt and at first had fair success; but finally one after another went away to more promising localities, until Jones and a few others, among them Hayward, were left at the old diggings. Hayward had a claim on the mountain side that as yet had shown no particular promise. Still he stuck to it. One hot summer day, when the red hills were quivering with heat, Hayward came to see Jones. Said he, "Jones, I am very near to a wonderful vein. I know it; I feel it. But I am flat broke. I want \$2,000. With that I will make both our fortunes." "Now, old fellow," said Jones, "I have known just 1,000 men in exactly your fix. They only needed \$1,000, and sometimes \$100, to make their eternal all." But Hayward continued. Finally Jones said "I will give you this money. I have \$3,000 buried under the fireplace, and when the fire goes out and my Chinaman leaves I will give it out to you. But don't ask me for any more. I cannot afford to lose more than that; and, while I give it to you with the utmost heartiness, don't ask me for any more."

Hayward got the money and said: "When I strike it I will give you a quarter interest." One afternoon, about a month after this happened, Jones was sitting in his cabin, when Hayward suddenly burst in, as white as a sheet. "Jones," said he, "I have struck it." "Struck what?" said Jones. "I don't know what just yet," answered Hayward, "but I have struck the richest vein I ever seen." They went together to look at it, and sure enough, Hayward had struck an immense "bonanza" or pocket of almost pure gold. Jones, with his experience, saw it was the richest mine in California. They sent for Eugene Kelly of San Francisco, then a young mining expert of great ability. He pronounced it the greatest strike in his time. Hayward had found the New Amador, the richest gold mine in the world. He sold it to Wells-Fargo and some

others for \$5,000,000, and the day the sale was made he gave Jones \$1,250,000. Jones afterwards married Hayward's daughter. This is the history of the New Amador and of the great start in life of Jones, of Nevada.

### MISCELLANEOUS.

The world's production of precious metals for 1882 is estimated at \$212,000,000. Of this amount the United States produced \$87,000,000; Europe, \$21,000,000; Asia, \$16,000,000; Australia and other countries, \$88,200,000.

Leadville during the past five years has produced twenty-eight million ounces of silver, one hundred and forty thousand tons of lead, and twenty-six thousand ounces of gold, inclusive of one hundred thousand tons of ore shipped to other towns for treatment.—*N. Y. M. Record*.

A cubic inch of gold is worth \$210; a cubic foot, \$363,380; cubic yard, \$9,797,762. This is valuing it at \$18 an ounce. At the commencement of the Christian era there was in the world \$427,000,000. When America was discovered it began to increase. Now the amount of gold in use is estimated to be \$6,000,000,000.

From surveys and calculations made by J. A. Farrington, Civil Engineer, the famous Washington Boulder, near Conway Corner, N.H. is found to measure 30 feet in height, 46 feet in length, 35 feet in width and to weigh 3,867 tons. This is the largest known isolated piece of granite in the world.—*Granite Cutters' Journal*.

The development of the coal field of Asturias has greatly advanced within the last few years. In 1871 the output was 167,586 tons, and in 1882 the quantity raised amounted to 219,508 tons. With the increased demands of railway companies and industrial establishments the product will be increased beyond anything that the above figures might indicate. This may be looked for in the near future.

The burning of the lignite beds of Colorado, Wyoming, Montana, and Dakota, Mr. Charles A. White says was caused by spontaneous combustion, contact at exposed places with prairie fires, or by human agency. The weight of the evidence goes to support the theory that, in the great majority of cases, the fires have occurred in a purely natural way, or spontaneously, like those which are often seen in progress the piles of refuse coal that collect about the mouths of coal mines. A large part of such burnings of lignite is very ancient, more so, perhaps, than the introduction of artificial fire upon this continent.

Herr Schell, of Grund, Germany, has reported that in the course of mining operations in the Hartz Mountains the sounds made by the firing of shots in a cross-cut were audible through the rock at a point 437 feet distant in a horizontal direction; and the dropping of a 320 pound stamp on the surface was heard in a tunnel through 571 feet of rock, the tunnel being 538 feet below the surface and under a point distant horizontally 187 feet from the stamp-mill.

**STEAM DRILLERS, MINING CAPTAINS AND MINERS.**

Frequent enquiries are made at this office for men who understand running Steam Drills, for Mining Captains and Practical Miners. Such men who are out of employment may find it to their advantage to forward name and address, mentioning the class of work they are qualified for, etc., to the CANADIAN MINING REVIEW, Union Chambers, 14 Metcalfe Street, Ottawa.

**PHOSPHATE PROPERTY**

For Sale in North Burgess.

Mining Rights of W $\frac{1}{2}$  of 13, in the 5th range. About 100 tons of very high grade Phosphate have been shipped from this property. Will be sold to an immediate purchaser for \$750. Apply at the office of the MINING REVIEW.

**PHOSPHATE PROPERTIES FOR SALE**

IN THE TOWNSHIP OF WAKEFIELD.

Mining Rights on S $\frac{1}{2}$  of Lot No. 16, in the 1st Range.  
 " " on Lot No. 23, in the 2nd Range.  
 " " " No. 26, in the 4th Range.  
 " " " No. 20, in the 5th Range.

The fee simple of Lots Nos. 22 and 23, in the 4th range, (400 acres). All these lots have been carefully explored by experts and very favourably reported on; they are virgin properties and in the heart of the Phosphate Belt. For further particulars and price apply to the office of the MINING REVIEW.

**THE MINING REVIEW,**

CHICAGO, ILLS.

DUFF PORTER, Editor.

*The acknowledged authority in MINING and the LEADING REPRESENTATIVE EXPONENT of the MINING INDUSTRY.*

SUBSCRIPTION \$3.00

THE MINING REVIEW CO. CHICAGO, ILLS.

**SUBSCRIBE**

FOR THE

CANADIAN

**Mining Review!**

One Dollar per annum.

**MANUFACTURERS OF MACHINERY**

AND DEALERS IN

**STEEL, TOOLS, ROPE**

AND

**General Mining Supplies**

WILL FIND

**THE REVIEW**

AN EXCELLENT

**ADVERTISING MEDIUM.**

IT

REACHES

EVERY QUARTER

OF THE DOMINION

WHERE MINING IS CARRIED ON

AND HAS

AN EXTENSIVE CIRCULATION THROUGHOUT

Canada,

The United States,

Great Britain and Europe.

People having Mines and Mineral Lands for sale can reach Capitalists, and Capitalists can find profitable investment for their money, by advertising in the columns of

**THE REVIEW.**

Transient rate, Fifteen cents per line. Special contracts made for time and space.

Further information obtainable by addressing the Publishers, or at the Office, of the

CANADIAN MINING REVIEW,

Union Chambers, 14 Metcalfe St.,

OTTAWA.

**HAMILTON POWDER CO.**

MANUFACTURE

*Mining, B'asting, Military and Sporting*

**GUNPOWDER,**

Dynamite, Dualin and the new

**Eclipse Mining Powder.**

DOMINION AGENTS FOR

*Safety Fuse, Electric Blasting Apparatus, &c.*

OFFICE:—103 St. Francois, Xavier Street, Montreal.

Branch Offices and Magazines at all chief distributing points in Canada.

**FOR SALE.**

THE MINING RIGHTS ON

**1,000 ACRES**

OF

**PHOSPHATE LANDS**

SITUATED IN THE

Township of Hull, Province of Quebec

All of which have been carefully selected and have excellent shows of

**PHOSPHATE.**

The price asked for these lands is

**\$5 PER ACRE**

And at this rate parties can purchase lots from 100 to 1,000 acres. Specimens on view, and all information given at

**F. FOOKS'**

*Mineral Agency,*

307 and 309 Wellington St.

OTTAWA.

ALSO THE

**Phosphate Lot No. 30**

In the 8th range of the Township of Wakefield, containing

**100 ACRES.**

Price \$1,000. (This is the property of Mr. Farley of Hull.)

Apply to

**F. FOOKS.**

(Address as above.)

**PLUMBAGO LOT FOR SALE**

IN THE TOWNSHIP OF BUCKINGHAM,

On which are extensive surface shows and out-croppings of fine quality of Graphite. Price \$1,000. Further particulars to be had at the office of the MINING REVIEW.

THE

**UNION PHOSPHATE MINING**

AND

**Land Company.**

CAPITAL \$1,000,000.

100 000 SHARES, PAR VALUE \$10.00 EACH.

**DIRECTORS.**

J. R. Walsh, C. C. Waite.  
 F. Platt, F. L. Pitts.  
 C. S. Henry, M. Mumford.  
 J. A. Marsh, C. J. Cuyler.  
 J. Remsen Lane, J. P. Chambers.  
 J. W. Royer, J. M. Eastman.  
 H. L. Sadler, J. M. Stoddart, Jr.  
 John Fraser, F. E. Smith.  
 W. H. Williams.

**OFFICERS.**

W. H. WILLIAMS..... President.  
 J. M. EASTMAN..... Vice-President.  
 J. P. CHAMBERS..... Treasurer.  
 F. E. SMITH..... Secretary.

**OFFICES:**

Orange, N.J., and 13 Park Place, New York.



**Thousand Islands, River St. Lawrence.**

LEASE for twenty years (renewable) of certain islands in the above group. Situated in the vicinity of Gananoque, in the County of Leeds, Ont., which have been specially selected for their beauty and position, will be offered at auction at the Custom House, Gananoque, at 2 p.m. on Thursday, the 9th proximo.

No more than one island will be allowed each purchaser, and successful competitors at the auction must pay the first year's rent down to an officer of this Department, who will attend at the time and place above named, otherwise the island will be immediately put up again to competition.

A map showing the islands referred to may be seen, and the conditions of lease learned, at any time during office hours, between this date and the date of sale, on enquiry at the Custom House, Gananoque, or at this Department.

L. VANKOUGHNET,

Deputy of the Supt. Gen. of Indian Affairs, Department of Indian Affairs, Ottawa, July 26th, 1883 }

CHOICE, (SELECTED) CLASS, 1

**PRAIRIE FARM LANDS FOR SALE**

IN THE

BIRTLÉ DISTRICT, MANITOBA

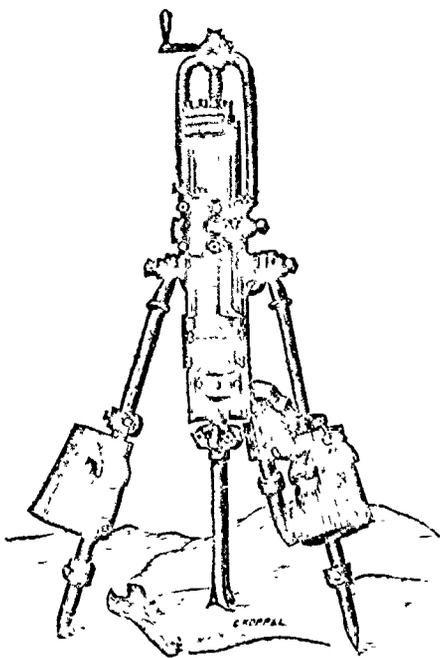
| Section.                               | Township. | Range—West. | Acres. |     |
|--|-----------|-------------|--------|-----|
| 3                                      | 14        | 23          | 640    |     |
| 17                                     | 14        | 23          | 640    |     |
| 15                                     | 14        | 23          | 640    |     |
| 19                                     | 11        | 23          | 640    |     |
| W $\frac{1}{2}$ and N. E $\frac{1}{4}$ | 35        | 14          | 23     | 480 |
| N $\frac{1}{2}$ and S. E $\frac{1}{4}$ | 19        | 15          | 23     | 480 |
| S $\frac{1}{2}$ and N. E $\frac{1}{4}$ | 15        | 16          | 23     | 480 |
| E $\frac{1}{2}$ of N. W $\frac{1}{4}$  | 15        | 16          | 23     | 80  |
| S $\frac{1}{2}$                        | 3         | 17          | 23     | 320 |
| N $\frac{1}{2}$                        | 9         | 15          | 23     | 320 |
| S W $\frac{1}{4}$                      | 31        | 18          | 26     | 160 |

4,880

Title direct from the Crown.

For price and field notes apply at the office of the MINING REVIEW.

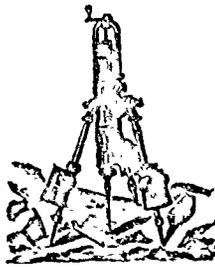
**MILLER BROS. & MITCHELL**



Manufacturers of  
**MINING AND CONTRACTORS' PLANT,  
 LATEST IMPROVED STEAM ROCK DRILLS,  
 HOISTING ENGINES,  
 AIR COMPRESSORS,  
 ELECTRIC BLASTING APPARATUS,  
 IMPROVED PATENT STEEL WIRE ROPE,  
 &c., &c., &c.**

SEND FOR PAMPHLET—  
**Miller Bros. & Mitchell,**  
 Works, 110 to 120 King St. Office, 30 William St.  
**MONTREAL.**

**ROCK DRILLS, AIR COMPRESSORS,**



General Mining Machinery,  
**WIRE ROPE and CONTRACTORS' SUPPLIES**  
 FOR CATALOGUES, ESTIMATES, ETC., ADDRESS:

**INGERSOLL ROCK DRILL CO**  
 (LIMITED)  
 44 FOUNDLING ST., MONTREAL.

**PHOSPHATE CRYSTALS.**

Farmers, Miners and Prospectors, having unbroken  
 Phosphate Crystals for Sale, can find a cash  
 purchaser by applying at the Office of  
**THE CANADIAN MINING REVIEW**  
 Union Chambers, 14 Metcalfe Street, Ottawa.  
 Parties offering crystals for sale will please mention the  
 colour, length and diameter—large ones preferred.

**MINES AND MINERALS.**

**Developed and Undeveloped Mines and Minerals of Commercial Value  
 BOUGHT AND SOLD.**

PROPERTIES EXAMINED AND ANALYSES MADE OF ORE OF EVERY DESCRIPTION.

A Competent Expert is permanently engaged for the purpose of making Unprejudiced Reports on all Mines placed  
 in our hands for Sale, such reports being at all times open to intending purchasers for examination.

**Phosphate, Iron, Iron Pyrites, Copper, Asbestos, Mica, Plumbago  
 Gold and Silver Mines, and Marble and Sand-  
 stone Quarries, For Sale.**

MINERAL LANDS EXAMINED AND REPORTED ON BY OUR EXPERT; ALSO, ANALYSES OF MINERAL  
 OF EVERY DESCRIPTION MADE BY A COMPETENT ASSAYIST.

**Correspondence with Owners of Mines and Capitalists desirous of  
 investing is most respectfully solicited.**

Address all Communications to  
**The Publishers Canadian Mining Review,**  
 Union Chambers, 14 Metcalfe Street, Ottawa, Canada.

**FOR SALE,  
 PHOSPHATE PROPERTIES IN THE TOWN-  
 SHIP OF HULL.**

MINERAL RIGHTS

|  |  |
|--|--|
| Lot No. 15, in the 7th Range                     |  |
| " " 14, " 8th "                                  |  |
| W $\frac{1}{2}$ of N $\frac{1}{2}$ " 6, " 11th " |  |
| S $\frac{1}{2}$ " 2, " 11th "                    |  |
| S $\frac{1}{2}$ " 12, " 11th "                   |  |
| S $\frac{1}{2}$ " 13, " 11th "                   |  |
| Lot " 1, " 12th "                                |  |

For particulars and price apply at  
 the office of the MINING REVIEW.

**PHOSPHATE PROPERTY TIMBER LIMIT**

*In the Township of Portland West,*

ON LAKE WINNIPEG

**FOR SALE. FOR SALE.**

Lots 25, 26, 27 and 28, in the  
 3rd range. Some excellent surface  
 shows have been uncovered on these  
 lots and only require capital for de-  
 veloping. Price and particulars  
 given at the office of the MINING  
 REVIEW.

50 Square Miles.

This limit will be very valuable.  
 Apply at the office of the MINING  
 REVIEW for price and particulars.

**ASBESTOS PROPERTY FOR SALE**

The mining rights on S $\frac{1}{2}$  of L  
 No. 11, in the 8th range of Te  
 pleton. The mineral is of the fine  
 quality of fibre and in large quan-  
 tity. Specimens may be seen at  
 particulars and price ascertained  
 the office of the MINING REVIEW.

**FOR SALE,**

**White Marble Quarry on Calum  
 Island.**

At this quarry there is an inex-  
 haustible supply of most beautiful  
 white marble. Price \$800. Sam-  
 ples to be seen and information ob-  
 tained at the office of the MINING  
 REVIEW.