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Established 1882

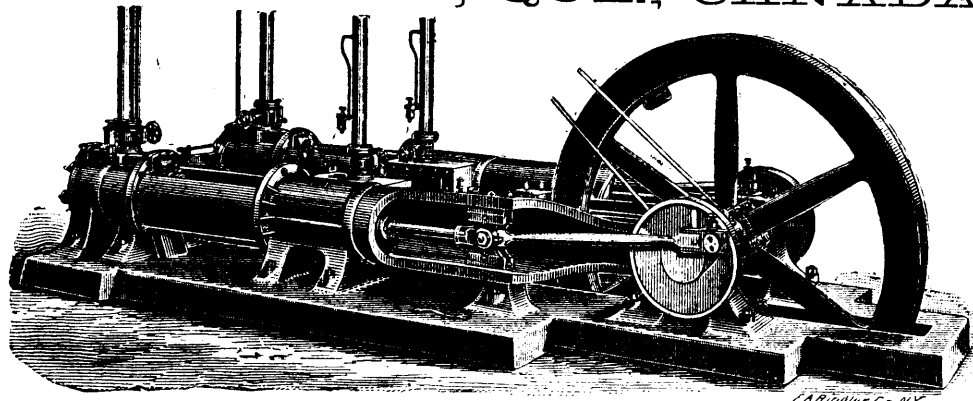
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1892—OTTAWA, NOVEMBER—1892.

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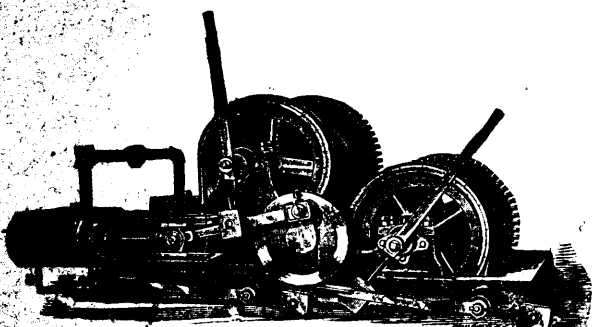
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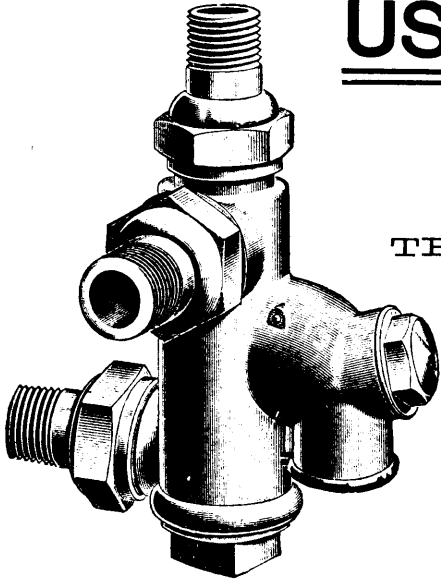


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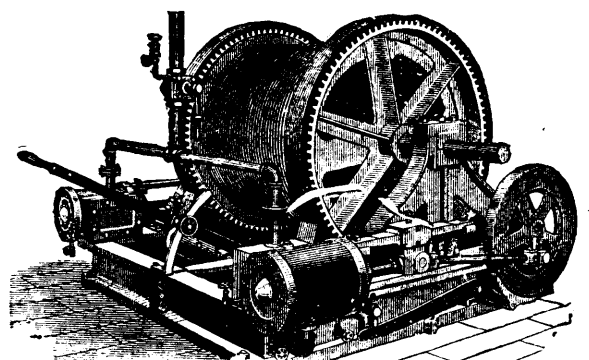
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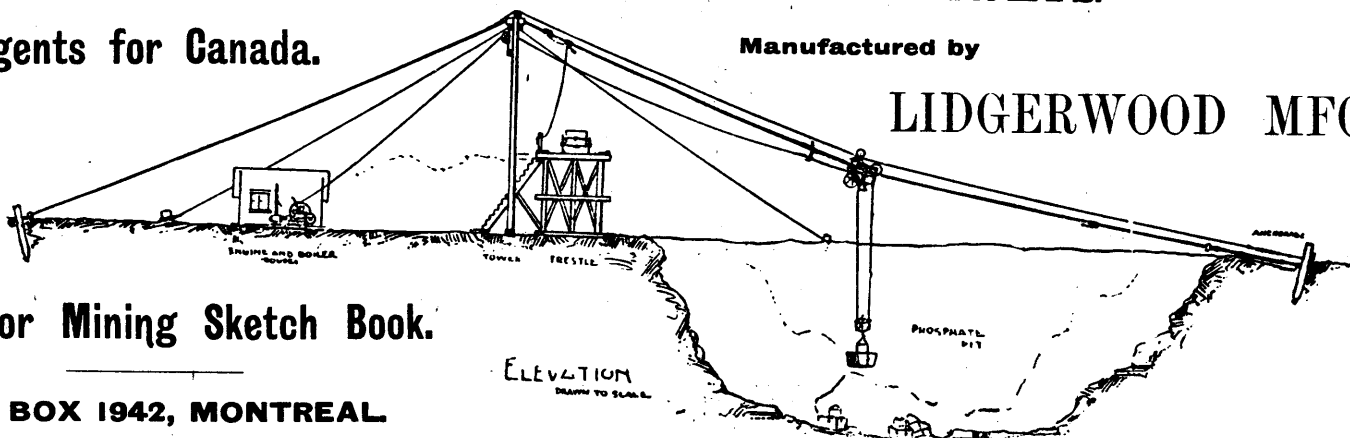
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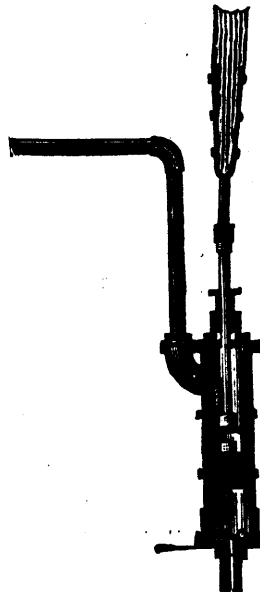
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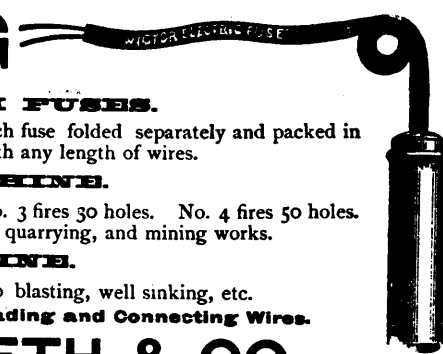
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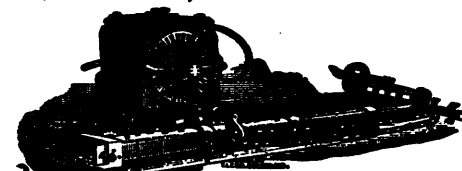
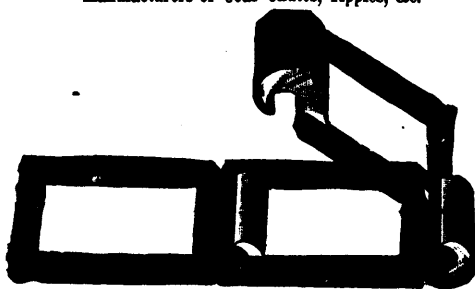
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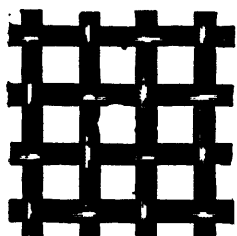
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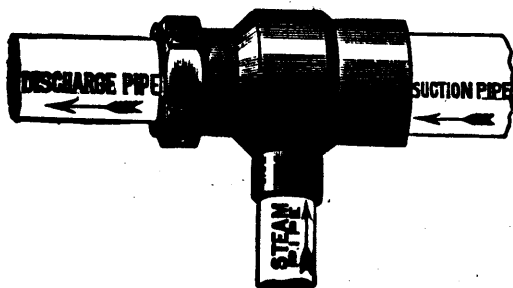
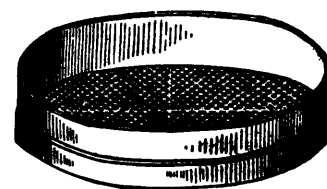
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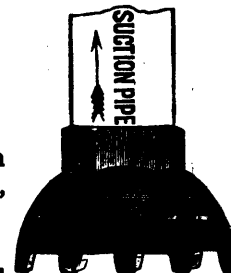
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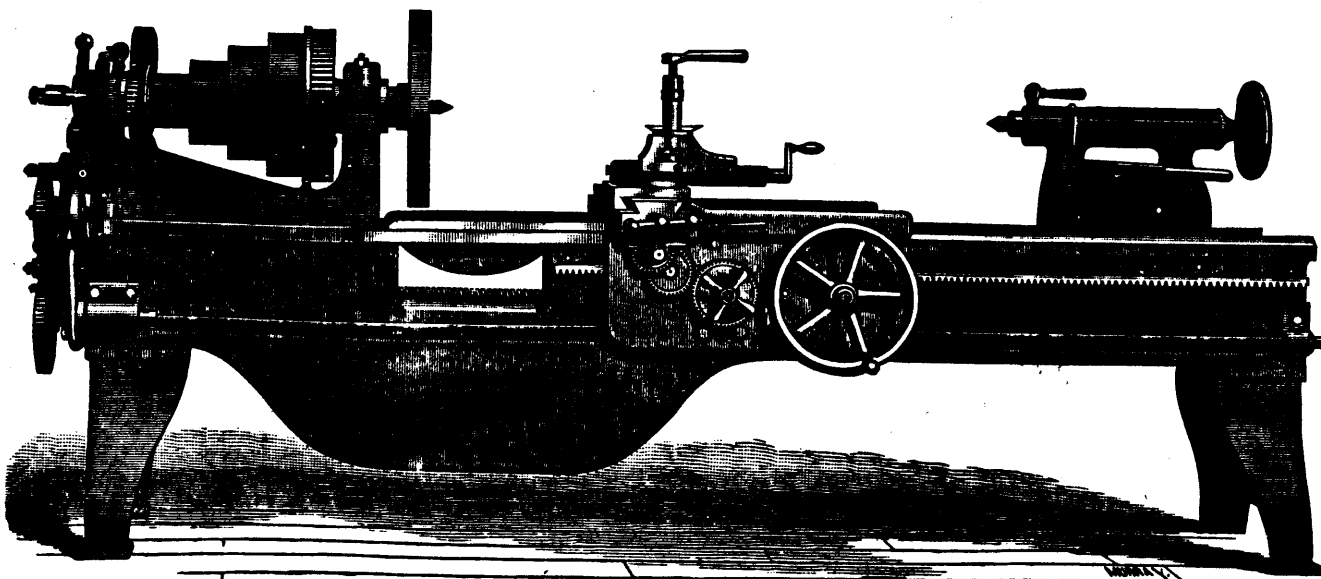
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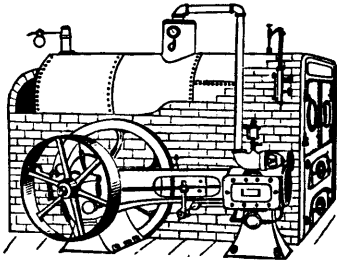
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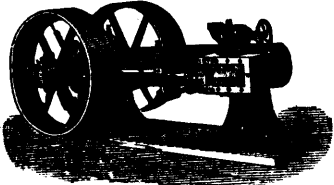
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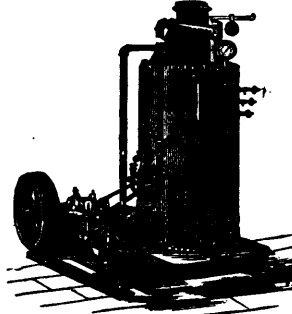
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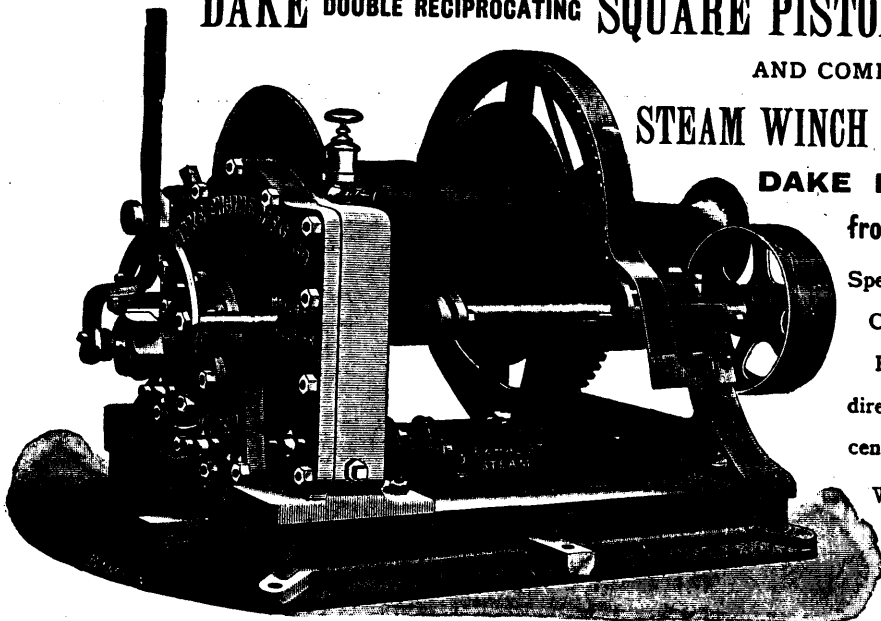
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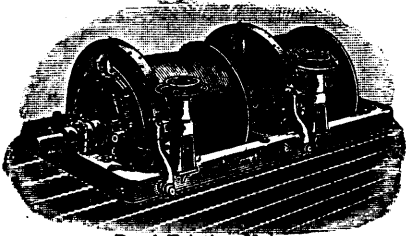
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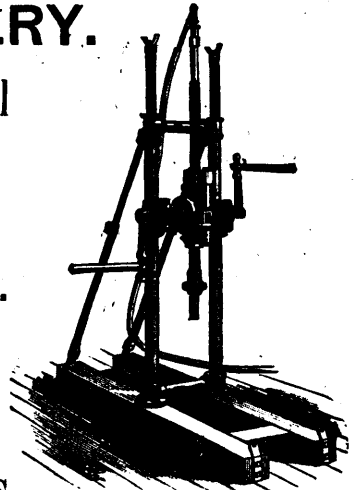
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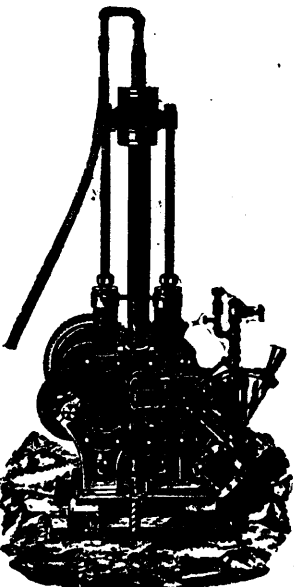
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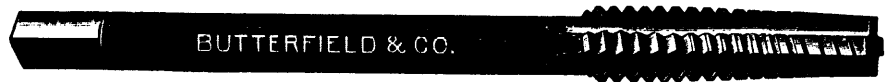
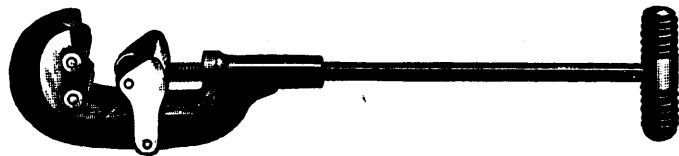
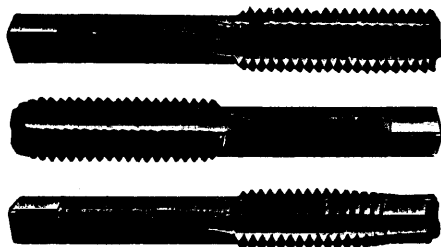
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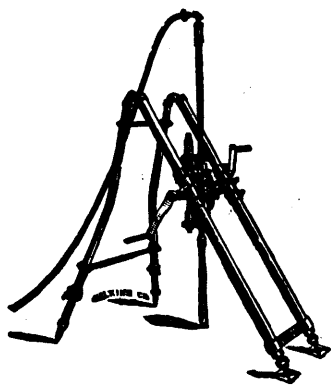
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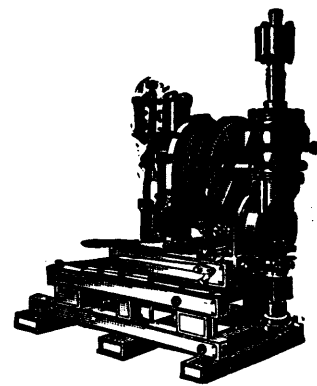
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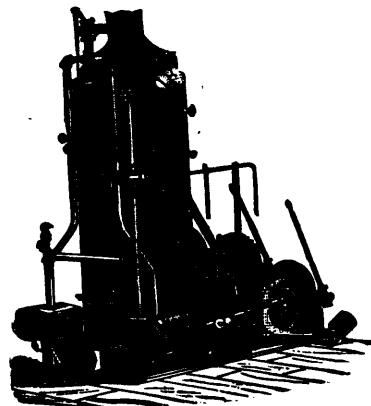
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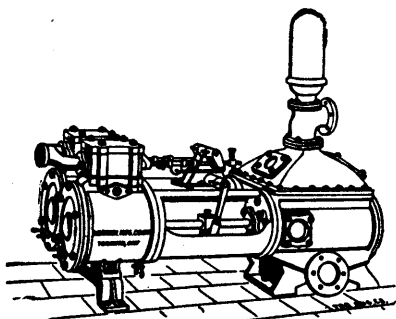
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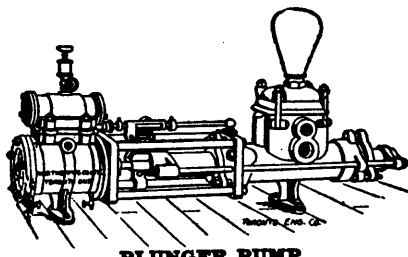
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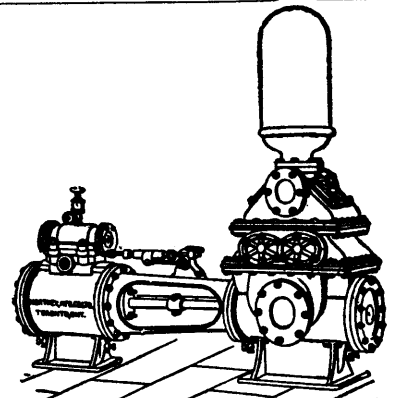
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THE following Resolutions of Council indicate beyond a peradventure the status of THE REVIEW as the exponent of the Canadian Mineral Industries:—

The Gold Miners' Association of Nova Scotia.

"At the annual meeting of the Gold Miners' Association of Nova Scotia, held at Halifax on 6th March, 1889, THE CANADIAN MINING REVIEW was adopted the official organ of this Association.

(Signed),  
R. C. WILSON, *President*,  
G. J. PANTINGTON, *Secretary*.

The Mining Society of Nova Scotia.

"Moved by Mr. R. G. Leckie, seconded by Mr. L. A. Dimock, That the thanks of the Society be tendered to Mr. H. T. A. Bell for his kind offer placing the columns of THE REVIEW at the disposal of the Society; and that THE CANADIAN MINING REVIEW is hereby appointed the official organ of the Society.

(Signed),  
H. S. POOLE, *President*,  
H. M. WYLDK, *Secretary*.

The Asbestos Club, (Quebec.)

"Resolved That THE CANADIAN MINING REVIEW is, by authority of the Members and Council, hereby appointed the official organ of the Asbestos Club.

(Signed),  
D. A. BROWN, *President*,  
A. M. EVANS, *Secretary*.

The General Mining Association of the Province of Quebec.

At a meeting of Council held at Montreal on Friday, 6th May, 1891, it was moved by Captain Adams, seconded by Mr. R. T. Hopper, and resolved: That THE CANADIAN MINING REVIEW be the official organ of the Association.

(Signed),  
GEORGE HEVINE, *President*,  
H. T. A. BELL, *Secretary*.

## OFFICES:

Victoria Chambers, 140 Wellington Street,  
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Vol. XI. NOVEMBER, 1892. No. 11.

### Nova Scotia Coal Royalty—Anomalies in the Attorney-General's Argument.

Commenting on the memorandum of the Attorney-General of Nova Scotia addressed to the Minister of Justice, Ottawa (published elsewhere in this issue), the lessees of coal areas in Nova Scotia pass over his first paragraph and merely say of the second that if his argument be good, necessity knows no law, and impetuosity justifies theft and highway robbery. To make a bargain and break it is no breach of faith or honest dealing when the power exercised is that of the Legislature; for does he not say that "any attempt to abridge this right might lead to Provincial bankruptcy?"

Mining royalties, too, are classified as a species of direct taxation, and to tax direct "is an undoubted right which would involve the gravest consequences if interfered with in the slightest degree." The right to tax is not in this case questioned, but that the mining royalties are taxes is denied: the royalty represents the title of ownership retained by the Province when leases are issued, and is comparable only to rental charged by a landlord. To call it a tax is grossly misleading, and before committees of lessees Premier Felding repudiated the idea of making the imposition as a tax.

The lessees have endeavored to blow aside

the cloud of verbal subtlety cast around this question by the learned Attorney-General, and have it stand forth naked and stripped of the cloak of power of the Legislature which has been thrown over the rights of the Legislature as the *landlord*—rights that are not disputed, rights that the petitioners to His Excellency the Governor-General have not complained of, and rights which they have asked be referred to a reputable legal tribunal to decide whether as those of a mere landlord other than the Legislature they would justify that landlord to increase the rate of royalty during the currency of a lease when a specified rate for a specified time was distinctly stated in the lease.

In the third paragraph the explanation in answer to the charge that the Act complained of is retroactive may be true enough, but it leaves the Act as it was—retroactive—and to that extent discreditable and objectionable.

The fourth paragraph is recognized as a masterly expression of human weakness and constitutional rights that cannot be gainsaid.

Nevertheless in the fifth they respectfully dissent from the statement that a "distinct offer to introduce an Act to authorize the Government to enter into a contract with the leaseholders to the effect that the royalty should not be increased beyond a certain maximum figure which should be agreed upon." Such a remark was casually made, and so also "we will forfeit your leases." But to say that "this the coal owners after some consideration declined" is a flight of imagination. What was said was off-hand and to the effect that the representatives of the lessees present had no authority, even if they would, to compromise rights which affected even a shadow of title. Besides, the Government, if they wanted to pass such an act could of course do so without the consent of the lessees.

Turning now to the opinion of Mr. Ross given in January, 1892, no comment is required on the historical part, but exception is taken to the opinion that the Government were in the same position in respect to the coal mines as they were prior to the lease of 1826. The exception taken is that in July, 1886, lessees were entitled to a renewal of existing leases "on the same terms, conditions and covenants as are contained herein."

Secondly, he states that "the Act of 1885 also provided that all leases renewed in 1886 should contain a provision that the royalty might be increased, diminished or otherwise changed by the Legislature"—a statement entirely at variance with the published Acts, for section 4 of the amended Act Chapter 7 reads "all leases issued after the passing of this Act," clearly having reference to new leases, not to renewed leases, which were considered by section 105, subsection (e) which reads "In the case of leases that are eligible for renewal in which the conditions of renewal embodied therein are different from those prescribed by this Chapter, and the lessees thereof are unwilling to have such conditions altered, the Commissioner shall have power to renew said leases on the terms

contained therein and as prescribed by Chapter 9, R.S., fourth series, and no other."

Seeing then that Mr. Ross' grounds are based on a misquotation of the Acts, his conclusions therefore may be ignored.

The report of the Hon. Mr. Longley, April 18th, 1892, now calls for notice, and agreement is readily granted with his opening paragraph—"That the rights of lessees of coal mines must be determined by the Statutes of the Province of Nova Scotia and the leases made under them." Mark the words—"rights \* determined by \* \* the leases!" With them he strikes the key note of the lessees charge against the Government of Nova Scotia, that faith has been broken with men of means both native and foreign, who, induced by the reiterated assurances made on the floors of parliament, sunk their capital in Nova Scotia coal mines. And yet, "I am not aware," he adds, "of any Statute passed between 1858 and 1886 that gave to any lessee of a coal mine a right to a renewal that would not be displaced by Chapter 7, R. S., 5th series." Whew! What? Are the words relating to renewals incorporated in the body of leases issued between 1865 and 1885 of no meaning? Do they not carry "rights" to lessees, confirmed, it may be said, by the section 105 (e) of 1885 quoted above? And where does Chapter 7 of the 5th series attempt to override the terms of any current lease? It does nothing of the kind.

Again: he says "the Legislature bestowed a privilege that these lessees had no right to demand" when renewals were authorized. Does he knowingly ignore the debates in 1866 when both parties in politics were as one in the desire to encourage the development of mining by lengthening the period covered by the lease, and when, in consequence of the granting of this "right," large sums of money were sunk in opening and developing coal mines which it was distinctly stated would not be spent unless this right was granted, and would not have been so spent had it been dreamt that a subsequent Legislature would have jeopardized their prospects of recouping to themselves the heavy outlay they had made trusting in the good faith of Nova Scotia.

And here again he formulates "the statute must be read from the standpoint of the owner of the mines and not from that of the lessees." As a lawyer he doubtless is better able to judge of the intention of an indenture than a layman would be, and yet many of the latter suppose the instrument to be for the protection of both parties and certainly of the one who has ventured his capital on the good faith of the owner. When the owner is, as in the present case, the Legislature with its well known "power" to confiscate, appropriate and forfeit individual belongings, it raises a smile when one is told a statute is to protect the owner from—from whom? From the lessees who are at the mercy of the Legislature, their money being sunk in the Province.

In this issue no one questions the right of the Legislature (as implied) to impose by statute

any stipulation they may care to devise and insert in any mining lease to be issued subsequent to the passage of the statute; but what is objected to is the passage of legislation made to override the terms of leases issued prior to the adverse statute, as in this case.

### The Cape Breton Coal Industry in 1892.

Although the Cape Breton collieries are by no means idle yet, work, nevertheless, is getting slack, the transient class of coal cutters and laborers who flock to the mines in the spring in search of work, have returned to their farms, or sought work in other districts outside of Cape Breton for the winter, and signs are apparent on all sides of the approaching end of the season of 1892. It will be necessary to wait another month before giving a complete review of the year or ranking the various collieries in order according to their shipments, but with the closing of the St. Lawrence trade, the back of the season may be said to be broken, and it is possible to form a fair idea at this juncture, of the success of the year from a stockholders' point of view. Following upon the highly encouraging result of 1891, the year now closing has been no doubt a disappointment, but it turned out better than was at one time expected and most of, if not all the collieries, have been probably worked at a reasonable, though perhaps, not a handsome profit.

The season opened out by no means auspiciously. The winter had been open and mild and unfavorable to a large consumption of fuel. Many people would probably be surprised to know what a tremendous difference an open winter makes in the consumption of coal, more particularly on railways. As a consequence of this mildness, large stocks remained on consumers' and dealers' hands at the opening of navigation, and to this cause, perhaps, more than to any other, may be ascribed the serious falling off in the shipments this year, as compared with 1891. Then again, the boom in ocean freights which had set in the fall before, had not altogether died out at the time when engagements had to be entered into with steamship owners for the coming season and rates ruled sixpence to a shilling (and in a few cases more) per gross register ton per month higher than the previous year. The companies that held off from chartering the longest, of course did the best, and those who began under easy sail and relied upon obtaining transient tonnage at low rates, did best of all, as the bottom dropped completely out of freights by the time the shipping season was under weigh, and abnormal low rates ruled during the season, not only on coal carried up the St. Lawrence, but in the coasting trade as well. Indeed one of the most remarkable features of the year was the low rates at which until nearing the close, steamers were obtainable for single trip charters. Perhaps \$1.05 per ton may be taken as an average, but 90 cents was accepted in one case, and this rate ranks as the lowest ever yet paid on coal from a Lower

Province port to Montreal. The low rates paid in the coasting trade cannot be ascribed so much to a superfluity of vessels competing for this business as to the further extension of the bargesystem introduced the previous year by Messrs. S. Cunard & Co., of Halifax. This firm has now four barges (wrecked barques cut down and repaired), of capacities numbering from 600 to 1,200 tons, which are kept going between Cape Breton ports and Halifax by the steamer "Dorcol," which herself carries a small cargo. The Glace Bay Mining Co. has this season acquired three barges, built as such after the whaleback pattern, which are towed by an ordinary steam tug. The impression in regard to these seems to be that they are too small, carrying not much over 400 tons, and that the tug employed is not altogether adapted to the business, as she cannot carry sufficient coal herself to last her the round voyage, entailing the purchase of coal for her bunkers en route.

In addition to the fact of the majority of consumers starting the season with a considerable balance of coal on hand, Cape Breton had had to face the loss of a large percentage of the Canadian Pacific Railway's contract, due to the purchase by that railway of a very large quantity of coal from the Drummond Mine, Pictou, and from Spring Hill, which meant a corresponding diminution not only in the quantity taken from Cape Breton, but in the price obtained therefor. Although not so uniformly good as in 1891, prices were on the whole fairly maintained and now at the close of the season, it is satisfactory to note that in spite of the causes that militated against the trade, the result has exceeded the expectations formed at the start. The deliveries of Cape Breton coal in the St. Lawrence this year have been 488,000 tons, as against 518,000 tons in 1891, or a decrease of 30,000 tons. Pictou (in this case practically represented by the Drummond mine) has on the other hand increased her deliveries by 40,000 tons, making a net increase for this year over last of 10,000 tons from the lower province ports.

Just here it may not be out of place to notice an article reviewing the coal trade of Cape Breton which appeared in the Halifax *Chronicle* a few weeks ago, which found its way into many other papers. Although dated from Sydney, C.B., it bears strong internal evidence of a close corporate identity existing between the writer and the editor of a certain paper published in Stellarton, and mainly devoted to the coal trade of Nova Scotia. The tendency of the canny writer to "drop" (like Mr. Silas Wegg) into Scotch quotations, the ingenious puff of his own paper as the organ of infallibility on all questions relating to the coal trade, and the sly allusion to the increasing fondness of the mine managers for the idea of reciprocity in coal with the United States, all point the writer as the little man who guides the destinies of the P.W.A., legislates without much check or hindrance in the provincial parliament in return for a pledge of the labor vote, and whose self-constructed mission it is besides to preach

to the owners and managers of mines on matters upon which they must necessarily be much better posted and much sounder judges of than he can be. The article coming from such a source is strangely full of inaccuracies and false prophecies and is chiefly remarkable for a peculiarly patronizing, but well deserved certificate bestowed upon the proprietor and output of the Gardener mines. The *Empire*, Halifax *Herald* and the *Review*, are all held up for castigation by the writer for stating that at a certain period during the past season, Quebec imports of provincial coal showed an increase of 50,000 tons over a corresponding period in 1891, and the said papers are accused of "manufacturing figures out of whole cloth in the interests of ingenious and over-zealous protectionists." The writer, while making this accusation does not give figures in rebuttal, nor have we been at the pains to ascertain whether the figures given were absolutely correct, but we think it more than probable that at one period during the season there was such an increase over a corresponding period of 1891 as to approximate 50,000 tons. The Cape Breton collieries were all equipped for big work this year, and the local demand being much lighter than usual, they were able to devote particular attention to their St. Lawrence trade, and as a consequence coal was rushed up in such quantities as to over-tax the ability of buyers to take delivery. Hence—"the very bad feature in connection with this year's trade"—alluded to by the writer in the *Chronicle*—that the coal was not taken promptly off shippers' hands and hence the possibility, we venture to suggest, that although the increase from the Lower Provinces at the close of the season is only 10,000 tons, at an earlier stage it may have been considerably large as compared with last year. The figures relating to this season's deliveries can, we think be relied on and go to show that the *Chronicle's* scribe was rather "off" in the prophesying line when he wrote in the following pessimistic strain: "I am now in a position to state emphatically that the hope of an increased output of coal this year held out by the *Empire* and *Herald* was cruel and delusive. The shipments of coal to Quebec via the St. Lawrence, to date, are far below the shipments of last year and the worst feature of all is that the large decrease in the shipments from Cape Breton will not be offset by an anticipated increase of shipments from Pictou County." The *Empire* and *Herald* were talking of Montreal alone and never promised a larger general output and the results show at while Cape Breton shipments via the St. Lawrence have fallen off 30,000 tons only, the decrease has been more than offset by an increase of shipments from Pictou. After making this bad shot he goes on to state that the mine managers are staggered by the falling off in the demand for their coal and are now standing in an attitude of uncertainty as regards the possible benefits of reciprocity. The owners and managers of our mines have, we fancy, weathered periods of depression of a far worse kind before and we do not think they are doing much flinching just now. Their uncertainty, if any exists, is pro-

bably as to whether the mines will continue to be run as at present or pass into the hands of the New England syndicate, which question not unnaturally is monopolising attention just now in the minds of those interested in coal mining here. The *Chronicle* writer is no doubt correct. When he says that Cape Breton county has favored protection, not so much because it is a part of the creed of a political party as that there has been money in it. He has himself been suspected of favoring the political party in which he thought there was most money (for himself). The great majority of mine owners and managers in Cape Breton have felt that to give Americans free access to the St. Lawrence market, in exchange for a free entrance to our coal into American sea-ports, would be a revolutionary and hazardous proceeding. It is true that some few were disinclined to believe that it would mean "blue ruin," but on the principle that a "bird in the hand is worth two in the bush," they have united in favoring the existing order of things. A company largely composed of powerful American capitalists controlling the Cape Breton mines and numbering among them some large consumers of coal, would be in a far different position for facing the reciprocity problem to the present owners of the mines. They would be introducing their own coal into their own markets and with the large means which without doubt they would command, would be able to reduce ocean freightage to a minimum by recourse to the barge system which now prevails so widely in the transportation of coal from American ports.

To hark back to the Cape Breton coal trade for the present year, we shall not be able to give the quantities shipped by each colliery till next month. Suffice it now to say that the only collieries to show an increase will be the General Mining Association, with both their old Sydney and Victoria Collieries, and the Gardener Company. The "Old Sydney" will probably regain its position at the top of the list which it lost in so signal a manner last year; for the first time in its history the Gowrie should play second fiddle to this company. The increase in the shipments of the General Mining Association collieries is reported to be 27,000 tons, 20,000 tons from "Old Sydney" and 7,000 tons from "Victoria." This increase is largely due to heavier shipments up the St. Lawrence. The Gardener Company's shipments are to date, 11,000 tons in excess of the same period last year. This company only got under weigh last year and its success is creditable alike to the proprietors and the character of their coal. On the other hand, all the other collieries show a more or less serious falling off. The "Caledonia" shows the heaviest decrease, with over 30,000 tons, the Little Glace Bay, International, and Reserve, are 15,000 to 20,000 behind apiece, and the Gowrie 12,000 tons. The "Old Bridgeport," which has recently been acquired by the International Coal Co., stands in about the same position as last year. It would look, therefore, as if Cape Breton would show a falling

off in her total shipments this year, as compared with last, of some 65,000 tons; 30,000 tons of this have been accounted for by the fall off in the St. Lawrence shipments. The more serious decline has been in the local demand *i.e.* from Nova Scotia, New Brunswick, and Newfoundland. It is difficult to account for this falling off, unless it be attributed mainly to the fact (already alluded to) of the mild winter and the large stocks remaining on hand last spring.

The bunkering business in Sydney commenced fairly, but has fallen off lately on account of the collapse of Montreal freights homewards. At the time of writing the weather in Cape Breton is reported to be very mild and it looks very much as though another of the new fashioned open winters was setting in. Weather prognostications, however, are always hazardous and when we next address our readers we may (and sincerely hope we will) be able to report a return to the old fashioned theories.

Before concluding we may state that our last issue, containing a severe criticism of the management of a certain English coal company, has created a very profound sensation among the trade. Our expose of the manner in which the interests of the shareholders have been subordinated to personal greed, has been appreciated gratefully, not only by the shareholders, but by many other people. The grasping and overbearing character of the Baron Munchausen-like individual who has for some years presided over the company's interests in Cape Breton, has not endeared him to the community in which he condescends to reside, and should his employers take it into their heads to dispense with his services, as we have since been informed they have done, he may retire to his "hotels, ranches and mines" in Montana, whence he came, "unwept, un-honored and unsung."

### Once More the "Critic."

"Consistency, thou art a jewel," is a saying which our esteemed contemporary, the *Halifax Critic*, would do well to paste upon the desk used by its mining editor. Here is one of its latest contradictions: (The italics are ours.)

(Halifax Critic, June 6, 1890.)

"Mr. L. Wadsworth, the manager of the Lake Lode Company, has proved himself a valuable man to the Province, as has he has not only successfully managed his own property," etc., etc.

(Halifax Critic, Oct. 28, 1892.)

"It is reported that the Lake Lode will soon start again, under competent management, which will be a surprise to the mine, as its previous run of seven years was by a manager who never had his foot on a ladder under ground," etc.

This fulsome praise showered upon certain individuals, and the certification of "prospects" as valuable mines, is a prominent characteristic of the mining column of that estimable and highly original (?) sheet. A news item in our present issue regarding the sale of the Parker-Douglas plant, recalls such paragraphs (barely two years old) as: "The Parker-Douglas property will soon be on a dividend-paying basis."

The muteness of the mammoth mill at Gay's River brings to memory the *Critic's* prediction:

"That it will eventually equal, if not exceed, in value the famous Alaska mine."

And the solemnity with which that journal announced (July 17, 1891): "Tin has now undoubtedly been discovered in Nova Scotia," and spoke of outcrops of quartz veins as "the mine," is yet fresh in our memory.

The printing of testimonials from a trade circular as news for a mining column, is one of the latest happy thoughts of this *omnium gatherum*, but we advise it on general principles to go slowly, to consult the files of the *Barberton* (South Africa) *Herald*, and confine itself to "official reports," lest nemesis comes rapidly and more contradictory paragraphs occur.

### The "Review" Stands to its Guns.

Our comment, in last REVIEW, on the management of the Sydney and Louisburg Coal and Railway Company's affairs in Canada, created no little commotion in the Nova Scotia coal trade. In Cape Breton the truth of the charges, which, by the way, have long been common gossip, were fully admitted and the course taken by the REVIEW was commended on every hand. In the offices of the Company it fell like a bombshell. With blood in his eye, Manager Kennelly started immediately for the West with the avowed intention of extracting an apology from us and the other papers into whose columns extracts from our article had been published. In consort with Mr. Henshaw, the company's popular agent in Montreal, the management of the *Star* was interviewed and, solely on the strength of the representations of these officers, and without any enquiry, a complete back-down was made editorially the same night. So much for the pluck of Canada's only independent paper (?) Now as the article was written with our eyes wide open to the possibilities of a libel suit, we were not a bit surprised to receive the following from the legal firm of Greenshields & Greenshields:—

MONTREAL, Nov. 9th, 1892.

B. T. A. Bell, Esq.,  
Canadian Mining Review,  
Ottawa, Ont.

DEAR SIR.—We are in receipt of instructions from Mr. D. J. Kennelly, Agent and General Manager of the Sydney & Louisburg Coal & Railway Company, to institute proceedings against your paper for the recovery of damages by reason of a libellous article which appeared in the issue of the MINING REVIEW for October last.

Unless we hear from you by Friday morning, we shall issue Writ. If proper retraction and apology is made to Mr. Kennelly and payment of such legal expenses as he has incurred up to the present time, which would not be large, he will not press the matter into Court, but otherwise he is determined to put the case through. Your immediate attention in the matter will oblige.

Yours truly,  
GREENSHIELDS & GREENSHIELDS.

To which we immediately replied:—

OTTAWA, Nov. 12th, 1892.

Messrs. Greenshields & Greenshields,  
Notre Dame Street, Montreal.

GENTLEMEN,—Owing to absence from town I have, until now, been unable to acknowledge and reply to your esteemed favor under date of 9th inst. There is nothing to retract or apologise for in the article published in the October issue of this paper, so that your client may issue Writ whenever he pleases. We are in possession of ample and sufficient evidence to bear out our charges in every particular.

Instructions have been given to Messrs. Gemmill & May, Barristers, here, to accept service.

I am, yours truly,  
B. T. A. BELL.

Again we repeat and emphasize every charge made against the Canadian management of this



company. Our article is bounded on the most substantial evidence as Mr. Kennelly will very quickly find when he takes us into court. In the meantime we stand by our guns and retract nothing.

### EN PASSANT.

Latest European advices indicate a slightly upward tendency in the price of Canadian phosphates.

Our last issue was completely sold out within a week after publication. Any of our readers having copies of this number which they do not particularly desire to keep will confer a great favor by returning them to this office.

We have to acknowledge our indebtedness to Dr. D. T. Day, for a copy of the Eleventh Census Report of the mineral industries of the United States—a magnificent work which everyone of our mineral operators should have.

On the 7th instant a deputation from the General Mining Association of Quebec waited upon the Hon. E. J. Flynn, Commissioner of Crown Lands, and made application for a grant towards the International Mining Convention to be held in February next. The Commissioner promised to recommend the request to the Government.

The production of asbestos in the United States has shown an annual decrease since 1882. The product for that year was 1,200 short tons; 1883, 1,000 tons; 1884, 1,000 tons; 1885, 300 tons; 1886, 200 tons; 1887, 150 tons; 1888, 100 tons; and in 1889, 30 tons, valued at \$1,800. No wonder Jonathan is so eager to put his surplus dollars in our productive Canadian areas!

Capt. T. J. Watters, Ottawa, to whose foresight, energy and enterprise is in no small measure due the establishment of the Canadian mica industry on its present satisfactory basis is to be made the subject of an attack during the next session of Parliament. Capt. Watters, as everyone knows, is the promoter and leading spirit of the Lake Girard Mica Mining Syndicate, an enterprise highly creditable to the Ottawa district inasmuch as its operations in crude and dressed mica are probably the most extensive in the world to-day. But Capt. Watters is also an officer of H.M. Customs—a highly efficient and hardworking officer to boot, if we may believe the statement of his Minister, the Hon. J. A. Chapleau—and his connection with the Civil Service it would seem debars him from investing his money, or engaging directly or indirectly in any business beyond the confines of his office on the Hill. *Tout raison d'être* of the whole matter seems to have culminated from a dispute as to the ownership of a mica property acquired by the syndicate, and to which the friends of an Honorable and influential member of H. M. Senate also claim a title. A lawsuit between the disputants is now before the courts.

It has long been a source of wonder that, considering the extent and excellence of our deposits and the facilities for profitable marketing, the production of graphite in Canada should have lagged so far in arrears. Since the operations of the Lochaber, Dominion of Canada and other plumbago companies, away back in the sixties, when a fair quantity of the mineral was raised and exported, nothing worthy of the name of mining has been attempted in Quebec. This year, however, a decided step forward has been taken. Mr. Jacob Weart, of the Graphite Lubricating Co., Jersey City, has opened a mine in the Township of Buckingham, and has made some important shipments, a force of about thirty men being employed. In the same district, Mr. W. H. Walker, of Ottawa, in conjunction with others, has overhauled the mill and works formerly operated by the Dominion of Canada Company, and it is announced that a strong syndicate, to be shortly incorporated under Dominion charter, will operate on a large scale during the coming year. This looks like business. Respecting the character of Canada's graphite as determined by Mr. G. C. Hoffman, F.G.S., in charge of the laboratory of the Geological Survey, he reports that in respect to incombustibility, the Canadian product may claim perfect equality with that of Ceylon, and that it is in no wise inferior to the latter as a material for the manufacture of crucibles. In 1889, the United States imported 177,381 cwt. of graphite of a value of \$378,057.

Until a comparatively recent date the use of graphite has been applied to the manufacture of lead pencils, crucibles, and to various preparations for stone polishing. Of late, however, other qualities, have been observed, which have opened to the mineral entirely new and extensive fields of usefulness; prominent among which is its consumption as a lubricant. For the bearings of heavy machinery, it makes a superior lubricant to oil, is clean, leaves no dripping grease, and one proper application will last as long as the bearings themselves. When the discovery was first made that graphite could be so utilized, some difficulty was encountered in keeping the lubricant in place. As originally employed it was mixed with oil and applied to smooth surfaced bearings; but though answering the purpose excellently for a while, it would creep out and escape and require constant renewals. This was obviated by the construction of grooved bearings, the grooves being filled with a composition of 75 per cent. graphite. The box requires no refilling and the bearings need no new application until the box is worn out. Graphite bushings of this kind were first applied in 1883, and are growing in favor, being now in very general use. Graphite is also used to a considerable extent for foundry facings and washes, also as a substitute for red lead in making joints and connections, having an advantage over red lead in that it does not harden, making a perfectly tight joint, that opens easily when the pipe tongs are applied. It is also said to make a good, durable paint for the covering

of smokestacks, boilers, tin roofs and other metal surface. There seems, therefore, to be a favorable opening for the profitable development of our extensive resources of this mineral.

In the United States graphite is mined in Rhode Island, New York, Pennsylvania, Michigan and Wyoming, the total production in 1889, (see last census returns), amounting to 7,003 tons of crude ore. In Michigan and Pennsylvania the cost of production was in excess of the value of the mineral got.

Just as we go to press a despatch has been received announcing the resignation of Mr. D. J. Kennelly, Agent and General Manager of the Sydney and Louisburg, Coal and Railway Company.

The Nova Scotia Gold Fields form the subject of an excellent and valuable paper in the last volume of the Transactions of the Mining Association and Institute of Cornwall just come to hand. The writer is Mr. Symons, M. Inst., C. E., F. C. S. Numerous plates illustrating the occurrence of the mineral in various districts of the Province accompany the paper. Although slightly behind the times, the date of the paper being 1889, and therefore not posted up to date in the very notable improvements in milling practice that have since taken place, the data presented will be of service in directing attention to this excellent field for investment. The conclusions arrived at by Mr. Symons will be of interest to our readers. He says "Though the Nova Scotia gold fields can bear no comparison with the great gold fields of the world, they are very interesting from a geological point of view, and afford employment to a considerable mining population, who, together with the associated storekeepers make money. No country probably gives such a chance to the prospector to find a purchaser for his mine, as the gold is always in a visible state, and shows out well in large flakes and grains. There is still a great extent of gold measures unprospected which will afford a profitable field for native speculation during a long future. The climate is healthy, fuel and edibles are cheap, the population sober and quiet, and cost of machinery moderate. Although the gold fields are not of a character to satisfy large limited companies with inflated paper capital, most of the districts would yield remunerative returns to a fair system of mining with business-like management. Though the aggregate quantity of gold obtained may be considered insignificant compared with the production of other gold mining countries, yet the proportion obtained to the number of hands employed in this industry exceeds that obtained in any other country. A reference to the last column in the Statistical Table (quoted by Mr. Symons) will show that the value of the gold sold amounts to ten shillings per day per man, as against a wage cost of about five shillings, a percentage earning unparalleled."

The mineral resources of our great country have been occupying considerable prominence

in English journals lately. The *Glasgow Herald*, *Colliery Guardian*, *Iron and Coal Trades Review*, among other papers of influence and standing are noted in this regard. It is also gratifying to the REVIEW to see its humble efforts to direct attention to the value of the country reproduced in such mediums on the other side.

Mr. J. J. Childs contributes an interesting review of the mica industries. He says "During the years 1883 and 1884, when mica mining was in its most flourishing condition, the manufacturers of stoves consumed probably 95 per cent. of the product, and the fancy grades and large sizes of sheet mica which were then used found a ready sale at highly remunerative prices. Under this stimulus of large profits many surface deposits or pockets were opened by farmers or other individuals of small means who worked them occasionally when other business was dull and realized a considerable profit on their production. As long as the demand for large sizes continued this intermittent sort of mining could be carried on with a degree of success, but when the fashion of stove panels changed and small sheets were used in the place of the large ones, the demand for the latter fell off to a great extent. Mica suitable for cutting into large sheets was much less abundant than that available for small sizes; therefore lower rates had always prevailed for the latter, and careful, steady and systematic methods were necessary to produce such grades profitably. When the demand changed from large to small sizes the majority of miners were unprepared, through lack of capital or for other reasons, to adopt such methods. The result was a great reduction in the number of producing mines, and consumers were compelled to raise the price of mica or look to foreign sources for their supply. Another factor in increasing exportation (to the United States) came into existence with the extended manufacture of dynamos and other electrical apparatus in which a great deal of mica is used. The foreign article, especially that produced in Canada, was, on account of its superior cleavage, preferred to the domestic for this purpose."

Mica is used in two forms, sheet mica and ground mica, and the manner in which it is to be treated depends upon the form in which it is to be used. If it is to be sold as scrap for grinding, all that is necessary is to remove the adhering fragments of quartz and felspar and such parts of the mica as may contain foreign ingredients. If it is to be used in sheet form, the process is much more complicated, the blocks being first split into sheets thin enough to cut easily, then marked with a pattern of the size desired, cut along the lines marked, and the different sizes wrapped in paper and packed for shipment. There is a great amount of waste about this operation. The amount of sheet mica obtained does not usually exceed from 4 to 8 per cent. of the block mica treated.

The most common and well known use for mica is the panelling of stove and furnace doors. For this purpose the mica must be clear, free from spots, and of a uniform color throughout the sheet. The most desirable color is a wine red, and next to this comes white mica, which is nearly as valuable. Another important use is in the manufacture of electrical apparatuses, for which purpose its non-conducting properties render it valuable. The qualities required for this use are firmness of texture, toughness and ready cleavage.

There is a greater range of use for ground mica than for the mineral in sheets. And though the value of that part of the product made use of in this form is yet comparatively small, the many peculiar properties which ground mica possesses render it quite probable that its use will be widely extended. The difficulties to be overcome in grinding mica are considerable, and there are only two or three firms engaged in the business at present. Eight standard grades of ground mica are made. The coarsest of these are used to give frosted and spangled effects to the fancy grades of wall paper. The medium grades are employed in the manufacture of a lubricant for the journals of railway carriages, for heavy bearings generally, and for the axles of road vehicles. The finest grades are used in producing a uniform metallic white surface on wall paper, scrap mica for grinding must be white and as free from specks or colored matter as possible. Since any impurities in the scrap will affect the color and lustre of the product. It is also used for roofing cements.

The greatly increased demand for mica is noticeable in the phenomenal growth of the industry in Canada. Eighteen months ago the Villeneuve mine on the Lievres River, and Smith & Lacy, at Sydenham, Ont., were the only producers, and that only in a small way. To-day, in Ottawa county alone, close upon a thousand men are employed in mica mines, substantial works and plants have been put up and great development is going on in the Townships of Hull, Wakefield, Templeton and the other townships. A great deal of formerly worthless property has changed hands at good prices. The county is scoured by prospectors. The Lake Girard Mica Mining syndicate—probably the most extensive mica producing concern in the world—has within the year expended over a quarter of a million dollars in acquisition of lands, the erection of buildings, and machinery. The company employs close upon two hundred men, and has forty teams on the road hauling the product from its various mines to an excellently equipped cutting and dressing works at Ottawa. Similar activity, although on not so extensive a scale, is noticeable in the Perth, Kingston, and other districts in Ontario.

Through the courtesy of Consul-General Lay, we are enabled to publish the following returns of the value of the exports of mica from the

Ottawa district from the beginning of the year to the 15th of November:

MICA EXPORTS TO UNITED STATES	
January reported.....	\$3,140 90
February ".....	2,432 07
March ".....	5,371 03
April ".....	3,203 98
May ".....	4,639 55
June ".....	5,631 19
July ".....	6,560 26
August ".....	6,352 31
September ".....	2,837 75
October ".....	5,088 45
November (to date) reported.....	1,952 03
Exported to United States via Brockville as per Consular returns.....	6,608 44
Exported to United States via Kingston as per Consular returns.....	8,140 47
Exported to Great Britain (\$179 being ground).....	544 00
Exported to Germany, ground mica.....	495 00
Total value of exports so far reported....	\$62,987 43

Knud Sando, boodler-in-chief and grand mogul of that ill-starred venture the General Phosphate Corporation (Limited) does not seem content with the unenviable notoriety he has gained in Canada from the part he has played in the promotion and management of this enterprise, for he continues to air himself considerably in the columns of the daily press. One of his recent utterances is so characteristic of that parasite, the London Company promoter, that we give it in full. With unblushing impudence Sando says to the *Montreal Herald*:

"We have invested many thousands of dollars in Canada and the return has so far been of the most unsatisfactory character. We have had to meet the most unfair opposition and condemnation from quarters where we expected sympathy. It is to my mind most unjust that capitalists who invest large sums in Canadian enterprises should be so unfairly treated. We live in hopes that time will be our avenger.

For the actual facts our readers need only refer to the Corporation's mismanagement as given fully in our May issue, to the evidence in the case of Wills vs. Stewart, and to the data published elsewhere in this number. Sando's day of reckoning is not far off now.

Dr. R. W. Eells, of the Geological Survey, who spent last summer investigating the occurrence of our Laurentian apatites, has had a number of very fine photographs taken to illustrate his observations. A very fine set, beautifully painted by Mr. H. N. Topley, of the Department of Interior, is to be sent to the World's Fair. Dr. Eells has consented, with the concurrence of the Director of the Survey, to give a paper on the result of his studies at the forthcoming International Mining Convention.

It is understood that the Canadian Society of Civil Engineers will adjourn its annual meeting until the date of the Convention. The occasion of such a representative gathering of engineers is also to be taken advantage of by the McGill University authorities when the magnificent new engineering buildings now completed and equipped will be formally opened with befitting ceremony. This will form by no means the least attractive feature of a liberal programme being prepared for what promises to be a memorable week.

The impost of that iniquitous tax on powder magazines in Quebec is raising a rumpus among the miners, who rightly kick against paying the

enormous sum of \$150 for the privilege of storing a minimum quantity of twenty five pounds of explosive. It was hoped that, like the mining tax, this equally burdensome measure would have been relegated to oblivion by the new Government. The inspectors seem bound to collect, however, and threats of an immediate enforcement of the law will be the *raison d'être* of the meeting of the General Mining Association, to be held at Montreal on Friday afternoon, 9th prox. As other matters of importance will be considered a large attendance of members is expected.

The Mining Society of Nova Scotia will hold its third Quarterly General Meeting in Halifax on the 8th prox. A good programme is being prepared by the Council. This Society, by the way, has just published a highly creditable volume of the proceedings at its June meeting and it is understood a second, embracing the business and papers of the Londonderry meeting, is in the press. All mining and scientific organizations should exchange with the Society. Its headquarters are Hollis street, Halifax.

It is understood that the Hon. Sir John S. D. Thompson, Minister of Justice, will shortly consider the petition presented by the coal operators of Nova Scotia, with respect to the disallowance of the coal royalty legislation.

Our attention has been directed to a letter in our last issue from a Sudbury correspondent reflecting upon R. H. Ahn. It seems that Ahn has not "skipped out" as surmised, but that he has been residing in Toronto. We cheerfully give space to the correction, particularly as his promised return to Sudbury gives rise to the hope of a satisfactory adjustment of his affairs.

One of the most valuable of the many excellent publications of the Geological Survey of Canada is the "Chemical Contribution from the Laboratory," issued from time to time by Mr. G. Christian Hoffmann. The Report just issued will be found most useful, indicating as it does by the published analyses of a large variety of ores and minerals the value of the great territory open to the prospector and miner throughout the country. Among the new minerals hitherto not identified as occurring in Canada, Mr. Hoffmann gives the composition of a sample of Danate (an important form of Cobalt) found in the course of developing a deposit of nickeliferous pyrrhotite in the township of Graham, District of Algoma, Ont. Gerdsdorffite (a rich form of nickel) is another new mineral which has been met with for the first time in Canada at the O'Connor claim on Lot 17, of the 3rd Range, Township of Denison. Other discoveries mentioned include Tripolite, or infusorial earth, of which an extensive deposit has been found at the head of Loon Lake, British Columbia. This material has been used by the Indians in the vicinity of Cache Creek for making tobacco pipes—a not inappropriate application in view of the facility with which it may be carved, its lightness and absorbent

power. The opening up of this locality may lead to its employment for many purposes for which it can now be scarcely regarded as available by reason of the present difficulties and cost attendant upon its transport. A prominent feature of Mr. Hoffman's last volume is the very complete and important set of analyses of the brines from Manitoba and the Saskatchewan.

Knud Sandø, has a great many "bees in his bonnet" just now, if one may judge by the record of his travels given by the daily press. We read of him having undertaken to promote a beautifully philanthropic scheme for the benefit of the benighted Homestead strikers—on the co-operative plan of course—and again still further south, of his having bonded mineral properties in Virginia, owned by a well known Canadian Senator. His other "kites" include the resurrection of a great super-phosphate scheme, and the construction of the Buckingham and Lievres River Railway. And this is the person to whom Lord Stalbridge, good, easy man, confidently entrusts the fortunes of the General Phosphate Corporation, with the assurance that "Mr. Sandø having now assumed a position on the Board will henceforth devote his *whole time and attention* to the affairs of the company!" Bah! What fools these mortals be?

A new and important departure in company enterprises has recently made its appearance in the north of England. This is an association for the purpose of mining coal by means of electricity. The company will take the mines from their owners, install electrical coal-cutting and hauling machinery, and carry out the whole of the work in connection with coal production. According to the statement made in London *Lighting* they will charge a fixed contract price, probably about one shilling per ton. If it has an extended field, and to judge from the strength of the board and the warmth with which it has been supported there is every prospect that it will have, the effect upon the mining districts will be simply revolutionary. Electrical coal cutting is not only far cheaper than hand labor, but practically dispenses with it, so far as the cramping and stunting department of hewing is concerned. Thus an enormous number of out spoken and able bodied men are liable to be thrown out of employment unless the increased rate of production enables a correspondingly increased number of men to be employed in healthier work above bank. The list of the board representing this electrical coal cutting contract corporation includes at present the names of Sir Archibald Campbell, Mr. Lindsay Wood (chairman of the Durham Coal Owners' Association), Mr. Frank Stobart (representing Lord Durham), Mr. James Knowles (of Pearson & Knowles, Wigan), the Hon. G. W. Winn and Mr. W. T. Goulden. It would be almost impossible to put together a more influential or representative syndicate, and the effects of its formation upon the industry will be watched with great interest.

The heaviest armor plate ever made is in course of preparation at the Bethlehem (Pa.) Iron Works. The monster ingot, which will be converted into armor plate, is now in a furnace in the hammer department. It weighs 84 tons, and when completed will be seventeen inches thick. This armor will defend the side of the battleship Indiana, now building at Cramps' shipyard, Philadelphia. The Carnegie company, of Pittsburgh, secured the contract for this work, but being unable to make armor more than thirteen inches in thickness, the contract was given to the Bethlehem works in exchange for lighter work.

The Ordnance Bureau of the United States Navy Department has completed specifications for armor plate required for the two new vessels authorized by the last Congress and to finish the battle ships and other armored vessels already building. Advertisements inviting proposals for furnishing this armor will be issued from about 7,000 tons, at an estimated cost of \$4,000,000, will be called for. This will be the largest armor plate contract ever let by the department. It is understood that nickel steel treated by the Harvey process of surface decarburization will be called for, or at least the bulk of it. Nearly all the new ships are being delayed through lack of armor material. Up to the present time the Carnegie company has furnished only 650 tons out of 5,900 tons contracted for, including the 400 tons of diagonal armor for the battleship Massachusetts, just completed by the Bethlehem Co., they have delivered only 1,000 tons of their 5,310 ton contract. The thickest plate for side armor to be called under the new contract will be 14 inches. This is a reduction of four inches over the side armor of the three battleships building, the difference representing, in the opinion of Commander Folger, the increase in the resistance of a Harvey plate over the untreated nickel steel.

The enormous number of mining companies that have lately been floated point many a moral and emphasize many a tale of wrong and disaster. The injury done to individual speculators who have sustained losses has had a prejudicial effect upon the mining industry as a whole by converting many mining investors into bitter scoffers, who now only shower anathemas upon an industry to which they previously devoted their gold. That matters connected with the mining industry are considerably out of joint has frequently been pointed out, and the necessity for reform in the law relating to the flotation of mining companies is apparently quite as pressing as in the matter of the conditions under which the actual work of mining has to be carried on. The point which is specifically in mind at the moment is that of making some provisions which will insure the appropriation of a substantial percentage of the money subscribed by shareholders to the real work of mining. As matters now stand, too much of the money extracted from the pockets of investing public is passed over to and retained

by the few fortunate people who happen to get in "on the ground floor," and too little is devoted to the purpose for which the various companies are ostensibly floated. There is no objection to the original owners and vendors of a mining property securing a good price for that which they are handing over to a company, but let their reward be dependent upon the ultimate success of the company. It is too often the case of scuttling out as soon as the property is out of hand, and one would like to see legislation framed with the object of putting a stop to the wild-cat company mongering that has in the past proved so profitable to a few unscrupulous harpies, and so injurious to the mining industry itself. This legislation should, take the form of a special provision that the cash paid for shares should be spent in the development of the property floated. This would at any rate do something to minimize the evil, and would insure a fair trial for many a property which would otherwise be relinquished for want of funds when success was almost within grasp.—*Black Diamond.*

## CORRESPONDENCE.

### Notes From East Kootenay, B.C.

SIX.—Once more grim winter is upon us, and the earth is covered with its snow mantle, from the tops of the highest mountains to the bottom of valleys. All the claim in this district are now shut down for the winter, and the "Lanark" which has hitherto given work to from ten to a dozen men every winter for the last four years, is idle, and under the charge of a caretaker.

This cessation from work is not from any failure in the value of the properties, but simply rest, before commencing with renewed activity in the spring. There is talk of large developing works being commenced then, and each claim that has changed hands this year will receive a good testing next year. So be it! As far as can be judged on the work done on the claims here to date, all prove that they increase value, and also that the deposit increases in depth as greater depths are reached. This is sufficient to spur claim-holders on to further development, if they are imbued with the necessary enterprise, and if they have the means to carry out the work needed. Development of claims means expenditure of money, and labor, and the intelligent application of both to ensure success. The field is in no sense a "poor man's diggings," and though a good many claims are sold for speculative purposes, by simply doing the assessment work required by the mining laws of British Columbia, usually all show well from the surface indications, and are mostly held by old prospectors, who have been in the district for some time, and who elect to stand or fall by their different shows. The same complaint obtains now, as it did some years ago, and that is that too high a value is placed on prospects, which has the effect of keeping many from purchasing who otherwise might be willing to take hold; although there is now a marked improvement in the direction of more moderate prices. A "prospect" however good, is not a mine, and simply an indication that there may be a deposit of workable material, therefore to ask such prices as have been demanded in the past has a deterrent effect on the development of many a promising show, and has had a natural tendency to keep the district back. Let us hope that wiser action in the future may characterize holders of mineral claims. Let them be satisfied to part with them to those who are able, and willing to develop them at "prospect" figures; then will there be a probability of money coming in, and work being carried out.

Looking back at the events of the past season a great step forward has been made. Foremost amongst others has been the shipment of test lots of ores to the Old Country for the purpose of analyses under the personal observation of those who have made investments. In June a shipment of eight tons was taken from the "Jumbo" owned by Messrs. Corbin, Kennedy, Ross & McDermid, and forwarded to Scotland for treatment. The ore was taken from the mine and packed on horses to Illecillewaet, under the personal supervision of Mr. Lynn, C.E., on behalf of the Scotch firm, and Major Word Kennedy on behalf of the owners of the "Jumbo." The ore was then packed, under the superintendence of Mr. A. Grant, who acted for both parties, into casks for shipment, each cask averaging 500 pounds in weight. This every precaution was taken by both sides to have a fair and impartial test of the mine, and all doubts as to the genuineness of the product were guarded against on

every hand. Later on in October, the British North America Development Company made a shipment from several of the properties they have in the district. The "Blue Bell," the "Gnat Cave," the "Menni's," the "Maddelina," the "Nith," and the "Youchan," were represented, half ton lots from each claim were forwarded to London for treatment. This ore was also packed in bags and sealed by independent parties, one being Mr. Frank Owen, of the firm of Owen & Gannan, mining brokers, of Golden, and the other a Mr. Harrison from England, one of the directors of the company. Horse trails had been cut, and all the necessary work in opening the various properties and getting the ore ready for shipment, were made under the personal supervision of the superintendent. A step has been made in the right direction, and it is to be hoped this practice will be universally followed in the future. We should then hear of no more of salted mines, and the revelation of bare-faced swindles like that in Idaho, recently come to light, would be rendered impossible. In this instance \$1,000,000 was paid for a salted mine by English capitalists, with the result that the property proves to be worthless, and American mining properties have received another set back on the English market. English people unfortunately too often confound Canada with the States, and the word "America" is indiscriminately referred to as the "America." A swindle of this sort thus rests on Canadian properties as injuriously as if the swindle had taken place in Canada. In the face of a falling silver market, and the general feeling of insecurity with regard to the standard value of silver, matters of this kind have a disastrous effect on mining enterprise, and should be rendered impossible by every means in the power of the mining industries of this country at heart, and who wishes to see them prosper and flourish.

If before purchasing right out any mineral property, investors made it a condition of sale, that fair average tests of quantities of ore, sampled under the personal supervision of impartial, and independent parties were made, there would at once be an end to the carrying out of such practices. No one could salt tons of ore, however ingeniously and artfully ore may be salted for assay or inspection. Consequently the test of shipment is better and fairer for both prospector, miner, and investor, and places each one on a surer footing.

The only objection that can be urged is delay, but where the seller is sure of ascertaining the value of the property, he need not chafe at this. It is satisfactory to note these instances of a determination on the part of investors to have a fair test of the value of the property before paying the full purchase money. The sellers are fully convinced that the test will prove that the properties are even more valuable than claimed. In each case a certain amount of money has been paid down, so if the claims should not be taken over afterwards, the claim owner is no loser by the transaction, but will have a better file of the value of his property. In connection with this matter there is another most important factor in the development of this district, and that is the heavy charge of the C.P.R. for freight. It is well known that the expense of this road in the mountains is heavy, but it is to be hoped for the future welfare of this part of the Dominion, that the authorities of the C.P.R. will meet the needs of the mining community of these regions in a liberal spirit, as the need in goods and machinery increases. Or else we shall have one of our greatest industries in the future so heavily handicapped, that it will have only a languishing instead of a strong and vigorous growth. The C.P.R. is making a collection of specimens from every mining claim in Kootenay district for exhibition in their London office in King William street, one of the busiest thoroughfares in the great metropolis, and this will draw a great deal of attention to the valuable resources of this section of the country, from the moneyed classes of that great city, and will doubtless lead to investments, particularly when they find they are welcome to have a trial test of the ore under their own immediate supervision.

There will be a very strong Canadian company in the field next season, to work Messrs. Ryckman & Scott's properties in Fish Creek, and the valuable copper deposits at the head of Carbon Creek. Vigorous work will be commenced as soon as practicable in the spring, with both men, machinery, and the indispensable adjunct of ready money. The B. N. A. D. Co. will also push development work on their properties. Messrs. Fishburn & Co., in Fish Creek, and Messrs. Forbes & Co., of the Golden Smelter Co., will push work on their properties in Fish Creek, and Illecillewaet, notably the "Danvagan," and the "Hudson," so that if there is an early season there will be a prospect of a lively and bustling stir in every direction. After a long spell of enforced idleness as it were, this district is slowly but surely waking up, let us hope to a continued and permanent activity.

E. A. WATSON.

Illecillewaet, 13th November, 1892.

### New Brunswick Mining Notes.

STR.—The fact of their being a scarcity of mining notes from this section of any importance must account for my long silence. The turmoil and uproar of a local Provincial Election has made us all forgetful of other important matters for a time.

It might be well here to say that at the last session of the Provincial Legislature an amendment to the Mining Act was passed which in the case of any mines being actively

and regularly worked all royalties are exempt for the space of five years with will, no doubt, be of some interest to those who might be induced to invest in mining claims in N. B.

Since I last wrote you a number of capitalists have been looking over and talking of making a start on the supposed nickel areas at St. Stephen, but either owing to extravagant prices being asked for properties, or some unknown reason, no positive effort has been made to open them, though the ore is regarded as being valuable and in large quantity.

The records of the mining office show a large number of areas to have been taken up in various localities in the Province, but no actual amount of development has as yet been made.

The Manganese industry of Sussex and Markhamville, I regret to say, is still dormant and the expenditure of money that for years was usual in the Markhamville district is much missed by both miners and farmers.

In Albert county, the Alma Copper Company has done considerable work in trying to develop and discover the true level of copper, which is supposed to exist there. The samples shown by the company's officials, are very rich indeed and seem to warrant the work of exploration which is being made. It is to be hoped they will meet with success in their efforts.

Near Hopewell Hill, a Mr. Van Melin is opening up a promising deposit of Manganese, which bids fair to be of a remunerative character. The ore is said to be of very high grade. Several development companies have been formed in various points of the Province to prospect for coal, gold, and other minerals, but the full details are not as yet known.

In Albert county a very fair showing of Albertite coal has been found on an area controlled by Chas. A. Peck, Esq., of Hopewell Hill, who is anxious to enlist capital in the enterprise. The Albertite coal at the time of the working of the Albert Mines some years ago, was regarded as one of the most valuable in mining industries in the Province, and from which hundreds of thousands of dollars in dividends were had by the shareholders.

In Gloucester county, near Bathurst, some considerable work was done at the instance of Mr. McNichol, of Calais, Maine, on a gold and silver belt, and the developments were so satisfactory that English capital has been interested, so it is stated on good authority, and the chances are a large and profitable mining industry will be established. The ore is principally silver and gold, and the most satisfactory tests having been made by Ernest Donald, of Montreal, a thoroughly competent authority. The values of these ores run from about \$30, to upwards of \$150 per ton. The ore vein being 27 feet wide. The owners of the property, Bathurst men, are to be congratulated on their future good prospects.

At several points in the Province, good deposits of Galena ore, Copper ore, Plumbago, Manganese, Antimony and iron ore await the coming of the capitalist.

Any investor or investors interested in salt production from brine springs, can find an opportunity to invest in such on more reasonable terms than in any other important point in New Brunswick, and which, beyond doubt, in the hands of men of capital could be made highly remunerative.

Recently quite an amount of capital has gone out of the Province in the opening up of mining properties in Nova Scotia, Mexico, &c., and while of course, investors have the right to please themselves, it seems too bad that the state degree of interest cannot be had in connection with mining exploration and development in our own Province.

There being nothing further of interest to write of at present, I will conclude, promising to keep you posted as well as I can on any new developments which may arise.

Yours, &c.,

CRYSTAL.

Fredericton, N.B., Nov. 21st, 1892.

**Modified Koepe System of Winding.**—The Koepe system of winding, but in a modified form, devised by M. de Mot, has been adopted at the Moulin pit, Gilly, Belgium. The pit is to be deepened to 740 yards, but it has insets at four levels, and will run 184 to 855 feet. The output is 300 tons daily with 75 tons of dirt. A six deck cage for six tubs is used, the cage and tubes weighing 3.7 tons. The Koepe system has been adopted; only two ropes are used instead of one. Each rope passes around its own groove on the drum and pit-head pulleys, their ends being connected to the cage by chains, so that one rope could support the cage if the other broke. Each rope has a factor of safety of six, by itself, and the higher safety is thus attained at a less cost than it would be by a single rope. In addition the crushing effect on the lagging of the drum is greatly reduced. The drum is made from one of the original flat rope reels by fitting it with a rim originally 23 feet in diameter, but subsequently reduced to 16½ feet. It was lined with grooved beech blocks ¾ inches thick, the grooves being 7.8 inches apart and ½ inch broad. Horizontal winding engines are used. The steel wire ropes are 1.61 inch in diameter, with eight strands containing 19 wires of 0.866 inch diameter, and having a tensile strength of 87.6 tons per square inch. The balance ropes below the cages are of galvanised wire, with a tensile strength of 45 to 50 tons per square inch. This system has been very successful since August 1890.—(Minutes of Proceedings of the Institution of Civil Engineers, vol. 107, pp. 523-525.)

### The General Phosphate Corporation.

#### A Flood of Light Thrown on the History of Affairs in London—Alarmed Shareholders Refuse to Pay up their Calls and Enter Suits—Promoter Sando's Wildcat Schemes—An English Shareholder Visits Canada, Investigates for Himself and Denounces the Board as a Parcel of Knaves or Fools—The Company Doomed.

With this month terminates the second financial year of the General Phosphate Corporation (Limited). For reasons best known to the directors, however, no meeting of shareholders will be held in all likelihood before the new year. A lively time is promised. A syndicate of shareholders, who refuse to pay up their calls, on the ground that the statements contained in the prospectus were false and misleading, have repudiated their calls, and issued Writs against the company so that the whole ill-starred career of the venture will soon be ventilated in the courts. Our readers are well posted with the history of the Corporation. Its promotion, organization and collapse have been repeatedly commented on in the REVIEW. Our articles have been widely read and have been instrumental in directing attention on the other side to the true state of affairs. For the first time however we publish in this issue the history of events in London as revealed by the circular-letters and other memoranda that have passed from time to time between the dissentient shareholders and the Board. These have been kindly furnished by a friend in London. They clearly indicate that the directors have been blinded to the facts. Someone, probably Sando, has been throwing dust in the eyes of these gentlemen.

#### EARLY PREMONITIONS.

23 COLLEGE HILL, CANNON STREET,  
LONDON, E. C.

#### To the Shareholders of the General Phosphate Corporation, Limited.

GENTLEMEN,—As many inaccurate and misleading statements are being made upon the position and prospects of the Corporation, the directors think it desirable to put the shareholders in possession of authentic information upon the subject.

Two properties known as "High Falls" and "Ross Mountain," situate near Buckingham, Ottawa, Canada, have been purchased and transferred to the Corporation. These properties have a total area of 2,660 acres.

Mr. George Stewart, one of the vendors, has made arrangements with the Corporation, under which he guarantees an output of 10,000 tons of high grade ore during twelve months from the fixing of the machinery, which ore is to be delivered free on the wharf at Montreal, at a maximum cost for mining and transport of \$9 per ton.

The mining arrangements will be subject to the supervision and direction of Mr. J. Lainson Wills, who has been appointed representative and engineer on behalf of the Corporation, and he will also certify as to the cost of mining and transport.

The directors have retained control over £10,000, part of the purchase money, which will not be paid to Mr. Stewart until his guarantee is performed.

Active mining operations commenced in November, 1890, machinery is on the ground, and huts have been erected for the workmen.

The directors have instructed Mr. J. Lainson Wills to forward regular reports as to the working and development of the mining operations.

From information which has been received by the directors, they believe that the "High Falls" and "Ross Mountain" properties are two of the finest properties in the before-mentioned district of Canada.

They have further been advised that when the two properties are in full work they will be able to produce 20,000 tons of high grade ore per annum.

The directors have also entered into negotiations with a director and representative of a Canadian Company, who is now in England, for the sale to such Company of all low grade ore to be produced from the properties now owned by the Corporation up to a maximum of 25,000 tons of ore, the Canadian Company to be under an obligation to take delivery of at least 10,000 tons per annum.

The price to be paid by the Canadian Company will, in the opinion of the directors be sufficient to discharge all working expenses at the mine in respect of both high and low grade ore (with the exception of the Manager's salary) and to leave a small margin of profit beyond.

The directors do not at present propose to purchase and hold on behalf of the Corporation any other properties than those already mentioned, believing that the output from these two properties alone should at present prices be sufficient to pay a substantial dividend on the present paid up capital of the Corporation. They have, however, received offers for the purchase of good properties on very reasonable terms, but have not felt justified in making arrangements for additional purchases at the present time.

In arriving at this conclusion, the directors have been guided by the statement in the prospectus, which was repeated to the shareholders at the general meeting in September last, that they did not propose to make a call beyond £2 per share already paid up.

The directors cannot of course pledge themselves not to make any further call upon the shareholders in the future, because circumstances might arise which in the interest of the Corporation would necessitate their doing so. But

under present circumstances they do not consider that a further call will be required, and they see no reason to alter or modify the statements which have been previously made on the subject.

Whilst, however, the directors have come to this conclusion, they consider it most desirable in the interests of the shareholders that further additional properties now under offer to them should be at once purchased, with a view of either working them themselves or of their being resold at a profit to companies formed for the purpose of acquiring them.

If this were done not only could immediate profits be made, but the directors would be able to carry out their wishes of securing a strong and leading position in the phosphate market, as, in their opinion, the phosphate industry is destined to become a very thriving and important one in the future.

With these objects in view, the directors propose to take steps for obtaining further subscriptions to the capital of the Corporation, and for making an issue of debentures.

The proceeds of these issues will be devoted to the purchase of additional properties, with the view of either working them themselves, or of re-sale to other companies on the lines indicated above, and to the expenses consequent thereon.

In order to carry out this policy, the directors and their friends are prepared to at once increase their present holdings, and they hope the shareholders will do the same to assist in bringing to a successful issue the arrangements they propose making.

Forms of application for shares are enclosed with this report, which the directors hope will be filled up by yourself and your friends, and be returned to the Secretary, or forwarded to Lloyd's Bank in due course.

By order of the Board,

L. J. LANGMEAD,  
Secretary.

31st December, 1890.

#### THE FIRST "KICK."

16 ASHBURN PLACE,  
SOUTH KENSINGTON, May, 1892.

#### To the Chairman and Board of Directors of the General Phosphate Corporation, Limited.

GENTLEMEN,—As a co-shareholder with yourselves in the above company, I think it is only a duty to bring to your notice the following:

There are numerous rumors afloat in connection with the purchase by the company of certain properties in Canada from Messrs. Colby & Stewart.

1. Both the properties said to have been purchased were, within a recent date, offered in the London market at a sum under £10,000, and that the company have now been induced to give for them a sum approaching £90,000.

2. That the vendors, out of the purchase money, have, in one way or another, promised commissions exceeding the sum at which the properties were originally offered.

3. In connection with these commissions, it is reported that certain securities of the company have been negotiated in London.

4. That a large part of these commissions goes to certain persons engaged in the promotion of the company, and has to be shared by them with certain officials in order to bring about the purchase and sale of the properties.

5. I hear further that one of the conditions of a contract with the vendor is that a certain number of tons of "high-class phosphates" shall be mined during the first two years. That "high-class" is defined to mean mineral of 70 per cent. and upward of phosphates; while the term "high-class phosphates" in the general market means mineral yielding "80 per cent. and upward." If this is the case, it is calculated to mislead greatly in forming estimates of probable profits for losses.

I have, as a shareholder in the company, to bring these matters before the Board, in order that if the Board is able to trace any truth in these rumors, the contract may be cancelled before it is too late to save the shareholders' money.

You will understand that this communication is entirely private and confidential, as between shareholders jointly interested in the undertaking.

I am, gentlemen, your obedient servant,  
(Signed) ARTHUR BARFF.

June 6th, 1891.

P.S.—Since I wrote the above, I have received a prospectus of an issue by the company of £100,000, 6 per cent. debentures, charged upon the uncalled capital.

I have now read the contract between Mr. Stewart and the corporation for the sale of the property known as "High Falls," which seems to confirm some of the rumors mentioned above, viz. :—

That contained in paragraph five of my letter, that the phosphate which the vendor guarantees to deliver does not come under the class "high grade," and here I would remark that the paragraph in your prospectus this morning, referring to this point, is liable to the charge of being misleading.

A. B.

#### THE BOARD REPUDIATES THE BARFF CHARGES.

12 UPPER BROOK STREET W., 9th June, 1891.

DEAR SIR,—I only returned to town late last night, and on my return found your letter.

I have been informed to-day that your letter to the Chairman and Directors of the General Phosphate

Corporation has been sent not only to the chairman and directors, but also to shareholders, although it is headed "private and confidential."

Under these circumstances I am afraid that I cannot answer you as freely as I would otherwise have done, but I should have been glad to have pointed out to you the mistakes into which you have fallen.

After your visit to me at Euston, I did satisfy myself on several points to which you drew my attention, but I cannot now make any further communication to you privately as your letter will doubtless be answered by the Board in the course of a few days.

I am, yours faithfully,

STALBRIDGE.

ARTHUR BRAFF, ESQ.,  
16 Ashburn Place,  
Cromwell Road, S.W.

23 COLLEGE HILL, CANNON STREET,  
LONDON, E. C., 12th June, 1891.

#### To the Shareholders of the General Phosphate Corporation, Limited.

GENTLEMEN,—A circular by Mr. Arthur Barff (a shareholder) was received by Lord Stalbridge on the 8th of June, 1891, and replied to on the following day.

The circular letter and reply (copies of which are enclosed for your information) were considered by my directors, at a board meeting held on the 10th of June, 1891.

My directors have instructed me to reply in detail to the statements contained in Mr. Barff's circular.

As to paragraph 1.—The Board have ascertained that there is no truth in this statement. (See copy letter from the Hon. C. C. Colby, late President of the Privy Council, Canada, and copy cablegram from Mr. Geo. Stewart, just received, enclosed herewith.)

As to paragraphs 2 and 3.—The Board have not, and cannot have, any information on the subject, and have requested Mr. Barff to supply them with specific details.

As to paragraph 4.—The Board have no knowledge whatever of the facts alleged in this paragraph.

The statement as to commission being shared by the vendors with certain officials, &c., seems to the Board a matter capable of specific detail, and they have requested Mr. Barff to supply them with the information in his possession, and the names of the officials referred to.

As to paragraph 5.—Under the contract with Mr. Geo. Stewart, one of the vendors, he is under obligation to produce 10,000 tons of phosphate ore, containing not less than 75 per cent. of phosphate upon an average, in accordance with the terms and conditions of such contract. The Board consider there is no doubt that phosphate ore of this average per centage is high grade.

Four samples of ore produced by Mr. George Stewart, in pursuance of the terms of his contract, have reached this country, and have been analysed on behalf of the Corporation. The result of such analysis is as follows:—

1	2	3	4
76.73.	80.45.	82.26.	82.41.

The Board desire to add, for the information of the shareholders, that several hundred tons of ore, represented by these samples, are in course of shipment, and it is expected that regular shipments will now be made.

The directors much regret to put the Corporation to the expense of a circular in reply to the statements made by Mr. Barff, but they consider that the shareholders would have wished them to do so in order to allay any possible feeling of apprehension that might have been entertained on the receipt of such circular.

I am requested to point out that only 13 shareholders out of a total number of 326 thought it worth their while to comply with the request made to them by Mr. Barff of communicating with my directors upon the subject matter of his circular.

I am, Gentlemen,  
Yours faithfully,

L. J. LANGMEAD,  
Secretary.

#### VENDORS COLBY AND STEWART ALSO HEARD FROM.

64 MARGARET STREET, CAVENDISH SQUARE,  
LONDON, June 10th, 1891.

#### Mr. L. J. Langmead, Secretary the General Phosphate Corporation, Limited.

DEAR SIR.—A printed copy of a letter addressed by Mr. Arthur Barff to the chairman and directors of the General Phosphate Corporation, Limited, was received by me yesterday.

The rumors to which reference is therein made, so far as they relate to properties which I sold to your Corporation, are absurdly erroneous.

I sold to the Corporation three distinct groups of valuable phosphate properties, of which the aggregate area was more than 1200 acres.

For a single property containing 123 acres, which is included in one of the groups, I paid to the previous owner, in net cash, more than £10,000, and bought it as I believe very much under its value.

I desire to give an unqualified contradiction to the statement (1) in Mr. Barff's letter, viz., that "both the properties were, within a recent date, offered in the London market at a sum under £10,000." The properties which I sold to the Corporation were never offered to any other party in London or elsewhere at any sum whatever with

my knowledge or authority, and no person could properly offer them without my knowledge and authority.

I have not seen the properties sold by Mr. Stewart, but judging from the favorable opinions of them held by persons in Canada, who are well acquainted with them, I cannot believe that they could have been offered for a sum so much below their value as £10,000.

The statement (2) concerning the amount of commissions paid, is so far as it may relate to the properties promised, is also untrue. From the falsity of the above I am quite prepared to disbelieve the other statements relating to commissions, &c.

Indeed it is very clear to my mind that whoever gives credence to those rumors, most of which I know to be false, is misled by ignorant or evil-minded informants.

Very truly yours,

GILAS. C. COLBY.

Received the following American telegram, on the 11th June, 1891, at 5:47 p.m., from Buckingham Station, Quebec, via Direct Cable:—

To the General Phosphate Corporation, Limited,  
25, COLLEGE HILL, LONDON.

"The property you purchased from me was never offered in London as low as sold to you. Shareholders can't prove to the contrary."

"GEO. STEWART."

BARFF EDU-IT OFF — DUNCAN AND KEMBLE AND ARTICLE ON THE WARRATH—THE "REVIEW'S" ARTICLE SENT TO THE SHAREHOLDERS.

LONDON, E. C., June 4th, 1892.

To the Shareholders of the General Phosphate Corporation, Limited.

GENTLEMEN.—As allottees of shares in this concern, applied for on the faith of the Company's prospectus, we venture to address you with a view to some combined action for our common protection.

In May of last year, Mr. Arthur Barff issued a circular with regard to the company, showing that the properties should have been acquired for a very small sum compared with what the company paid for them. That the prices paid had been so enormously swollen to enable commissions to be paid by the vendors for division amongst the promoters and their associates, and that it was quite hopeless to expect that the company could work such properties at a profit. The accuracy of Mr. Barff's statements was promptly denied by the directors, but, nevertheless, we believe them to have been substantially correct, and we point to the significant fact that Mr. Barff is no longer a shareholder, having been relieved of his shares by a director.

In our opinion, even if the circumstances under which the company was started were as held out to us, the directors ought never to have gone to an allotment upon the meagre subscriptions they received from the public, as they doing so involved the acceptance of the personal responsibility of one of the promoters for no less a sum than £3,000.

After careful enquiry and investigation we have obtained evidence which satisfies us that the prospectus contained not only suppressions of the truth but also misrepresentations of material facts, and we consider that all persons who applied for shares on the faith of the prospectus, and in ignorance of the true facts, are entitled to repudiate their contract to take shares if they elect to do so without delay. As you must be aware from the balance sheet and report of January last the company is heavily indebted for debentures issued at a ruinous rate.

This delinquent debt which has been raised mainly on the security of the uncallable capital may at any moment force the company into liquidation, and it must be borne in mind that under such circumstances the liquidator would at once proceed to enforce payment of the shareholders' liability. The risk, which shareholders are at present running is, therefore, very serious and they will have themselves to blame if they do not take prompt steps for their mutual protection.

The company's prospects of ultimate success we believe to be absolutely hopeless, and we should feel obliged if you would reply to this circular by letter directed to either of us at our address as below, stating whether you are prepared to join with us in our endeavor to escape further payments, and if possible, to recover the money already parted with by you and us and in such case to contribute ratably to the necessary expenses, which will be kept down to as low a point as possible, but before any expense is incurred, we propose to hold a meeting of those who are interested in the question and come to an arrangement as to what should be the extent of our outlay.

If a fair number of shareholders join us, the cost pro rata would not be heavy.

Yours faithfully,

W. W. DUNCAN,

An allottee of two founders' and 100 ordinary shares.

S. C. KEMBLE,

An allottee of two founders' and 100 ordinary shares.

Kindly reply to

W. W. DUNCAN,

St. Stephen's Chambers,  
Telegraph Street, London, E. C.,

or S. C. KEMBLE,

14 St. Mary Axe, London, E. C.

20, WHITEHALL PLACE, LONDON, E. W.,  
18TH JUNE, 1892,

To the Shareholders of the General Phosphate Corporation, Limited.

GENTLEMEN.—You will presume, having received, as I have, a circular from Messrs. Duncan & Kemble dated the 4th inst., and if you attend the general meeting in January last, you will have heard remarks from me somewhat to the same effect.

Shortly after Mr. Barff's circular was sent out the shareholders received from the directors copies of letters or telegrams, addressed to the company by the two vendors, Messrs. Colby & Stewart, contradicting Mr. Barff's statement as to the prices at which the properties had been bought by the company and the prices at which they had been previously offered in London. Mr. Stewart stating that his property had never been offered in London at a lower price than that at which it was sold to the company.

As to this I may say that I have been recently in communication with an agent who was interested in the sale to the company, and he told me distinctly that, on Mr. Stewart's behalf, he had previously offered the property in London at a lower price. In order to bring about the sale of his property to the company Mr. Stewart had to pay commissions to various people, and I know that the commission paid by him to Mr. Sando (the principal promoter of the company) alone was £11,000.

What Mr. Stewart eventually cleared, after the payment of the various commissions, I cannot say, but, whatever balance of the £10,000 offered for the property remained in his hands, one may be quite sure that his profit was more than it would have been if the property had been sold in a straightforward manner, and the value of it properly checked.

Those of the directors who really were in ignorance of what was going on must by this time have discovered that they have in fact given about ten times as much for the properties as they were worth, or could have been obtained for by a private individual for cash and, in fact, I obtained this information as to values, in the first instance, from agents who are now advising the directors, and who manage, and, I believe, partly own, adjoining properties.

I have recently had an opportunity of conferring with a Canadian gentleman engaged in the phosphate industry, and he tells me that in Canada the fact that the shareholders have been defrauded is notorious, and that all honest proprietors of properties for sale are disgusted with the affair, as they fear that it will have the effect of stopping for many years the flow of English capital into Canada, for purposes connected with legitimate enterprises, and he offers to obtain for the shareholders plenty of proof of his statements.

I cannot, within the limits of a letter, go into the many other points connected with the matter, but must leave them until a meeting of shareholders has been called.

I am, gentlemen,

Your obedient servant,

R. F. CRAWLEY.

P. S.—Since writing the above I have received from Canada another offer of assistance in exposing the proceedings of the promoters and the company's officers there, and a copy of the "Canadian Mining Review" for May, containing an article on the subject, which I commend to the perusal of shareholders. [The Review's article of May reproduced in full accompanied Crawley's letter to the shareholders.]

STILL BLINDED TO THE FACTS—LORD STALBRIDGE EULOGIZES "HOODLER" SANDO.

25, COLLEGE HILL, LONDON, E. C.,

JULY 4TH, 1892.

To the Shareholders of the General Phosphate Corporation, Limited.

Since the last general meeting of the Corporation nothing has transpired of sufficient importance to cause me to trouble you, but in view of the persistent attacks made upon the Corporation by three or four shareholders, I have deemed it advisable at this stage to address you.

It has come to the knowledge of the Board that circulars have been sent to you by Mr. Crawley and Messrs. Duncan and Kemble. Until quite recently all these gentlemen were in arrears in the payment of the calls on their shares, but Mr. Crawley has within the past few days, and on the eve of trial of the action which the Corporation had commenced against him, submitted to an order for payment of the full amount of the Corporation's claim for calls, with interest and costs. As in this action Mr. Crawley alleged that the prospectus contained untrue and fraudulent statements, his failure to continue the proceedings should be considered satisfactory to the general body of shareholders.

Actions are pending against Messrs. Duncan and Kemble for the recovery of the amount due by them for calls on their shares, and the company is endeavoring to support the contentions contained in their circulars, now appeal to the shareholders for funds to pay costs in fighting the Corporation. These actions must shortly come before the courts, when Messrs. Duncan and Kemble will have an opportunity of substantiating their allegations, and they must either do so (whether the shareholders support them or not) or pay the amounts claimed.

While here denying the allegations made concerning the administration of the Corporation's affairs, I wish to point out that you are already in possession of all the facts within the knowledge of the Board.

Mr. Sando has been attacked by the gentlemen above named, and I must say, in justice to him, that he carried out his contract with the Corporation to the satisfaction of the Board, and has always shown his willingness to assist in making the Corporation a success. On behalf of myself and colleagues, I believe that he has used any influence with the Board to the detriment of the Corporation.

We have considered him the proper person to assist in the management of the Corporation's affairs, and upon my recovery from a very serious illness, following immediately after the annual general meeting, he was elected a director, and requested to proceed to Canada in order to settle certain disputes which had arisen between the Corporation and Mr. J. Lanson Wills, the Engineer, and Mr. Stewart, the Contractor.

The result of such visit has been that Mr. Alexander Benson, who is highly recommended as a thoroughly practical Mining Engineer, has been appointed at a salary of £300 per annum, in the place of Mr. Wills, to whom the Corporation was paying a salary of £1,000 per annum.

Other important alterations have been made in the management and working of the mine.

Mr. Sando succeeded in procuring the passing of an Act through both houses of Parliament in Canada, granting to this Corporation a charter to construct a railway through the phosphate district, the value of which can hardly be over-estimated.

He has only recently returned to England, after an absence of over three months, upon the affairs of this Corporation. At our last Board meeting he was elected Managing Director of the Corporation, and he will, in future, give his time and energy to his business.

The Board have no reason to change their previously expressed opinion as to the value of the properties, for not only are they very rich in phosphate, but there are good indications of valuable deposits of other minerals, particularly mica, which latter is of increasing commercial value.

It is a matter of regret, however, that the present depressed condition of the phosphate market has so long continued.

I remain, yours faithfully,

STALBRIDGE,

Chairman.

These circulars convey a fairly good idea of what has transpired in London. Since these were sent to press one of the shareholders, bent on investigating matters for himself, has been in Canada. Learning that Mr. Shields, (of London), the gentleman referred to, was in Ottawa following up his enquiries, the Review called on the Russell and succeeded in ascertaining his views as follows:—

INTERVIEW WITH SHAREHOLDER SHIELDS.

Q. You are a shareholder in the General Phosphate Corporation? A. Unfortunately, I am.

Q. Do you know anything about phosphates, particularly our Canadian industries? A. I know a good deal now, but my experience has been gained entirely in investigating the affairs of the Corporation, and it was only since I arrived in Canada. When I applied for shares I knew nothing about Canadian phosphates.

Q. What induced you to think that the Corporation would be a good investment? A. Principally the fact that Sir James Whitehead and Mr. Sampson S. Lloyd were on the board. The firm of Whitehead, Halsted and Chown were my brokers. Perhaps, too, I was a wee bit carried away by the tremendous claims of founders.

Q. Sir James Whitehead did not remain long on the Board? A. No, he retired immediately after allotment, I think.

Q. For what reason? A. I think you will have to go to Sir James himself for an answer to that.

Q. Was it not openly stated in the columns of the London financial press that Sir James' name had been used as a decoy, and that his son's firm had received £1,000 for the use of it? A. I remember some newspaper comments upon his retirement, and I think he got some pretty rough handling in connection with it. I have heard rumours as to the £1,000, but of my own knowledge I can say nothing. The only item for brokerage in the Balance Sheet is £27 5s. If any sum like £1,000 was paid, it was very likely to be paid by the promoters, and if you are going to investigate their actions you will have a pretty tough job.

Q. Anyhow the retail of Sir James was considered very damaging to the Company? A. Yes; it caused some applicants for shares to refuse to pay the £1 per share due on allotment, and to demand back their money paid on application. That was what first caused me to think there was something wrong, but unfortunately, my calls were paid by my agent in my absence.

Q. What became of Sir James Whitehead's share? A. I was told by the secretary that he had been relieved of them by some of the other directors, but whether that was the truth or not I am unable to say.

Q. Did you ever hear that his shares had been transferred to one of his clerks? A. Before I would reply to that, Mr. Editor, I should like to get a perfectly clear idea of where this talk is leading to. From what I have seen of the attitude of the REVIEW, your object seems to uphold Canada as a field for investment, and in doing so, to expose, as you yourself has well put it, the present pernicious system of company promoting prevalent in London. Before I answer the question, may I ask if this is your sole motive in this interview?

THE EDITOR.—Entirely so. There is no other motive. We have endeavored to show that the Corpora-

tion has been a series of blunders from first to last, and that its affairs have been grossly mismanaged, particularly by its representatives on your side of the water. Its failure, you know, must seriously affect the good name of the country.

Mr. SHIELDS continuing—Well, I don't care whether Sir James got his shares transferred to a clerk or not. If he did and the Board sanctioned such a transfer, it is only another nail in the Board's coffin. But of what avail was it anyhow? It did not alter the fact that Sir James was responsible for the prospectus, nor did Mr. Sampson Lloyd's retrial relieve him from the same responsibility.

THE EDITOR—Of course, Mr. Shields, "you must know that since the date of Sando's notorious "green prospectus," the REVIEW has honestly endeavoured to show up the mistakes, and bad judgment of the promoters and management. It has been fully posted of the criticisms of the London press. We have here, too, from a friend on the other side, the circulars issued to the shareholders from time to time, notably those of Barff, Crawley, Duncan and Kemble, and other shareholders who took exception to the Board's action. (These circulars are printed in this issue of the REVIEW for the first time. See ante.)

Q. Did Sir James reply to any of the attacks made upon him? A. Not that I know of, but I was a good deal abroad and may have missed seeing any reply in the newspapers.

Q. He treated them with indifference? A. That is my impression.

Q. And the director's took no notice? A. These circulars you have are the only notices so far as I am aware.

Q. But surely these were very serious charges against men in the position of the directors, and especially against Sir James Whitehead—an ex-Lord Mayor of London? A. Well, you know as much about it as I do and can draw your own conclusions.

Q. What do you know about Sir George Baden Powell? A. That is a pretty comprehensive question. In connection with this company do you mean?

Q. Yes. A. He is nominally a director.

Q. Why do you say "nominally"? A. Because we were informed in London that he claimed to have nothing to do with the company. I was informed no later than yesterday that when he was last in Ottawa he declined to receive the manager of the company officially and said he would have to drop all that sort of thing now.

Q. Perhaps the waters were getting a little too dirty for his fishing. A. You can put what construction you please upon it.

Q. Has Sir George paid his calls. A. That I do not know.

Q. The Balance sheet shows that "calls in arrear" amount to £2,400. Do you know who these represent? A. I do not. I should say that a good many of them are those who are now fighting the company.

THE TREMENDOUS ARRAY OF FOUNDERS A BOGEY.

Q. A great deal, Mr. Shields, has been made of what you yourself call the "tremendous array of founders." Is it not a fact that a great many of that gentry did not have any direct interest in the stock of the Company, while others were merely nominal? A. I consider all of them merely nominal. You will find precious few of them with more than one founder's share and fifty ordinary shares, which involves a liability of £510.

Q. Would you ascribe the founders' indifference to this small liability, to the serious charges made against the management or are there other influences? A. I would ascribe it chiefly to the small liability. What do most of these founders care for a loss of £510? I think, however, they are in honour bound to assist the poorer shareholders, who invested on the strength of their names, to get back their money, and also to punish those who are responsible for all the loss. I know I cannot afford to lose as much as six dukes, which is about my position.

Q. It is currently reported in Canada that some of the more prominent politicians and Canadian founders have not yet paid their calls. Do you happen to know anything about this? A. Not particularly, but I should not be surprised. Recent events in Canada have shown that political morality in some quarters is conspicuous by its absence.

SANDO'S COMMISSIONS AND CHIMERAS.

Q. You may have heard, I dare say, Mr. Shields, charges of "palm greasing" by gentlemen who occupy positions on the Board. Have you heard of anything of that kind? A. I shall reply to that question in the Scotch fashion, by asking another. Do you think it necessary to ask me such a question with Sando's evidence in "Wills vs. Stewart," in the last number of your paper?

Q. Let us see as to that. Sando acknowledges to have received £11,000 as commission on the sale of the Stewart properties, and a further sum of £9,000 for realizing the securities which formed part payment to Stewart? A. Exactly. Just a clean half of what the Company paid for the property. And this is the man who has been made managing director of the Company, and of whom Lord Stalbridge says "he carried out his contract with the Corporation to the satisfaction of the Board, and has always shown his willingness to assist in making the Corporation a success," and further: "We have considered him the proper person to assist in the management of the Corporation's affairs."

THE EDITOR—It certainly does strike one as being rather a peculiar qualification. Why was Sando elected to the Board? A. You know as much about it as I do. The fact is simply stated in that circular of 4th July, 1892.

Q. Why, one would be justified in believing your Board either a parcel of fools or knaves. A. You can take your choice. I have my own opinion.

Q. Which is? A. I suppose you have heard the saying attributed, I think, to Carlyle, that "mankind is made up of 'fools and knaves—maistly fools.'" Maybe you can guess my opinion of the Board from that.

Q. But the "boodle" which Sando acknowledges to have got was only in connection with the £40,000 paid for the Stewart properties. What about the Colby and Abbott deals, and others, for which the remaining £58,863 was paid? Is it known how much Sando pocketed for them? A. Oh, yes! and perhaps it will not be long before all the dirty linen connected with these cases will be washed in court.

Q. It is currently reported here that he netted a proportionate sum by the sale of these properties to the Corporation, which would make the total of his boodle about £50,000. A. I shouldn't wonder.

Q. What do you know of the North Star mine transaction? A. I know that if the shareholders do not take immediate steps to get the control of affairs out of the hands of the present board the consequences will be a burst up. In connection with the super-phosphate scheme I am told they are actually anxious to sign a contract for a long term of years for sulphuric acid at \$7.50 per ton, after their own engineer reporting that they could get all they want at a very much lower figure. At the last general meeting the report of this same engineer was suppressed and his statement of the amount of ore on the dumps at the mines was "cooked" to give it the appearance of showing 3,000 tons of saleable ore, whereas there was only between 600 and 700 tons.

Q. What do you think, after your investigations on the spot, of Sando's great railway scheme, of which Lord Stalbridge says: "The value of which can hardly be overestimated." A. If Sando had to live on the earnings of that railway he would not find it quite such good living as company promoting. Why a railway from Labrador to the North Pole would have as much chance of earning a dividend as would a line of stage coaches. The natural source to look for railway facilities in that district is the Canadian Pacific Railway, who could easily and cheaply extend their Buckingham branch; and the fact that they do not consider any extension necessary at present, is sufficient condemnation of Sando's wild cat scheme.

Q. But you know Sando talks of an annual output from the Corporation properties of 80,000 to 100,000 tons? A. If Sando could show a reasonable prospect of a fraction of that output he would very soon find a railway there; but unless the output from the whole district increases enormously the present system of river navigation can transport the whole of it without any trouble.

Q. To whom is the blame attributed for the unfortunate position of affairs? Are the Canadians blamed much? A. I don't think so, unless for being in collusion with the promoters. I don't think people grudge seeing a man getting the best price he can for his property, so long as everything is square and above board, but when sales are effected by the methods revealed by Sando in court, then it is apt to be designated fraud and usually gets punished.

Q. Then you think it not improbable that Sando, Mallaby-Deeley, Davidson and the rest may be called to a stern reckoning. A. Yes; and the original Board as well.

SANDO'S PIETY.

Q. Do you know Sando personally? A. No; I saw him the other day in Montreal, and a friend wanted to introduce him to me, but I declined. I was told that a conspicuous portion of his luggage is a large Bible, and that he combines street preaching with company promoting and other pious labours.

Q. You don't believe in such combinations? A. I do not. It goes down with some people, however.

Q. It has evidently gone down with the Board of the General Phosphate Corporation. A. Yes. I suppose you occasionally see Labouchere's *Truth*. Well, let me recommend you to invite his co-operation whenever you wish to expose a fraud. He has a particularly keen scent for rogues and imposters, and I should say that this particular case would be one after his own heart.

THE PROSPECTUS FALSE AND MISLEADING.

Q. You have stated that the directors will probably be held liable for the loss; the prospectus must first be shown to contain false and misleading statements, must it not? A. There is no difficulty in showing that; it simply bristles with them.

Q. Have you heard that Mallaby-Deeley boasts that he worked that prospectus so that no shareholder could ever get a hold on the Board? A. Oh, yes! but Mallaby-Deeley, or whatever his name is, will very soon find that he has not been so smart as he imagines.

Q. Do you mind mentioning any of the misleading statements? A. Not at all. Take that paragraph about Sir Wm. E. Logan's report. It reads in the copy I have in my hands, published in the *London Globe*, as follows: "Sir William E. Logan, LL.D., F.G.S., director of the Geological Survey of Canada, in one of his reports to the Canadian Government states: 'Of late years,' etc., etc. Now you know as well as I do that Sir William was not director of the Geological Survey when that prospectus was issued, and for the very sufficient reason that he had been dead a great many years. I call that as false a statement as could be made, besides being clearly intended to mislead. Then they quote from the report, beginning: "Of late years;" which is also clearly intended to convey the impression that the years referred to were, say 1889, 1888, 1887, whereas they were in point of fact the years

prior to his death, which occurred, if I remember rightly, in 1875. Then in that article of yours of May last, which Mr. Crawley circulated among the shareholders, you show how misleading the list of experts given in the prospectus is, but I think you have overlooked a most important point. If you look at the preceding paragraph you will see that the directors after stating that they were entirely unfettered, say they "will be enabled to purchase phosphate properties on the best possible terms. *This they will only do on the advice of 'first-class experts, selected by the directors.'*" Now, there is ample evidence in London to prove that statement false and misleading, but in addition to that, Sando's evidence in "Wills vs. Stewart," is most damning against the directors as showing that unless they considered Sando himself an expert (which he admits he is not, and which, I don't think anybody would dream of calling him), the properties were bought without the advice of any expert whatever. Listen to what Wills' counsel says about the Stewart properties: "The transaction between Stewart and Sando was in reality a fraud upon the General Phosphate Corporation, because the evidence showed that that Corporation was ignorant of the fact that it was paying £40,000 for property which its agent was purchasing for it for £29,000, and that the sale was made directly from Stewart to Sando in order to effect this fraud." Why if an honest disinterested expert had been employed, the Corporation could have acquired for the £15,000 that its issue of debentures cost, much more valuable properties than those it paid £98,000 for. Don't you, as being familiar with this whole district, consider that it could?

Q. Decidedly. Well, I don't think I need ask you to say anything further regarding the prospectus. Have the directors not yet realized what sort of character Sando is? A. Apparently not. You see Lord Stalbridge's circular of July 4th.

EDITOR—Well, Mr. Shield's I have to thank you for speaking so freely and I hope for your sake and for the sake of the other victims of this fraud that the perpetrators will be punished and that you will get your money back. A. Thank you, I have no fear but that we shall. You may say further if you like, that after a most careful investigation into the phosphate industry of Canada, I am of opinion that the General Phosphate Corporation scheme was a good one—not Sando's idea of that scheme—but the scheme described in the prospectus, and if that prospectus appeared to-day I would, knowing what I now know of phosphates subscribe without any hesitation, and I am satisfied that had the company been managed as the prospectus led the shareholders to believe it would be the results would have been perfectly satisfactory in spite of the Florida "boom," depressed trade, or anything else. In that case also, Canada, instead of being the plaything of unscrupulous promoters and guinea pigs, would have been materially benefited and enriched.

Nova Scotia Coal Royalty.

The Government has an innings—Full Text of Attorney-General Longley's Reply to the Contentions of the Petitioners for Disallowance.

HALIFAX, Sept. 28, 1892.

DEAR SIR,—I have carefully considered the Memorial signed by Henry S. Poole and others, which your Deputy has under your directions forwarded to me with an intimation that you would be pleased to have any observations I might see fit to make in reference thereto.

In the first place, it is hardly necessary that I should point out that the management of the mines under the British North America Act is vested exclusively in the Provincial Legislature, and that therefore they have the sole and exclusive right to legislate in reference thereto as long as that legislation does not trench in any way upon the laws which the Parliament of Canada is competent to make. As the Act complained of in this instance is an Act relating solely to the management and control of the mineral interests of Nova Scotia, and is simply a compilation of the Acts already upon the Statute Books, with a few amendments, I certainly am unable to comprehend any reason why a serious proposal should be made to His Excellency the Governor-General to interfere with its operation.

Second: The particular clauses to which objection is made are those relating to the royalties upon coal. It will be scarcely necessary for me to remind you that the royalties upon coal in Nova Scotia constitute the largest source of Provincial revenue outside of the Federal allowance, and therefore any interference on the part of the Federal authorities with the prerogative to obtain revenue from this source would be such a direct and vital interference with the rights of the Province as to make government practically impossible. The whole financial policy of a Province might be based upon the administration of its chief source of revenue, and any attempt to abridge this right might lead to Provincial bankruptcy. The right to raise revenue by direct taxation, of which the mining royalties are a species, is an undoubted right and one which would involve the gravest consequences if interfered with in the slightest degree.

Third: One of the objections is that the Act is made retroactive in its operation. This is very easily explained. The Government of Nova Scotia determined upon the policy of readjusting the coal royalties in the early part of February, and sent notices to that effect in writing to all the coal owners in Nova Scotia. This was a distinct intimation to them that legislation would be introduced

by the Government at the ensuing session fixing the royalty on all coal removed from the mine at ten cents per ton royalty, and they were notified to make their arrangements for the ensuing year accordingly. In the Act, Chapter 3, of the Acts of 1852, and in the Statute Sections 2, 3 and 4, provision is made that in all cases where contracts, either written or of a verbal character, had been entered into prior to the 23rd of February, which was ten days after the notice had been mailed, that the royalty should be paid under the old basis. I think that this removes the suspicion of unfair dealing on the part of the Government with any of the coal owners.

Fourth: The Government might fairly take the ground in relation to this application that—thelegislation complained of being strictly and unquestionably within the legislative rights—it is not called upon to explain, justify or defend the provisions of its measure. Independent legislative authority I interpret to mean the right to legislate without restriction within the compass of its legislative powers. This includes the right to introduce legislation that some people may think wrong. In fact, no Act of Parliament has ever yet been passed that has not met with opposition and adverse criticism from some, and most legislation is denounced by half the population. But I do not think the principle could be entertained for a moment, that the Government or any party should interfere to overrule the rights of the people, which the constitution of the country has vested in any legislative body.

Fifth: Nevertheless as the Memorial alleges breach of faith and an excess of legislative authority, I am quite content to submit for the consideration of His Excellency the Governor General an answer to all these imputations, up to 250,000 tons and 4l. per ton on all quantities over that.

It was also provided that the Province should not allow any other person to mine coal in Nova Scotia at a less royalty or on more favorable terms, and it was also covenanted that the Province should not, without the consent of the Association, impose an export duty on coal. The other conditions of the agreement were by this agreement surrendered and transferred absolutely to the Province of Nova Scotia.

After this agreement was carried into effect the legislature provided that the same royalty should be imposed upon the lessees of other coal mines as were fixed as the maximum rate for the General Mining Association. I have no doubt that the Legislature of Nova Scotia would have had a right at the time to 1856 to have imposed a greater royalty than 6l. per ton upon coal mined at any other than the mines leased to the General Mining Association. But of course it would have been unfair and contrary to public policy to have done so.

The leases which were issued between 1835 and 1886, when all leases were to expire, have contained a condition that the Government reserved its right to alter or revise the royalty after 1856. When August 15th 1856 arrived, as I understand it, the Government of Nova Scotia were at liberty to take exactly the same course in respect to the coal mines of Nova Scotia, and in respect of coal royalties, as they were in a position to take prior to the lease of August 15th, 1856. The Legislature in 1855, made some provision in regard to a change in the amount and mode of reckoning the royalty. It hitherto the 6l. per ton had been imposed upon screened coal, and it was provided that in substitution for this a royalty of seven and one-half cents upon all coal mined should be imposed. The Act of 1855, also provided that all leases renewed in 1856 should contain a provision that the royalty might be increased, diminished, or otherwise changed by the Legislature. There was a notice to all lessees in the Province that not only had the Province a right to absolute control in the amounts of royalties imposed, but that it was explicitly to be understood that it held itself at liberty to exercise this right whenever it chose. The leases were renewed in 1856, and contained this provision. I am told by the Department that some lessees preferred to take their renewal in the form of the original lease which contained the words "subject to the right of the Legislature to revise or amend the royalty after the year 1856." In my view, this form of lease in no degree limits or abridges the absolute and unrestricted power of the Legislature to fix whatever royalties it may see fit at this time.

I have the honor to be,  
(Sgd.) J. W. LONGLEY,  
Atty.-Genl. Nova Scotia.

The Honorable  
Sir J. S. D. Thompson,  
Minister of Justice.

#### RE COAL MINES.

The first grants issued by the Government of Nova Scotia after it became established as a Province reserved nothing in the way of minerals but gold, silver and other precious metals. Later on, about the year 1764, coal was expressly reserved in the old grants and still later, about the year 1808, iron and other minerals were likewise reserved for the crown. For all practical purposes it may be said that the grant of all the mines in Nova Scotia has been reserved in grants issued in the localities where these coal formations are found, so that the right of the Government to impose rentals or royalties on the product of coal is universal.

On the 25th day of August, 1826, the Government of Nova Scotia by Letters Patent to be made by His Majesty King George IV, certain mines and minerals in the Province of Nova Scotia were devised to H. R. H. Frederick Duke of York, for the term of sixty years at the rents and royalties therein mentioned, which rents I believe amounted to £3,000 a year. Subsequently an agreement was entered in, on the 12th day of September, 1826, whereby certain mines and minerals in this Province, which were not included in or were excepted out of the said Letters Patent, were devised to John Budge and others who had received an assignment from the Duke of York of his interests in the lease from this Province.

After a time the Government and parliament of Nova Scotia, became satisfied, from the development of the coal mining industries of this Province, that a great mistake had been made, and a great injustice done the Province in its dealing with the coal interests in valuable deposits for such a limited rental, and efforts began to be made in the legislature to have this improvident arrangement set aside. Negotiations of various kinds were entered into with unsatisfactory results, until in 1853 the Legislature of Nova Scotia passed an Act, the purport of which was that all leases of coal mines that were not being effectively worked should be liable, for the purpose, under which it was proposed to re-acquire the title to all those portions of the coal areas of Nova Scotia that were not being actively and effectively worked by the General Mining Association of England, a body corporate which had acquired the rights of the Duke of York and the other patentees.

In 1857, however, a more direct attempt to get the matter settled was made, and two delegates, the Hon J. W. Johnson and A. G. Archibald were sent from this Province to England, to negotiate a basis of agreement between the Government and the General Mining Association, whereby a more satisfactory arrangement could be entered into. They came to an agreement which was in substance as follows:—

The General Mining Association were to have leases which should extend to August 15th, 1856, the period of time at which the original lease would expire, of three areas in the Island of Cape Breton, one in the County of Pictou and two in the County of Cumberland. Some of these areas embraced several square miles. They were to pay a royalty of 6l. currency per ton on all quantities up to 250,000 tons and 4l. per ton on all quantities over that.

It was also provided that the Province should not allow any other person to mine coal in Nova Scotia at a less royalty or on more favorable terms, and it was also covenanted that the Province should not, without the consent of the Association, impose an export duty on coal. The other conditions of the agreement were by this agreement surrendered and transferred absolutely to the Province of Nova Scotia.

After this agreement was carried into effect the legislature provided that the same royalty should be imposed upon the lessees of other coal mines as were fixed as the maximum rate for the General Mining Association. I have no doubt that the Legislature of Nova Scotia would have had a right at the time to 1856 to have imposed a greater royalty than 6l. per ton upon coal mined at any other than the mines leased to the General Mining Association. But of course it would have been unfair and contrary to public policy to have done so.

The leases which were issued between 1835 and 1886, when all leases were to expire, have contained a condition that the Government reserved its right to alter or revise the royalty after 1856. When August 15th 1856 arrived, as I understand it, the Government of Nova Scotia were at liberty to take exactly the same course in respect to the coal mines of Nova Scotia, and in respect of coal royalties, as they were in a position to take prior to the lease of August 15th, 1856. The Legislature in 1855, made some provision in regard to a change in the amount and mode of reckoning the royalty. It hitherto the 6l. per ton had been imposed upon screened coal, and it was provided that in substitution for this a royalty of seven and one-half cents upon all coal mined should be imposed. The Act of 1855, also provided that all leases renewed in 1856 should contain a provision that the royalty might be increased, diminished, or otherwise changed by the Legislature. There was a notice to all lessees in the Province that not only had the Province a right to absolute control in the amounts of royalties imposed, but that it was explicitly to be understood that it held itself at liberty to exercise this right whenever it chose. The leases were renewed in 1856, and contained this provision. I am told by the Department that some lessees preferred to take their renewal in the form of the original lease which contained the words "subject to the right of the Legislature to revise or amend the royalty after the year 1856." In my view, this form of lease in no degree limits or abridges the absolute and unrestricted power of the Legislature to fix whatever royalties it may see fit at this time.

I have, therefore, to advise that in my view there is no contract or legal obligation existing between any coal lessee and the Government of this Province which prevents the Government and Legislature from increasing, changing or diminishing it, if it chooses, the royalty imposed for coal taken from the mines which belong to the Province.

J. W. LONGLEY,  
Attorney-General.

JANUARY 12th, 1892.

#### [COPY.]

THE GOVERNMENT SUPPORTED BY THE OPINION OF  
MR. W. H. ROSS, Q.C.

HALIFAX, April 18, 1892.

DEAR SIR,—I have your letter of the 16th inst., in respect to the above matter and have to say in reply thereto:—

1. That the rights of lessees of coal mines must be determined by the Statutes of the Province of Nova Scotia and the leases made under them. This follows from the transactions between the Province of Nova Scotia and the assigns of the Duke of York and others, in 1857, and Chp. 1 of 1855, which gave effect, so far as this Pro-

vince was concerned, to these transactions. I do not think it necessary to refer to these transactions, which are set out in the *Journal of the House of Assembly for 1858*, but will proceed to examine the leases made in 1858, and afterwards, together with the Statutes of the Province, with the view only of determining the questions put to me.

2. The lease made to the General Mining Association in 1858, and to others then and since, up to Aug. 15, 1886, contained no covenant or provision for a renewal thereof. If then such lessees have any right of renewal, it must be by Statute. I am of opinion that the right of the lessees where leases terminated in August, 1858, and these included all leases then extant) are to be determined by Sec. 105, of Chap. 7, R. S., 5th series. I am not aware of any Statute passed between 1858 and 1886 that gave to any lessee of a coal mine a right to a renewal that would not be displaced by Chap. 7.

Under Section 105, of Chap. 7, I am of opinion that the Commissioner of Mines might have, in August, 1886, issued leases to the lessees herein named, containing "terms, conditions and covenants as contained in the original lease," except in so far as these might be inconsistent with any Statute then in force, including Chap. 7 itself. It must be borne in mind that the Legislature was by that Statute bestowing a privilege that these lessees had no right to demand, and was virtually saying: "If you had no lease as provided for, we will give you a renewal of your old lease on the terms and conditions therein contained, or (b) instead thereof we will give you a renewal with such terms as we may see fit to provide by this or any other Statute."

If a lessee obtained a lease under either one or the other of these alternatives, the Statute would be complied with, and there would be no complaint to be made by the lessee who can say, "I must have this or that as I choose. On the contrary, it is the Crown or Legislature who says, I will give you this or that—not both, but either one or the other, and when I have given you one of the two, there is an end of the matter. In other words, the Statute must be read from the standpoint of the owner of the land, and not from that of the lessee. It is not in another and more strictly correct way, Chap. 7, Sec. 105 is a direction to the Commissioner of Mines to do the one or the other. He has done one of the two, and therefore has complied with the Statute.

3. This clears the way for answering your questions. I understand that in some of the leases granted after 1856, the following clause will be found: "Provided, also, that if the Legislature shall hereafter alter or amend the royalty imposed by these presents in or after the year 1856 as they may think fit, and in others it will not. In my opinion it makes no difference whether they do or not. As I have already said, the Commissioner would be bound by the Statutes in existence in August, 1856, when these leases terminated."

I have, I am instructed that lessees were granted containing the clause provided for in Chap. 4, of 1855, Sec. 4: "All leases of coal mines issued after the passing of this Act, shall contain a provision that the royalties may be increased, diminished or otherwise changed by the Legislature," and that several leases were granted containing the provision on the same subject which the lessees referred to above, granted before that clause was inserted. I am of opinion that these provisions mean exactly the same thing, viz: We reserve the right in 1856, or at any time after, to alter the royalty as we see fit. The word "alter" covers "increase" as well as "decrease." It means to "change." It would be difficult to make the provision wider than "to change as you please."

It can be supposed an ordinary lease reserving a quarterly rent of \$100, with a provision that the landlord might alter the rent at any time after a particular year, as he saw fit. It cannot be argued that he would not have a perfect right to make the rent such sum as he chose at any time after the time named. The whole case turns on Sec. 105, of Chap. 7, R. S. If my view of this is correct, there is nothing to argue.

I have to say to your first question "Yes," and to the second "No."

Yours truly,  
The Attorney-General, (Sd.) W. B. Ross.  
Provincial Building.

**Stopping Back Water by Brick Dams.**—An account is given by Mr. J. H. Allen of a brick dam constructed by the Millfield Mould pit, for stopping back a large feeder of water. During the sinking of the pit a heavy amount of water came from the river through an open-jointed rock, and had to be tubbed out. Coal was met at a depth of 357 feet, or 110 feet below the Ordnance datum; and on driving towards the river, two up-throw faults raised the coal 70 feet. These were cut through by a stone drift rising to the surface. The coal workings continued to a distance of 200 yards from the pit-bottom. It was then found that a very large amount of water was coming through a stratum of 2 inches of soft dirt below the coal, and flowing down to the pit, where it had to be pumped from a depth of 200 yards. Brick dams were accordingly put both in the intake and return drifts. The dam in the intake was 12½ feet wide by 7½ feet high, and six courses of bricks in thickness with 1 inch of cement between each course. The dam in the return was somewhat smaller. The floor, roof and sides, were cut back 15 inches, and a six feet length of arching was placed on the outlay side of the intake dam as the roof was weak. In ten days the pressure reduced to 105 pounds per square inch, but the drifts had returned to their right. The cost of the two dams was 70 pounds sterling. (Transactions of the Federated Institution of Mining Engineers, vol. 3, 132-138.)



**On the Distribution of Coal in the Dominion of Canada.\***

When nature deposited coal upon the continent of North America, she distributed the mineral regardless of the territorial distribution of rival nations. We are thus presented with the anomaly of an Ontario supplied with fuel from Tennessee and certain of the border states of the American Union in a curious juxtaposition to the fuel of Canada, with which the American mineral can scarcely hope to compete. Going westward from the sea, the first coal encountered is the immense deposit generally known as the coalfields of Great Britain, where some 200,000,000 tons lie dormant. This district is the natural basin and source of supply for the New England States, which possess a magnificent market for 60,000,000 tons per annum, large portions of Nova Scotia and the neighboring province of New Brunswick, and practically the whole of the great Catholic province of Quebec, but owing to political restrictions the two latter form the most important sources of demand. Crossing the island we next encounter the fringe of that which appears to be a submerged coalfield, resting in the belt of the St. Lawrence, the Rocks of Prince Edward Island and the Gulf shores of New Brunswick, where we discover really valuable deposits of coal, presumably of a quality equal to that from the Sydney seams themselves. The province of New Brunswick has not attained to great importance as a mining region, although a very great part of its area is unclaimed by any measures, and many of the economic metals, &c., are known to exist. The coal formation occupies a triangular area, the base of which rests upon the Gulf of St. Lawrence, extending from the town of Bathurst on the north to the frontier of Nova Scotia on the east, the apex representing upon Oronecto Lake, the north-western margin trending thence to Bathurst, the south-western approaching the shore of the Bay of Fundy containing a coal varying in thickness from 20 in to 4 ft of good clear coal, reposing at inconsiderable depths and favorably situate for market. The entire country is, however, so undeveloped with respect to settlement, industries, &c., and so proximate to the mines of Nova Scotia and Cape Breton, that very little actual exploitation of the productive measures has taken place. Thence into the North-West Territories, the coal is of the best quality, although inclusive, in the wide interval, of the densely-peopled Ontario, the home of industries, factories, mills, &c., of every description, and famous in its more northern portions as one of the richest metalliferous regions of the continent. The North-West Territories of Canada are in parts richly carboniferous, and so abundantly supplied with majestic streams that an equitable distribution of fuel among the cities and towns of the fertile prairies is readily ensured. Furthermore, as remarked at the outset, the border states of the American Union cannot ignore the coal of the north, and I venture to prophesy that, at no very distant period, Alberta or Saskatchewan coal will be as familiar as "Hastings Hanley" or "Wallend" is to the average Londoner. The intervals between the territories and the Pacific provinces of British Columbia is filled by the Rocky Mountains, themselves, in parts, richly carboniferous, and the adjoining low lands are amply supplied with fuel from the coalfields of Vancouver and Conow. Notwithstanding her coal deposits, Canada still imports more coal than she exports. During the fiscal year ending 30th June 1891, some 1,590,000 tons of bituminous and some 1,399,067 tons of anthracite coal were entered for home consumption in the Dominion, in spite of a prohibitive tariff of 25.64 per ton on the bituminous article, from the following countries:—

Bituminous Coal.		Tons.
Great Britain	.....	36,087
Australia	.....	10
St. Pierre	.....	5
United States	.....	1,562,753
Distributed thus:—		
Ontario	.....	1,510,411
Quebec	.....	72,580
Nova Scotia	.....	23
New Brunswick	.....	4,491
Manitola	.....	9,788
British Columbia	.....	1,098
North-West Territories	.....	159
Anthracite Coal.		Tons.
United States	.....	1,399,067
Distributed thus:—		
Ontario	.....	931,463
Quebec	.....	375,615
Nova Scotia	.....	35,146
New Brunswick	.....	50,375
Manitola	.....	6,224
British Columbia	.....	1
Prince Edward Island	.....	2,243
Colt.		Tons.
Great Britain	.....	648
United States	.....	37,885
Distributed thus:—		
Ontario	.....	32,375
Quebec	.....	4,993
New Brunswick	.....	8
Manitola	.....	215
British Columbia	.....	1,032

\*Special Correspondence of the Calgary Guardian.

During that period the Dominion exported as the produce of her coal mines 833,684 tons of bituminous coal from following provinces:

	Tons.
Nova Scotia	..... 183,540
New Brunswick	..... 37
British Columbia	..... 647,308
North-West Territories	..... 2,232
Ontario (coal stores)	..... 2,368
The foregoing was distributed over the following markets:—	
Great Britain	..... 26,000
British Guiana	..... 1,191
British West Indies	..... 5,421
Australia	..... 2,104
Hong Kong	..... 2,410
Newfoundland	..... 73,397
France	..... 725
Germany	..... 760
Japan	..... 1,166
Mexico	..... 4,947
St. Pierre	..... 7,226
Sandwich Islands	..... 12,266
Spanish West Indies	..... 4,326
United States	..... 692,705

Coal to the United States from New Brunswick, 7 tons.

As freckly forms with us in Britain an important item in the list of imports and exports, I append a list of imports and exports, from which we observe that the Canadian beds, which often form the floors of the coal seams, are largely neglected—neglected, I may add, to the detriment of general prosperity in the mining regions, where surplus labor, instead of being actively engaged in such remunerative pursuits as the clay would afford, gradually drains off into the United States, or the more westerly portions of the Dominion. I have never hesitated to deplore to the mining populace this unnecessary neglect of golden opportunities and can certainly affirm that the miners themselves are alive to what might be accomplished in this direction. The secret of the whole matter, however, is the protection afforded to the coal operators by a prohibitive tariff upon foreign coal, a precaution requisite for the prosperity of the native industry at its inception, but quite unnecessary when such has attained maturity, inasmuch as it has created a monopoly to the advantage of the few, who in a rapid and considerable increase of wealth, remain indifferent to other sources of wealth, which form the basis of the general prosperity of so many.

During the fiscal year ending June 30, 1891, the Dominion imported \$24,828 worth of unmanufactured freckly from the following countries in the following proportions of value:—

Great Britain	..... say	£1,200
Germany	.....	100
United States	.....	3,680
Distributed thus in proportion of value:—		
Ontario	..... say	£1,200
Quebec	.....	3,200
Nova Scotia	.....	140
New Brunswick	.....	200
Manitola	.....	5
British Columbia	.....	220
Prince Edward Island	.....	8

And exported none whatever. It should be added that these importations of clay are free of duty.

A perusal of the foregoing statistics reveals that Canada draws large supplies of fuel and freckly from the United States. In the case of anthracite, this is perhaps excusable, for the native deposits are perhaps too remote for extensive exploitations at present, but in respect of bituminous coals and clays, manufactured or crude, I venture to state that Canada is not sufficiently in earnest. No country possesses a more superior system of waterways. From the Straits of Belle Isle to the head of Lake Superior—a distance of 2,384 miles, 72 of which are canal exclusive of the great industrial centres of Ontario—are vast aqueous highways, tempting to enterprise in the inter-colonial exportation of coal, and little doubt can be entertained that if the Canadian operators would combine in an earnest effort to drive off their rivals, the native industries would experience renewed prosperity, and in the inception of industries not now indigenous to the Dominion important classes of the community would materially improve their condition.

**MINING NOTES.**

[FROM OUR OWN CORRESPONDENTS.]

**Nova Scotia.  
Caribou District.**

Later development on the new strike found in the Lake Iode on the property of the Truro Gold Mining Co., show a definite pit chute of very rich quartz, estimated at 50 ounces to the ton. This chute averages ten to twelve inches in thickness, and its breadth has not yet been determined. East and west of the chute the quartz is averaging better than in the upper workings.

The management have stopped underground work temporarily until the old boiler has been reset, and until a new engine can be placed.

**Darr's Hill.**

The last month's work on the lode found in the North Cross-cut has shown the quartz to be gaining in richness. The quartz from the old vein maintains its usual character and grade.

**Country Harbor.**

Work on the Copeland mine continues uninterruptedly with the usual grade of ore. The deepest workings are yet above the 100 feet level, and the supply of milling ore in sight is very large.

The Country Harbor Gold Mining Co. is about to resume work.

**Goldenville.**

Latest advices from this district report work slack. The operations on the "Alexandria" are to be suspended for the winter, and it is not probable that much, if any, quartz will be raised during the balance of the year.

**Malaga.**

Times in this once "booming" district were becoming dull, until recently. The Boston Gold Mining Co. are, however, meeting with encouraging results in their development work.

The output of the Molega Co. has been somewhat reduced the last few months owing to the diminished output from the Kabloi lode, but rumor says that Mr. Wade, the superintendent, has recently opened a new vein which promises well on development.

The plant of the Parker-Douglas Co. is to be sold in December.

**Montagu.**

The Salisbury Co. is erecting a five stamp mill, made from what is known as the "Nisseu" patterns. The Windsor Foundry will supply the iron work, and Mr. Nisseu himself is superintending the erection. None of the machinery has yet been delivered and the mill will not be in commission this year.

This experiment of the Salisbury Co., in trying a new type of mortar will be watched with interest, as the old type of Nisseu mortar, used in Killag, was not an unequivocal success. It is understood, however, that Mr. Nisseu has modified his designs.

Several changes have been made in the personnel of the staff at the mines of "the Nova Scotia Gold Mines, Limited," and "the Symons-Kaye Syndicate, Limited." Mr. Lucius J. Boyd has been transferred to the Symons-Kaye property, and with him has gone Mr. McQuarrie. Mr. Thomas, a young Cornish engineer, has been put in charge of the New Allison or Annual mine, vice Mr. Boyd. Mr. Thomas' previous experience has not enticed gold mining in any of its branches, being chiefly in tin and copper.

Mr. Woodhouse has sailed for England to endeavor to promote a sale there.

**Oldham.**

The Napier Mining Co., Limited, has put in a small steam plant for pumping and hoisting, and prospecting work will be carried on the 100ft. level all winter.

The Rhoads Island Co.'s shaft is going down slowly, and no improvement in the character of the lode is discernible. This company has been operating for eleven months, and in that time have met with no quartz that it has thought good enough to warrant milling.

**Waverly.**

On the 14th November the miners working in the East Waverly Tunnel blew off a slice of quartz exposing the "Barrel Lode," which has been the objective point of the tunnel. At date of writing no gold had been seen, as the lode had only been stripped and not taken down. The result of this work will probably be a substantial addition to the list of gold producers for 1893.

Rumors have been circulated that the lessee of the LakeView property would resume mining work this winter, but this rumour is discredited by parties acquainted with the property.

**Quebec.**

**Gatineau District.**

The Foley lot in the 11th range of Hull has shut down indefinitely, owing to injunction issued by the Lake Girard Mica Syndicate. About 25 tons of mica were taken out in a short time and the shows look well in the three pits opened. Two guardians are holding the mine down day and night in case the other fellows may carry it off.

The Nellie and Blanche mine is turning out a good quantity of large crystals, 45 men and 4 teams being employed. The Lake Girard Mine is being worked as usual, about 50 hands and 6 teams are employed.

The Horse Shoe Mine is turning out about 25 tons "colled" mica monthly, 42 men and 3 team being kept steadily at work since the spring.

The Lake Girard Mica System are now operating six mines on the Gatineau and one in Templeton, and in their cutting house in Ottawa employ 45 hands.

**Templeton District.**

Judge Dugas, Mica property on the 18th Range, has shut down for the winter. The output of mica, about 20 tons, has been shipped to Montreal.

The owners of the Lake Girard Mica Syndicate are erecting buildings on their property lately purchased from Mr. Hutchins, the Murphy Estate. About 25 men are employed.

The Blackburn mines are still working a small gang of 25 hands in the old pit.

The Templeton Asbestos Company are working 8 or 9 men.

L. K. Lee is still working 5 men on Lot 4 in the 9th Range. The deposits of mica are very large, but the crystals are considerably cut up and contorted.

Geo. Wallingford has disposed of his half interest in his lease of the Stevenson-Hotchkins lot in the 8th Range for \$1,300. The lease has only 6 months to run, and owing to Stevenson's injunction the property cannot be worked for a year at least.

**Beauce District.**

Mr. E. B. Haycock, has a force of some fifteen men opening out his gold property on the Du Loup. Besides working the alluvial gravels a tunnel is being driven to tap some promising quartz lodes exposed on the bank of the river. The small prospecting mill and concentrator from the works of Fraser & Chalmers, Chicago, has arrived and will soon be in working order.

**Black Lake District.**

The Glasgow and Montreal Asbestos Company has shut down for the winter. It is not unlikely that a similar course will be adopted by the Anglo-Canadian and United Companies. Messrs. King Bros., will, however, continue the development on their property. Manager Evans (King Bros.) is driving a tunnel at present which is expected to give a good workable area of asbestos ground.

It is reported that Mr. L. A. Keen, the popular manager of the American Asbestos Company will shortly leave for England to attend the annual meeting of his company.

**Ontario.**

**Hastings District.**

Under the management of Mr. G. McDougall, the Crescent Gold Mining Company of Marmora, has a force of between 30 and 40 men employed. "A" shaft is down 92 feet; "B" 45 feet; and "C" 81 feet. The 10 stamp mill is reported to be running on good pay quartz.

Work is being rapidly pushed forward on the property of the Belmont Gold Company, recently acquired by Mr. Middleton Crawford, of Toronto. In a letter under date of 10th we are advised: "Mr. Crawford took over the property on the 7th October. On the 11th he broke ground for the foundation of his mill; in four or five days from that date he had his boiler and engine in place and steam up, and just four weeks from date of commencement of mill, he had one Crawford mill in operation working on ore. It is generally conceded that this breaks the record for Ontario and it is especially commendable, when it is considered that the time of purchase he had not one piece of machinery purchased. He got it all from Toronto and elsewhere, and to-day has one of the handiest and best equipped mills in the Dominion capable of treating at a low estimate, 30 tons of ore per day. The main shaft is down 115 feet and the ore at bottom is rich carrying a large percentage of sulphurets. Work has been started on other portions of the property with very gratifying prospects and the probability is that this property will prove one of the best paying in the country."

**Sudbury.**

The smelter at the Copper Cliff mine has been closed down temporarily for repairs. The steel water-jacket smelters used at most of the mines here generally need more or less patching up after being in operation from six to twelve months, and in this way they are made to last about two years. There is no other kind of furnace of the same cost that can do as much work.

The monster rock-house at the Stobie mine is nearly completed. It is an unusually fine building for this purpose, and reflects a great deal of credit on Mr. Ritchie (not the father of nickel mining here, but a builder of the same name), who planned and framed it. The company is evidently preparing for more extensive mining operations in the future.

At the Davis mine about twenty men are employed in putting up a shaft-house and an engine house. It is expected that the machinery will be set up by the middle of December, when the work of sinking the main test shaft to a depth of 200 feet will be carried on through the winter by power drilling. A good wagon road has been made from the property to the Blizard Mine.

Down the branch, the Worthington mine has the unfinished roast heap from last year when work was suspended, almost ready to be ignited, and after that the ore will be shipped to the Blizard mine in its raw state. The Travers mine is getting into good working shape. The sanitary arrangements at this mine are much better than at any of the other mines on the Range. The boarding houses and other dwellings are built on a beautiful side hill some distance from the mine, with natural drainage and an abundant supply of good water. There is altogether too much typhoid and other filthy diseases at some of the mines here.

**Sault Ste. Marie District.**

The Ophir Gold Mine, situated about 15 miles back from Bruce Mines, on the Algoma branch of the C.P.R., has been purchased by Duluth, Minn., capitalists, who are at present employing ten or fifteen men in opening up the mine and have also some thirty-five or forty men putting up buildings for use of men and staff.

**British Columbia.**

**West Kootenay.**

Mr. F. A. Bochtolfsky, who has just returned from the Kootenay county, says that he thinks it is one of the best and richest mining districts on the continent. The most curious thing to Mr. Bochtolfsky is that people do not believe how rich the country is. Of course, those who are there are compelled to believe it, seeing the richness of the land for themselves. The growth of wheat keeps on, and next spring times will be good and business brisk. Nelson, the Lardeau and the Slocan country will also experience a busy time. The richest mines so far have been found in the Slocan and Lardeau countries, which are directly tributary to Kaslo City.

The Kootenay and Columbia Propecting and Mining Co. are in receipt of the smelter returns on their sample parcels of ore from the Wellington mine, near Kaslo, B.C. The following are the results as received from the United Smelting and Refining Co. Smelter, Montana:—

*No. 1—2,939 lbs. Ore.*

Lead, per cwt.	22.5,	value per ton	\$ 15.59
Silver, per ounce,	347.	95% .....	280.20
Gold, "	11.	.....	2.09
Total value per ton	.....		\$297.88
Smelting costs	.....		\$22.00
Freight	.....		14.95
			36.95

Net proceeds, 2939 lbs. = \$397.35

*No. 2, 2,052 lbs. Ore.*

Lead, per cwt.	63.3,	value per ton	\$ 43.87
Silver, per ounce,	240.2,	.....	198.80
			\$242.67
Smelting costs	.....		\$ 23.50
Freight	.....		9.33
			32.83

Net proceeds, 2052 lbs. = \$309.84

*No. 3, 3,705 lbs. Ore.*

Lead, per cwt.	60.2,	value per ton	\$ 41.72
Silver, per ounce,	242.6,	.....	195.90
			\$237.62
Smelting costs	.....		23.00
			\$214.62
Less freight	.....		16.85
			\$197.77

**Net proceeds, \$351.05.**

Settlement based on New York quotations of silver	.....	\$5.
Lead	.....	3.85

A shipment of a similar quantity of ore to smelter at Tacoma has not yet been reported on. The owners report themselves satisfied with their investment. A Diamond drill and sectional boiler for same has been shipped with the object of testing the claim at greater depth.

Capt. R. C. Adams, of the Anglo-Canadian Phosphate Company, has returned to Montreal after a two months' visit to the mining camps of the Kootenay where he and other capitalists have made investments during the summer. Referring to recent discoveries in the Slocan Camp, Adams says: A number of claims had been opened up this season and transport was made by pack trains to Arrow Lake, 40 miles distant. The average assay was 150 ounces of silver ore to the ton, although they get all the way from 5,000 to 6,000 ounces from single specimens. He had brought home average samples which had realized 475 ounces, while single samples had produced at the rate of 1275 ounces to the ton. Capt. Adams says that although the mining industry is but in its infancy in British Columbia, the possibilities of the future are simply boundless.

"The Kootenay Lake Reduction Company have their works located on Pilot Bay, which is really the centre of the district. There is a splendid wharf and the most favorable surroundings. There are 900 feet of wharves in connection with the smelter, and the company have now erected a nine-roomed office building containing fire proof vaults and an assay office, 25x50, with a wing 25x25. These are in brick and iron, and are very substantial. There are also a warehouse, 35x65 feet, a blacksmith shop, 24x40 feet, a carpenter shop, 24x50 feet, two storerooms, a boiler house, 48x50 feet, and the smelter building, 60x68 feet. The smelting works are 98x128 feet, and the calcining furnaces are located in a building 98x170 feet. The boarding house is three stories and a basement, and will accommodate about 100 men; everything about it is in good shape. There is also now in process of erection a refinery, which will be 120x245 feet. This will contain all the most improved equipment. The company will make all its brick, having four brick drying houses, 20x50 feet each. The smelter will have room for three 100 ton stacks, and though but one will be built to commence with, everything is so arranged that the capacity can be increased with but little trouble when occasion demands.

**East Kootenay.**

The Coal Hill Kamloops Mineral and Mitinging Company, limited, has begun mining coal near Mr. Guerin's ranch, 2 1/2 miles south of this town, under the superintendency of Major Vaughan. The drift of the mine is in about 110 feet and the coal has vastly improved and the quantity increased. A load of it is being burned in the Grand Pacific Hotel stoves.

Mr. Brackman, of the firm of Brackman & Kerr, has just returned from a trip into the East Kootenay district.

The visit was to the Thunder Hill property. Mr. Brackman was asked regarding the general outlook in the region he has just been through. "The prospects are good," said he, "though just at present matters are slowing down for the winter. The work on the Thunder Hill is still going on, but the machinery will not be in place for some time. This is owing to the fact that the river has lowered to such an extent that vessels no longer land their freight at the mine. This has caused the different parts to be left at points along the river, and it will be necessary to wait until the snow falls and then bring the material on sledges.

"There has been put up a building 35x70 feet in which the men can continue work all winter. The new mill will have a capacity of 50 tons per day, and is so arranged that this can be doubled at any time and with but little additional cost. It will be some time in the spring before the mill is in shape to receive ore. When it is the entire country around Thunder Hill will go ahead rapidly. There are great numbers of good low grade properties in this section. These cannot be worked to advantage, but when their product can be concentrated to high grade results these properties will be opened up, and I have no doubt but that the results will be good.

"The whole country is full of medium and low grades, and there should be a thousand men employed in this section during the coming year."

**Vancouver Island.**

It may not be generally known that for many months past weekly shipments of fire clay have been over the E. & N. Railway to the H. C. Pottery and Terra Cotta Co., Victoria. The shipments have been made from the N.V.C. Co.'s Northfield mine. The fire clay is used in the manufacture of sanitary tiles and fire brick. The fire brick made of this clay have been submitted to very severe tests and are proved to be superior in every respect to those imported from England. The Pottery Company deserve credit for their pluck and enterprise and it is gratifying to know that Nanaimo can supply in abundance the material that they have been the first to utilize.

We are assured that the N.V.C. Co. possess, besides the fire clay found at Northfield, equally good clay in the Protection Shaft and in the slope they are opening in their Harwood property.

The shipments of coal from the Port of Nanaimo for October amounted to 51,748 tons, an increase of 6,427 tons over September. The New Vancouver Coal Company's shipments for this month are larger than last, by 1,764 tons. The Wellington Colliery's increase is 3,742 tons and that of East Wellington is 224 tons.

The Union Colliery at Comox, which has been shut down for some time, is to reopen, so says President Dunsmuir. Later advices report that the men have started work.

During the month a miner named John Freer sustained serious injury to his back by a fall of timber in the East Wellington colliery.

The Nanaimo Free Press in refuting some inaccuracies in an American paper gives some interesting figures of the earnings of the collier and coal operator at Nanaimo: "First, \$2.50 is not the average daily pay for the miners,

for the general average in the No. 1 Shaft of the New Vancouver Coal Company, to which the item directly refers, is over \$3 per diem. The second, and most serious mis-statement, is that the Company makes \$40 out of each miner for every day he works. The average amount of coal mined for each working miner is about four tons per day. For this four tons the Company pay to the miner \$3.20. Then in addition there is the expense of the shot-lighters, engineers, firemen, pushers, overmen, bracticers, tracklayers, etc., in and around the mine, to be added to the amount paid the miner before the coal reaches the surface. Then comes the expense of transportation to the wharves and shipping. Then in addition to this if the coal is sent to the principal markets in California, freight at \$2 per ton, duty 75 cents per ton, insurance 16 cents per ton, and many other incidental expenses. In addition to these is the money expended in purchasing coal property, sinking shafts, erecting engines, constructing railways, purchasing locomotives, etc., etc., and yet the gross total received for those four tons at San Francisco will not in the present market exceed \$24. It will be apparent at a glance therefore that the Company could not receive the \$40 gross for the daily product for each miner but \$24, out of which have to be taken the heavy and innumerable expenses incident to coal mining. If the Company made \$40 per day out of the product of each miner as they have, say 500 actual miners getting coal, that would mean a clean profit of \$20,000 per day, 300 days in the year, \$6,000,000 a year. We fancy we see Mr. Robins, the Superintendent, smiling on reading these figures, and thinking what a world of anxiety it would take from his shoulders if he could show such a profit at the end of the year. To give our Pythian contemporary an idea of the profits of coal mining to the Company which he directly alludes, we will repeat what is a matter of history. The Vancouver Coal Company have had their present estate over thirty years, and have operated the coal mines, to a greater or less extent, during those three decades, and we are within the mark when stating that the shareholders have not received an average of 2½ per cent per annum interest on the money they invested. Quite a different result to the \$6,000,000 per annum as shown by our contemporary's figures.

An electric pump will shortly be erected and put in use in No. 5 shaft of the Wellington Colliery. The pump was brought out from England to be used in the Union mine, but was never erected there.

An improved Shepherd Coal Washer, capable of washing 350 tons of coal a day, now at Wellington, is to be sent up to Union, where it will be erected for use when mines re-open.

By an explosion of powder eight men were more or less injured the other day in No. 1 shaft, Nanaimo Colliery. The men were on the morning shift riding in to their places in two box cars, drawn by the electric motor, when, by some mischance the lid of a powder can belonging to the men in the first car came off, and the powder pouring on to a lighted lamp exploded. One of men it is feared will lose his eyesight.

The necessary pumping machinery having arrived, the work up the Departure Bay shaft of the Wellington collieries has been resumed under the superintendence of Mr. Haggart. It will be remembered that some few months ago this work was stopped owing to the inflow of water being greater than the existing pumping appliances could control. It is expected, however, that the new machinery will be found fully equal to the task.

Since our last brief notice of the operations of the New Vancouver Coal Mining and Land Company, on Protection Island, the erection of the pithead has been completed, the ropes wound on the drums of the large engine and the cages placed in position, the work of placing the guides in the shaft is also completed and with a few further fittings everything will be in readiness to resume work on Monday next. We understand that it is the company's intention to open out both seams simultaneously at first, and for some time to come this will consist mainly of drift work, straightening out the approaches of the pit bottom, water lodgment, etc. Probably a little over 100 tons daily will be the output from this shaft at first. It will be gradually increased as the works are extended. This coal will have to be binned on the ground until wharves are erected. We are informed the company will start this work next week. The line of the wharf will be carried out about 800 feet to deep water, from a straight line from the shaft, at a slight up-grade at first and afterwards at a slight down-grade to the loading chute. At first ships will lie at the end of the wharf, but later, additions will be made which shall allow two ships to lie on each side of the wharf, and so avoid the hauling off that now takes place at the Nanaimo wharves. With the facilities the company now have at San Francisco, with rapid discharge of steam colliers, in order to make the most of this class of craft, they will erect bunkers and a separate wharf where steamships of large tonnage can be loaded in a few hours if required. Thorough tests have been made in San Francisco of the few hundred tons of the lower seam coal that were shipped to that market a few weeks since with results highly satisfactory to the management and to the agents who will have the handling of this new product in that market. Until the completion of the wharf none of the upper seam coal will be drawn from Protection Island

shaft, except what will be dug from the drift around the pit bottom. The coal in the No. 1 level, which extends already several hundred yards across Protection Island, will still be drawn out by the electric motors from the No. 1 or Esplanade shaft. We may mention that the two electric locomotives continue to do good work in the No. 1 level and arrangements have been made with the Edison Company to supply a third locomotive of equal capacity, but with certain modifications of the gearing. The motor is intended to be placed in the No. 3 level, using the small locomotive intended for that level, also in the No. 1 level, through which the great bulk of coal coming from the mine is now being drawn. It is safe to say that when the Protection Island shaft is opened out and the No. 3 level carried on through very fine coal, found on the Protection Island side of the fault recently passed through, the company will be in a position to largely increase the output should the market show the improvement we have so long been looking for.

## CANADIAN COMPANIES.

**North American Mining Co. (Ltd.)**—Has been incorporated under the Quebec Act, for the purpose of carrying on a general mining business in the Province of Quebec. Capital stock, \$200,000, divided into 2,000 shares of \$100 each. The incorporators are as follows: Alphonse Bayard, civil employee, Cote de la Visitation; Arthur Yale, superintendent of East End abattoirs, of the same place; Ferdinand Bayard, butcher, Montreal; Alfred Montreuil, butcher, Montreal; Guillaume Narcisse Ducharme, manager of the Bank Jacques Cartier, Montreal.

**New Rockland Slate Co. (Ltd.)**—This company having obtained a separate municipal council for the buildings and property of the company, and separate from that of the township, is petitioning to obtain authority to publish, in English only, all notices, by-laws or resolutions made or passed by said council.

**The Ditton Gold Mining Co. (Ltd.)**—Gives notice of application under the Dominion Statutes for incorporation, with the purpose of acquiring and working mineral lands in any or all of the Provinces and Territories of the Dominion of Canada. Head office, Toronto, Ont. Capital, \$500,000, in 50,000 of ten dollars each. The applicants are as follows: John S. Monahan, mining broker, Toronto; Clarence J. McCuaig, estate agent, Toronto; Arthur S. Thompson, mining broker, Toronto; Franklin M. Gray, barrister, Toronto; John Alfred McAndrew, barrister, Toronto.

**The Walton Gold Mining Co. (Ltd.)**—Will apply to the Legislative Assembly of New Brunswick for incorporation, with the object of purchasing and leasing lands in the Province of Nova Scotia, and of searching, digging and mining for gold and other metals and minerals therein, and crushing the ore and selling the same, etc. Capital, \$20,000, in 20,000 shares of one dollar each. Head office is to be at the Parish of Rothesay, King's County, N.B. The applicants are as follows: Abraham Walton, miner, Shubenacadie, N.S.; John Fenwick Fraser, gentleman, Rothesay, N.B.; Frank Pitfield, accountant, St. John, N.B.; George Forbes, telegraph operator, Shubenacadie, N.S.; Wesley Van Wart, barrister, Fredericton, N.B.; Louis Green, tobacconist, St. John, N.B.

**The Consumers' Natural Gas Co. of Dunnville, (Ltd.)**—Give notice that application will be made under the Ontario Act for incorporation, to supply natural gas for light heat or power. Head office, Village of Dunnville, Ont. Capital, \$4,000, in 80 shares of \$50 each. The applicants are as follows: Hugh Asher, Frederick Schalfeld, J. H. Michener, Wm. G. Scott, Jeremiah G. Winslow, James A. McIndoe, Charles W. Winslow, James F. Macdonald, all of the Village of Dunnville, Ont.

**The Toronto Nickel Co. (Ltd.)**—Give notice that application will be made under the Ontario Act for incorporation to explore for, mine and reduce, buy and sell, gold, silver, nickel, copper, iron, lead and other ores and metals, and the by-products of such minerals and ores, &c., &c., and to carry on a general mining, milling, reducing, and refining business. Head office, Toronto. Capital, \$300,000, in 3,000 shares of \$100 each. The applicants are: Arthur Kitson, engineer, Philadelphia, Pa.; Dr. George Strawbridge, oculist, of the same place; William C. Scott, attorney-at-law, of the same place; Alex. Keith, merchant, Toronto; and Frank B. Allan, gentleman, of the same place.

## Notes on the Steel and Pig Iron Industries of Nova Scotia.

The centre—perhaps the exclusive steel-producing district—of Canada is in the village of Trenton, one mile from the town of New Glasgow, 105 miles from Halifax, in the heart of the iron lands and coal fields of Nova Scotia proper, where the Nova Scotia Forge Company, 1872, and the Nova Scotia Steel Company Limited, 1882, amalgamated, 1889, into the Nova Scotia Steel and Forge Company Limited, capital £200,000, divided into 5,000

8 per cent. cumulative preference shares of £20 each, and 5,000 ordinary shares of £20 each, is at the moment performing labour at once of eminent national importance and of great moment to the steel-masters of Britain, who, in the rise of this native industry, are yet more impoverished, restricted and handicapped than ever. Since its inception, this company has experienced unbroken success, and, in spite of inexperience, now discovers that the works are too small to meet the increase of demand, whereupon steps have been taken to enlarge the mills, and a machine shop, 175 ft. by 170 ft., is being erected to receive some heavy tools, inclusive of a lathe 46 feet long, swinging 112 in. between the centres, for heavy marine work, and a 24 in. slotting machine, for crank shafts. In addition, a new 350 ft. by 120 ft. rolling mill is in construction in connection with the steel plant. The buildings now cover some four acres of land, holding 450 operatives, and admirably equipped with powerful plant, at which I am constrained to express high, although not eulogistic, approval. The Siemens-Martin process here turns out cogging rolls up to 26 in. diameter, steel billets, heavy railway and marine forgings, machinery steel, carriage tiers, sleigh shoes, steel sections, angles, channels, plan beams, fish plates, mould boards, land sides, harrow teeth, cultivator teeth, shaftings, steel bars, springs, &c., which are distributed all over the Dominion of Canada, in New Brunswick, Quebec, specially Ontario (the great centre of the agricultural implement factories), Manitoba, and even the province of British Columbia, likewise the shops of the Michigan Central Railway, Canadian Pacific Railway, Grand Trunk, &c., and as the Nova Scotian mills practically constitute the sole native source of supply, it appears that a wide and increasing field of enterprise is opening to the directorate. Of course the industry is protected against the steelmasters of the south or the steel producers of Britain, but hitherto the British ironmasters have derived some benefit, inasmuch as the requisite supplies of pig iron were, until recently obtained from the latter country, which, under a protection tariff of 16s. 8d. per ton of 2,000 lb. upon pigs, contributed 52,627 tons of iron in pigs, iron kentledge and cast scrap iron during the fiscal year ending June 30, 1891.

As the export market in Canada is of some importance to British dealers and ironmasters I detail the imports of the pigs and scrap into the Dominion during the fiscal year as above:—

	Tons.
Great Britain exported.....	52,627
British Guiana.....	226
British West Indies.....	689
Newfoundland.....	52
Brazil.....	1,373
Norway.....	2
St. Pierre, Newfoundland....	52
United States.....	26,296
Distributed:—	
Ontario.....	34,767
Quebec.....	37,437
Nova Scotia.....	7,032
New Brunswick.....	1,071
British Columbia.....	1,005
Prince Edward Island.....	5

Unfortunately, however, for Britain, we are going to lose our markets here [I say unfortunately, for surely Britain's markets are becoming sufficiently restricted), inasmuch as in the inception of the New Glasgow Iron, Coal and Railway Company, the pig iron industry of Canada is at last an accomplished fact. This company—which is largely controlled by the stockholders and directorate of the steel company—was organised two years ago, and after an expenditure of some £120,000, the directors have acquired a very excellent coke and pig iron plant at a point named Ferrona, where within a radius of ten miles all necessary materials for the production of pig iron remain, comprising several varieties of ore suitable for varieties of iron, and a furnace is in actual operation, turning out iron specially adapted for the manufacture of steel. This furnace (capacity 30,000 tons per annum, is of the following dimensions, 70 x 15 ft.; with hot-blast Massicks and Crookes stoves, 60 x 17 ft.; with cast-house, stock-shed and engine-house complete, and is arranged to permit of the erection of an additional furnace, hot-blast ovens, &c., at an anticipated period when demand shall have increased. In addition a coal-washing plant with storage towers, and a battery of thirty-six Coppée coke ovens have been laid. The steam required to operate the blast engine, coal-washing plant, pumps, &c., is generated in a nest of eight multitubular boilers, stocked with waste gas from the blast furnace and coke ovens. Eleven miles of railroad have been constructed from the site of the furnace to the iron mines and limestone quarries of East River—which have been referred to under my article "The Iron Lands of Nova Scotia" and the generally favourable conditions for the manufacture of pig encourages me to anticipate that "Ferrona" pigs will enjoy fair notoriety upon the Dominion markets. Now, the foregoing is worthy the attention of our ironmasters at home. As stated above, it illustrates that another blow is being struck at our industries in an hour when we are too uneasy thereabout to be comfortable. It is not so much the actual inception in Canada of the steel and pig iron industries which is of consequence from a purely home point of view, as the lesson taught that all nations are becoming more active in industries of every description, thus driving us back upon our lines, restricting our markets, &c., with results sufficiently disastrous. This is, of course, the natural and normal sequence of the colonisation of the west, south and north, and because our

\* From Canadian correspondence to the *Colliery Guardian*.

industries must retrograde in a ratio as those of the New World advance, some of our ironmasters should seriously contemplate a transfer of their capital to the unexploited fields of Canada. Take Ontario, for instance—what is to prevent them from exploiting iron fields, which for extent and riches emulate even those of Pennsylvania. But Ontario is merely one example of that which can be accomplished. Canada is full of chances for lucrative enterprise, and he who is early there shall early profit. As an example of the quickest enterprise in the New World, let me quote even Newfoundland, that torpid land of monopolies and fish. The geography of Newfoundland is something similar to that of the British Isles, especially upon the south west coast, where St. George's Bay bears a most remarkable resemblance to the Bristol Channel. The coal measures of Cape Breton dipping north-east into the Atlantic Ocean appear upon the shore of this bay, one seam, 14 in. at the crop, being of especially fine quality. In the immediate vicinity a hill of magnetic iron ore has been discovered, and towards this speculators are turning some attention. I have not yet sighted a sample of the ore, but the following assay by Professor Pyke, of Toronto University, will assist you to determine its ingredients:—

Metallic Iron	65.3
Silica	5.0
Titanic acid	4.3
Sulphur	nil
Phosphorus	nil

No steps are, so far as I am aware, being taken as yet to develop the mines beyond what is being done, but increased enterprise marks the industrial career of the island. This Newfoundland is an emigma; the benefits of confederation with Canada are palpable, but the islanders remain outside, to the serious detriment of the industries of the country, but enterprise will certainly throw the tentacles of genius around the iron and coal deposits, and the iron and coal fields of the island in our oldest colony will be another flow at such in Britain. In conclusion, I would explain that I am no pessimist, neither do, begrudge the colonies such success as they have attained to, but I am anxious about the integrity of the commercial supremacy of Britain and the prosperity of our vast industrial populations, to whom and to which we must be so intelligent and so sagacious, based upon a true comprehension of the ethics and sagacious channels of trade than heretofore. If we could only direct the attention of labour to the brighter circumstances and unexploited realms of the colonies, and persuade some, at least, of our capitalists of the folly of turning their industries to death, I think the crisis towards which we are drifting would be materially modified.

#### A Pneumatic Culin Conveyor.

Mr. J. Simpson and Watkins, coal operators at Jermy, Pa., have put into their breaker at that place a new device, the pneumatic culin conveyor, which is of this kind in operation in the coal mines of Pennsylvania. The new arrangement for the conveying of culin from the breaker is the invention of R. V. Mitchell. A local paper states that the invention is most simple, and consists of a common pipe, through which a blast of air is being driven by the ordinary Root blast. Into this pipe in front of the breaker the culin is fed, while the blast takes it up and conveys it to its destination. At the Jermy breaker the blast carries the culin at an angle of 45 degrees to the altitude of 175 feet, and a horizontal distance of 200 feet. It takes from the breaker a ton of culin a minute, and can as easily bring that quantity a mile as 100 feet. It is estimated that it can carry from the breaker a ton of coal culin every 2 minutes of time, and fetch it at a distance of 2 miles. It thus does away with the culin draw man, the driver, the headman, the driver on the head, and the dumper, besides with the services of 2 mules, and besides it saves the rolling stock, as no cars are required, no railroad tracks, no pulleys nor rope, and no extra drum in the engine house to hoist the culin. It is a peculiar fact connected with it that although the culin is carried at such a high angle, yet the pipe, which carries it, is not at all heated or worn by friction, for the fact is, there is no friction in it at all. The coal is borne in the centre of the blast and pipe. The air acts as a cushion and prevents the coal from striking against the sides no matter how many tons the pipe may have. The pneumatic conveyor is practical in the case of factories burning culin, and located at the breaker, the culin pipe, and the culin can be taken right from the pipe and delivered into the fire room, and even into the very fire itself if necessary.

Another advantage that it possesses is that it dries the culin wet from the teeth of the breaker, even with an ordinary blast, and where a hot blast is used it makes a thorough separation of the dust, the small pieces of culin, and by the very laws of motion and gravitation it separates the one from the other. When necessary a receptacle can be placed at the mouth of the pipe into which the dust falls. The larger coal is naturally carried farther and drops into another place set apart for that. Thus a cheaper, more thorough, and more satisfactory separation is had than in the present costly, dirty and crude way of washing culin. Further, this knowledge of the fact that this slate does not break into pieces as small as coal, makes it possible by these very means to separate the slate from the pure pieces of coal, even in these very small sizes—a thing which the coal workers have not even as much as attempted.

#### Longwall Working of Seams of Moderate Inclination.

At the annual general meeting of the Federated Institute of Mining Engineers, held at Shelton, England, on September 6th, Edward B. Wain read a paper on the "Application of Longwall Working to Seams of Moderate Inclination in North Staffordshire." This paper was of considerable interest as dealing with the modifications necessary in the working of seams of moderate inclination, where the following special difficulties have to be met:—(1) The tendency of the roof to slip and sink back away from the face, thus taking the working weight from the coal, and (2) the subsidence of the packs, etc., on the higher side of the level gateways caused by the slipping of the roof. The methods adopted in 2 seams, namely, the Hardnut, No. 1, and the Cockshead seam of 7½ feet in thickness were described in detail with carefully prepared illustrations. The chief points to be noticed are the laying out of the working faces, which have a slight dip only, the direction being such as to give a continuous face-line from the head side of the level to the outbye end of the district, subject to the shaftroad being kept at such a grade that the haul can push the haul tub to the gate-end without much difficulty, about 1 in 25 being found to be a suitable inclination in practice. Usual attention must also be given to the timbering and packing, in order to prevent the face of the coal being crushed and in setting the timbers it is found advisable to "underset," that is, to fix them at an angle, several degrees less than at right angle to the dip of the mine, which gives extra support to the roof, and prevents the roof from slipping down hill. It will be easily understood that when the props are exactly perpendicular to the dip the slightest slip in the head of the prop renders it practically useless as a support to the roof.

The regular weight-breaks being nearly at right angles to the face, the line of timbering, in order to prevent any additional pull due to gravitation down hill, comes upon the edge of the coal, and in order to throw this forward in advance of the face-line it becomes necessary to sprag the roof, just as it is necessary to sprag the coal while huling. This, however, can only be done to a limited extent, for if it is attempted to support more than a small area of the roof, the timbering will be ineffective, for the timbering is kept within the smallest possible limits, so that, without using an excessive quantity, the roof is kept well supported after the removal of the coal, and the wastes are allowed to break down within an easy distance of the face, so as to get a good supply of packing materials close at hand, at the same time preventing excessive pressure being put on the timber by the sinking of the roof in the wastes. It is also important that the posts should be set in exact line at right angles to the face, 3 lines being at regular squared intervals to give vertical support, which is not done if the intervals are triangulated, as is the custom in some districts. The breadth of roof so supported varies from 3 feet 6 inches to 9 feet, the timber being only left in the 9 feet breadth for a very short time after the coal has run down, and the lower row is withdrawn as the work progresses. The 3 rows of posts give effectual support while the packs are being carried forward, and the posts being only 2 feet 3 inches apart, there is much less danger in taking them out than there would be if they were set at greater distances. The author next proceeded to notice the precautions necessary in the working of the face and gate roads, but we forbear from noticing these as they can scarcely be usefully given without the illustrations. One of the points, however, appears to call for special comment, namely, the variation in the direction of the main weight-breaks in the different seams with increasing depth. At 220 yards the inclination is 5 degrees within a right angle to the dip. At 220 yards it is 6 degrees perpendicular, and at 470 yards the angle is 6 degrees more than a right angle, which seems to show that with increase of superincumbent pressure the roof is broken in a more nearly vertical direction, and that the variation is progressive. If this be the case, then some of the difficulties of long-wall working in inclined seams will be greatly lessened. The illustration of such a result in North Staffordshire, where the coals plunge steadily to a high angle to the westward, can scarcely be over-estimated.

Mr. Ernest Craig in another paper describes the working of Keener coals, a term applied to seams dipping at higher angles than 45 degrees, a condition that prevails at the northern end of the coal field, where the strata are much disturbed, and the nature of the strata is such that the coal may vary from horizontal to vertical. In this system the coal is worked in lifts or "breadths" not exceeding 120 yards between the main levels, the pillars being exhausted from above downwards. In laying out the ground the lower levels are driven to within 100 yards of the boundary, and a pair of places driven from below upwards to the full height of the seam. The ends of the breadths are made into cage clips, that is provided with platforms and counterbalances running over a brake wheel at the top for lowering the loaded tubs to the level below. Three headings, parallel to the main roads, are then driven in the breadth of coal dividing up into pillars about 30 yards wide and of the full length of the working of the coal. These headings are being kept solid for a time. In taking the pillars the face of the seam is one is kept 12 to 15 yards in advance of that next below it. Special precautions are required in managing the slewing of the coaves to prevent slipping, and the system is very satisfactory as regards coal saved, although slower yield than from flatter measures.

#### Improvement in Blast Furnace Methods.

At the recent meeting of the West of Scotland Iron and Steel Institute. Mr. James Riley, president, in delivering his inaugural address said that 10 or 15 years ago the opinion was pretty fully held, if not openly expressed, that the blast furnace was an almost perfect apparatus for the reduction of the ores of iron; that neither in the direction of economy nor regularity of working was much progress to be expected, and yet what had happened? It had been made apparent in these latter days that many thousands of pounds per annum were being lost in the gases which passed from the furnaces, and were allowed to escape without yielding the treasures they contained. The stoppage of this waste had revived the almost moribund Scotch pig iron manufacture, and had placed the ironmasters in the position of being able to compete successfully for the supplying of steel works. Economy of working had also been increased by the use of blast of higher temperature and greater pressure, and of furnaces of greater height and capacity. Hence there had resulted the application of special stoves, and numerous other appliances, in which the skill of the engineer, as well as that of the metallurgist and chemist were exhibited, and the end was not yet, for these larger and more complicated installations had made manifest the necessity for efficient control of operations, if serious irregularities in the operations were to be avoided; hence the effort to provide reliable instruments for measuring and automatically recording temperatures of blast, and for controlling and recording uniform and regular *temperatures* of steel.

Many of the irregularities which occurred in the working of blast furnaces would be avoided if accurate measurements of temperatures, etc., could be obtained with facility. He might refer to the presence in pig iron of sulphur and silicon in excessive quantities, one being the result of cold working with possible shortness of basis, the other of too great a quantity of sulphur in the fuel. Now, to the steelmaker sulphur was obnoxious, because it produced red-shortness in the steel and was also fatal to good welding. Silicon was obnoxious to him because it diminished the yield, increased the slag, prolonged the conversion, and endangered the result. For the open-hearth process anything over 1½ per cent. of silicon might be considered excessive, and in the case of that metalloid, it was evident that, adding to this excess the iron it took off with the slag, there was a loss of yield and a lengthening of process which involved serious loss. Silicon in combination with iron was valuable for many purposes, but assuredly not when that iron formed the largest portion of the charge for the open-hearth furnace. This was the case even when working by the acid process, but in the basic process it was more obnoxious, and complicated the operations and vitiated the results. Hence they would appreciate the importance of the efforts which were being made to remove these obnoxious elements from pig iron intended for conversion into steel.

**A New Form of Boiler Tubes.**—Mr. L. Silverman, Bexley, Kent, has, according to *London Industries*, invented a new form of boiler tube. The tubes for boilers, condensers, etc., constructed according to this invention, have longitudinal ridges and depressions extending nearly their entire length, the ends of the tube being made circular to facilitate the securing of the tube to the boiler plate. In the manufacture the inventor proceeds as follows: The tube is first made of the required diameter, and then has rolled or otherwise formed in it longitudinal depressions commencing a short distance from one end and terminating a short distance from the other, so that the area of both the internal and external surfaces of the tube are greatly increased. A convenient form of apparatus for forming the depressions comprises a carrier adapted to slide to and fro upon the tube, and provided with as many rolls as there are depressions required, and which are adjustable relatively to the axis of the tube. A mandrel is also provided of the shape corresponding to that which it is required to form the interior of the tube. The mandrel is placed within the tube, and is arranged to be moved to and fro with the aforesaid carrier. In some cases the tube may be formed with alternate corrugated and plain parts.

**Winding and Hauling Plant at the Bascomp Colliery.**—In the *Journal of the British Mining Students* is published a plan of the winding and hauling plant of the winding and hauling plant at the No. 5 pit of the Bascomp Colliery, Belgium. A plan of the surface shows three shafts, of which one is used for winding, the output being 1,100 tons per day. Vertical winding engines and cylindrical drums are used. The cage is attached to the rope by seven bridle-chains, the central one being connected to the cage by a rope, and the other six to the shaft of starting. The bridle-chains are made very long, and, with the aid of a balance platform at the bottom and Staus props at the top, the changing of the tubs is done very rapidly. The Staus props, which are fully described, by an arrangement of levers and by the form of the keys, hold the cage firmly, but yet can be withdrawn while the full weight of the cage is being applied to the rope, so that the engine need not have to reverse. Rail guides supported by 1½ steel girders are employed. The descent and ascent of the men is effected in a separate shaft by means of double-acting man engines. An elaborate system of endless chain haulage has been installed. Full illustrations are given of all the special features described.

**Electric Pumping Plants.**—Mr. F. M. Wheeler illustrates several mine pumps driven by electricity. The first of these, at the Hamilton Ore Company's mines, will lift 200 gallons per minute to a height of 1500 feet. It is driven by a Thomson-Van Depoele motor, and the gearing is encased in an oil chamber and provided with arrangements to take up wear. The second was built for the Poor Man mine to raise 500 gallons per minute to a height of 1000 feet. Worm gearing running in an oil chamber is used between the pump and the motor, which is of the Edison vertical type. A note on the electric pumping plant at South Pontop Colliery is given by Mr. J. R. Ritson. The dynamo gives 20 amperes at 370 volts or  $9\frac{3}{4}$  horse-power at 1000 revolutions, and the current is taken to a distance of 3700 yards by insulated lead and return cables. A series-wound motor, working at 1,200 revolutions, uses 7.8 electrical horse-power and drives a centrifugal pump which lifts 200 gallons per minute through 300 yards of pipe with a vertical rise of 31 feet. The pump and motor are mounted on a carriage so as to be lowered as the water falls. The efficiency of the centrifugal pump is low, being only 33 per cent. From brake horse-power to water delivered the efficiency is 14 per cent. The cost per day is 19s. 6d., as compared with 25s. for horse pumping.—(Journal of the British Society of Mining Students, vol. 14, pp. 82-84.) Some notes on a small electric pumping plant at the Shireland Colliery are given by Mr. M. Deacon. A 24 horse-power dynamo gives the current for lighting and pumping. The pump is of a three-throw horizontal type, driven by a two horse-power motor running at 900 revolutions and geared down from 25 to 1. The motor and pump are placed on a light frame so as to be portable. A safety commutator with inside brushes is used on the motor, and is cleaned daily. The quantity of water being pumped is about 40 gallons per minute against a gauge pressure of 26lbs. per square inch. A series of tests showed that the indicated horse-power of the engine running light and loaded as above was 7.3 and 11.29 respectively: the dynamo gave 118 volts and 17 amperes: the motor 98 volts and 17 amperes: the electrical horse-power given by the dynamo, 2.67, or 23.65 per cent. of that given by the engine. The total cost per annum is estimated at 103 pounds sterling, ten shillings, as compared with 657 pounds sterling for hand pumping. As the plant is designed for further extensions, the load is very light, and the efficiency accordingly low, being only  $6\frac{1}{2}$  per cent at the pump. There is a loss of 20 per cent. in transmission owing to the low voltage employed. (Transactions of the Federated Institution of Mining Engineers, vol. 3, pp. 191-195.) Some notes on an electric transmission plant at the East Howle Colliery are given by Mr. H. Palmer. A compound-wound Crompton dynamo, which gives 60 amperes at 550 volts at 770 revolutions, is driven by a pair of vertical high-pressure engines running at 160 revolutions per minute. The positive lead consists of 3000 yards of insulated 19/16 copper cable. The pumps are placed two miles from the shaft, and both are driven by series-wound motors with a current at 500 volts. In No. 1 the motor running at 1100 revolutions, is geared down 15 to 1, and drives a pair of 7 inch double-acting pumps of 13 inch stroke. No. 2 motor runs at 1,200 revolutions, is geared down 128 to 3, and drives a 9 inch double-acting pump of 36 inch stroke. The water is pumped through 800 yards of a 9 inch pipe, a size which is too small, but there is ample power from the waste gases of the coke-ovens. The results of a trial are as follows:—

	Indicated Horse Power.	Percentage of Total Power.
Loss in Engine.....	12.00	22.30
" Generator.....	3.62	6.72
" Cables.....	7.04	13.05
" Motors.....	3.36	6.25
Friction of Pump and Pipes	18.94	35.28
Water lifted.....	8.80	16.40
	53.76	100.00

The total cost was £2157, including the cost of fifty-three incandescent lamps also run off the generator.—(Transactions of the Federated Institution of Mining Engineers, vol. 3, pp. 271-278.)

**Removing Deposits From Pipes in Shafts.**—Mr. R. T. Swallow describes the method adopted for removing deposits from the inside of rising main pipes in a shaft at the Hepburn colliery. These mains are constructed of 118 cast iron pipes, in lengths of 9 feet, and varying in diameter from  $9\frac{1}{4}$  to  $10\frac{1}{4}$  inches at the surface. As one of the vertical pipes was split it was removed, and the water way was found to be reduced from 9 to  $6\frac{1}{2}$  inches in diameter. The broken pipe was replaced, and the pipes were cleaned by a process analogous to rope-boring of deep bore holes. Two small pulley sheaves were arranged to lead the rope from the

winding drum so as to hang in the centre of the pipes, and a specially designed cutter was attached to the end of the rope. The cutter was loaded with 4cwt. of chain, and consisted of a horizontal piece of bar-iron, fitted with steel springs on each of the sides, and each carrying two knives. The cutter was reciprocated in the pipe, and a stream of water turned down it to wash away the debris. This operation was repeated twice throughout the whole length of the pipes, the second time the cutters being to the full diameter required. Altogether  $11\frac{1}{2}$  hours were required for the cleaning process and five men were required. The operation did not interfere with the use of the shaft, and five tons of deposit were removed at a trifling cost from the pipes, which had been in use for five years.

**The Protection of Wire Ropes.**—A short time ago reference was made in these columns to a new wire rope, known as Cheeseman's A. C. L. wire rope, which is being introduced by the Hartlepool Ropery Company Limited. It is so manufactured that in the process of its formation the cores and wires are all thoroughly coated with a composition called glissantoline, which is an excellent preservative of iron and steel. This fills up the interstices of the rope, and makes it impervious to the causes of corrosion or rust, such as steam and acid waters found in the workings of mines: elsewhere, at the same time acting as a constant lubricant to the rope and individual wires, thus obtaining greater flexibility, lessened friction and maximum durability of the rope. The following tests may be of interest:—(1) Sample, immersed twelve weeks in solution, one part salt, three parts water, unaffected; (2) sample, ten weeks over steam exhaust; (3) sample, ten weeks in hot water, 140 degs. Fahr.; (4) sample, twenty-two days strong solution sulphuric acid; (5) sample, twenty-two days strong solution sulphuric acid, at temperature 130 degs. Cent., or 280 degs. Fahr.; (6) sample, twelve weeks in sea water; (7) sample, seventeen weeks in open air, subject to all atmospheric changes; (8) sample, twelve weeks buried in earth, just sufficiently low enough to receive moisture from an overflow of water, 140 degs. Fahr. twelve hours per day; (9) sample, two weeks in strongest solution ammonia. All the above samples were totally unaffected.

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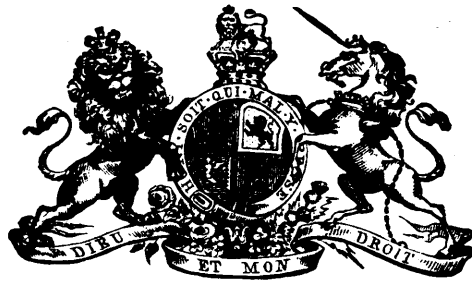
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### MINES OTHER THAN GOLD AND SILVER.

Licenses to search for eighteen months are issued, at a cost of thirty dollars, for minerals other than Gold and Silver, out of which areas can be selected for mining under lease. These leases are for four renewable terms of twenty years each. The cost for the first year is fifty dollars, and an annual rental of thirty dollars secures each lease from liability to forfeiture for non-working.

All rentals are refunded if afterwards the areas are worked and pay royalties. All titles, transfers, etc., of minerals are registered by the Mines Department for a nominal fee, and provision is made for lessees and licensees whereby they can acquire promptly either by arrangement with the owner or by arbitration all land required for their mining works.

The Government as a security for the payment of royalties, makes the royalties first lien on the plant and fixtures of the mine.

The unusually generous conditions under which the Government of Nova Scotia grants its minerals have introduced many outside capitalists, who have always stated that the Mining laws of the Province were the best they had had experience of.

The royalties on the remaining minerals are: Copper, four cents on every unit; Lead, two cents upon every unit; Iron, five cents on every ton; Tin and Precious Stones; five per cent.; Coal, 10 cents on every ton sold.

The Gold district of the Province extends along its entire Atlantic coast, and varies in width from 10 to 40 miles, and embraces an area of over three thousand miles, and is traversed by good roads and accessible at all points by water. Coal is known in the Counties of Cumberland, Colchester, Pictou and Antigonish, and at numerous points in the Island of Cape Breton. The ores of Iron, Copper, etc., are met at numerous points, and are being rapidly secured by miners and investors.

Copies of the Mining Law and any information can be had on application to

**THE HON. C. E. CHURCH,**

Commissioner Public Works and Mines,

HALIFAX, NOVA SCOTIA.



## SOME REMARKABLE RESULTS IN GOLD EXTRACTING.

New York *Sun*, Sept. 12.—“The Crawford Gold extractor, which was recently put into the Richmond Hill at Hillsborough, New Mexico, is giving satisfaction. It has been tested on runs of ores from different mines in the district with uniform good results.”

Salt Lake *Times*, Aug. 28.—“Mr. Woodman came in from Deep Creek yesterday, where he has been for a month or six weeks, and he pronounces the Crawford mill a perfect success, saying that since the mill started it has saved 92 per cent. of the assay value of the Gold Hill ores, some of which are very rebellious.”

John C. Smith, Supt. of the Ogema Mining and Smelting Co., says: “It gives me great pleasure to add my testimony in favor of the Crawford mill in every way, as to its ‘gold saving qualities,’ ‘practically no loss of mercury,’ ‘small volume of water required per ton of

ore,’ great ease of manipulation,’ also as to its portability to mines remote from railroads, and ‘ease of setting up ready for operation.’”

L. J. Boyd, M.E., Supt. Montagu Mines, after personally supervising a test on arsenical ore says: “The results were simply wonderful. I am personally perfectly satisfied with this system of ore treatment, and should advise its adoption, as the experiments were carried on by my personal superintendence. Similar ore was treated by the Montagu stamp mill showing a difference of 100 per cent. in favor of the Crawford mill.”

Fredericksburg, Va., *Free Lance*, Sept. 6.—“L. G. Johnston, of this city, in an interview, said he sent to the M.G.E. Co., N.Y., one ton of very low grade sulphuret ore from the mines of the Powhattan L. & Mining Co., Culpepper Co. He went to New York and personally

witnessed the working of the ore. The results of ten different samples of ore, averaging in assay value from \$2.13 to \$7.35 per ton, showed a saving of 88 per cent. of the value by actual mill run, this without the use of chemicals or fire. These results were so satisfactory that a large sized mill will be placed on the property at once.”

W. D. Sutherland, Secretary of the Salisbury Gold Mining Co., of Nova Scotia, after having over 4 tons of ore treated by the Crawford mill, says: “Sample of the tailings taken during the run showed by assay an equivalent to 0.033 oz. to the ton. This evidence of the capability of the Crawford mill to extract all but a trace of the gold which the ore may contain must be considered of importance by all who are interested in the question of improved methods of milling gold from the ore. The test alluded to was made under the supervision of our company through trustworthy agents.”

### THE CRAWFORD MILL WORKS MORE CHEAPLY,

and saves from 20 to 50 per cent. more gold than the ordinary stamp mill, while it also successfully treats at less than \$1.00 per ton many refractory ores otherwise impossible to treat save by costly chemical processes. Complete working plant at 589 Hudson Street, New York, where samples of ore will be treated free of expense. Descriptive pamphlet mailed on request.

**THE MECHANICAL GOLD EXTRACTOR CO., W. O. ROSS, Secretary, 47 BROADWAY, NEW YORK CITY.**

Plants will be erected at Marmora, Ont., and Halifax, N.S., where arrangements can be made for the treatment of ore samples.

A. W. CARSCALLEN, MARMORA, AGENT FOR CANADA.

GEORGE MACDUFF, WAVERLY, N.S., LOCAL AGENT FOR N.S.

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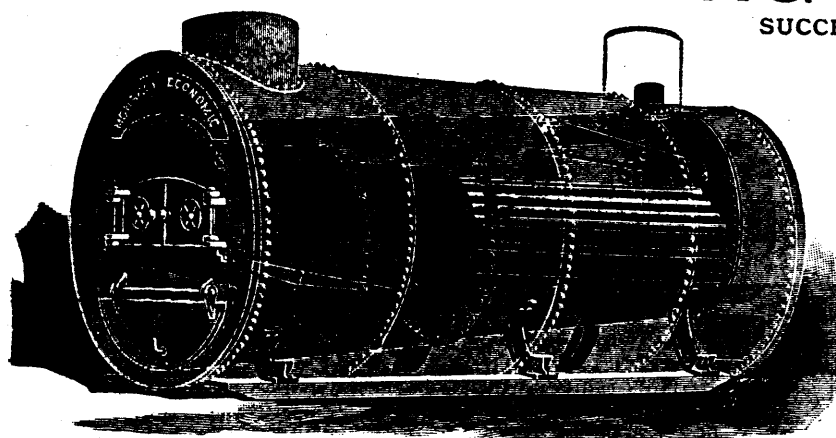
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