

MARITIME MINING RECORD

AND
COAL AND METAL TRADES JOURNAL

Dr. R. Bell
Geol. survey dept.

Cumberland. * Pictou. * Cape Breton. * Inverness

New Series Vol. 7 No. 13

January 11th. 1905

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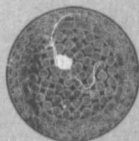
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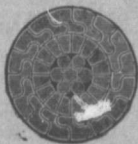
Patentees and Manufacturers of

Locked Coil and Flattened Strand WIRE ROPES.

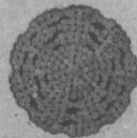
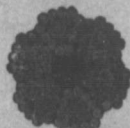
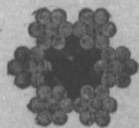
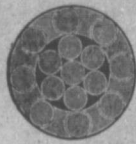
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19 Express for Sydney	11.10
20 Mixed for Pictou	11.15
56 Mixed for Truro	13.30
30 Express for Halifax and Montreal	14.40
142 Mixed for Pictou	14.45
85 Express for Sydney	16.45
101 Mixed for Pictou Landing	16.50
23 Mixed for Hopewell	18.10
77 Mixed for New Glasgow	18.40
86 Express for Halifax	19.20
17 Express for New Glasgow	21.05
66 Express for Pictou	21.10

—TRAINS ARRIVE AT STELLARTON

78 Mixed from Trenton	5.55
65 Express from Pictou	19.35
18 Express from New Glasgow	7.35
21 Mixed from Hopewell	7.35
55 Mixed from Truro	8.00
56 Mixed from Mulgrave	18.10
27 Mixed from Pictou	19.45
19 Express from Halifax and St John	11.00
180 Mixed from Pictou	14.35
30 Express from Sydney	14.30
86 Express from Montreal and Halifax	16.40
22 Mixed from Pictou Landing	18.10
77 Mixed from Hopewell	18.45
86 Express from Sydney	19.40
66 Express from Trenton	20.45
17 Express from St. John	21.00

All trains are run by Atlantic Standard time. Twenty
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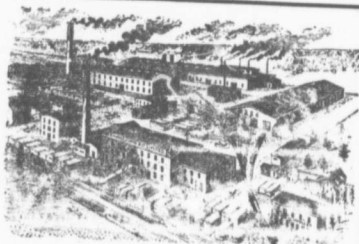


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over five square miles for eighteen months, cost \$30.00; leases for four renewable terms of twenty years each can be selected from them at a cost of \$50.00, and are subject to an annual rental of \$30.00



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The gold district covers over three thousand square miles, and the deposits of coal, iron ore, etc. are practically unlimited.

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Commissioner of Public Works and Mines, HALIFAX, N.S.

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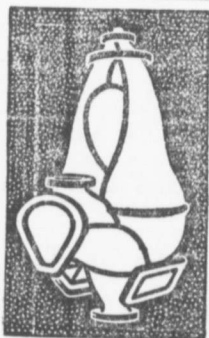
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For work underground it is indispensable.

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MARITIME MINING RECORD

Vol. 7, No. 13. Stellarton, N. S., JAN. 11th. 1905 New Series

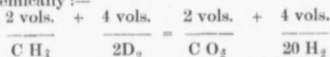
CHEMICAL INTERFERENCE WITH THE MAIN AIR CURRENT

M. J. Excus before Maritime Students Association Springhill.

In ventilating a mine, we have to take into consideration all substances which require oxidation, such as human beings, or rather the human blood; the horses; the flames of lamps; the dilution of gases; the flame of the furnace, (if any), and the gunpowder smoke. These items are the causes which draw upon the ventilating current chemically.

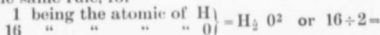
The first and most important is the pressure of fire damp, or Carburetted Hydrogen, Methyl hydride, or Marsh gas. Its chemical composition is as follows:

1 atom of carbon to 4 of hydrogen C H₄ is therefore its chemical symbol. Then twice the amount of Oxygen renders it violently explosive, and an explosion of fire damp is thus represented chemically:—



The four volumes of oxygen which 20 volumes of atmosphere air contain, produce 2 volumes of carbonic acid and 4 volumes of steam; on the condensation of the steam, 16 volumes of nitrogen remains mixed with carbonic acid. This product is the afterdamp. Here we have, then, a gas which possesses a great affinity for oxygen, and which, therefore, will weaken the effect of the main air current by absorbing a portion of its oxygen. In what proportion it will be absorbed, vol. for vol. is, if two bodies combine with a third body, they are multiples of the proportions in which they may combine with each other. To ascertain how much air will be polluted by the coal gas is the first question. This is calculated as follows:—The quantity of gas discharged into the air ways of a colliery will always bear a direct relation (1) to the area of the surface of the coal, roof, sides, bottoms, etc., exposed to the action of the ventilating current; (2) to the cubic contents wrought. Each piece of coal wrought discharges through its faces a small amount of gas. We must think of a small lump of coal as if it were a small coal mine. To estimate the amount of air necessary to dilute the coal gas—1 cubic inch of coal is capable of yielding under an air pump, a volume of gas equal to its own bulk, therefore 1 cubic foot of coal will yield 1 cubic foot of gas. It will be seen by examining the nature of fire damp, that unless the gas is diluted—with more than 15 times its volume of air, it will be explosive, therefore, the amount of air

required to dilute the gas yielded by one cubic ft. of coal = 15 x 1 that is the entire contents of the coal x by 15, but it is advisable to increase this number to 100 to provide for contingencies, such as blowers, etc., then 100 c. f. will be required for each c. f. of coal wrought, next we have the withdrawal of oxygen from the atmosphere by combustion and respiration. Then, if we have a furnace at the foot of the upcast shaft, then, since in oxidation, 1 atom of carbon unites with 2 atoms of oxygen following the laws of affinity in chemistry, we find that the atomic weight, or combining proportion is carbon 12, oxygen 16. The 0 will be represented by 32, since there are 2 atoms of this gas, the carbon by 12. Then 32 ÷ 12 will give us the amount of 0 required to oxidise a piece of carbon. Now let us suppose that one lb. of coal is burnt in the furnaces per second. Then 32 ÷ 12 = oxygen in lbs per second = 2 2/3 lbs. Therefore, 1 lb of Hydrogen will require 8 lbs of 0 by the same rule, for



The composition of air inhaled and exhaled is given as follows:—before entering the lungs:—N, 79.00, O, 21.00. Then when exhaled N, 79.00 O, 17.05, C O₂ 305 3 1/2 units of 0 are, therefore, extracted from the air by the action of the lungs, and applied to oxidise the carbon in the blood cells. Then 1 cubic ft. of air breathed will be vitiated by 3 1/2 per cent. of carbonic gas, therefore each person will discharge from his lungs into the mine .035 x 60 = 2.10 cubic ft. per hour. Some medical authorities state that an average exhalation of air is represented by one cubic foot per minute when the person is awake. A horse breaths 6.3 times the volume per minute of a man x .035 x 60 x 6.3 = 13.23 c. f. of CO₂ per horse per hour. We have now got to consider the effect of the lamp and gunpowder. We shall then be in a fair position to estimate the total chemical vitiation of the air of the mine for a given time. A candle or lamp produces about 2.51 c. f. of C O₂ per hour by experiment, this is shown by the fact that if a candle is burned in a close vessel containing 0 c. f. of air .2 of the volume of air is deprived of the 0. The proportion of 0 in the air is 21%, therefore .2 x 21 x 60 = 2.52 c. f. vitiated per hour per light, then x the number of lamps used by 2.52 for total vitiation. Gunpowder is our next item and is a more important one since the presence of nitrous fumes proves so detrimental to health, and the eye sight of men and horses in the mine. Mr. Andre estimates the effect of ordinary powder to be as follows:—1 lb. of powder produces .3 U C O₂. 1 c. f. of C O₂ weight .1164, then .3000

+ .1164 = 2.58 c. f. of CO₂ per lb of powder used. We have now got possession of all the data to estimate the total amount of chemical vitiation.

Fire damp allowed for as under

1 c. f. of coal requires 100 c. f. of air.
Furnace, 1 lb. of coal " 2½ bulk of oxygen per sec
1 horse discharges requires 13.23 c. f. of CO₂ per hr.
1 man " " 2.1 c. f. of CO₂ " "
1 lamp " " 2.51 c. f. of CO₂ " "
1 lb. powder, " " 3.58 c. f. of CO₂ " "

added to this we must allow for effluvia 2 c. f. of air per minute per person. For 2.1 c. f. of CO₂ discharged per hour per man must be diluted to allow the air in the pit to contain not more than .35% of CO₂ or the men would be gradually choked off. This will require 600 c. f. of air, then each man requires 600 c. f. of air per hour, this = 10 c. f. per minute. Then each lamp will require by proportion 720 c. f. per hour, or 12 ft. per minute. If each man has a lamp then 10 + 12 + 2 = 24 c. f. of air per man and lamp employed. Horses, each horse produces 6.3 times the amount of CO₂ than a man, then on a general rule 3 men = 1 horse ∴ 3 x 24 = 72 c. f. of air per minute per horse employed. Mr. Andre quotes that 8 men = 1 lb of powder consumed, assuming this to be correct ∴ 8 x 24 = 192 c. f. of air per lb of powder fired in estimating the amount of air required for a dilution as a factor of safety twice the amount required is just within the limit. Now this gives us the formula to estimate the quantity of air required in c. f. per minute.

Q = Quantity of air per minute in c. f.

M = Number of men employed.

H = " horses "

P = Lbs of gunpowder fired per hour.

O = Output or quantity raised per minute.

A = Area of surface of coal exposed to the ventilating current in yards.

$$\therefore Q = M + H + P + O + A$$

$$24 \quad 72 \quad 192 \quad 100$$

Where 1 ton of coal wrought = 1 cubic yard of coal. Then if the output is 100 tons the expression 0 = 100 c. yards. The average quantity of coal raised per minute or output is thus calculated. If the total output raised is 300 tons in 12 hours by let us say 60 men then each man raises 5 tons in 12 hours

$$\frac{5}{1}$$

then 720 : 1 :: 5 : $\frac{1}{720}$ or $\frac{1}{144}$ of a ton per man per minute. Then in a mine where there are 400 men, 30 horses, and the coal surface is 1,000 yards, output 600 tons per day or 12 hrs. and the powder used 8 lbs. per hour, then

$$Q = (24 \times 400) + (72 \times 30) + (192 \times 8) + (100 \times 22.5) + 1000$$

$$Q = 9600 + 2160 + 1536 + 2250 + 1000$$

$$16546 \times 2 \text{ Cubic feet per minute} = 33,092 \text{ cubic ft. per minute.}$$

In conclusion, the Mining Committee is in possession of the information referred to by your correspondent, and it is just enough to make them desirous of more.

The Brickworks of the Intercolonial Coal Company, Westville, are now practically completed and the company should be in a position to fill orders for that class of goods at any time from this date.

THE WAGES PAID MINERS AT SPRINGHILL.

The following table will show the average miners' wage per day paid by the Cumberland Railway and Coal Company since it began business, at Springhill. It will be noticed that from 1883 till 1899 inclusive, 17 years, the average was \$1.95 per day and then it began to climb.

1883	—	\$1 98	1899	—	\$1 90
1884	—	2 03	1900	—	2 27
1885	—	1 90	1901	—	2 51
1886	—	1 87	1902	—	2 63
1887	—	2 02	1903	—	2 88
1888	—	1 96	1904	Jan'y	2 90
1889	—	2 02		February	2 81
1890	—	2 01		March	2 89
1891	—	2 08		April	3 06
1892	—	1 96		May	3 03
1893	—	2 00		June	3 01
1894	—	1 91		July	3 13
1895	—	1 83		August	3 04
1896	—	1 94		September	3 06
1897	—	1 83		October	2 93
1898	—	1 92		November	2 89

or an average for 11 mos. of \$2.98.

HALIFAX BOARD OF TRADE'S MINING COMMITTEE.

The following communication has been received from Mr. Alex. McNeil chairman of mining committee Halifax Board of Trade:—

DEAR EDITOR:—First allow me to congratulate you upon your issue of December 28th. Then, as Chairman of the Mining Committee of the Halifax Board of Trade, let me deal with the communication that number, headed, "Nova Scotia's Iron Ores." The extract from the "Halifax Herald" was incorrect and misleading. The Committee did not in a general way ask the Dominion Government to investigate the iron ores of Nova Scotia. What it did was to ask the Honourable Minister of the Interior to give us a man on the Geological Survey Department, whose special work would be the Iron ore section. No one familiar with the work of Messrs Fletcher and Faribault will doubt the practical value of the services of such a man.

Then the quoted paragraph implies that the Committee aims at giving the public rather than the operating companies the benefit of such knowledge. As a matter of fact it was with the express purpose of showing, if possible, that we have native ores in such quantity and quality as to make the new iron companies permanent in so far as supply of raw material is concerned, that the subject of iron ores was first dealt with.

That such information is necessary will readily be admitted by you, Mr. Editor, though you are quoted as if you were opposed to this effort to get reliable information upon our iron ore deposits.

In answer to the attempt of your correspondent to belittle Halifax, let me say here that there would be little to tell of the Iron and Steel Industry at Sydney Mines, Sydney, or New Glasgow if it were not for the efforts of men living in the City of Halifax.

Rubs by Rambler.

The Glace Bay Gazette gave, as a news item, and repeated it in its editorial columns, that Mr. James Ross had stated recently in Glace Bay that next year, —meaning this year—the Dominion Coal Co. would ship from Glace Bay "20,000 tons of coal a day." Working 300 days in the year that would give for all the collieries an output of 6,000,000 tons per year. The Gazette may think he can do it, and Mr. Ross may be certain his collieries can give him that quantity, but in this case, he is the solitary sparrow on the house top. I made five cents lately and am willing to risk it all. Mr. Ross could have made no such statement intentionally or boastfully. He was actuated by kindly motives. He could not give a Christmas gift to each individual inhabitant of Glace Bay and Sydney, so he sent his good cheer wholesale, in an intangible shape mayhap, but still in a form to make glad the multitude. Mr. Ross meant to be complimentary—some took him literally—that's all.

Neither the men nor the management, on the mainland, are elated over the signing of the agreement between the Dominion Coal Co'y and its employees. They claim that it puts them in a rather awkward position. The operators on the mainland claim that this three years contract, with several of the conditions agreed to, gives the Dominion Coal Co. a decided advantage, and consequently adversely affects them of the mainland. They go so far as to say they also must make some new arrangements with their workmen, or shut up shop, or if not that altogether, then shut up part of the time. As things were, they allege, they had more than they could do to secure a fair share of what was going; with conditions still more favorable to the C. B. collieries they cannot see how they can pull through unless the men come to their assistance. And they have every confidence that the men will do so. In order to secure a portion of the limited market, a portion sufficient to keep the mines fairly steadily employed, the operators on the mainland must be in a position to offer their product at something near the rate that the C. B. companies can quote. They are not, I fear, now in that position. So it is up to the men and the management to calmly talk over matters and try to come to some arrangements whereby it will be possible to retain a fair proportion of the trade. I am not saying here that the new agreement gives an advantage, to the big coal coy, but if it does, then it devolves upon the mainland operators to point out what advantage is given, and at the same time show how they are injuriously affected, and this being done frankly and fully I think some satisfactory readjustment may be arrived at without trouble.

A correspondent of the Sydney Post, who is an ex M. P. and claims to be an authority on some points, in a letter endorsing some remarks of the Post, in reference to new markets for coal, makes little of the Dom-

inion Coal Co's shipments to Everett, and hints that it would be money in the coal co's pocket had they never had the contract, and could they now get quit of it. He flouts the American market, and flaunts the local. He compares the market at Everett with that at the steel works to the disparagement and contempt of the former. Now, not so fast friend. As I said before so say I now again that whatever the Everett contract may have been to the Coal Co.—it was a god send to the many mine workers in C. B. But for it there might not have been the active work in winter of the past few years. And from a company's view point even I am not so sure that it is much less profitable than a portion of the local market. When freights ranged from eighty cents to a dollar and ten a ton, there may have been precious little, if any, profit in it, but with thirty or more cents better price for coal than four years ago—for the contract called for an increasing yearly price—and with freights ranging from thirty five to fifty cents a ton, equal to a reduction of at least fifty per cent in freight rates, it is possible that the Coal Co. are more than squaring accounts. If the Everett contract does not net the Coal Co. as much as the Sydney contract the difference is very small, while in the case of the later run-o-mine coal may be demanded—if I am not in error—while in the case of Everett slack coal only is to be furnished. If the company had not in the gas plant a customer for a large portion of its slack where could it be all marketed to advantage? I am not in the least disparaging the local market, nor am I advocating the U. S. market as preferable generally, I am only in a way protesting against statements having a tendency to produce wrong impressions.

I see it stated in one of the C. B. papers that the Dominion Coal Co. with the mines now in operation, can give an output of five million tons, or say two million tons more than its production for last year; That is the directors, the theoretical, output. When it comes to the actual, the managements' output a difference may be found. The directors of a Coal Coy, it must be known by this time, can go far bigger licks in the way of out-put, than the managers of the mines, than the real working forces. I would not like to say that the company in 1905 can increase its output, if needed, by a million tons, not to speak of two millions. If it is going to put out anything like five millions then I'll have to revise my opinion as to the adequacy of our present markets. Why, a million tons extra in 1905 will swamp the market, for it must be understood that the Dom. Coal Co. is not the only company aiming at increased outputs. The past year more than one colliery could have made bigger outputs had there been a sufficient, remunerative, market. Rather than have big outputs at a loss they were content with limited sales at a profit. But the tendency is to have big outputs, at times, irrespective of profit. This is not good policy and it is to be hoped the managers will see that there ambition, in this respect, is kept subservient to sound business policy.—

Criticising some remarks of the Sydney Record in reference to 'new markets' for coal, an ex M. P. in the Sydney Post says that if the Dominion Coal Co. can give the steel works coal at \$1.50 and send its coal to

the United States for \$1.50 it can surely send coal as far as Toronto for \$3.75. The figures given as received by the Dominion Coal Co. are in neither case, I believe, correct. The price given as received for the Everett coal is a long way out. The Dominion Coal Co. should have nothing to complain of if it got \$2.00 per ton for 'slack' coal alongside at Everett. The coal however that will require to be sent through the lakes, will not be slack coal as in the case of the Gas Co., nor run a mine as in that of the Steel Coy. The very best round will require to be sent as it will come into competition with the certainly solid, and the assumed superiority of the American coals; The Dominion Coal Company may be justified in selling its surplus slack to Everett at a small profit, and its run a mine to the steel works at a figure barely covering expenses, but to say that for these reasons it should also send coal through the lakes on similar terms is asking too much, and is advice to do what is contrary to sound business principles. In order to produce say a million tons of coal cheaply, or at a cheaper rate than a less quantity it may be good business policy to sell 200,000 tons at little or no profit; The surplus—so to speak—only is sold at a low rate. It would be folly for a company producing say three million tons, to sell two thirds of it at a low rate, merely to be able to say it was increasing its output, and had secured a market in which there was no profit; The Everett and steel propositions are reasonable and can be defended; the proposition to extend the principle to Ontario would be unreasonable and indefensible.

It is stated in the press, and I have it from private sources, that the mainland delegates to sub-council meeting, where the agreement made between the Dominion Coal Company and its employees was discussed, took strong grounds against the clause which they call the 'restriction' one, that is, the clause giving the company the option to sell its coal when, where and to whom it pleases. Funny, isn't it, how different eyes look at things. If there is any clause I would tick off in red as all right, that would be the one. What is the reason given for opposition to it? This—that it precludes the possibility of sympathetic strikes. I don't believe it was aimed at that, or put there for that purpose, but if it was I'm prepared to vote early and vote often for it. Sympathetic strikes be hanged! Can you find me a half dozen intelligent miners in N. S. who believe that such strikes would serve any good purpose in Nova Scotia. They are the most childish sort of strikes I know of, and are the weapons of brainless leaders and bawling, beaten men. There is neither rhyme nor reason in them. They invariably fail of accomplishing any practical good. Of course, there's the sympathy I admit, but I've never been quite able to count up how much it means in cents, to the original strikers. A sympathy strike is no good. It reminds me of a story told of two of my countrymen. Both of them had a good jag on—as a Nova Scotian might say—is they wended their way homeward. One, whose stomach was not quite so strong as that of the other, stumbled and fell, and having fallen concluded it was easier to stay that way. His companion tried to raise him once, twice, thrice, but failed. In a fourth attempt he fell himself, and then philosophically said "I've done my best, but it seems I canna lift ye, so when to show my sympathy I'll lie down beside ye." In Nova Scotia we have been

free, so far, of sympathetic strikes, and we don't want them. In our case they would be senseless affairs. What would be the object of a sympathetic strike at a colliery for instance. It might be ordered for the purpose of assisting the men on strike at some other colliery. How would it do this. I'm sure I cannot tell. It seems to me that the operator of a colliery whose men went on strike because they had, or thought they had, a grievance, would have no objections to a sympathetic strike. He would feel more contented. He would not have the dread of losing some of his customers, which certainly haunts him when his men only are on strike. The idea of sympathetic strikes by the mine workers of Nova Scotia is a crazy one.

A mainland operator, asked what he thought of the agreement in Cape Breton between the Dominion Coal Co. and its employees, and if it would effect the position of the operators in the mainland, gave no plain answer but said, "Agreement or no agreement the fact remains that rates on the mainland are too high. The employees are now getting all, or nearly all, leaving to the employers the experience and the doubtful pleasure of working for nothing. No concern—he continued—can pay out more than it is taking in and live, and this is about the condition of the coal trade of the province to-day. None of the companies to my mind, except one which produces a small per centage of slack, and has good local markets, has made anything in 1904. It has been asked "Why with modern appliances and increased outputs is there this cry of excessive charges?"—"The answer is this—Mining rates are almost prohibitive, with shorter hours worked there is a lessened average yield per man; and there is a marked indifference to regular work. These combined make the cost of production excessive." THE RECORD at this time makes no comment but leaves the statement with its readers.

The Sydney Record speaks well out in reference to the suggestion of higher duties, as a means of securing a portion of the Ontario market for Nova Scotia. It evidently favors the reimposition of the duty on anthracite. The repeal of the duty was a big blunder on the part of the conservative government. They should have resisted the clamor of the Ontario members. I remember when it was announced that the duty on anthracite was to be removed I was inclined rather freely to blame the government. The then M. P. for the county thought it well that I should subdue my ardor, and told me if I knew the difficulty the government had in maintaining the duty on bituminous I would stay dumb in reference to the duty on bituminous. That kept me from loud barking but I couldn't wholly suppress an occasional growl. I am glad the Record as a liberal organ is not afraid to speak its mind. At the same time I haven't the least idea that the Ontario people will be a whit less selfish in the future than they have—to our ward appearances—been in the past. Here is what the Record says:—

But we heartily agree with Mr. McDougall that an earnest effort should be made all round to dispose of some of our coal in Ontario. Unquestionably there are certain portions of that province when more or less of a market may be obtained. We should not only be in favor of an increase in the duty on soft coal but the imposition of a duty on hard coal as well. It will be

Concluded on page 20.

Maritime Mining Record

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R. DRUMMOND, PUBLISHER.

STELLARTON N. S.

January 11th 1905

THE COAL TRADE 1904

It would be very far from the truth to say that the year 1904 was a poor one for the coal trade but it is no departure from the truth to say that the sales came far very far short of the anticipations indulged in when the year had but begun. There were those, considered knowledgeable, who figured on an increase of eight hundred and fifty thousand tons. The RECORD was not quite so sanguine but thought it possible there might be an increase of three quarters of a million tons. And because one's hopes ran so high, is there keen disappointment at the discovery that there has been no change worthy of remark. There has been increased shipments to the St. Lawrence. There ought not to have been much diminution in local sales though there was some loss occasioned by the Sydney strike. Where then was there a falling off? Chiefly in exports to the United States. For the fiscal year ending Sept. 1903 the shipments to the United States were close on a million tons. For the fiscal year ending Sept. 1904 or for the calendar year 1904, the shipments are we should say a quarter of a million tons less. This more than offsets the gain in shipments to the St. Lawrence. The less shipments to the States in 04 are due solely to the fact that there were no strikes in the United States, no abnormal condition of affairs, and therefore no opportunity for shipments at a profit. Some people run away with the idea that because shipments of coal to the United States rose from 100,000 tons in 1893 to 900,000 tons in 1903, that we are securing a footing in the New England markets. This is scarcely the case. We are making no real progress in that respect in recent years. If there was an increase in shipments, 1902 over 1901, and 1903 over 1902, it was due to the abnormal conditions prevailing in the United States due to the strike of Anthracite Miners. The only market to be depended upon in the United States is Everett, and that is not a consumer of round coal but of slack. One or two of the big railways are occasional customers, but they are not to be depended upon and the price obtainable for coal furnished them is not tempting.

Not one of the large companies came up quite in shipments to expectations. The year opened very badly for them due in part to the severe weather. The first four months of the year showed decreases amounting to 350,000 against increases of only 80,000, or a deficiency as compared with the corresponding four months of 1903, of 342,000 tons. It began to look about this time as if business was going to the bad, but after May a recovery

set in, which made up in time for what had been lost.

Prices were fairly well maintained during the year, though there was a cut, to secure the trade, in an instance or two. The workmen at the collieries had no cause for complaint as they were given steady employment, at good rates.

The experiment of sending coal through the lakes was tried during the year by the Inverness Ry. and Coal Co. Several cargoes, or rather part cargoes, as the steamers had to discharge a portion at Montreal, were sent, and return cargoes of iron ore for the Steel works brought back. And yet, the RECORD regrets to learn, results do not justify, the Inverness Co, at any rate, in continuing shipments. We are informed that this company will not attempt to send coal through the lakes this year.

There is much talk these days of needed new markets for coal. 'New markets' is a question that will have to be faced at no distant date. Where are new markets to be found? Some say in New England; others say in the United States. A majority of the operators have not strong hopes of being able to establish a large market in New England even were there a reduction, or a repeal, of the duty. The only way in which Nova Scotia could compete would be by sending coal to the seaboard towns in steamers of large capacity, say with a capacity of 6000 tons. As there are not, at any of the ports, proper discharging plants or ample storage facilities, such shipments are precluded. Before the companies could be asked to build these they would have to be assured of the permanency of the market, and that there would be no tinkering with the duty, for a period of years. And, besides, means would have to be adopted to overcome the prejudice that exists in the New England states against provincial coal. There are only a few companies in a position to send coal in large carriers to the United States, and so far none of these seem to see enough profit in prospect to warrant the expenditures of large sums, on alien soil.

The Ontario market may be almost as hard to secure. The Canals are not deep enough to permit of the passage of ocean going steamers. If the market is to be secured then specially constructed steamers are required. These also involve heavy expenditure. Mr. Ross says he is going to make an attempt to discover if the game is worth the candle; we hope he will find that it is worth more, and that Ontario may be counted in, as a market, with the St. Lawrence.

PROSPECTS.

The present year should make a much better showing than did the past. In Cumberland County the Springhill collieries should do as much as during the past two years or perhaps a little better. The shipments from these collieries to the United States last year were 63000 tons odd; the quantity this year should reach 70000 tons. The J.iggins has room for improvement. While the Maritime and Minnie Coal Companies did fairly well last year it is expected they will do better this.

Concluded on page 18.

Coal Shipments 1904.

July	3,523	3,796	i	273
August	3,452	4,041	i	582
September	4,213	4,877	i	669
October	4,757	4,900	d	154
November	5,501	4,707	d	794
December	4,839	5,001	i	164

DOMINION COAL COMPANY, LTD.

MONTHLY SHIPMENTS.		Changes.	
	1903	1904	
January	221,188	147,489	d 73,699
February	199,803	126,221	d 73,582
March	216,517	149,427	d 67,100
April	233,616	144,059	d 89,557
May	246,148	303,972	i 57,824
June	261,803	347,357	i 85,554
July	273,250	294,872	i 21,622
August	225,786	307,084	i 81,298
September	233,042	276,454	i 43,412
October	266,272	294,615	i 28,343
November	226,658	215,746	d 10,912
December	198,057	172,752	d 25,305
	2,802,134	2,780,038	
		2,802,134	
	Decrease '04	22,096	
Shipments to United States	1904	597,426 tons	
"	"	1903	702,715 "
	Decrease 1904	105,289	

51,375 57,441
51,375

Increase '04 6,076

CUMBERLAND RAILWAY & COAL CO.

MONTHLY SHIPMENTS.		Changes.	
	1903	1904	
January	41,512	32,793	d 8,719
February	41,720	25,467	d 16,253
March	39,325	31,410	d 7,815
April	23,856	38,493	i 4,637
May	35,744	37,019	i 1,275
June	38,321	39,366	i 1,045
July	31,010	36,394	i 5,384
August	31,660	37,597	i 5,937
September	35,632	37,933	i 2,301
October	38,960	36,896	d 2,064
November	40,567	38,723	d 1,784
December	27,509	41,767	i 14,258
	435,716	433,858	
		435,716	
	Decrease '04	1,858	

NOVA SCOTIA STEEL & COAL CO.

SYDNEY MINES.		MONTHLY SHIPMENTS.	
	1903	1904	
January	26,339	19,570	d 6,769
February	13,915	13,795	d 120
March	11,042	13,197	i 1,255
April	24,965	12,908	d 11,977
May	34,497	46,125	i 11,628
June	39,883	60,549	i 20,666
July	44,432	40,518	d 3,914
August	46,502	50,045	i 3,563
September	47,521	50,916	i 3,395
October	46,061	54,553	i 3,492
November	37,110	47,793	i 10,683
December	27,471	23,251	d 4,220
	400,618	439,310	
		400,618	
	Increase '04	38,692	

ACADIA COAL CO.

MONTHLY SHIPMENTS.		Changes.	
	1903	1904	
January	24,680	18,789	d 5,891
February	25,109	21,221	d 3,888
March	31,355	21,927	d 9,428
April	28,908	20,536	d 8,572
May	25,881	17,200	d 8,681
June	33,041	23,624	d 9,417
July	30,449	20,435	d 10,014
August	25,851	23,708	d 2,123
September	29,506	21,465	d 8,041
October	32,198	23,485	d 8,714
November	27,129	21,106	d 6,103
December	23,146	21,837	d 1,309
	337,213	255,133	
		337,213	
	Decrease '04	82,080	

MARSH MINE

MONTHLY SHIPMENTS.		Changes.	
	1903	1904	
January	4,476	5,056	i 1,180
February	4,247	4,899	d 652
March	4,985	5,244	i 259
April	3,710	4,734	i 1,025
May	3,736	5,002	i 1,266
June	3,942	4,884	i 942

MINUDIE COAL COY.

Approximate Shipments 1904		Changes.	
	1904	1903	
	34,500 tons.	29,000 "	
	Increase 1904	5,500 "	

Note.--By mistake the figures showing monthly outputs were sent instead of those showing sales. The above is our approx. of sales.

INTERCOLONIAL COAL CO.

—MONTHLY SHIPMENTS—

	1903	1904
January	18,610	19,168
February	16,737	17,972
March	19,800	20,292
April	18,272	19,277
May	20,861	22,178
June	20,090	23,481
July	17,891	20,009
August	19,918	22,715
September	21,350	19,582
October	20,440	21,276
November	18,670	18,637
December	19,359	17,557
	232,056	242,144
		232,056
Increase '04		10,088

Changes.

i 558
i 1,235
i 432
i 1,005
i 1,317
i 3,391
i 2,118
i 2,797
d 1,668
i 838
d 33
d 1,802

PORT HOOD COAL

MONTHLY SHIPMENTS.

	1903	1904	Changes.
January	2,406	2,468	i 62
February	1,387	1,077	d 310
March	2,026	933	d 1,093
April	1,449	1,119	i 330
May	8,642	3,611	d 5,031
June	10,939	6,370	d 4,569
July	11,291	8,467	d 2,824
August	5,832	11,172	i 5,350
September	7,402	10,302	i 2,900
October	8,752	4,858	d 3,894
November	10,429	7,809	d 2,620
December	7,444	4,149	d 3,295
	77,981	62,335	
		77,981	
Decrease '04		15,646	

INVERNESS RY. & COAL CO.

—MONTHLY SHIPMENTS—

	1903	1904
January	6,606	8,627
February	7,890	5,028
March	9,700	10,320
April	10,056	11,958
May	11,341	13,160
June	14,982	25,576
July	16,524	13,754
August	12,741	18,321
September	22,296	18,602
October	21,107	17,395
November	17,585	14,903
December	16,210	10,250
	165,738	167,894
		165,738
Increase '04		2,156

Changes.

i 2,021
d 2,862
i 620
i 1,902
i 2,819
d 10,594
d 2,470
i 5,580
d 3,694
d 3,712
d 2,682
d 5,960

MARITIME COAL CO.

Shipments 12 months 1904	43,700 tons
" " 12 months 1903	19,700 "
Increase 12 months 1904	24,000 "

RECAPITULATION

Name.	1903.	1904.
Dominion Coal Co	2,802,134	2,780,038
N. S. S. & C. C.	400,618	439,310
Gowrie & B-H. Ltd.	24,420	31,470
Sydney C. C., app.	10,000	10,000
Other Collieries		8,000
Total for Cape Breton County,		3,268,818

GOWRIE & BLOCKHOUSE LTD.

—MONTHLY SHIPMENTS—

	1903	1904
January	597	1,308
February	46	64
March	189	1,781
April	18	1,307
May	3,576	3,092
June	2,215	3,530
July	3,759	2,773
August	2,249	3,626
September	3,262	4,171
October	1,898	2,246
November	1,506	4,023
December	5,114	3,479
	24,429	31,470
		24,429
Increase '04		7,041

Changes.

i 771
i 18
i 1,592
i 1,289
d 184
i 1,315
d 986
i 1,387
i 909
i 348
i 2,517
d 1,635

Cumb R & Coal Co.	435,719	433,858
Maritime Coal Co.	19,800	43,700
Minidoc Coal Co.	20,000	34,500
Other Collieries		55,000
Total for Cumberland County		567,058
Acadia Coal Co.	337,813	255,133
Intercolonial C. C.	232,056	242,144
Marsh-N S. S.& C. C.	51,375	57,441
Total for Pictou County		554,718
Inverness R.R.&C.C.	165,738	167,894
P. Hood Coal Co.	77,981	62,335
Other Collieries		2,000
Total for Inverness County		232,229
App. Grand Total 1904,		4,622,823
" " 1903,		4,650,713
App. Decrease 1904,		27,890

In Pictou Co. the Drummond col. which shows an increase for last year is expected this year to add to the figures a little. The Acadia Coal Co. will endeavour this year to regain some of the much ground lost in 1904. The Marsh mine will do well to hold its own.

In Inverness Co. the Inverness Railway and Coal Co. expect to increase the sales by from sixty to ninety thousand tons. It is expected that the coming season a considerable quantity will be marketed in the province of Quebec. The Port Hood people are in a position to largely increase their shipments. They can double last year's output if markets are found. The Mabou Coal Co. should begin this year to show the stuff it is made of. If the shipments do not reach 25000 tons its friends will be disappointed.

All the companies in C. B. should show big increases. The Dominion Coal Co. will disappoint people if it does not increase its shipments by at least 500,000 tons. The Nova Scotia Steel and Coal Co. is in a position to increase shipments by 100,000 tons but if it goes 60,000 to 70,000 tons better there should be hand clapping. The Gowrie and Blockhouse ought to add at least a half more to 1904 shipments. The Sydney Coal Co will hold its own. The new concern at Broughton may be in the field during the summer but the shipments this year cannot be expected to be large.

The production for 1904 made so great fools of the prophets that it is hazardous to give any estimate for 1905. This much may be said. The RECORD will be ashamed if there is an increase of less than a quarter of a million tons in sales. We will be almost satisfied at an increase of half a million, and not a bit surprised at an increase of a million tons, provided, of course, and always, that there is no trouble at the collieries, and that the men work in harmony with the managers in their efforts to secure larger markets.

IRON AND STEEL PROSPECTS.

The expected activity in the production of iron and steel is a source of satisfaction not only to the people of the Sydneys, but to the province generally.

The Dominion Iron and Steel Coy. which has been doing remarkably well since the termination of the strike will continue to do better as the year proceeds. In April or May an impetus will be given to the trade by the starting of the rail mill, which will necessitate the restarting of all the open hearth furnaces and an additional blast furnace. The Rod mill is doing a big and satisfactory business. That the public is regaining confidence in the future of these works is evidenced by the way the preferred stock is climbing up.

It is expected that the business of the Nova Scotia Steel and Coal Coy. will be much better, in a general way, than it was during the past year. The new furnace at Sydney Mines was put into blast last August, and it has given exceedingly satisfactory results, alike in quality, in quantity, and production at less cost of pig iron. Owing to an accident to the bell the furnace was off for a few days, causing some anxiety, but has since been running smoothly, and is now producing a large amount of first class pig iron. The company is now preparing to start up its fourth block of coke ovens. The mills at Trenton are well supplied with work and a busy season is looked forward to.

Unfortunately the satisfaction of fairly busy times is detracted from a little in the knowledge that prices are not as good as they were two years ago. However there is a comfort in the belief that all indications point to improvement in this direction. The increased activity in iron and steel should mean an increased consumption of coal by some two hundred thousand tons.

SUB-MARINE COAL MINES.

In Nova Scotia, according to the Mines Act, mining under the sea with a less cover than 180 feet of strata is not permitted except under peculiar circumstances. Mr. R. H. Brown, who knows much of mining under the sea, having been manager at Sydney Mines for a long period, gave it as his opinion that with the peculiar strata existing in the locality mining could be carried on with a much less cover than 180 feet, though he thought the government was wise in maintaining that thickness of cover. From the following note from a New Zealand paper it will be seen that 120 feet is considered a sufficient cover in that country:—

Many people are unaware of the fact that a great deal of the coal hewn in the New South Wales, district comes from under the sea. The coal mines of the Stockton, Hetton, Newcastle, and A. A. collieries are working under the waters of the Pacific Ocean as they sweep north and south of that port. As an inrush of the sea would mean the flooding of an immense area of workings and would necessitate the abandonment of an enormous amount of coal, the colliery proprietors and the Chief Inspector of Coal Mines, Mr. A. A. Atkinson, have discussed the question as to what amount of rock the bed of the ocean, in order to secure safety from the sea breaking into the workings. A decision has been come to that the depth of the rock should not be less than 120ft. The harbour, as well as the bed of the ocean outside the harbour, have been carefully charted, so that each colliery manager knows exactly, as he goes seaward, how much rock is overhead. It may be stated that in one of the collieries working under the harthe ferry boats as they approach or depart from the wharves. Mr. Atkinson states that coal seams are worked under the sea off the coast of Northumberland, Cumberland, North Wales, Firth of Forth, and the coast of Ayrshire, and in all cases an overburden of 120ft of rock is considered to be the margin of safety.

For the first time in Canadian history the home market will demand two hundred thousand tons of steel rails, during the season of 1905. The outlook on the Canadian market never looked brighter. With the Grand Trunk Pacific and the Canadian Northern Railways buying it is expected that the present output of the Soo will be inadequate to meet the demand. These prevailing conditions almost assure the success of the Dominion Iron and Steel Company's rail mill which is nearly completed.

AROUND THE COLLIERIES.

The mines in Cumberland Co. expect to do a fair business during the winter months.

The report current for some time that the Albion Mines would go on double shift is premature.

The "Suburban" will issue toward the end of the month a special edition dealing with the transportation of coal. This is a big and a difficult subject.

The Colchester Coal and Railway Co. expect to be in a position to send coal to market by the middle of the summer. The quantity, likely, will not be large.

Coal cars which were very scarce during the summer months, causing a lessening of outputs, are now more plentiful and the coal men are accordingly more cheerful.

Notwithstanding the zero weather and the snow storms, the Cumberland Railway & Coal Co's shipments for Dec. were the highest monthly shipments for the year.

The Springhill collieries made a wonderful increase in shipments in Dec. over the same month last year. The increase was over 14000 tons, or fully a half more than the shipments of Dec 1903. This increase all but wiped out the decreases of several of the months preceding.

The Maritime Coal Co.—Chignecto Colliery—more than doubled its shipments last year. From 13000 tons in 1903, to 43000 tons in 1904 is a showing of which the company need not be ashamed. This increase will help to offset some of the other decreases.

The compressor building at the Drummond Colliery was erected during the past year and the compressors will soon be ready to start up. The outer wall of this building, is constructed of red brick of the company's own manufacture.

The new steel pit frame at Sydney No. 1, Sydney Mines, has been completed. It is held to be an excellent piece of workmanship, and is giving every satisfaction. The parts were made and designed at Trenton, and is further proof that the company can do very diversified work.

The Acadia Coal Co's has a hard proposition in the Acadia Colliery, Westville. Some are of opinion that the length of the life of the colliery is measurable. In one part of the mine the coal was cut clean off as with a knife. It ran up 'smack' against the sandstone without the slightest indications of its intentions. This action is not general but peculiar.

On the last day of 1904 the main Allan shaft had reached a depth of 600 feet. It is possible a little better rate of speed in sinking may be looked for from this out, but even at the average for the past four months, the coal should be struck sometime in May. There are some who say that no coal will come out of the shafts this year. The RECORD has a different opinion, and expects to see coal being hoisted for the market in December at latest.

It is a question whether much work will be done in No 4 slope or the Scott Pit, of the Drummond Colliery, during the current year.

Development work is ahead of requirements at the Drummond, and the mine, generally, is in a most satisfactory condition for putting out coal.

The demand upon the Int. Coal Company last fall was very heavy, as Drummond coal is steadily winning its way with the public as a fuel for domestic purposes.

The sinking of the slopes at the Drummond for another lift has just been finished. The length of the slope from the pit's mouth to the bottom is now 6700 feet, making it the longest slope on the continent.

Up till last week no coal had been banked at Sydney Mines, the company having shipped, and used for their own purposes, all that was raised. It is expected that the company will get along with very little banking. The development work at Sydney Mines is in so forward a state that in the summer months they will be able to fresh mine as fast as they can ship.

The last payment, the RECORD is informed, has been paid of the Springhill Relief Fund. As the explosion occurred in 1890, the administration of the fund has spread over fourteen years. Mr. Alex McLeod, Chief Clerk at Springhill has, seen to the distribution of the fund to the general satisfaction of the beneficiaries. The RECORD expects next issue to give a history of the fund.

It is suggested that a new market for coal can be obtained after this fashion:—The federal government to erect a discharging plant at Montreal which would hoist coal from the vessels hold and deliver it into cars, and then to be hauled to points beyond Montreal and as far as Toronto. One objection that presents itself at once to this proposal is the friable nature of our coals. It looks bad enough when discharged into cars at Montreal; what it would look like after being discharged from the cars one would rather not say. And then the coal could only be carried to points inaccessible by water, as water carriage is supposed to be the most economical.

It is said that the Inverness Ry. & Coal Co. which sent considerable coal through the lakes last year will not this year follow out the experiment, but leave the field entirely to the president of the Dominion Coal Co. The presumption is that the venture was not a profitable one. Can it may be asked, the Dom. Coal Coy. succeed where the Inverness Ry. and Coal Co., may be said to have failed? Possibly. If the Dominion Coal Coy. can secure the same net prices for the coal as was secured by the Inverness people—and the chances are that a better price may be obtained—then it can send coal through the lakes at a profit, though not large. This is due to the fact that the cost of production is less in Cape Breton than in Inverness Co.

AROUND THE COLLIERIES.

The Nova Scotia Steel & Coal Co. are now in a position to put double deck cages in Sydney No. 1, and thereby materially increase the output. The company, in their several mines, all well equipped, are in a position to handle greatly increased outputs, if markets can be found.

Though we printed several hundred more copies of the Springhill special edition of the Record, we greatly miscalculated the number necessary to supply the demand. Orders had to go unfulfilled. Of course, we are gratified at the excellent reception the edition obtained. One gentleman suggests that we do for—a place named,— what we have done for Springhill: another goes one better and says, "I suppose now that you have your hand in you will write up all the mining towns, and so place us in touch with each other," and yet another prominent among mine workers writes: "I read your Springhill article with much interest. It is very good and well worth preserving. Of course, I keep all the Records, but this is special." There were received besides personal compliments, but our absurd modesty is a barrier to publication.

In our notes last issue, on Springhill and its collieries, we hinted that it was possible some things had been omitted. It turns out as surmised. In speaking of the staff three names were omitted well deserving a place. First, Referegrogett was overlooked. Mr. Julius Choisset and the Erector and Superintendent of the Coal Company's excellent Electric light system, while Mr. Red Telephone system. Both men are self educated in their profession, and have not only followed and kept abreast of the times but have marked out a path for themselves, so that it may truly be said they are well in advance in their special lines. The telephone service is worthy of a more extended notice than that given, for by it one can speak from 8,480 feet underground to any point in the Maritime provinces, and as far as Calais, Maine, where a transfer can be made to Boston or New York. In the course of a couple of years it may be possible to speak from any point in the extensive underground workings, several miles from the surface, to the head office in Montreal. At a meeting of the Board a couple of years hence this may occur.—The Hon. Sir Geo. Drummond, president, may wish a telephone at his elbow ring up Springhill and ask for the General Manager. The company's operator at Springhill may reply "Hold on a little the General Manager is in the mines but I will ring him up and connect you with him there." Is it not wonderful: a distance of 720 miles on the surface and two or three miles underground? That this could be possible would have been scouted a few years ago. And second; the third name omitted was that of Mr. Archibald who has charge of the numerous pumps employed in and

around the mine. He is a most capable and energetic foreman,

The Montreal Witness (Daily and Weekly) is a good paper, giving all the news that is worth the attention of the average reader. It keeps its readers well informed on all subjects of interest. The cable, the telegraph, and the telephone, together with an ever increasing staff of editors and reporters, all unite to make its news columns second to none. Its editorial pages are acknowledged to be both fair and forcible. Reliable commercial news and quotations of the money, stock and produce markets are features that make it of great value in the world of commerce, finance and agriculture.

The Minudie Coal Co. did no sinking during the past year, but have added to surface plant considerably. They built a new engine and boiler house; put in an up to date picking plant; built new offices; had erected a saw mill for sawing pit timber etc. and have also recently, put in a Siche Acetylene gas plant for lighting engine and boiler rooms, picking table, bank head, carpenter and blacksmiths shops, offices and the manager's residence.

Cumberland and Cape Breton counties show increased coal shipments for 1904; while Pictou and Inverness counties have fallen behind.

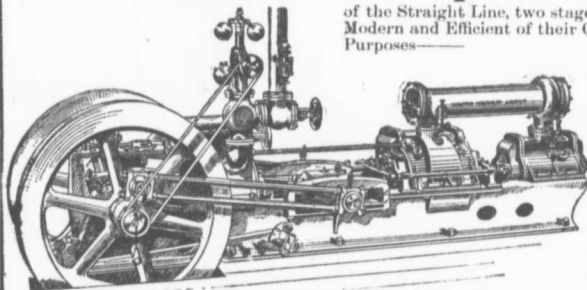
The law in reference to certificated engineers came into force 1st January. It is surmised that in some cases it could not be acted upon else some collieries would have shut down. Indeed it is said Dom. No. 2 was shut down for want of properly certificated men. The Record fears this measure was born before its time. The results of the examination, however, may cause us to alter this opinion.

(Continued from page 14.)

difficult to get the people of Ontario to experiment with our soft coal for domestic purposes while hard coal is so cheaply obtained just across the border. We are not so sure that there have not been times during the last five years when hard coal for domestic purposes would have been as cheap even in Sydney as the ordinary Cape Breton bituminous. The people of Ontario will object strenuously of course to a reimposition of the hard coal duty, but that is no reason why the government should not put the tax on as a matter of revenue. There are many things taxed now for revenue that otherwise ought to come in free. The tax on hard coal would afford a measure of protection to the coal industry.

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**Conveying & Elevating Machinery
Coal Washing Machinery.**



Summary of Regulations for disposal of Minerals on Dominion Lands in Manitoba, the Northwest Territories and the Yukon Territory.

Coal.—Coal lands may be purchased at \$10 per acre for soft coal and \$50 for anthracite. Not more than 320 acres can be acquired by one individual or company. Royalty at the rate of ten cents per ton of 2800 pounds shall be collected on the gross output.

Quartz.—Persons of eighteen years and over and joint stock companies holding free miner's certificates may obtain entry for a mining location. A free miner's certificate is granted for one or more years, not exceeding five, upon payment in advance of \$7.50 per annum for an individual, and from \$50 to \$100 per annum for a company, according to capital.

A free miner, having discovered mineral in a place, may locate a claim 1600 x 1600 feet by marking out the same by two legal posts, bearing location notices, one at each end and on the line of the lode or vein.

The claim shall be recorded within fifteen days if located within ten miles of a mining recorder's office, one additional day allowed for every additional ten miles or fraction. The fee for recording a claim is \$5.

At least \$100 must be expended on the claim each year or paid to the mining recorder in lieu thereof. When \$500 has been expended or paid, the locator may, upon having a survey made, and upon complying with other requirements, purchase the land at \$1 an acre.

Permission may be granted by the Minister of the Interior to locate claims containing iron and mica, also copper in the Yukon Territory, of an area not exceeding 160 acres.

The contract for a mining location shall provide for the payment of Royalty of 2 1/2 per cent of the value of the products of the location. **Placer Mining.**—Manitoba and the N. W. T., excepting the Yukon Territory.—Placer mining claims generally are 160 feet square, carry No. 15, renewable yearly. On the North Saskatchewan River claims 750 either way or bench, the former being 160 feet long and extending between high and low water mark. The latter includes bar diggings, but extends back to the base of the hill or bank, but not exceeding 1600 feet. Where stream power is small, claims 200 feet wide may be obtained.

Dredging in the rivers of Manitoba and the N. W. T., excepting the Yukon Territory.—A free miner may obtain only two of five leases of five miles each for a term of twenty years, renewable in the discretion of the Minister of the Interior.

The leasee shall have a dredge in operation within one season from the date of the lease for each five miles, but where a person or company has obtained more than one lease one dredge for each fifteen miles or fraction is sufficient. Rental, \$10 per annum for each mile of river leased. Royalty at the rate of two and a half per cent collected on the output after it exceeds \$10,000.

Dredging in the Yukon Territory.—Six leases of five miles each may be granted to a free miner for a term of twenty years, also renewable.

The leasee's right is confined to the submerged bed or bed in the river below low water mark that boundary to be fixed by its position on the 1st day of August in the year of the date of the lease.

The leasee shall have one dredge in operation within two years from the date of the lease, and one dredge for each five miles within six years from date. Rental, \$100 per mile for first year and \$18 per mile for each subsequent year. Royalty same as placer mining.

Pits or Mines in the Yukon.—Creek, gulch, river and hill claims should not exceed 250 feet in length, measured on the base line or general direction of the creek or gulch, the width being from 1000 to 2000 feet. All other placer claims shall be 800 feet square.

Claims are marked by two legal posts, one at each end, bearing notices. Notices must be placed within ten days, if the claim is within ten miles of mining recorder's office. One extra day allowed for each additional ten miles or fraction.

The person or company staking a claim must hold a free miner's certificate. The area covered by a claim must be a claim of 1,600 feet in length, and 100 feet wide or a claim of 1,600 feet in length, and 100 feet wide or a claim of 1,600 feet in length, and 100 feet wide.

Work must be done on a claim each year in the value of at least \$500. A certificate that work has been done must be filed, and if not filed the claim shall be deemed to be abandoned, and open to occupation and entry as a free miner.

The location of a claim may be proved conclusively by having a survey and publishing notices in the Yukon Daily Gazette.

Patents.—All unappropriated Dominion Lands in Manitoba, the Northwest Territories and within the Yukon Territory, are open to prospecting for gold, silver, and the Minister may reserve for an individual or company having such \$200 on the land to be prospecting for gold, silver, or platinum. Should the holder of the claim shall not exceed 160 acres for each parcel as he may or may not exceed 160 acres, including the land reserved, royalty, payable at the rate of \$1 an acre, and the remainder of the land reserved, royalty, payable at the rate of \$5 an acre, subject to royalty at such rate as may be specified by Order in Council.

JAMES A. SMART,

Deputy of the Minister of the Interior

Dept. Interior,

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Pemberton has now one of the most unique and remarkable sources of public water supply. The underground sea of water on the Winstanley Estate has been tapped, and is now being used. Seventy years ago there were collieries being worked hereabouts. The coal was wound up in baskets by means of a gin, a horse travelling round on the surface being the motive power. Then the mines were abandoned, and the old workings were filled with surface water, serving as a vast underground reservoir for the great gathering ground east of Billings Beacon. The old pit shafts remained. The Jackdaw informs his readers in the Wigan Observer, that where the dust and dirt of the colliery had formerly been on the surface grass grew, and saplings sprang up and grew into trees. Swallows built down the old shafts and ferns grow in the jointing of the brick work.

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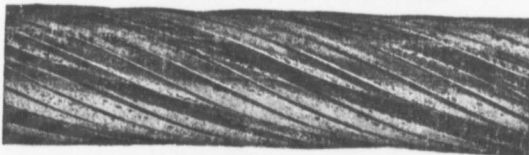
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L 10 15	4 00	1.5	P. Hawkebury	9 50	3 37
A 10 22	4 10	4.7	P. Hastings	9 37	3 27
L 4 15	8 8	8	Troy	9 27	1 2 10
F 4 27	12 7	12	Craigmoor	9 17	
F 4 40	10 9	10	Julienne	9 08	
F 4 52	23 1	23	Catherine's Pond	8 51	
F 5 07	27 0	27	Port Hood	8 34	
F 5 20	37 2	37	Glencoe	8 21	
A 5 35	44 5	44	Mabou	8 08	
A 5 45	47 4	47	Glendyer	8 00	
F 5 00	44 5	44	Black River	7 45	
A 5 21	47 4	47	Sirathorne	7 35	
L 6 28	52 2	52	Inverness	7 15	
F 6 35	56 0	56		7 05	
F 7 00	60 0	60		6 50	
F 7 12	60 0	60		6 37	
A 7 32				6 28	
P. M.					

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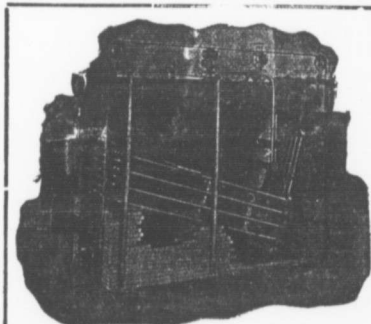
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 WE HAVE GOT IT.

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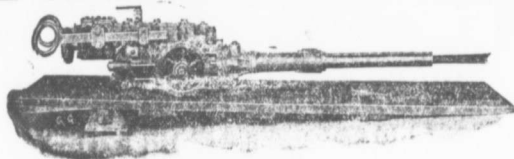
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*Best all round flour on the market.
 Uniform in quality. Every barrel*

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"G" HARRISON IMPROVED COAL CUTTER.

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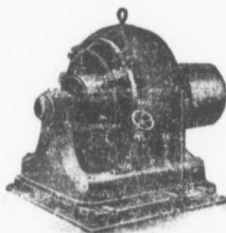
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Unexcelled for Steam, Domestic and General Purposes.

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The BROWN MACHINE COY.,

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Coal and Gold Mining Machinery a specialty

Endless Haulage Engines, Revolving Tipples, Picking Tables and Complete Screening Plants for the Cleaning and Picking of Coal. Rope Wheels, Pumps, Valves, Shafting, Belting Etc.

Complete equipments furnished for Coal or Gold mines.

Screening plants are now in operation at Sydney, Springhill, Broad Cove, Fort Hood and Westville Mines

Estimates Cheerfully given.

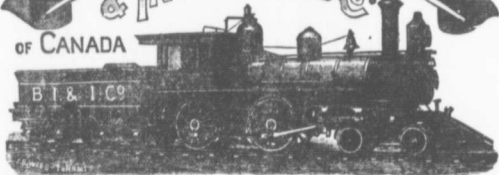
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MADE IN CANADA.

FRESH GROUND
FIRE CLAY.

Equal in quality to Scotch Clay. Sold in bulk or in bags
Our prices are considerably lower than the imported
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Write for prices and full particulars.

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MANUFACTURERS AND MERCHANTS SHOULD ADVERTISE IN THE
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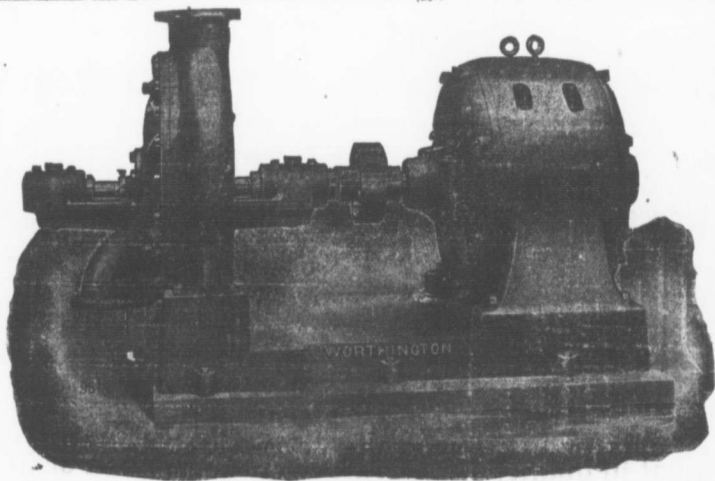
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Miners and Shippers of GOWRIE COAL.

The Reputation of this Coal has Steadily Advanced during the past 40 years and the Output of the new Mine is fully up to the old Standard of Excellence.

**Especially designed Piers for the rapid delivery of coal
into Vessels by Roe and Bedlington's Patents.**

OFFICES:—Canada, Port Morien, Cape Breton, Nova Scotia. England, Newcastle on Tyne.



PATENTED

EIGHT INCH SINGLE-STAGE Worthington TURBINE Pump

Driven by an induction motor. Capacity 1,800 Gallons per min. against 70 feet head.

THE JOHN McDOUGALL

Caledonia Iron Works Co., Limited.

Builders for Canada

MONTREAL.

Send for Catalogue.

Dominion Coal Company, Ltd.

Miners of

Bituminous Coals, the celebrated "Reserve" coal for household use, "International" Gas coal, and the best Steam coal from its collieries on the Phalen seam.

—Yearly output 3,500,000 tons.—

ANALYSES.

ANALYSES OF GAS AND STEAM COAL MADE BY J. & H. S. PATTINSON, CHEMISTS,
—NEWCASTLE, ENGLAND.—

	STEAM COAL.	GAS COAL.
CARBON.....	80 18 per. cent.	77 51 per. cent.
HYDROGEN.....	5 11 " "	5 22 " "
OXYGEN.....	7 34 " "	6 72 " "
NITROGEN.....	1 16 " "	1 27 " "
SULPHUR.....	0 56 " "	3 07 " "
ASH.....	2 30 " "	4 10 " "
WATER.....	3 35 " "	2 11 " "
	100 00	100 00

Calorific Power of Steam Coal:—Pounds of Water evaporated from 212 per cent Fah, by one pound of the coal as determined in Thompson's Calorimeter,—14.8 lbs.

Shipping facilities at Sydney, and Louisburg, G. B., of most modern type. Steamers carrying
—5000 tons loaded in 24 hours.—

Special attention given to quick loading of sailing vessels. Small vessels loaded with
quickest despatch.

:: BUNKER COAL ::

The Dominion Coal Co. has provided unsurpassed facilities for Bunkering Ocean going Steamers with Dispatch. Special attention given to Prompt loading. Steamers of any Size are bunkered, without detention.

By Improved screening appliances lump coal for Domestic trade is supplied of superior quality.

Applications for prices, terms, etc. should be made to

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C. C. Marvel, 95 Milk Street Boston.
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A. Johnson and Co., Agents, Stockholm, Sweden.
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CUMBERLAND

RAILWAY AND

COAL COMPANY.

OPERATING THREE
THICK SEAMS
NOS 1, 2 AND 3.

—Miners and Shippers of the Well Known—

FRESH MINED SPRINGHILL COAL

... ANALYSIS ...

	NO 1	NO 2	NO 3
Moisture.....	2.02 %	1.41 %	2.71 %
Volatile combustible matter	18.94 %	27.93 %	28.41 %
Fixed Carbon.....	75.29 %	67.47 %	64.69 %
Ash.....	3.75 %	3.19 %	4.19 %
	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>
Sulphur.....	1.15 %	5.8 %	.79 %

BEST COAL FOR
LOCOMOTIVE USE.

Delivered By Rail or Water

BEST COAL FOR
GENERAL STEAM PURPOSES.

The year Round

IN Lots To Suit Purchasers.

BEST COAL FOR
DOMESTIC CONSUMPTION.

BEST GAS COAL

Mined in the Province.

Mines _____
SPRINGHILL

N. S.

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MONTREAL