

MARITIME
MINING RECORD
Dr. R. Bell
 Geol. survey dept.
COAL AND METAL TRADES JOURNAL

*Cumberland. * Pictou. * Cape Breton. * Inverness*

New Series Vol. 9 No. 15

February 13th. 1907 STELLARTON, N. S.

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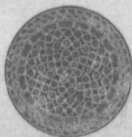
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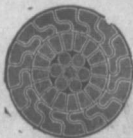
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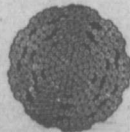
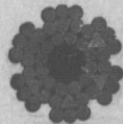
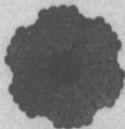
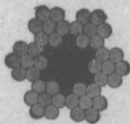
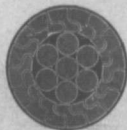
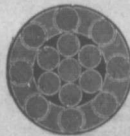
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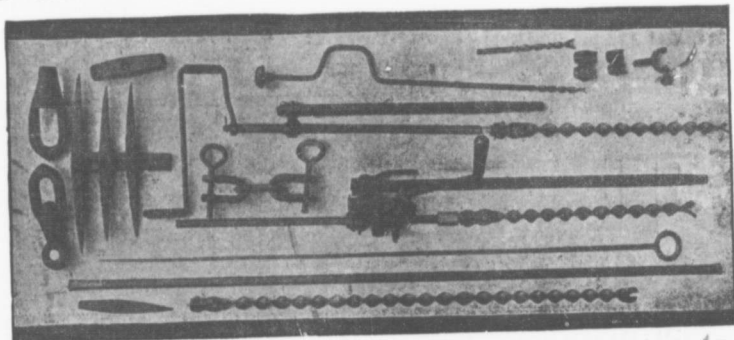
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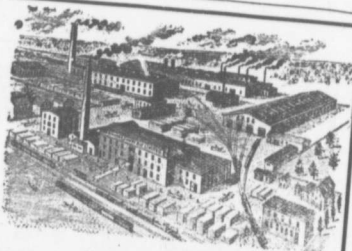
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32 Mixed for Pictou Landing	7.40
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65 Mixed for Mulgrave	7.45
19 Express for St. John	8.38
28 Mixed for Pictou	11.10
180 Mixed for Truro	11.10
180 Mixed for New Glasgow	11.10
30 Express for Halifax and Montreal	12.40
140 Mixed for Pictou	12.40
101 Mixed for Pictou Landing	12.45
22 Mixed for Ho swell	12.50
65 Mixed for New Glasgow	12.50
17 Express for New Glasgow	12.50
66 Express for Pictou	12.50

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79 Mixed from Hopewell	6.30
78 Mixed from Trenton	6.55
61 Express from New Glasgow	7.30
18 Express from Hopewell	7.38
65 Mixed from Truro	7.38
100 Mixed from Pictou Landing	9.30
32 Mixed from New Glasgow	9.30
67 Mixed from Pictou	10.52
66 Mixed from Mulgrave	10.52
19 Express from Halifax and St. John	12.25
180 Mixed from Pictou	12.25
180 Express from Sydney	12.30
32 Mixed from Pictou Landing	12.35
77 Mixed from Hopewell	12.40
66 Mixed from Pictou	12.45
66 Express from New Glasgow	12.50
17 Express from St. John and Halifax	12.55

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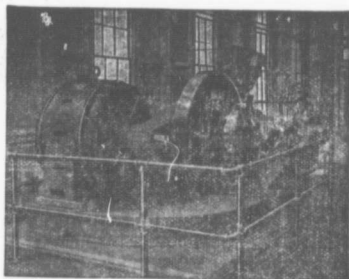


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Minerals other than

Gold and Silver.

—LICENSES TO SEARCH—

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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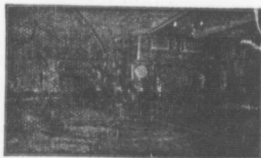
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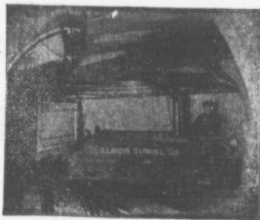
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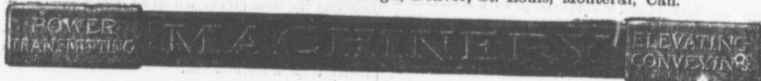
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New Brunswick Coal and Railway, (operated for
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Commission,) Norton, N. B.

Coal Miners Wanted

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Minto Mines. Minto, N. B.

APPLY TO

G. H. KING,

CHIPMAN, N. B.

Two serious mine explosions have occurred in West Virginia during the past two weeks. The first was in the mine of the Pennsylvania Consolidated Coal Co., near Buckhannon, and is supposed to have been caused by the ignition of a can of powder. Twelve men were killed. A few days later a gas explosion in the Stuart mine of the White Oak Fuel Co., near Fayetteville, killed upwards of 75 men.

Complete reports received from every iron furnace in the country by the American Iron & Steel Association show that the total production of all kinds of pig iron throughout the United States in 1906 was 25,307,191 gross tons, against 22,992,380 tons in 1905. The production in the second half of 1906 was 142,691 tons greater than in the first half.

To his....
MARITIME MINING RECORD

Vol. 9, No. 15. Stellarton, N. S., February 13 1907. New Series

PROVINCIAL EXAMINATIONS, 1906:

—MANAGERS.—VENTILATION.—

Ques. 1.—What is the smallest quantity of air in circulation per minute, required to make safe a section of a mine under the following conditions: In the section there are two levels or entries and 55 rooms. The entries are 9 feet, and the rooms 22 feet wide; the height of the coal is 6 ft., and the working faces are known to give off CH₄ gas at the rate of 6 cubic feet per square foot per hour.

Ans. 1.—The area of cross section of the two entries is $2(9 \times 6) = 108$ sq. ft. If levels advance at the rate of say 4 ft. per day it is fair to assume that the transpiration of gas will be equally strong over twice this area or 216 sq. ft. The area of cross section for 55 rooms is $55(6 \times 22) = 7260$ sq. ft. It is safe here to assume that transpiration takes place over say 8000 sq. ft. of surface. Total area = $8000 + 216 = 8216$ sq. ft. Quantity of gas produced = $8216 \times 6 \div 60 = 821.6$, say 825 cubic ft. per minute. Now having a mine giving off such a quantity of gas I would reduce percentage of gas in return airway to 1 per cent. or if dusty mine to $\frac{1}{2}$ per cent. which would be 825×99 parts air = $825 = 80850$ cubic ft. per minute in the intake or for dusty mine 825×99.5 parts air = $825 = 82087$ cubic feet per minute.

Ques. 2.—Under what conditions may after damp become explosive.

Ans. 2.—When after-damp contains a considerable amount of carbonic-oxide gas (CO) an explosive mixture is formed upon contact with air or when coal dust is present in suspension in the air. It sometimes occurs also that a considerable amount of unburned marsh gas is still present in the after-damp which only requires the addition of fresh air to make explosive.

Ques. 3.—A mine is ventilated through two airways of equal length. One airway, A, intake and return, being 6 x 9 feet, and the other, B, 6 x 12 feet; the total quantity of air in circulation is 60,000 cubic feet per minute. A regulator is placed in B, and so adjusted as to make the circulation in that airway 30,000 cubic feet per minute. What effect has this regulator on the ventilation of airway A, and on the fan, and on the fan engine.

Ans. 3.—Total quantity of air in circulation before regulator is placed = 60,000 cubic feet. Its natural division would be about as follows: Split A, 25,000, Split B, 35,000 cub. ft. By placing a regulator in B to reduce quantity to 30,000 would increase total mine resistance which would reduce total quantity of air. There will be an increase in volume in split A but it will not equal the decrease in B. With the same steam supplied to the engine running the fan the speed of fan will be increased because owing to increase in mine resistance less quantity of air is passing through the fan which

handles less weight of air per minute. This decrease is made up by an increased speed of fan and of the engine resulting also in a slight increase in power applied.

Ques. 4.—What are the different means used to produce ventilation? Describe each fully.

Ans. 4.—There are various means to produce ventilation. I will confine myself to a few of the principal ones, viz: the Water-fall, Steam jet, Furnace and Fan.

The Water-fall consists sometimes of a perpendicular pipe perforated at the top so as to allow air in and is taken down with the water or sometimes a whole shaft is used having some brush matting so as to scatter the water into a spray. This means of ventilation is not used very much only in the case of driving smoke out of shafts after blasting or where the water could run out of mine by itself in a water level.

The Steam jet consists of a pipe led down into the shaft and led around the perimeter of the shaft. This pipe is full of small holes so as to allow steam to escape in a series of jets. This means of ventilation is not used only in case of emergency, such as to restore ventilation after an explosion or something going wrong with the fan. It is not a very commendable means of ventilation for reasons given in case of water-fall.

The Furnace consists of a large fire built near the bottom of the upcast shaft, incased with brick having burnt ashes or sand between the brick and the coal. It causes ventilation by raising the temperature in the upcast shaft, causing it to ascend. It can be used to best advantage in non-flery mines and deep shafts, because the larger the heating columns the better.

The Fan is the best means of producing ventilation. It is composed of a number of arms or blades; they are partly encased in a casing which is either brick or iron, around the shaft. Sometimes there are two orifices of entry. The fan turning the blades throws the air off the tips of the blades with such a velocity that it takes the pressure off the centre of fan around shaft which causes the return air to rush in to be thrown off by the blades. It is by far the best means of ventilation we have to-day.

Ques. 5.—If 30,000 cubic ft. of air is being produced in an airway 1200 feet long 8 x 5 feet, how many cubic feet would be produced if the air were split into three splits, the first being the dimensions given above, the second 1500 feet long, 8 x 7 ft., the third 1800 feet long, 9 x 6 ft., the power remaining the same.

Ans. 5.—Use formula $U = KSV^3$ and for airway passing 30,000 cubic ft.

$U = 30,000 \div 40 = 750$ cubic feet per minute.

$U = .000000217 \times 31200 \times 750^3 = 28556.25$ lbs.

Power remaining the same for 3 airways.

	Area	Rubbing surface
1st. split 8 x 5 x 12000	40	31200
2nd. " 8 x 7 x 15000	56	45000
3rd. " 9 x 6 x 18000	54	54000
	Total 150	130200

$$Q = \sqrt[3]{\frac{U}{KS \times A}} = \sqrt[3]{\frac{285626.25}{.000000217 \times 130200}} \times 150 =$$

$$3 \sqrt[3]{\frac{285626.25}{.06282334}} \times 150 = \sqrt[3]{101094470046} \times 150 =$$

465.8 x 150 = 69870 cubic feet.

Ques. 6.—If with a rubbing surface of 64,000 square feet, a pressure of 2 pounds per square foot passes 20,000 cubic feet of air per minute, what will be the quantity if the rubbing surface were doubled.

Ans. 6.—Quantity varies inversely as the square roots of rubbing surface.

$$\therefore \sqrt{64000} : \sqrt{128000} \text{ or } \sqrt{1} : \sqrt{2}$$

$$\therefore 1 : 20000 : 1.4142 : \{ \text{ or } \frac{1.4142}{1} \times 20000 = 14142 \text{ cub. feet.}$$

Ques. 7.—What is the quantity of air passed by a fan making 80 revolutions per minute, if the same fan passes 72,000 cubic feet per minute, when making 112 revolutions per minute.

Ans. 7.—Quantity varies in direct proportion to the speed of the fan.

$$80 \times 72000 : 112 : 72000 : 112 : \{ \text{ or } 80 \times 72000 \div 112 = 51428 \text{ cubic ft.}$$

Ques. 8.—It is desired to increase the volume of air circulating in a mine from 120,000 cubic feet to 180,000 cubic feet per minute. In what proportion would the speed of the fan, and also the ventilating pressure have to be increased.

Ans. 8.—Quantity increases as the square root of the fan speed would be increased as

$$120000 : 180000 \text{ or } 2 : 3 \text{ or } 1\frac{1}{2} \text{ times.}$$

Pressure increases as the square of quantities.

$$\therefore 120000 : 180000 \text{ or } 144 : 324 \text{ or } 4 : 9 \text{ or } 2\frac{1}{2} \text{ times.}$$

Ques. 9.—Name the principal gases in the mines. What dangers attend the presence of each. What precautions would you adopt to guard against such dangers.

Ans. 9.—The principal gasses are:

Marsh Gas, CH₄; Carbonic Oxide, CO; Carbonic Acid Gas, CO₂; Sulphureted Hydrogen, H₂S.

Marsh Gas is a chemical compound. It was formerly called light carbonated hydrogen. It is one of the chief gases met in mines. Pure marsh gas is colorless, odorless, and tasteless and is lighter than air, having a specific gravity of .559 and it diffuses rapidly in the air forming a fire-damp mixture. Marsh gas is not poisonous and mixed with air in sufficient proportion it may be breathed for a considerable length of time with impunity. Pure marsh gas does not support life but suffocates by excluding Oxygen from the lungs.

Carbonic-oxide gas, (then called white damp) is a chemical compound which is lighter than air having a specific gravity of .967 and therefore found near the roof and in high workings of the mine. It is colorless, odorless, and tasteless. It is combustible, burning with a light blue flame. It is also a supporter of combustion, it being the only mine gas that burns and also supports combustion. Carbonic oxide gas is a very toxic, producing drowsiness or stupor followed by acute irritation. It acts when breathed into the lungs to absorb the oxygen from the blood or to poison the blood.

This gas is detected in a mine by its effect on the flame of a lamp, which burns more brightly and reaches upwards as a slim quivering taper.

Carbonic Acid Gas, CO₂ often called black damp or choke-damp is a chemical compound. It is heavier than air having a specific gravity of 1.529. It is found near the bottom or in low places in the mine. It is always the result of the complete combustion of carbon in a

plentiful supply of air, and is a product of men and animals breathing, burning of lamps or any other complete combustion. This gas is colourless and odourless, but possesses a peculiarly sweet taste. It is not combustible nor is it a supporter of combustion. Lamp are at once extinguished in it. It diffuses slowly in air and is a difficult gas to remove in ventilating. It is not poisonous but acts to suffocate by excluding oxygen from the lungs. Its effect when breathed for any length of time is to cause headache, followed by weakness and pains in back and limbs. When present in large quantities it causes death by suffocation.

Sulphureted Hydrogen, H₂S occurs at times as an occluded gas in coal seams but more often from the gas underlying or overlying the seams. It is heavier than air having a specific gravity of 1.1912. It is a colorless gas having a very disagreeable odor, and is known by miners as stink-damp. It is a dangerous gas when occurring in considerable quantities. When mixed with seven times its volume of air it is violently explosive. It is an extremely poisonous gas and its smell serves as the best means of detection.

To guard against dangers from these gases I should consider that by having good discipline, using safety lamps and an adequate amount of ventilation in the mine well conducted to carry away all these gases."

THE WORLD'S STORES.

Many of the necessities of civilised life exist on the earth in limited quantities, and will certainly give out at no very distant dates. The world's coal will last only a few thousand years, and Britain's only a few hundred. Most of our best iron has been used up, and we are importing quantities absolutely necessary for manufacturing purposes from foreign countries. Leading American authorities calculate that the immense iron reserves of the United States will be exhausted in sixty years; and so it must be with tin and copper, lead in the course of a few hundred years. One valuable product of the earth has within the last year or two become perilously dear. The world's known platinum deposits are nearly exhausted, and the metal has advanced to famine prices. Thirty years ago a kilogramme of the crude metal is worth £240, double the price of gold. In chemistry and electricity and many scientific industries this "noble metal," owing to its power as a conductor, its resistance to acids, its small expansion when heated, and non-liability to rust, is invaluable; but wires and terminals, spatulas, capsules, crucibles, and stills of platinum must be sheer luxuries at £100 or £200 sterling per pound avoirdupois.

As noting the advance of socialism in the ranks of the miners, the recently elected State president for Indiana is an acknowledged socialist. He is opposed to the National president, for the latter has always most carefully avoided any taint of socialistic tendencies, and opposed it in the organization at all times.

The Drummond Colliery was handicapped last month for the want of cars. But for the short car supply the shipments would have shown an increase instead of a decrease.

MARITIME MINING RECORD.

The MARITIME MINING RECORD is published the second and fourth Wednesday in each month.

The RECORD is devoted to the Mining—particularly Coal Mining—Industries of the Maritime Provinces.

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R. DRUMMOND, PUBLISHER.

STELLARTON, N. S.

February 13 1907

- Rubs by Rambler.

It is not to be expected that certain of those who claim that coal is sold cheaper in Montreal than in Nova Scotia, and who assert that the coal barons are making big profits because they sell coal at double the price it costs to produce, will argue the question fairly. Their only arguments are puerile puttings and reckless statements. Here is a sample of the style of argument of papers of the calibre of the Amherst News:—"There is a paper published in Stellarton which styles itself the Maritime Mining Record." (Well, what of that.) "Its editor is one who figured for years as the principal leader of the P. W. A. in this province." (Well, where is the argument in that.) "The Amherst News has lately incurred the ire of this notable statesman." (Simpletons have lurid moments) "and his paper because we dared to whisper, that living in a coal mining centre, within easy reach of mines, we should not be called upon to pay two or three dollars a ton more for coal than the big corporations and railway companies are paying for it." To which it may be replied that the people in Amherst do not pay two or three dollars a ton more than the big corporations, that is do not pay it to the coal companies. The Record, in reply to the News, said that coal could not be produced in Cumberland for \$1.50 per ton, to which answer is made as follows:—"If he will refer to the records of a certain strike that occurred in this county some years ago, he will find we have the best of authority for the cost of the production of a ton of coal. We were not drawing from our imagination, nor is this paper the humble servant of a monopoly." This of course is conyincing, even though it does not take into account the fact that since "some years ago," wages have gone up 22 per cent. and the cost of material has been greatly increased. The News, evidently, wants coal at the price paid some years ago, and cheaper coal of course means lower wages. But what about wages as long as that paper gets cheaper coal.

Why do certain papers make so great an outcry when a travelling auditor checks the accounts of the conductors of the I. C. R. trains. The auditor is called a spotter and one would think to

hear certain of the press and certain people talk that his calling was contemptible and dishonorable. Our banks are regularly inspected and the accounts gone over by an official sent from the head office, and yet we do not hear of the tellers of the banks getting into a furore and a fury and hurling hard names at him. The visits of the Inspector are welcomed, that is by every honest up-to-date teller. And why should a conductor of a passenger train not welcome an auditor. If he is honest the auditor or spotter cannot possibly do him any harm. As magistrates are a terror only to evil doers, so spotters can only be a terror to those who are not quite sure as to their system of keeping accounts.

Nova Scotia is not the only country chargeable with waste of coal. Pres. Keighley of the Coal Mining Institute of America in December had this to say on the subject of waste:

"The American nation will go down in history as the most extravagant nation that ever existed. It commenced by exterminating the Indian. It next exterminated the buffalo. It then turned attention to the forests, and has almost eliminated them. These things were serious, but they were not beyond repair. The career we have launched on now is resulting in something that can never be repaired. We are skimming the cream of the mineral riches with which this land has been so endowed in our haste to get rich. We are destroying at least 50 per cent. of everything in the mineral line we lay our hands on. Nothing but the richest gold mines are worth looking at; the same thing applies to all the mines of precious minerals and precious stones. When we come to our iron deposits nothing but the richest of the ores are shipped away; the leaner ore is wasted, much of it destroyed forever. It is a fact, and has been proven by the United States Geological Survey, that 40 per cent. of the magnificent anthracite deposits in Pennsylvania, the duplicate of which cannot be found on earth, has been lost forever. I believe it is true that, up to this time, 50 per cent. of the bituminous coal area worked over has been wantonly destroyed, and the destruction is being swiftly carried on on every side. The man who tries to conserve the mineral wealth of this country is laughed at as a fool. The man who cannot produce a ton of coal cheaply, in the estimation of some people, is no miner at all; in fact, they gauge a man's ability by the cost at which he produces a ton of coal, no matter if he destroys ten tons of coal for every one he gets out. Our president who seems to have the faculty of probing everything, has not yet probed the mineral industries of this land, but it is evident he is being awakened to the fact that wanton waste is running riot through the land; for he has directed that the coal seams underlying the unsold public lands shall not be disposed of, and I don't doubt that he will follow this matter further, and probably order an investigation into mining methods of this land."

The Boston Transcript of January 26th. comments on the appointment of Messrs G. H. Dugan and Chas. Fergie to the directorate of the Dominion Coal Co. as follows:

"Some comment has been caused by the action

of the Dominion Coal Company's board in electing two of the high employees of the company to the vacant directorships. It was commonly expected that the usual corporation practice of choosing well known capitalists would be followed. Rumor had selected the men. Mr. Robert Meigher, Mr. James Crathern, and Mr. E. B. Greenshields were mentioned. A directorship was said to have been offered to Mr. Meigher and refused. The gentlemen named are all wealthy and experienced business men. Any board would be strengthened by the accession of any one of them. It may be that Mr. Ross's supposed domination of the coal company was the stumbling block. The gentlemen may have felt—if the positions were offered to them—that they were hardly willing to take the responsibility of acting as directors when the whole conduct of affairs was in the hands of one man. The bad blood caused by the recent dispute would naturally also act as a deterrent. At the same time it is to be observed that a good deal is to be said in favor of a judicious policy of occasionally elevating employees. For an employee to have the honor of being appointed a director should stimulate him to redouble his efforts in the company's behalf. And no doubt Mr. Ross found, in his handling the steel company matter, that the presence of some of his capitalistic directors was a considerable inconvenience."

Professor Carruthers has had something to say, and promises more, before the Sunday afternoon meeting of the Y. M. C. A. From the digest of his lecture in the Halifax papers I am not prepared to say he has given his subject exhaustive study. If I professed to understand socialism, in its many aspects, I might be inclined to criticize Mr. Carruthers position. He makes some statements that are revelations. For instance he said that it was only within the last thirty years that workmen have been coming into their own. I was under the impression that they had been evolving since the time of the French revolution, not to go further back. The Chartist movement came into being twice thirty years ago, and that movement broke, in some degree, the power of the land owners. Mr. Carruthers further said that the general name under which millions of workmen are banded together for reform is socialism. The general name I thought was Trades Unionism; and that a very large majority of the millions repudiate being called socialists is attested to by the fact that the socialists have not yet had their platform endorsed at the International meetings of workmen. The ablest and best of the workmen's representatives in Britain repudiate the name of socialists. John Burns, the best of them all, lately declared that he was no state socialist, which was equivalent to saying he was simply a reformer. Socialism is not new; that of the present day takes its cue from the motto of the French revolutionists. Mr. Carruthers says "Socialism does not propose to seize and divide the property of men," and then he quotes with approval the following part platform of the socialists:—

1. "That the land and all the machinery, tools and buildings used in making useful things, together with all the canals, rivers, roads, railways, ships and such like, used in distributing useful things, and all markets, scales, weights and all money used in selling or dividing

useful things, shall belong to the nation (the people)."

2. "That the land, tools, machines, trains, rivers, shops, scales, money, and all the other things belonging to the people, shall be worked, managed, divided and used by the whole people in such a way as the greatest number of the people shall deem best."

Is not confiscation involved in that programme. How else can all these things be obtained. The programme goes too far or does not go far enough. Is the patent office to be abolished; is no account to be taken of brains, which are responsible for a large proportion of the wealth of today. Mr. Carruthers says the 'statement' setting forth the aims of socialism "is just what you hear from a large body of people to-day calling for when they say, Canada for the Canadians." Can that be so, I would think that the statement and the cry were wide apart as the polls. The foundation on which socialism is said to be built is the 'Brotherhood of man'. There is not much of that, in Canada for the Canadians. Follow it there, in Canada for the Canadians: Quebec for Quebecers, Nova Scotia for Nova Scotians, Halifax for Halifaxians, the Town for townies, family for family, every man for himself and the Old Harry take the brotherhood of man in Sydney does preach the brotherhood; if in Montreal, a he mean a local brotherhood; if in Ottawa, a national provincial brotherhood; if in handling the steel brotherhood. I thought there was no meaning in the phrase unless it implied universality. The first motto of socialism was reasonable. It was 'a fair field and no favor'; the second is scarcely so, as it is equal to a demand for all the field and all the favors.

I take it that the Pictou Advocate, though one of the papers that has had something to say on the dear coal in the province question, is amenable to reason, and if certain facts are presented to it will not turn away from them. In justice to the Advocate let me say that I understand its original criticism was not so much on the high price of coal as on the fact that consumers in towns not far distant from the collieries could not obtain coal when it was sorely needed. I admit it looked a little absurd that markets hundreds of miles distant from the mines should be well supplied with coal, while there was a dearth at the very doors of the mines. I can imagine what the feelings of consumers in Pictou might be under such circumstances, and if they resorted to strong language they were more or less excusable. I am assured by one operator that had the supply of cars been adequate there would have been less cause for complaint, but a chief reason given for inability to supply on demand was that contracts had been entered into which must be filled, which demanded first attention. And there is much, it must be admitted, in this contention. In order that the operator may be in a position to conduct operations during the entire year to the best advantage, it is necessary that he goes searching for orders in the spring. The local trade is a small and an uncertain quantity, and he cannot build on receiving considerable orders at stated times. Therefore he takes contracts in the spring covering his probable output for the year. He does not pass Pictou or any other town in the county wantonly by. He will enter into a contract with any dealer for a given quantity. If no dealer will assume the risk of guaranteeing a stated quantity why should the operator forego a bird in the hand for a possible bird in the bush. As a rule the operators do not get orders in the spring equal to the anticipated output of the mine. Output is, however, un-

certain and conditions may arise which place them behind in the filling of orders from a distance, and as a consequence placing them in the position of being unable to fill local orders as they come in. The strike at Springhill interfered with local deliveries last fall. The question is "Should the two coal companies have refused to supply coal to Londonderry in view of the clamor for coal in the county? My own opinion is that the refusal to supply Londonderry would have entailed much suffering and loss to a much larger number of people than was inconvenienced by a short supply in Pictou Co. As to the price of coal it is very unfair to say that it costs more in Pictou Co to consumers than it does in Montreal. The price of coal in Montreal varies from \$2.75 to 4.50. That may seem an extraordinary difference, but the same rule applies to coal as to other articles of commerce. The larger the quantity bought the cheaper the price. The publisher of the Advocate is a practical man, let me put to him a plain question. If a local merchant comes to him and says, "I want a thousand letter heads, what is your price?" The reply might be "three dollars." Another from a distance says, "I am willing to enter into a contract with you for ten hundred thousand letter heads, what is the price?" Would any one be surprised if the Advocate's publisher said, "One dollar and fifty cents per thousand," He should not. The operators are all but called vagabonds because they charge the I. C. R. more for coal than they do the C. P. R. and the G. T. R. Why should they not. Let me take the case of the Dominion Coal Co.—the concern that chiefly supplies these two last named. The C. P. R. and G. T. R. take between them from the Dom. Coal Co., in the course of a year some six hundred thousand tons, and take it all in six months, at a time when the Company can ship to the best advantage. The company knows exactly what is wanted and can make the necessary preparations. How is it with the I. C. R. I think the biggest quantity that railway took from the Company in a year was seventy thousand tons (last year) and they are obliged to give it as the railway demands it. Why should a seventy thousand ton customer be placed on a footing with a million ton one. And be it further noted that the I. C. R., as a rule, demands screened coal, while the C. P. R. and the G. T. R. are content with run-of-mine. Will the Advocate please explain why it demands a commission of enquiry into the price of coal, while it demands no enquiry into the high price of lumber, or the higher price of the products of the farm. If what is a fair profit is to be considered in the case of one industry why not in the case of all. The government has reserved the right to fix a maximum tariff for subsidized railways, and has reserved no right to fix a maximum profit on coal. The former, it is asserted by the Suburban, is practically a farce, so far as at least one railway is concerned. Would the Advocate have the government to be a party to what would be a greater farce?

It has just occurred to me that neither the Halifax Herald nor any of its correspondents, with ultra-socialistic tendencies, have acceded to my modest request to be enlightened as to the precise meaning of the phrase, "Labor is entitled to all it produces." Does it really mean that manual laborers are entitled to everything. It would appear so, for is it not also said that, "All wealth is created, produced, by labor." If the laborers are entitled to everything, where do the other fellows, the capitalists for instance, come in? I suppose it will be said, "They will then cease to exist." I am not so sure as to that. If labor is entitled to all it produces,

some laborers will produce, as is the case now, much more than others; some will continue to forge ahead while others will drag behind. The fittest will survive and thrive, while the others must moil and toil on. That's the way it appears to me, but then as I have said previously I do not perhaps understand the aims and the ends of advanced socialism. Perhaps when the day arrives when labor will get all it produces, a law will be enacted whereby the fittest laborer will be enjoined to produce no more than the maximum of the feeblest. Socialism is as big a puzzle to me as creation, the more I tried to study it out, the more I flounder.

Miss Saunders, in her prize essay on "Crime and its cure" tells us that we should not be afraid of the muck rake. I agree with her whether she means that we should not be afraid to use the rake, solely because the using of the rake is not a salubrious occupation, or because people will say of those who use it that they are scavengers who delight in filth. If there are scandals, and if there is to be reform some one must use the rakes. We may condemn the man who uses the rake because he delights in turning over scandals, while we ought to praise the man who uses it while he considers it his duty though an unpleasant one. If there is no exposure, how can there come a cure, or a preventive.

The Montreal Trades and Labor Council condemns the Arbitration Bill, or as it is called by the introducer "An Act to aid in the prevention and settlement of strikes at coal mines," lock, stock, and barrel, and asks that meetings be called in all parts of Canada to denounce the bill. One delegate rashly declared that the object of the bill was to destroy the labor organizations of the Dominion. He did not explain how the bill would accomplish that object, unless indeed he meant that the bill would tend to make matters run so smoothly between employers and employees that the chief occupation of Trades Unions would be gone. It is pitiful to think that some labor leaders are adverse to see all cause of friction between men and masters removed in a quiet and common-sense way. They imagine that if all grievances are to be settled by arbitration or conciliation boards that there will be nothing for the unions to agitate about and that the members will lose interest and drop away. This is surely a selfish fear. Another delegate thought the bill was one of the most pernicious pieces of legislation ever introduced into the House of Commons. For why? Oh because clauses 57 and 64 would practically kill trades unionism in Canada. Well what if it does if the new way is better? But the bill will not kill but should strengthen unionism. Let me quote clauses 57 and 64 while I ask some one to show me their murderous intent.

57. "It shall be unlawful for any employer to declare or cause a lockout, or for any employee to go on strike, on account of any dispute prior to a reference of such dispute to a Board of Conciliation and Investigation, or during the pendency of any proceedings in relation to such dispute before a Board under the provisions of this Act: Provided that nothing in this section shall prohibit the suspension or discontinuance of any industry or of the working of any persons therein for any cause not constituting a lockout or strike."

64. "The procedure for enforcing penalties im-

posed or authorized to be imposed by this Act shall be that prescribed by Part LVIII of The Criminal Code, 1892, and amending Acts, relating to summary convictions."

What are the penalties? A witness who fails to answer to a summons is liable to a penalty not exceeding one hundred dollars; Any person willfully insulting or interrupting the proceedings of the Board, a like penalty; Any employer declaring a lockout contrary to the provisions of the Act, is liable to a penalty of not less than a hundred nor more than a thousand dollars, while an employee going on strike contrary to the provision of the Act shall be liable to a fine of not less than ten nor more than fifty dollars. How will these clauses injuriously affect unions unless unions have made up their minds to set the law at defiance?

"The Mining Record which delights in throwing cold water on all announcements of new coal mining projects has the following regarding the proposed Steel Company colliery," etc. (And then follows the remarks re the bonding of areas which appeared in our last issue) . . . In giving expression to the foregoing it may be well to remember that the Mining Record is but acting its customary part of journalistic brake on the headlong activity of the provincial press in this regard."

Well that is rather cruel in view of the fact that not one single new coal mining project on which the Mining Record "threw cold water" has materialized. Some of our contemporaries had a company started at Victoria and the Barrasois a year ago, at Sydney Mines 6 months ago, and at Port Malcolm several times within the past eighteen months, and yet the smoke from them is still invisible. The Sydney Record will be pleased to note that the Mining Record was the first and the only paper to suggest that the only way out of the difficulty was for the Steel Co'y. to own a mine of its own. It cannot therefore have thrown cold water on the Steel Co'y. proposing to operate a colliery though it may turn a cold shoulder to the reported location. Will the Sydney Record please take notice that but for moral cowardice to be very frank, the Record acknowledges that it should have put on the brakes harder—in at least one instance. But in the confession of cowardice on our part there is the implied accusation of greater cowardice on the part, particularly, of our C. B. contemporary. From the very first the Record turned a cold shoulder on the Broughton project; the Mining Record knew and it is passing strange if the Sydney Record did not know that the location was a most unsuitable one. One of the promoters of the Broughton project accused the Editor of this paper of a lack of enthusiasm in respect to Broughton. We gave as a reason that no government would be justified in permitting the company to go right through the heart of another company's area. That was many months ago—And what did the Sec'y. of the Broughton Co'y. hint at a few weeks ago in a public statement? That the company had been misled or misinformed. It would certainly have been in the best interests of the province had the press been less loud in applauding the undertakings at Broughton. Candor on the part of the Sydney press might have saved Nova Scotia getting a black eye. And why did not the Mining Record speak out. For the reason—already stated—that we were cowardly, we were foolishly afraid that certain persons or papers might accuse us of 'throwing cold water on a

new mining project."

Since the foregoing, which was intended for last issue, was written, a seemingly very well informed correspondent of the Halifax Herald has been giving some facts and figures about Broughton. Some \$4,000,000 were invested, and about \$500,000 spent according to the figures produced. Mr. Gresham says there is little to show for the vast sum expended. Perhaps Mr. Gresham can tell what amount was paid for the areas, and how it comes about that one Sydney man, who never was looked on as a millionaire holds shares to the value of \$150,000. And people might like to know where all the Sydney people got the money they put into the company. Roughly calculated they invested in Broughton \$350,000. Those who think money is a scarce article in Sydney must be mistaken. Down there they have it to burn. Will Mr. Gresham tell how much cash is still in the Treasury.

ENGINEERS' CERTIFICATES.

The Committee appointed by the Local Government to look into the present law affecting engineers etc. at the collieries, and make such suggestions as will make the act workable, have concluded their labors and propose the following amendments to the present act:

76. No person shall be eligible for examination for third class certificate, unless:

- (a) He is eighteen years of age or over;
- (b) Is the holder of a fireman's license, or has served six months as fireman, or has served twelve months as engineer, assistant engineer, pumpman, oiler or locomotive engineer, or has served eighteen months at mechanical work in a machine shop.

77. No person shall be eligible for examination for a second class certificate unless;

- (a) He is twenty-one years of age or over; and
- (b) Is the holder of a third class certificate and has been employed as a third class engineer for not less than one year.

78. No person shall be eligible for examination for a first class certificate unless:

- (a) He is twenty-four years of age or over; and
- (b) Is the holder of a second class certificate and has served one year at mechanical work on mine machinery, and has for one year been in charge of a hoisting or haulage engine, or for two years in charge of a colliery engine other than the engines last above specified.

(c) Is the holder of a second class certificate, and has been in charge of a plant for twelve months, or has served at mechanical work in a machine shop for three years.

IV.—EMPLOYMENT OF ENGINEERS.

79. Every engineer in charge of a steam plant of not less than one hundred, and not more than three hundred horse power, shall be the holder of at least a third class certificate.

80. Every engineer in charge of a steam plant of not less than three hundred, and not more than eight hundred horse power, shall be the holder of at least a second class certificate.

81. Every engineer in charge of a steam plant of over eight hundred horse power, shall be

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the holder of a first class certificate.

82. Whenever an engine of not more than three hundred horse power is used for lowering persons into or out of a mine, or of moving them therein, the person employed in running such engine shall be the holder of at least a third class certificate. Should the engine be over 300 horse power the person employed in running such engine, shall be the holder of at least a second class certificate.

83. Every person employed as an engineer in charge of an engine of not less than seventy-five horse power, used for the purpose of ventilating a mine, and upon the movement or operation of which the safety of any person or persons depends, shall be the holder of at least a third class certificate.

84. On every steam plant of five hundred horse power or over, there shall be on duty in the fire room, at all times, while all or any part of the plant is under steam, a licensed fireman, or an engineer who holds at least a third class certificate.

V. PENALTIES.

85. (No change.)

86. (No change.)

87. Certificates granted under this Act may be suspended or withdrawn on sufficient cause being shown to the satisfaction of the Commissioner.

RECOMMENDATION.

(It is recommended that provision be made for the establishment of Local Boards constituted as follows: One member to be appointed by the Government, one by the Operator and a third by the engineers in the District. Such Boards to have power to grant second and third class certificates. The Local Boards to meet four times each year. First Class certificates to be granted only by the General Board.)

FAN QUESTION.

(Will some Record reader please answer the following for a "Scottish Laddie"—Ed.)

A mine is ventilated by a Guibal Fan, 36 ft. diameter, which makes 68 revolutions per minute, and the quantity of air passing is 168,000 cubic feet per minute, with a pneumatic pressure equal to 4.6, water gauge, as shown in the fan drift. The downcast shaft is 12 ft. diameter and 1080 ft. deep. The upcast shaft is 12 ft. diam. and 1032 feet deep. The air passages are so arranged as to divide the current into eight equal splits each passage square in section having an area of 50 square feet. The water gauge shown in the partition erected between the two shafts is 3.1065 inches.

(1) What should be the theoretical pressure produced by the Fan.

(2) What is the manometrical efficiency of the Fan.

(3) What is the co-efficient of friction of the shafts.

(4) What is the equivalent orifice of the downcast.

(5) What is the equivalent orifice of the upcast.

(6) What is the equivalent orifice of the two

shafts considered as one.

(7) What is the equivalent orifice of the mine considered by itself.

(8) What is the equivalent orifice of the mine and shafts considered as a whole.

(9) What is the equivalent orifice and length of each split of air in the mine, reckoning the coefficient of friction at .01 lbs. for each square ft. of rubbing surface for a velocity of 1000 feet per minute.

(10) What would be the indicated horse-power in the air.

Some of the papers announced last week that the output of the Allan Shafts for the previous week was some 4,700 tons. This was such a big jump all of a sudden that it startled one. If the Allan Shafts reach an output of 4700 tons weekly by the end of the year they will be doing remarkably well. The output for the month of January was between three and four thousand, and the shipments 2977 tons.

Some mine managers have a hard time of it. We have one in mind who has been frequently requested by the workers, within the past six months, for an increase of wages, and who is being continually nagged by the directors to cut down the cost of production. A reduction in wages would entail a strike; an increase in cost of production would mean a request by the directors for his resignation; so between the two sets of devils, the directors and the men, the poor fellow spends his days agonizing.

From the report of the Geological Survey, we learn that tinstone, one of the rarest of minerals, has been discovered in a solid vein in Canada. The discovery was made near New Ross, Lunenburg County, N. S. An assay proved the mineral to be cassiterite, the most valuable of tin ores. The vein has only been opened twelve feet in depth and it requires to be developed considerably more to prove the economic value of the deposits. Still the fact is established in the mind of geologists that the granites of Nova Scotia contain valuable minerals, and chiefly among them is tinstone. It is urged that more should be done in panning for tinstone along the streams and in developing the numerous pegmatite veins which cut into the granite.

Tin-tone is a rare mineral all the world over, and has been found in paying quantities only in very few places, and generally the pegmatite veins in the granite. The world's output of tin in 1905 was 32,007 tons, produced by only six localities; the Malay peninsula producing 58,547 tons or 60 per cent. of the whole. Bolivia, 12,500 tons, Billiton and Banka islands in the Dutch East Indies, 12,915; Australia, 5,028, and England, 3,857. The price of tin has increased greatly during the last few years, and as the demand is greater than the supply it will certainly keep on increasing. In 1905 the price per pound increased from twenty-nine cents to thirty-five cents; in April, 1906, it reached 38.6 cents, and at present it is forty-two cents. The high price of tin is naturally stimulating developments in all parts of the world, especially in Australia and Bolivia. The cost of production has increased in the Malay peninsula on account of the exhaustion of the richer and more easily worked alluvial deposits, and also on account of the rise in wages.

AROUND THE COLLIERIES.

The Staff correspondent of the Post, persists in making reference to the Sterling pit. There is no Sterling pit. The shaft was named by the Glace Bay Coal Co. Stirling, after an official of a bank in Halifax. The Post correspondent is not the only one who misspells the word.

It is said that Mr. James McVey manager of the Reserve will have charge of the trial pits being sunk on the Victoria areas of the Dominion Coal Co. Than Mr. McVey the company could not possibly have hit on a fitter man. He has no peer unless it be Nevilles. As he tramps over the ground, every foot of which he is familiar with, he may with a proud toss of the head, and without boasting, exclaim "My foot is on my native heath and my name is McG—," no it isn't. I'll never forswear the old sod, "My name is McVey."

It is said the strike or lockout at the Fundy Mines may be a protracted one. It is often declared that a strike benefits no one, neither employers or employees. This strike or lockout must be an exception, as those who claim to know, say that the shareholders lose less when the pit is idle than when it is working. This will admit of some explanation in view of the assertion of an Amherst paper that coal costs to produce \$1.50 only, and sells for more than double that figure. Would it not be well for Mr. Baird, the advisory manager at Fundy, to arrange for a course of lectures in Amherst, his subject being "The cost of coal and its selling price."

The coal mine being opened a little to the eastward of the town of North Sydney, is called the McKay mine from the fact that Mr. McKay—who is one of the principal shareholders of the Electric Coy—has the largest interest in the area. The company operating the mine is called the McKay Mining Co. The area is not a very extensive one containing less than half a square mile. The coal averages four feet in thickness above the wash-out which has been pierced through. On the off side of this washout the coal is five feet thick, but whether it will continue of this thickness is as yet a matter of conjecture. The new coal is bright and clean and appears to be of good quality. A double shift has been put in the deeps so as to hurry the work in order to get places. Once the deeps are far enough for a lift, as much coal will be produced as can be sold with the present facilities. As yet, the coal sold is for domestic purposes. It is expected that the I. C. R. will shortly connect with the mine by a siding. When the siding is completed the output may be pushed to 100 tons per day. If development work turns out satisfactorily all of the machinery may be run by electricity. The mine may never be a large one, and yet it may be in every respect up to date—by and bye.

The unwatering of the Hub will be prosecuted vigorously. It is expected the pit will be in condition for the summer's rush.

It is expected that the shipments of the Dominion Coal Co. for Feb'y. will be seventy-five thousand tons ahead of January.

It is said that McEachern of International will take charge at Reserve, and Bart Connors having refused, Maxwell of No. 2 goes to International.

Trade looks so promising that the Dominion Coal Company may alter its intention of not opening a pit on the Lingan side, until next year. A slope to at least one of the three seams may be begun before long.

On and after March no one will be permitted to roam the moors, vulgarly called barren—between Lingan and Victoria, without a pass from Roderic Dhu, the new name given to the late manager of Reserve. McVey in kilts would be a stunner.

A Cape Breton paper states that the Nova Scotia Stl. & Coal Co. intend to double the output of their mines this year. That is far too big a contract for the officials, capable as they are. If the company goes ten to twenty per cent better that last year there will be cause for congratulation.

One would think, from items appearing at short intervals in the papers, that certain persons were determined to bear Nova Scotia Steel stock. For instance, it was asserted in the press last Saturday that the open hearths at Sydney had closed down; that the furnace had become chilled, and that the wash plant machinery had broken down. The chilling to the furnace must have been slight, and the damage to the washing machinery not much more than the breaking of a bolt, as work on both was only suspended for a day. The plant was in full operation on Monday and everything is running smoothly and satisfactorily.

The Cumberland Ry. & Coal Coy. makes a bad showing for January as compared with last year. The Nova Scotia Steel and Coal Co., are a few thousands short, and the Intercolonial a trifle behind. The Aeadia Coal Co. makes a substantial gain and it is expected that each month of this year will show a gain over the corresponding month of last year. The Dominion Coal Co. falls 25,000 tons short of the shipments for Jan'y. of last year, while on the other hand the Inverness Ry. & Coal Co. shows the handsome increase of 10,000 tons. The decreases foot up 54,873 tons and the increases 16,191, leaving a net decrease of 38,682 tons.

AROUND THE COLLIERIES.

Mr. Jas. Connors has been appointed a checkweighman at the Reserve. The 'Victoria' miners will be pleased at Mr. Connors' promotion.

In turning out 7,966 tons of rods last month, the Dominion Steel Co. eclipsed the record made by the rod mill of the American Steel & Wire Co. of Wankekan, Ill., in 1900, which was 6384 tons.

The heavy frost of last week has closed navigation in Sydney Harbor. The N. S. S. & Coal Co. have two steamers loaded, ready for a dash to St. John and St. Johns, should a favorable wind cause a break up.

The time is about up for a meeting of the directors of the Nova Scotia Steel & Coal Coy. They probably will meet in Montreal next week. It would not surprise the RECORD if some announcement were then made as to payment of a dividend on the common.

They must be very hard to please in the matter of powder for colliery work on the other side, as on the permitted list the British Secretary of State has no fewer than fifty eight different kinds of explosives, all claiming to be free from danger in their use.

The many friends of Mr. J. R. Blackett, auditor for the Dom. Coal Co., will hear with much regret of his resignation. Mr. Blackett has been for a long time connected with colliery clerical work. When Senator McKeen ran the Caledonia Colliery Mr. Blackett was his confidential clerk.

A feeder of water was lately struck in the East levels of the Joggins Mines. This must cause the management much worry, as in all conscience there were a sufficient number of feeders on hand without any addition to their number. Perhaps this one was sent to try the resourcefulness of the new manager.

At long last sufficient water has been let into the Hub colliery to drown the fire area. The work of flooding took considerably longer than those not on the ground had expected. Pumping is now in order, and it is looked for that the management will strive to make a record. Pumping the Hub should be child's play as compared with the unwatering of Dom. No. 1.

It took the men at Sydney No. 3 three days to settle the little trouble among themselves, and it took the management other three days to do some house cleaning. It was stated that cessation of work on the part of the men, was to induce some 150 men to join the union. The union men effected their purpose at a cost of say \$6000 or say \$40,00 for each man 'induced' to join through the stoppage. Towards this loss the "non-union" men contributed \$1125, and the union men \$3725, roughly speaking.

Coal Shipments January, 1907.

DOMINION COAL COMPANY, LTD.

—Output and Shipments for January, 1907.—

	—Output—	—Shipments—
Dominion No. 1	48 119	
Dominion No. 2	52 145	
Dominion No. 3	29 410	
Dominion No. 4	45 363	
Dominion No. 5	52 886	234 167
Dominion No. 6	16 524	
Dominion No. 8	19 839	
Dominion No. 9	30 001	
	308 367	
Shipments January 1907.....		162 922
" " 1906.....		188 439
Decrease " 1907.....		25 517

ACADIA COAL CO.

Shipments January 1907.....	26 228
" " 1906.....	20 615
Increase " 1907.....	5 613

CUMBERLAND RY. & COAL CO.

Shipments January 1907.....	22 247
" " 1906.....	45 636
Decrease " 1907.....	23 389

INTERCOLONIAL COAL CO.

Shipments January 1907.....	23 734
" " 1906.....	24 310
Decrease " 1907.....	576

NOVA SCOTIA STEEL & COAL CO.

Shipments January 1907.....	39 726
" " 1906.....	45 117
Decrease " 1907.....	5 391

CANADA COALS & RAILWAY CO.

Shipments January 1907.....	3 105
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INVERNESS RAILWAY & COAL CO.

Shipments January 1907.....	15 935
" " 1906.....	5 827
Increase January 1907.....	10 108

The United States Steel Corporation must truly be an immense affair. Its profits for 1904 were seventy three millions; for 1905 a hundred and nineteen millions and for 1906 a hundred and fifty six millions. The unfilled orders in December, 1904 were equal to four million tons, and in December 1906 no less than eight million tons—and yet the common is selling under fifty.

The men at Sydney No. 3, now being, all of them, union men, are entitled to all the rights and privileges of the Association. The non-unionists were wise to join last week without much ado. When No. 3 goes on single shift, as it must soon, owing to the harbor being blocked with ice, the new members will be in a better position than had they remained out.

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R. S. NEWALL & SON, LIMITED,

LINACRE, LIVERPOOL,

and at 19 Royal Exchange Square,

GLASGOW.

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BEST QUALITY ONLY.

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Gelignite, Gelatine Dynamite and Blasting Gelatine.

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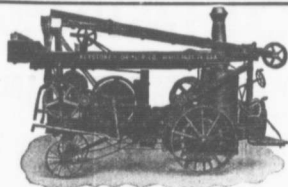
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It can be used in connection with any good "churn" drill, but operates best on the long-stroke KEYSTONE, thus making the cheapest and quickest method of boring to be found.

In operation a hole is sunk to the coal with the ordinary Rock Bit. The Bit and Stem are then removed and the Coring Attachment put on in their place. It takes a 4 ft. core out of the Softest as well as the Hardest part of the vein. Avoids all delay and expense of "rods" water wash, diamonds, shot, and heavy operating mechanism.

Price of Complete Attachment
\$200.00

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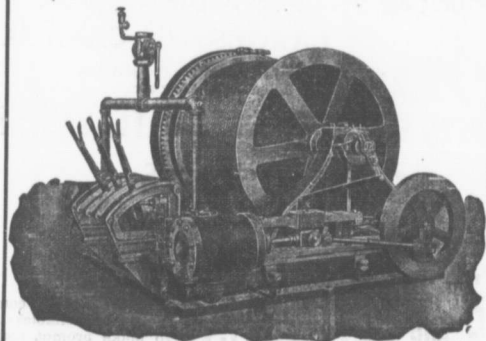
is used extensively
 by the
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 Nova Scotia Steel
 and Coal Co.,
 Inverness Ry.
 and Coal Co.

and others.

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For Mine Cars, A SPECIALTY.

This "Fit" Draw Bar Coupling Chain broke at
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Synopsis of Canadian North-West. Homestead Regulations.

ANY even numbered section of Dominion Lands in Manitoba or the North-West Provinces, excepting 2 and 26, not reserved, may be homesteaded by any person the sole head of a family, or male over 18 years of age, to the extent of one quarter section, of 160 acres, more or less.

Application for homestead entry or inspection must be made in person by the applicant at the office of the local Agent or Sub-Agent.

An application for entry or in inspection made personally at any Sub-agent's office may be wired to the local Agent by the Sub-agent, at the expense of the applicant, and if the land applied for is vacant on receipt of the telegram such application is to have priority and the land will be held until the necessary papers to complete the transaction are received by mail.

In case of "persecution" the entry will be summarily cancelled and the applicant will forfeit all priority of claim.

An application for inspection will be received from an individual until only one application for inspection will be received from an individual until a homesteader whose entry is in good standing and not liable to cancellation, may, subject to approval of Department, relinquish it in favor of father, mother, son, daughter, brother or sister, if eligible, but to no one else, on filing declaration of abandonment.

Where an entry is summarily cancelled, or voluntarily abandoned, subsequent to institution of cancellation proceedings, the applicant for inspection will be entitled to prior right of entry.

Applicants for inspection must state in what particulars the homesteader material particulars, the applicant will lose any prior right of re-entry, should the land become vacant, or if entry has been granted it may be summarily cancelled.

DUTIES.—A settler is required to perform the conditions under one of the following plans:—

(1) At least six months' residence upon and cultivation of the land in each year during the term of the claim.

(2) If the father (or mother, if the father is deceased) of a homesteader resides upon a farm in the vicinity of the land entered for by such homesteader, the requirement as to residence may be satisfied by such person residing with the father or mother.

(3) If the settler has his permanent residence upon farming land owned by him in the vicinity of his homestead, the requirement may be satisfied by residence upon such land. Before making application for patent the settler must give six months' notice in writing to the Commissioner of Dominion Lands at Ottawa, of his intention to do so.

SYNOPSIS OF CANADIAN NORTH-WEST MINING REGULATIONS.

COAL. Coal lands may be purchased at \$10 per acre for soft coal, and \$25 for anthracite. Not more than 325 acres can be acquired by one individual or limited on the gross output.

QUARTZ. A free miner's certificate is granted upon payment in advance of \$5 per annum for an individual, and from \$5 to \$100 per annum for a company according to capital.

A free-miner, having discovered mineral in place, may locate a claim 1500 x 150 feet.

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 \$100 has been expended or paid, the locator may, upon having a survey made, and upon complying with other requirements, purchase the land at \$1 per acre.

The patent provides for the payment of a royalty of 2 1/2 per cent on the sales.

Placer mining claims generally are 100 feet square; entry fee \$5 renewable yearly.

A free miner may claim two leases to dredge for gold of five miles each for a term of twenty years, renewable at the discretion of the Minister of the Interior.

The leases shall have a dredge in operation within one season from the date of the lease for each five miles. Rental \$10 per annum for each mile of river leased. Royalty at the rate of 2 1/2 per cent collected on the output after it exceeds \$10,000.

W. W. CORY,
Deputy of the Minister of the Interior.

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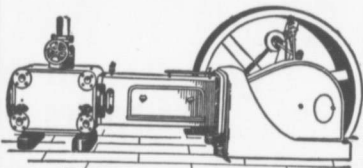
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EASTBOUND		STATIONS.	WESTBOUND	
Read Down	No. 52 No. 54 p m		Read Up	No. 53 No. 51 p m
L 11 19	L 3 55	P TUPPER JUNCTION	A 11 00	A 2 30
S 11 16	S 4 09	P PORT HAWKESBURY	S 10 58	S 2 27
A 11 35	A 4 13	P PORT HASTINGS	L 10 42	L 2 10
	L 4 16	TROY	A 10 27	
	P 4 30	S CHRONISH	S 10 15	
	S 4 43	P JUDIQUE	P 10 04	
	P 4 55	S CRAIGMORE	S 9 43	
	P 5 19	P CATHERINE'S FOND	P 9 30	
	P 5 25	L 9 11	L 9 11	
	A 5 38	A 9 10	A 9 10	
	L 5 43	S 8 53	S 8 53	
	S 5 58	P MABOU	S 8 25	
	S 6 21	S GLENDYRE	S 8 15	
	S 6 25	P BLACK RIVER	P 8 08	
	S 6 53	S STRATHLOUNE	S 7 47	
	S 7 07	L INVERNESS	L 7 30	
	A 7 20		A 7 30	

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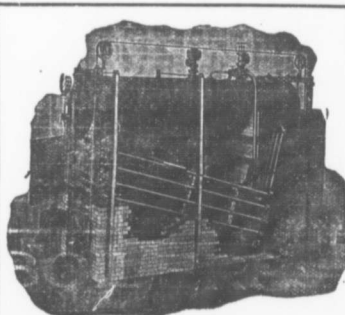
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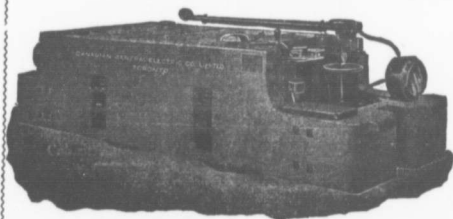
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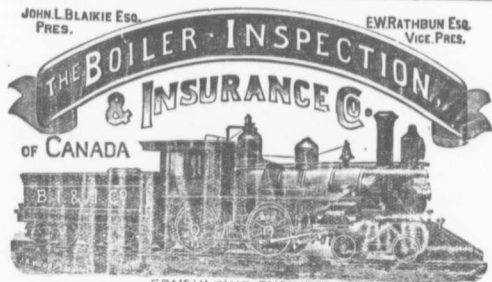
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GOWRIE AND BLOCKHOUSE COLLIERIES, LIMITED.

OF NEWCASTLE ON TYNE.

MINE AND LOADING PIERS, PORT MORIEN, COW BAY

CAPE BRETON, N. S.

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.**

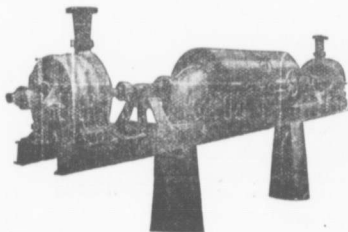
OFFICES:—Canada, Port Morien, Cape Breton, Nova Scotia. England, Newcastle on Tyne.

The JOHN McDOUGALL Caledonian Iron Works Co., Ltd. Montreal Que.

BOILERS: All Sizes and all Pressures.

PUMPS

Worthington Pumps for
Water Works and Mines.



Water Wheels

Doble Water Wheels for high heads.

Two Worthington 3-stage Turbines and McCormick Water Wheels, built for Port Arthur, Ontario, Water Works. Combined capacity 1440 gallons per minute against 350 head.

Mill Machinery

Etc. Etc.

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
—6000 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.

Prices. Terms, etc. may be obtained at the Offices of the Company.

ALEXANDER DICK Genl. Sales Agent, Glace Bay, N. S., Can.

DOMINION COAL COMPANY, LIMITED,
DOMINION COAL COMPANY, LIMITED,
DOMINION COAL COMPANY, LIMITED,

112 St. James St., Montreal, Que.
171 Lower Water St., Halifax, N. S.
Quebec, Que.,

—and from the following agents,—

R. P. and W. F. Starr, St. John, N. B.
Harvey & Co., St. Johns, Newfoundland.
Hull Blyth & Co., 4 Fenchurch Avenue, London, E. C.

Peake Bros. & Co. Charlottatown, P.E.I.
A. Johnston, and Co., Stockholm, Sweden.

G. H. DUGGAN,

2nd. Vice President

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%	23.41%
Fixed Carbon.....	75.29%	67.47%	64.69%
Ash.....	3.75%	3.19%	4.19%
	100.00	100.00	100.00
Sulphur.....	1.15%	58%	.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

Head Office
MONTREAL

N. S.