

MARITIME MINING RECORD

Dr. R. Bell
Geol. survey dept.

COAL AND METAL TRADES JOURNAL

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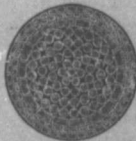
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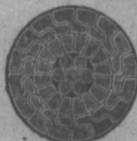
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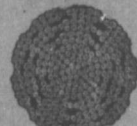
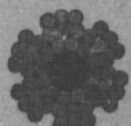
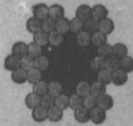
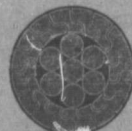
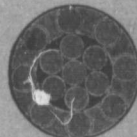
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18 Express from New Glasgow	7.35
21 Mixed from Hopewell	7.35
25 Mixed from Truro	8.00
62 Mixed from Mulgrave	13.10
27 Mixed from Pictou	10.65
19 Express from Halifax and St John	11.00
120 Mixed from Pictou	14.25
20 Express from Sydney	14.30
25 Express from Montreal and Halifax	15.40
22 Mixed from Pictou Landing	16.10
77 Mixed from Hopewell	16.45
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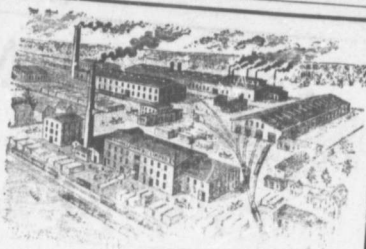


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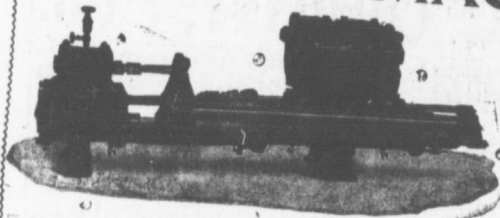
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The...
MARITIME MINING RECORD

Vol. 7, o. 9.

Stellarton, N. S., DEC. 14th. 1904

New Series

ENTERING AND EXPLORING A MINE AFTER AN
 —EXPLOSION—

Written for the Maritime Mining Student's Association by
 Silas S. Gouley,
 Honours in the Principles of Mining, New Seabam, England.

In the case of an explosion the following arrangements should be made and carried out as quickly as possible:

The Inspector of Mines should at once be communicated with. Assistance, skilled labour, and even material, if necessary, should be sought at neighbouring collieries. In the case of a fan as the ventilating power, in case of its being injured, should have immediate attention and any damage done to it or to any part of the air arrangements at the top of the upcast or in the Fan drift should be repaired at once so as to keep ventilation efficient and adequate. If the ventilation be by furnace and the furnace has to be put out then a water fall may be used in the downcast shaft as a means of assisting the ventilation until such time as the furnace can be relighted. Should temporary ventilation of a shaft be necessary for access into the mine, a waterfall will drive out any noxious gases without the application of brattices. Shafts have been known to have been charged with most deadly stythe and cleared by means of a waterfall. If it is decided to apply brattice, canvas is best both for readiness of application and efficiency. Canvas brattice can be attached to the cage guide buntons. If there are no permanent buntons or the permanent buntons destroyed, temporary buntons should be put in at each end of the buntons next to the shaft sides, deals should be run from one temporary buntion to another. Canvas brattice can be fixed to the running deals and properly stretched. The larger section of the shaft in which men ride and work to be the downcast. For the best ventilating power the upcast side or the brattice side should be connected to a fan or to some chimney to cause a draught. If neither are available apply a waterfall in the downcast division. If in the case of the downcast shaft being very badly deranged and access being impossible for a given time the mine may be entered by the upcast, using very careful precautions. Great danger may arise from the air-current being charged with alter damp. Careful tests must be made. If the underground ventilating arrangements are so destroyed that the air from the downcast passes almost direct to the upcast, then the upcast should be made, and can be room, safe for men to proceed up and down, but great precaution must at first be exercised until it is proved to be free from noxious gases. At our Colliery, Seabam, 1880, the upcast was

ready for access 16 hrs. after the explosion, men frequently passing up and down for many weeks, until the downcast was cleared from the main coal to the Hutton Seam. If the winding machinery, guides and shaft appliances are not deranged then the mine may be entered at once and exploration, restoration and rescue work proceeded with. But should the winding machinery be damaged so as to be useless or the shaft arrangements seriously deranged or even wrecked, then considerable delay and labour may be incurred before it is possible to enter the mine. At the explosion in this Colliery, Seabam, Sept. 8th, 1880, at 2.30 a. m., which was one of the most terrific, destructive and disastrous explosions in the annals of mining, causing the death of 164 men and boys, there are 2 pits connected into one, but at the time of the explosion the No. 1 or downcast was known as the Sealiam pit, whereas the No. 3 or upcast was known as Seabou pit. Each of these shafts is 14 ft. diam. The downcast is divided equally into 2 coal winding shafts by a wooden plank brattice. There are two winding engines of the vertical type, one for each division of the shaft. This bratticed shaft is the access into No. 1 and 2 pits and these form the downcast. The No. 3 pit is also a coal winding shaft having two cages in the shaft with wire rope guides, this is the upcast shaft. The ventilation is produced by two furnaces near the shaft bottom. The explosion came up all the shafts with great force. When the winding engines were examined and tried after the explosion it was found that the cage guides and brattice in the shafts were so deranged as to render the lower cages immovable. The upper cages were hurled up the shaft and falling back again caused such strain as to break the plane of the rope drum on No. 1 Engine and render it useless, though the flat wire winding rope stood the test, saying much for the quality of the rope used at Seabam Colliery. Thus all the ordinary appliances for gaining access to the mine were deranged and useless. The only means of access to the mine was by means of a small juck engine and its rope loop, and on this men descended the downcast and found that the plank brattice and cage guides had been forced out by the explosion to a height of 80 fms. and in falling had choked up the shaft for 40 fms. between the main coal and Hutton seams, blocking the passage in the upcast shaft the wire rope guides were broken at the bottom and having been thrown up the shaft fell back in a tangled mass fastening the cage and rope in the bottom and rendering them useless. At 5.30 a. m. beyond getting down the No. 1 pit on the juck engine rope to the main coal seam and opening out a road into that seam, no attempt had been made to get the

use of the usual engine power or to explore the mine, or rescue the living men. It was known that most of the men in the main coal seam had got to the bottom of the shaft alive. It then became a question how to liberate the winding engines to get the use of them to descend into the pit. No. 1 engine could not be used on account of the damage, the shaft being blocked, the plane of the rope barrel being broken, in addition too the under cage and rope were fast at the bottom of the pit. It was then resolved to liberate the winding engine in No. 2 and No. 3 Shafts. For this purpose a large force of shaft men were obtained from the neighbouring collieries to assist the Seaham Engineering staff. The upper cages in each pit were hanging in the guides a short distance from the top and could be moved by the engine upwards. To free the engines of the ropes and the cages fast in the bottom of the pit it was decided to hang the ropes of the fast cages by buntons and clams at the top of the pit leaving them hanging down one side of the pit. To unwind the rope of the fast cage from the rope barrel and detach it from the engine entirely the loose cage was drawn out of the shaft. But to get this rope all unwound from the drum the loose cage on reaching the surface had to be secured and its rope detached and might be all unwound. Of course this is necessary with a drum of the vertical engine type and anyone acquainted with the same will at once see the feasibility of it. But before this could be done the counter-balance chain and weights had to be hung and detached. Thus the fast cage rope was unwound from its drum leaving the other rope all on the drum. The winding engine was now free in No. 2 side of the pit. The winding rope was speedily got over the pulley again and the engine worked to the full depth of the shaft by means of its one rope. Sinkers kibbles were used instead of the cages for travelling in the shaft. The kibbles were properly brimmed to afford protection. Whilst the engines were being set free (No. 2 and 3 Engines were used.) part of the tangled rope guides in No. 3 shaft had been drawn out by a steam winch, the remainder, to get them out of the range of the travel of the kibbles in the shaft, were fastened by clamp nails to the side of the shaft. Before the engines were ready six colliery viewers and managers from the surrounding collieries, including Mr. Stratton, Manager of Seaham Colliery, at the time descended the No. 1 Shaft on the Jack engine rope to the main coal seam, hoping to find what number of men were alive there and if any communication could be made with the men in the Hutton Seam. It was found by rapping or 'jowling' that men were alive at the Hutton Seam shaft bottom, but all means of getting to the Hutton Seam were cut off until No. 3 winding engine was liberated. The winding engines of No. 2 and 3 shafts were got to work by 6 p.m. At the same time the party descended No. 2 shaft which is open to the Hutton Seam. Thus the means of access were restored and exploration commenced. In consequence of this terrible calamity, the Home Secretary sent a Commission, with Sir Fred Able at their head, to enquire officially into it. A suggestion was very decidedly put forward by the miners' representatives that the coal dust, which existed in large quantities in some parts of the mine, and especially near the spot where it was surmised that the explosion had origin-

ated, might have had much to do with the accident. Indeed the opinion was strongly entertained by some that it was entirely due to the ignition of coal dust in the absence of gas, by flame from a blown out shot. The Home Secretary putting this theory forward requested one of the Commission (Sir F. Able) to make experiments with samples of dust collected in different parts of the mine and the results obtained with from other collieries in different parts of the kingdom.

In the case of an explosion at any colliery where the winding engines be deranged the temporary means of access to the shaft will depend largely on the arrangements of the colliery. Hauling engines on the surface with either 1 or 2 drums could soon be applied. If there are two drums one can be thrown out of gear.

—this is a great advantage and one which can't be adopted in the case of a vertical engine. The portion of the rope extending down the shaft through the pipes might be cut off and secured on the surface by a pair of clams. If the rope remaining on the drum is sufficiently long to extend to the depth of the shaft it must be prepared for attachment to a kibble and put over a pulley. If the rope is too short it must be unwound from the drum and a rope of sufficient length put on. Locomotives on a surface railway have been known to be used as a temporary power for winding a rope passing over a pulley up and down the shaft. In a case of this kind the kibble should be sufficiently weighted to draw the rope down as the kibble descends, for the engine is then travelling in the direction of the shaft. The depth of the shaft has to be measured out along the railway and marks put up to show the engine driver the position of the terminals of the up and down journeys, these marks acting in the same way as an indicator on a winding engine. A proper code of signals and means of signalling would have to be arranged to regulate the motion. The locomotive is worked at a low speed and may be stopped at any point as readily as any other engine. No time, however, should be lost in regaining the use of one or both of the ordinary engines to the appliances for gaining access to the mine. The first descent should be made by a party of three or four, who must exercise great care in approaching the shaft bottom (a lamp may be lowered by a cord to test if the bottom is free from damp) and use every precaution before entering to see that the inset is free from after damp. If there is no danger other parties may quickly follow.

Exploring a Mine after an Explosion.—In the first place a plan of the mine should be at hand showing all the working and ventilating arrangements. Rough tracings of parts of the workings should be prepared for guiding and assisting leaders of exploring parties, this is unnecessary if the leader of the exploring party is familiarly acquainted with that part of the mine. (2) To ascertain the number and names of the persons in the mine and where and how employed. This is essential, as in the case of the Seaham explosion where parties of men who had lain for several months in the mine were unrecognizable by their features, but were known by particles of clothing number of watches, and in some cases men were recognized by the place where they were found, etc. (3) Exploring and balance parties should be told off so as to be in readiness, and each party placed under the charge of a lead-

er. Stranger volunteers, if accepted, must be placed under the charge of men who know the mine, but if possible only thoroughly reliable and practical men should be allowed to enter a mine in which there has been an explosion, because impractical men might simply walk into danger without knowing it, and sacrifice their own lives and perhaps the lives of others through their ignorance. In addition to explorers, parties should be arranged to convey material from the shaft to places where required. Medical aid must be procured. A competent person should be constantly at the pit head, in charge, to superintend all arrangements and to see that none but authorized persons, properly equipped, descend into the mine. Timber cut to suitable lengths, brattice cloth, brattice doors cut properly, deals, nails, mortar, etc., should be collected and held in readiness to be sent down as ordered by the manager. In case of fire being met with, water buckets and extinguishers with a supply of chemical charges for the same, should be in readiness and placed in charge of men who can apply them. The person in charge below should have proper instructions and observe the following rules. (1.) See that all the men are competent and capable to undertake the work of exploration, opening roads, restoring ventilation, and succoring and getting out the injured as carefully and quickly as possible. 2. That all men who enter the mine have a properly examined and tested safety lamp which must be securely locked, and that they have proper tools to work with. 3. That the names and addresses of all men who ascend the mine each shift be carefully recorded. 4. Record the time of their descent and ascension and that they properly understand that they shall act under the orders and guidance of the man in charge and keep strict discipline. That each party underground act under a charge-man, who while allowed to have a little power, should observe the following rules: 1. To proceed slowly and cautiously, not to expose his party unduly to afterdamp, if met with. 2. To have men opening out a road and removing obstacles for free travel. 3. That necessary repairs of stoppings, doors, air-crossings etc, should be got on with temporary at first and permanently as the work advances. 4. That only a specially chosen party should explore in advance and no one go beyond them. 5. To leave all places as far as practically possible, unaltered, until visited by the Inspector of Mines, according to Rule 35 of the C. M. R. A. 6. That no one should attempt to or be allowed to go into the return airways, as many have lost their lives by it. Extinguishers should be kept in advance in case fire is met with, because prompt action might subdue a fire which if means of dealing with it are not at hand might spread rapidly as air meets it. Abundances should also be kept well up to succour and remove the injured. Dead bodies can be put on the one side and covered up until it is convenient to remove and take them out. If recognized the name should be attached to each corpse to save time and confusion after, and when brought out all identified bodies may be put together and the unidentified kept apart. In the earlier stages, when removing bodies, disinfectants may not be required, but when bodies have lain so that decomposition has set in strong, smelling disinfectants should be at hand and the bodies disinfected before being encased in a covering. For a covering, canvas brattice cloth will be sufficient

In no case should spirits or any other drink be given to the explorers or any to be allowed in the mine. Spirits with inhaled afterdamp is very pernicious or hurtful and often produces delirium. Warm tea is a most refreshing and sustaining beverage, also cocoa. As the work of exploration advances, stoppings, doors and air crossings, temporarily repaired should have attention, either to make them air-tight temporarily by erecting stoppings and crossings of brattice deal pointed with lime, or if possible renewing them permanently with brick or stone masonry. All open places passed in exploration into which it is not intended for any one to enter should be fenced off and a 'Danger' caution board put up. The charge man of each party should write a report of the incidents and progress made during his shift. In cases of large fires met with underground, it is best to apply a volume of water by means of a hose. At most large collieries a fire engine is kept. At some collieries arrangements are made to get a supply of water from behind the shaft tubing, water standages from upper seams or from the surface. In some cases pipes are laid along the roads for laying the dust and other purposes, if these be not destroyed by the explosion they should be utilized. The water from the pump sets of the pumping shaft can also be used either for waterfalls, ventilation or for putting out fires.

SURVIVORS—In many cases of explosion where men are spared alive in the internal workings many have fallen victims by thoughtlessly and suddenly rushing out into the afterdamp. It will be difficult to try and train men to act coolly under such circumstances and if possible keeping and acting together under one of their number capable of leading. It is natural they wish to escape and in many cases might have done so if they had acted under the guidance of an experienced and cautious leader. Very much depends on the position of survivors in the workings relative to the site of the explosion. Explosions happen in the face or internal workings in intermediate positions of the road or near the shaft. It will be very difficult to indicate what action a would be survivor should take under all circumstances. In nearly every explosion, by far the largest number are left alive after the force of the blast has ceased and they become victims of the afterdamp. Take, for instance, the explosions at this colliery, —Saham—1871, 1880. In 1880, 164 lives were lost. For every life lost directly by the force and heat of the explosion 7 were killed by inhaling the deadly after-damp. Men near the shaft or on the roads of a mine when an explosion passes over them, if left alive and able, have no other alternative but to make direct to the shaft, should the state of the air and the road allow them. They should move steadily and avoid excitement. Should they be on the roads or in the internal workings and the force of the explosion comes in over to them it is almost certain death to rush towards the shaft into the fatal after-damp. In lots of cases, men have under such circumstances, escaped by coming out at the returns, but in no cases should there be rapid flight and excitement, because in most of such cases it ends fatally owing to the transition from breathable air to a deadly afterdamp, being so sudden that, as they run, men fall victims to rise no more. From what has been seen of men in such a position survivors should come out cautiously and

steadily and if after-damp is met with they should retreat in and take the following measures. The air from the face to the point where they are stopped is breathable and will sustain life. The first thing will be to keep the air within this area and also to prevent it being contaminated by the after-damp. To do this the following arrangements should speedily be made. Examine to find out how far the bearing up stoppings are intact and if all right the regulator should be closed or a stopping put in on the return of that point to confine the air in the region. At a point on the main intake as far out-by as they can safely get and where an opening can be made into the return, an air passage should be made into the return, an air that the after-damp may pass through direct. On the intake and on the in-by side of this passage a stopping must be built and made as air-tight as possible with any available wood or canvas. This stopping will check the flow of after-damp as it is driven in by restored ventilation and pass it through the opening to the return. If after erecting the first stopping the survivors are still driven back by after-damp passing through at a point further in-by a second opening to the return should be made and another stopping erected on the intake on the in-by side of the opening. This is all they can do and by this means the air might be preserved in a breathable state until rescue comes.

It has been urged that having the downcast and uncast far apart or at opposite sides of the coal roadway would favor the survivors in case of an explosion, but this has not been found to be the case in practice. The shafts being far apart does not provide any better means of escape for men, but rather hastens their destruction by carrying the deadly after-damp more rapidly upon them. It also does away with the advantages which a full ventilation gives to the exploring party when the upcasts and downcasts are close together. In the latter arrangement the motive power can be kept at full duty and the management can carry the requisite amount of air to the front. In a colliery where the shafts are one and a quarter miles apart fires broke out with the restoration of ventilation and it was found necessary not only to stop the fan for fear of fanning the flame, but in order to smother the fire, to block up the passage and cut off the ventilation. This hastened death in the working beyond.

"Safety Cabins" have been urged as a means of saving life from after-damp in case of an explosion. These are chambers which it is proposed to erect or form in different parts of the mine and into which men who have survived the blast could enter and enclose themselves in breathable air away from the after-damp. Such cabins, with only the air of the mine in them, would be useless, as it would soon be vitiated by the breathing of the men and the gases given off by the strata. To supply them with air supplied through pipes from a fan on the surface would be equally abortive as they would assuredly be broken and destroyed by the explosion. The only feasible way in which these so-called "Safety Cabins" would be of any use, would be to have a borehole going up from the centre of these cabins to the surface to supply air, these could be plugged up under ordinary circumstances and the plug withdrawn in case of an explosion. In conclusion I may say that in order as far as possible to prevent explosions and limit their fatal effects when they occur it is absolutely necessary to,

- (1) Render harmless all issues of fire damp by constant and sufficient ventilation.
 - (2) To prevent as far as possible or practicable coal dust being blown off the trams or carried down from the surface screens by the downcast current and thus reduce the deposition of coal dust on roadways.
 - (3) Thoroughly damp all coal dust which is unavoidably deposited in roadways.
 - (4) Exclude all naked lights.
 - (5) Prohibit all explosives and fuses for blasting which are liable to produce flame outside the shot holes.
 - (6) Fire all shots during the interval between shifts and by electricity.
 - (7) Employ none but thoroughly competent men at all work involving risk and responsibility.
 - (8) Enforce rigid discipline and strict compliance with all rules and regulations.
- The chief causes of explosions are (a) Blasting with powder; and blown out shots, (b) Coal dust in airways or in the vicinity of blasting, (c) Naked lights, (d) Accidents due to lamps, (e) The opening of lamps, (f) Defective lamps, (g) Underground fires.

The Allis-Chalmers-Bullock, Limited, some time ago opened an office and show room at 146 Hollis Street, Halifax, for the convenient handling of business in the Maritime Provinces. There will be competent engineers in attendance to ensure to customers the best of attention in any of the various lined of their manufacture. Mining Machinery of all kinds; Electric Pumps; Saw; Cement and other Mill or Sugar Machinery; Gas Engines; Corliss Engines Blowers; Conveyors, etc. While this is a comparatively new organization, they are the Canadian Manufacturers and Representatives of a number of well known American Manufacturers whose names appear elsewhere in our columns and are operating in the closest relationship with them, with the benefit of their wide engineering experience, so that the product is identical in design, workmanship and quality with that produced in the United States shops. The head office and works of the Company are at Montreal, Que., with district offices at Toronto, Rossland, Winnipeg, Vancouver and Halifax. Manufacturers, Mining and Smelting Companies, and Mill Owners of the Maritime Provinces using Steam, Electric, Gas, Compressed Air or Water Power, will be pleased that a Company representing such standard makes of machinery have decided to enter the field of competition.

"The conditions at the collieries of the N. B. Coal and Railway Company seem at present to be such as to cause satisfaction to those who are interested in them and to increase confidence in them as a business undertaking. The output at the mines now exceeds six car loads a day, as compared with about one car load a day a year ago. It could easily be increased to ten car loads a day if there were more miners at work. The company intend sinking two additional shafts in the near future." An increase in a year from one car to six is not startling though it seems to be satisfactory to New Brunswick. The size of the car is not given so we can't say whether the increase is from 6 to 36, 10 to 60 or from 20 to 120 tons.

Maritime Mining Record

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R. DRUMMOND, PUBLISHER.

STELLARTON, N. S.

December 14th 1904

A great deal of nonsense is being written these election times about the workingman. One could fancy that Nova Scotia workingmen were in worse than Egyptian bondage, half fed, ill treated and, generally, sat upon, while the fact is they are as independent as any class in the land; the oft quoted farmer not excepted. Indeed it may safely be said that the average miner and mechanic sees two dollars for every one the farmer sets eyes upon. It is possible the sight in the case of the former is of the flash light kind, but whose fault is that? Here is what one of the papers says in discussing the labor question:—

... The man capable of preparing legislation in the interests of the workmen in general the man who with the united forces of the tens of thousands of toilers behind him will compel capital to respect the demands of labor is not in sight!"

The workingmen scarcely need legislation to protect them against capital; the workingmen do not ask for a legal eight hour day so that the masters may be "compelled." No; they rather want it to protect themselves from some of themselves. If the workingmen of Nova Scotia really thought that an eight hour day would benefit them they would not be long in obtaining it, and that without any great gun in parliament. Great measures are not first thought of in Assembly Halls. Many say that John Mitchell is a great leader, yet John Mitchell prepared few, if any, of the acts favorable to workingmen that have been enacted in the states, in recent years. In the past two years, some are ready to declare, that instead of the workingmen being trampled under, the boot has been on the other foot, and that the employers could not get their employees to meet their respectful requests not to speak of 'demands.' What demands of labor, reasonable demands, have not been complied with in recent years in these parts. If the men think they have had grievances, the masters think the men have had the best of it of late. Of course in some cases the relations between the two might be pleasanter, but to be continually prating about the iron heel of capital or the utter unreasonableness of the workingman, can serve no good purpose. Things are not bad as they are.

DOMINION COAL COY., AND ITS EMPLOYEES.

During the past two or three weeks conferences have been held between the officials of the Dominion Coal Co. and Committees of the P. W. A. in reference to certain proposals emanating from the company. In order to secure big sales the Dominion Coal Coy. enters at times into what may be termed long time contracts. For instance the contract to supply the C. P. R. is a three years one. If the present contract was entered into in 1901 a reason may be at hand for the company's desire to make a three years arrangement with its employees as to rates, hours, modes of working etc. If the Coal Co. took the contract in 1901, when

rates were not so high as in 1902, and 1903, and 1904, it is easy to guess that their profits fell short of anticipation, for though they got in 1904 the same price for coal as in 1901, the coal cost then a good many cents a ton more to produce. If the company is to continue to make three year contracts, then it is but natural that it should wish some guarantee that during the term of the contract it should not be put in a position where no profit would be realized. If the long term contracts are entered into in order that the C. P. R. and G. T. R. will take more Nova Scotia and less U. S. coal than they otherwise would, a good deal might be said in their favor. If however they are entered into solely from a desire that any coal these railways may want by water carriage, must come from the one coal company a different face perhaps is put on the subject. The demands of the company may be summed up in a single sentence. 'Better coal at a less cost' It will be admitted by the miners of the company that the coal produced in 1903 was not of as good quality, so far as size goes, as in 1893. For this it must be admitted the company itself is wholly, or nearly so, to blame. Previous to 1903 the cry was for coal, more coal, big or small, we were almost going to say small coal preferred to render mechanical crushing unnecessary. The men very willingly acceded to the demand, and having got into the way of blowing fast, are disinclined to revert to the old plan, which involved shearing of the coal. If shearing was the rule, if at most mines it is good mining practice, it may seem to some that as the company made no deduction from rates when it was discontinued, they should not be held as making a harsh demand when they seek its resumption. As matters are as yet sub-judice, it may not be fitting to make any criticism or express opinions, therefore the RECORD will content itself by giving a concise summary of the requests of the larger:—

Shearing to be done when large coal can thereby be obtained.

Work to commence at 7 a. m.

Landing tenders, drivers etc, to remain until all coal is taken from the landings; all other labor to work a nine hour day.

Should a fatal accident occur the section in which it happened may knock off, but other sections must continue to work.

Miners machine-will be given all the places they can properly work.

Safety lamps to be introduced when necessary without any increase in rates.

Overtime to be paid at the regular hourly rate.

Track laying and timbering to be done by coal contract men, in certain cases—Miners to be paid for putting up extra booms.

These are on the face of them the more important clauses, but there are one or two side shows—so to speak—which open the way for quite a lot of discussion. Had certain unnecessary sections been left out, the document as a whole might not have assumed so 'fearsome' an aspect to the men.

We have received from the B. Greening Wire Co. a special catalogue which will be noticed next issue.

A communication from a well known Canadian in re-Halifax Board of Trade Mining Committee is in type but crowded out.

The demand for the products of iron and steel has increased largely of late in the United States and prices look upward; some of the mills have now sufficient orders on hand to keep them running till midsummer. The appreciation in value of steel and iron has not yet been felt to any extent in Nova Scotia, but the improvement in prices will reach here in due course. If there is a depression in the United States and fall in prices, of course Canada is affected but not immediately. It takes some time before prices begin to fall, and the same when there is improvement, prices do not rise simultaneously with prices across the border, not until some months afterwards. The steel men are in hopes of better prices in the near future and they are needed—so it is declared.

Coal Shipments November 1904.

DOMINION COAL COMPANY, LTD.

—Output and Shipments for November 1904—

—Output—		—Shipments—	
Dominion No. 1	43,551		
Dominion No. 2	31,132		
Dominion No. 3	22,484		
Dominion No. 4	44,856		215,746
Dominion No. 5	44,344		
Dominion No. 7	9,505		
Dominion No. 8	18,655		
Dominion No. 9	18,193		
	232,720		215,746
Shipments for Nov.	1903		226,638
Decrease " "	1904		10,912
Shipments " 11 mos.	1904		2,607,286
" " " 11 "	1903		2,604,083
Increase " " "	1904		13,203
Shipments to U. S. during Nov.	1904		50,140 tons

INTERCOLONIAL COAL CO.

Shipments Nov.	1904	18,637 tons
" " "	1903	18,670 "
Decrease " "	1904	33 "
Shipments 11 mos.	1904	224,587 "
" " " 11 "	1903	212,697 "
Increase 11 mos.	1904	11,890 tons

CUMBERLAND RAILWAY & COAL CO.

Shipments Nov.	1904	38,723 tons
" " "	1903	40,507 "
Decrease " "	1904	1,784 "
Shipments 11 mos.	1904	392,085 "
" " " 11 "	1903	408,207 "
Decrease 11 "	1904	16,122 tons

INVERNESS RY. & COAL CO.

Shipments Oct.	1904	17,395 tons
" " "	1903	21,107 "
Decrease " "	1904	3,712 "
Shipments Nov.	1904	14,903 tons
" " "	1903	17,585 "
Decrease " "	1904	2,682 "
Shipments 11 mos.	1904	157,644 "
" " " 11 "	1903	149,528 "
Increase 11 "	1904	8,116 tons

NOVA SCOTIA STEEL & COAL CO.

SYDNEY MINES.

Shipments Nov.	1904	47,793 tons
" " "	1903	37,110 "
Increase " "	1904	10,683 "
Shipments 11 mos.	1904	416,531 "
" " " 11 "	1903	373,147 "
Increase 11 "	1904	43,384 tons

MARSH MINE.

Shipments Nov.	1904	4,707 tons
" " "	1903	5,501 "
Decrease " "	1904	794 "
Shipments 11 mos.	1904	52,408 "
" " " 11 "	1903	46,536 "
Increase 11 "	1904	5,872 tons

GOWRIE & BLOCKHOUSE LTD.

Shipments Oct.	1904	2,246 tons
" " "	1903	1,894 "
Increase " "	1904	348 "
Shipments Nov.	1904	4,023 "
" " "	1903	1,506 "
Increase " "	1904	2,517 "
Shipments 11 mos.	1904	27,991 "
" " " 11 "	1903	19,325 "
Increase 11 "	1904	8,666 tons

ACADIA COAL CO.

Shipments Nov.	1904	21,106 tons
" " "	1903	27,129 "
Decrease " "	1904	6,103 "
Shipments 11 mos.	1904	233,215 "
" " " 11 "	1903	314,087 "
Decrease 11 "	1904	80,872 tons

AROUND THE COLLIERIES.

Judged by the returns of shipments for November it looks as if it will give 1904 all it can do to come even with the coal shipments of last year.

"A mine operator has noticed that the RECORD has recently become the most frequently quoted paper in the province" There is presumably one reason—the news is generally accurate.

Mr. Rob Robertson having resigned from the position held by him in Sydney No. 1, Mr. Malcom Stewart is now underground manager on one side of the pit and Mr. John Hill on the other. Both are hustlers.

The Dominion Coal Co., as a result of recent highly satisfactory tests of its coal in Vera Cruz, Mexico, have received an order for 25,000 tons of that material to be used on one of the railroads of that Country. The coal is to be shipped mostly from Louisburg, during the present winter.—Post.

The papers have it that Mr. James Ross, President of the Dominion Coal Co. will reside for a great part of the year in Sydney so as to be in more direct touch with the collieries. If Mr. Ross sets his mind to learn all the ins and out of production he will certainly succeed, and no doubt put his newly acquired knowledge to good purposes.

In the course of a discussion the other day, one who takes a deep interest in mining in the province, said to the writer "I suppose you are also ready to defend the location the Cochrane Lake people have selected for their slope, and also the sinking of a slope instead of a shaft." The location could neither be approved nor condemned for the simple reason that the site had not been visited. As to sinking a slope on a seam at an easy angle it can be defended if a system of endless haulage is to be introduced. A reason why there may be so many slopes in Nova Scotia is that coal to pay part of the expense is gotten from the start while shaft sinking is expensive at first and impossible where the capital is limited.

Since last issue several copies of the 'Provincial Workman, the official organ of the P. W. A. have come to hand. The paper is well printed in the Gazette office and its appearance is in every way respectable. A number of the articles treat of the relations of unions to capital, and being moderate in tone, should if the advice be followed tend to a better understanding of the responsibilities and duties of employers and employees. We notice a detailed account of a prize fight, that in our opinion could have been dispensed with. The slugging that is demanded of miners at the face should be sufficient, without histories of how men slug each other on the 'rib'. Of course there is the temptation to cater to what may be in demand, but that should be resisted and only high ideals presented. During the eighteen years in which the Trades Journal and News was the official organ of the society, it studiously avoided any reference to prize fights or slugging bouts.

The 'Albion' has made a new kind of 'nut' coal which those who have tried it are cracking up.

The Glace Bay Gazette says:—

"What promises to prove an excellent seam of coal is now being developed on the Brown property, about two and a half miles from Sydney on the Mira Road. The seam has been tested by the government drill and found to be from six to seven feet in thickness. The slope which is being driven at present is down about 70 feet and the coal is about 24 inches in thickness. A mining engineer made an examination of the place at few days ago, and he gave it as his opinion that a depth of about 150 ft the seam would be at least six feet thick."

The RECORD has heard of two seams say of 3ft each with a parting 5 ft. coming together, but never of a seam two feet thick at 70 ft growing to 6 ft. thick at 150 ft down the slope. The question a novice might naturally ask is:—What will be the thickness at 2,000 feet. But then there is nothing new under the sun, and the expert may be right.

The meeting last week in November of the Students Association, Springhill, was largely attended and enthusiastic. Instead of a paper being read the members had read the answers to the questions put to managers at the late examination as published in the Mining Record. Those under the heading of 'ventilation' were taken up, and worked out on the blackboard. Every point was fully discussed and explained to the satisfaction of all. A new member was enrolled. At next meeting Mr. J. Evans read a paper on "The chemical interference with the main air current" Is it not about time similar societies were formed in other of the mining centres. Westville is talking about a society; it is to be hoped it will not end with mere talk.

Confidence in the future of the steel plant at Sydney under the management of Mr Plummer. Mr. G. Fraser and their associates is evidently being gradually restored if one is to judge by the favor with which the bonds and the preferred stock of the company are being received in the market. On the announcement by Mr. Plummer that the c'y would be making steel rails in three months these stocks rose several points. The present management's methods are entirely different in one respect from those of their predecessors. They are not perpetually blowing their horns and raising wonderful things to be done. Instead while substantial progress has been made toward placing the works on a sound basis, very little has been heard about it. As stated in the RECORD a couple of months ago the Rod mill is a pronounced success and the production is to be increased. With the completion of the rail mill all heavy expenditure on construction work should cease for a while, and the income be greater than the expenditure. The contrary has been the case as a rule in the past.

AROUND THE COLLIERIES.

The RECORD regrets to learn that Mr. C. J. Coll was confined to the house through illness for several days last week. The RECORD extends sympathy to the Messrs Coll who received word last week of the death of a sister in Pa.

It is rather remarkable that the Nova Scotia Steel & Coal Co. is the only one of the big companies which shows shipments for November of this year in excess and a trifle disappointing.

The Gowrie and Blockhouse has to its credit the sending of a cargo of coal by steamer to the St. Lawrence in the closing days of November. According to the Sydney Record the St. Helens arrived at Montreal on the 2nd. Dec. and left on the 4th accompanied by the ice breaker Champlain and cleared the St. Lawrence without mishap.

The Trenton works of the Nova Scotia Steel & Coal Co. are the RECORD is pleased to say, very busy at the present time. Orders of late have been so encouraging that one of the mills has had to be put on double shift, which renders necessary, in order to supply material, an occasional double shift of the billet mill. An excellent order has lately been received from the C. P. R. for axles, ties, etc.

The furnace of the Nova Scotia Steel & Coal Co. at Sydney Mines is turning out an excellent quality of pig, and the quantity produced is gradually being increased as the working of the furnace becomes smoother with experience. Pig iron is being produced at a cheaper rate than was done at Ferrona, as though the plant is larger owing to the many modern appliances fewer hands are employed. And another important item is the coke which is all now made at Sydney Mines from the company's own coal.

Mr. Boyd the labor candidate for the local in Cape Breton referring to the fact that there is still a little of last winter's coal output on the coal floors, propounds as a remedy an eight hour day. Presumably Mr. Boyd though once a mine worker has not kept in close touch with the trend of happenings at the mine. At present very few miners work eight hours a day, some work six hours and some perhaps less. The average hours worked is not greater if us much as would be the case with a legal 8 hour day.

The imports into Canada of United States anthracite coal are given at 1,936,000 tons an increase of 150,000 tons over the corresponding period of 1903. Of bituminous there were imported 3,677,300 or 223,000 tons less than for the ten months last year. From this it will be gathered that Nova Scotia more than held her own this year as her sales to Quebec and Ontario manufacturers have not been quite so busy this year as last. The exports from Canada to the United States show a falling off for the ten months of 332,000 tons explained in greater part by the fact that John Mitchell and his men had no violent falling out with the mine operators.

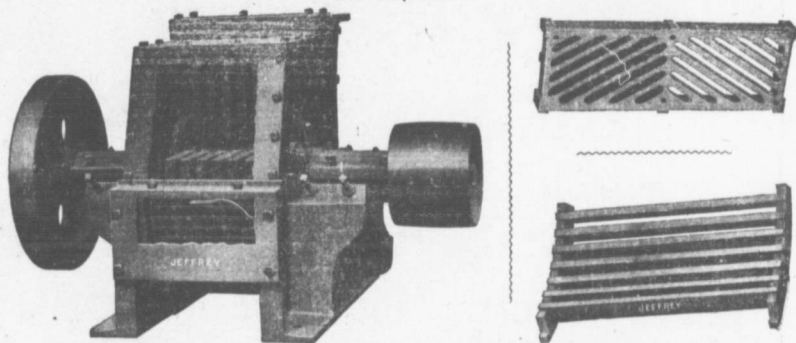
One of the sinkers in the Allan shaft a young man by the name of McLeod was killed by a fall of stone. It seems the timbering is not done at specified distances, only when it is considered risky to sink further. At the time of the accident about thirty feet of sinking toward the bottom was not timbered. Some stone came from 20ft up. No fault from a mining standpoint can be found with the practice of timbering at the largest lengths consistent with safety, which ought always to be the first consideration. The jury at the inquest recommended cribbing at shorter intervals, say 20 feet. Whether the recommendation can be adopted is a question for expert shaft sinkers.

The British Columbia Mining Record reports that a member of the Pittsburg firm of coal mining engineers, who are installing a plant for the International Coal & Coke Co., at Coleman, N. W. T., stated:—"The bituminous coal measures of the International Pennsylvania the largest seam in the famous Connells-Coleman is fully eighteen feet in thickness." Evidently neither the Editor of the B. C. paper or the Pittsburg engineer have ever been in Pictou Co. Let either or both come along to Stellarton next fall and see a coal seam double the thickness of that at Coleman.

The meeting on the 5th inst. of the Maritime Students Association at Springhill, was enthusiastic interesting and instructive. Mr. Evan's paper on the main air current was exceedingly well received. The discussion on the paper was deferred until after its publication in the MINING RECORD. The half yearly election of officers is set down for the 19th. When it came to question time the interest of the members was quickened. The several questions were keenly discussed. Two questions were given out for home study. The several answers to these will be discussed at next meeting. There was one new member elected. The prospects for a successful season are very bright.

Mr. James Ross, president of the Dominion Coal Coy. has given, so it is stated \$25,000 towards a contagious diseases hospital in Montreal. Commenting on this the Glace Bay Gazette hints that there are hospitals in Cape Breton.—when Cape Breton is spoken of Glace Bay is meant—to which \$25,000, more or less, would be a most acceptable Christmas present. But it is possible that Mr. Ross may have some delicacy in suggesting that he might give a donation to a hospital for the reason that his predecessor in the chair offered some years ago, to endow or erect a hospital in conjunction with the workmen at Glace Bay, and all the thanks he got was the next thing to a snub. However since then the prejudice against hospitals has happily in a large degree been removed, and an offer might now receive favorable consideration. But then if Mr. Ross was to make it at the present juncture some would declare he was a wily customer and had in making the offer, something up his sleeve.

Jeffrey HAMMER PULVERIZER.



The manufacture of this type of pulverizer has recently been taken up by the Jeffrey Manufacturing Company of Columbus, Ohio, being made under the Schoellhorn patents acquired by it.

The one illustration shows the pulverizer with its interior or crushing parts; the others show the sectional screen frame which is one of the special features in this machine.

It is designed for crushing and pulverizing material such as coal, clay, shale, rock and many other materials. The manufacturers claim it to be the simplest machine of its kind made. Strong features are its simple beater hammer, its "V" shape bar screening surface, its simple adjustment of the beater arms to accommodate wear, its substantial adjustable dust proof pillow blocks, its top feed hopper insuring large capacity and permitting material to be partly crushed while in suspension; all of which go to make this machine as near perfect as can be made.

The accessibility of its inner parts is also one of its strong features. The taking off of the rear plate and the hand hole plates on the side of the machine make it possible to change the beater arms as well as the screening surface when necessary.

The Screening surface is made up in sections, so that it is the work of but a few moments to take out or change from one size mesh to another.

Many of these machines are in use so there is no experimental period to be gone through.

It is made in many sizes to suit the various requirements. For instance, in coal the capacity varies anywhere from fifty to one hundred tons of coal per hour depending entirely upon the degree of fineness. In pulverizing material such as rock its capacity is anywhere from ten to 25 tons per minute. The Jeffrey Company make free crushing tests for interested parties thus demonstrating before sale, what the machine is capable of doing. Complete catalogue on this subject can be had by addressing the manufacturers.

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CONTRACTING ENGINEERS,

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Designers, Manufacturers and Builders of

Complete Coal Mining Equipment,

INCLUDING

**STEEL HEAD FRAMES, STEEL TIPPLES,
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Coal Washing Machinery.**

INVERNESS COPPER COMPANY, LIMITED.

Operators of Smelting and Refining Works at Pictou Nova Scotia and of an Extensive Mining
 . . . Territory in the Island of Cape Breton. . . .

HEAD OFFICE HALIFAX, NOVA SCOTIA.

One half of an issue of \$250,000.00 worth of Preferred Shares, bearing Seven Per Cent Interest, Cumulative, is offered for Subscription. The earning power of the Company's Smelting Plant alone is not only sufficient to pay the interest on its preferred Stock, but can yield a profit to pay a dividend on the entire capital of the Company if the whole of its Common Stock were issued.

The assets of this Company, besides the Smelting and Reduction Works, which were completed at a cost of nearly \$225,000.00, include an enormous tract of rich mineral land in Inverness County Cape Breton, comprising the larger part of a district which has been pronounced the most promising mining region in Eastern Canada. Several important ore deposits have already been discovered on the Company's Property.

No more central location for a Smelter than the town of Pictou could be selected in the Maritime Provinces. Here both Ores and Fuel can be assembled economically. The Smelter occupies a commanding position on the harbor front of Pictou, with a Pier running into the water and a Branch Railroad connecting with the main line of the Intercolonial.

The present capacity of the plant is about one hundred tons daily, which it is proposed to increase at an early date to three hundred tons.

While developing and producing on its own properties and shipping to the Smelter, the company will also treat Copper, Gold, Lead, and other ores from all parts of the Lower Provinces and Newfoundland. The LABORATORY connected with the Smelter is one of the most complete in country.

There are Copper, Gold and Iron Ores now on the Smelting premises at Pictou said to be worth nearly \$20,000.00. As the Pictou Plant is the only Copper and Gold Smelter in Eastern Canada, there is ample ore in Nova Scotia, Newfoundland and other Provinces of the East to keep it in constant operation. The testimony of authorities on this point is so conclusive that the owners have been recommended to increase the capacity of the works as soon as possible.

Some of the best known men of the Lower Provinces are interested in the development of the Cheticamp Mining District in Cape Breton, which is largely controlled by the Inverness Copper Company, Limited.

Deposits of Copper, Gold and Lead Ores have already been located, which are expected to prove in value far in excess of the total capitalization of the Company.

One operating Company, working on the Property close to the Inverness Company's holdings, has recently opened an ore bed showing values ranging from \$25.00 to \$80.00 worth of gold to the ton.

Experts pronounce the ores of the district adapted for simple treatment for the extraction of their values.

The Smelting Plant will not only be available for the reduction of the Inverness Ores, but for the treatment of Ores from all Sections of the Eastern Provinces and Newfoundland, the extensive operations thus assured justifying the proposed early enlargement of the works.

This Strong Combination of valuable Mining and Smelting interests should be a safe guarantee of a successful future for the Company.

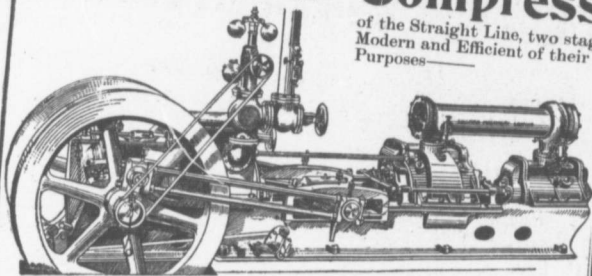
Investors desiring to secure some of the Preferred Stock in this enterprise should apply at once in order to obtain the Bonus of Common Stock received by Immediate Purchasers.

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W. R. DUNN & Co., **Fiscal Agents,**
Bank of Montreal Building, Halifax, Nova Scotia.

Sullivan Air Compressors,

of the Straight Line, two stage type, are the most Modern and Efficient of their Class for Coal Mining Purposes—



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Over 2,000,000 Horse Power,

of these Boilers in use in the United States and Foreign Countries. Made entirely of wrought steel. Employ no tube-caps or gaskets. Four man-holes give access to the entire interior, exposing every rivet, tube and joint in the boilers. Can be cleaned in ONE-FOURTH the time required by other types.

The Stirling Superheater Boiler, a combined water-tube boiler and superheater in one, for all degrees superheat from 50 to 250 degrees Fahr. The only commercially practical superheater for high degrees of superheat.

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Synopsis 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 \$20 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 2000 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 \$160 per annum for a company, according to capital.

A free miner, having discovered mineral in a place, may locate a claim 1500 x 1500 feet by marking out the same by two legal posts, bearing location notices, one at each end 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 patent for a mining location shall provide for the payment of Royalty of 2 1/2 per cent of the sales of the products of the location. Placer Mining—Manitoba and the N. W. T., excepting the Yukon Territory.—Placer mining claims generally are 100 feet square; entry fee, \$5, renewable yearly. On the North Saskatchewan River claims are either bar or bench, the former being 100 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 1000 feet. Where steam power is used, 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 lessee 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 lessee's right is confined to the silt, reef, bed or bars 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 lease.

The lessee 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 \$10 per mile for each subsequent year. Royalty same as placer mining.

Placer Mining 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 250 square feet.

Claims are marked by two legal posts, one at each end, bearing not less than 200 feet apart. One extra day allowed for each additional 1/4 mile or fraction.

The person or company staking a claim must hold a free miner's certificate. The discoverer of a new mine is entitled to a claim of 1000 feet in length, and if the party consists of two, 1500 feet together, on the output of which no royalty shall be charged, the rest of the party's claims only.

Entry fee \$10. Royalty at the rate of two and one half per cent on the value of the gold shipped from the Yukon Territory to be paid to the Comptroller.

No free miner shall receive a grant of more than one mining claim on each separate river, creek or gulch, but the same miner may hold an unlimited number of claims by acre and paying fee. A claim may be abandoned, and another obtained on the same creek, gulch or river, by giving notice and paying a fee.

Work must be done on a claim each year to the value of at least \$200. A certificate that work has been done must be obtained each year. If not the claim shall be deemed to be abandoned, and open to occupation and entry as a free mine.

The boundaries of a claim may be defined absolutely by having a survey made and publishing notices in the Yukon Official Gazette.

Patent law.—All unappropriated Dominion Lands in Manitoba, the Northwest Territories and within the Yukon Territory, are open to prospecting for petroleum, and the Minister may, or cause to be done, a survey of any lands in Manitoba, the Northwest Territories or within the Yukon Territory, and the length of which shall not exceed ten miles, should the prospecter find oil in paying quantities and satisfactorily establish such discovery, an area not exceeding 640 acres, including the 10 wells, shall be sold to the prospecter at the rate of \$1 an acre, and the remainder of the tract reserved, a netty 1280 acres, will be sold 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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WE are manufacturing our Plug Tobaccos from the Best FOREIGN and CANADIAN Leaf. Our Brands "Bull Dog," Registered, are the best combination Tobaccos made in Canada.

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NEW GLASGOW, N. S.
Successor to Sinclair and Patterson—



MINES OFFICE, HALIFAX, N. S.,
Nov. 23rd, 1904.

An examination for granting Certificates of Competency to STATIONARY ENGINEERS, will be held at Springhill, Stellarton, Port Hood, and Sydney, on December 16th, 1904.

Further particulars can be had on application to R. R. Groggett, Springhill; James Saunders, Westville; H. Coll, Stellarton; and A. J. Campbell Mahou Mines.

At the same time applicants will be received from parties entitled to Certificates of Service as Engineers under the Act.

A. DRYSDALE,
Commissioner of Public Works and Mines.

Intercolonial Railway.

TENDER FOR CRIBWORK.

Sealed Tenders, addressed to the undersigned, and marked on the outside "Tender for Cribwork, Levis," will be received up to and including

WEDNESDAY, THE 14TH DAY OF DECEMBER 1904 for the work to be done and materials to be supplied in connection with the repairs to 700 feet of the crib-work between Levis and Point Levis, P. Q.

Plans and specifications may be seen at the Office of the Station Master, Levis P. Q., and at the office of the Engineer of Maintenance, Moncton N. B., where forms of tender may be obtained.

Railway Office
Moncton, N. B.,
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D. POTTINGER,
General Manager.

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L 4 15	5 05	0	Troy	9 27		1 3 45
F 4 27	12 0	0	Craigville	9 00		
F 4 40	16 0	0	Craigmore	8 51		
F 4 52	19 0	0	Justice	8 24		
F 5 07	27 0	0	Catherine's Pond	8 21		
F 5 21	29 5	0	Port Hood	8 05		
A 5 29	37 2	0	Glencoe	7 45		
L 5 44	44 5	0	Makes	7 15		
F 6 03	47 4	0	Glendye	7 05		
L 6 23	52 2	0	Black River	6 50		
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 Canadian Express Company operates over this Railway.

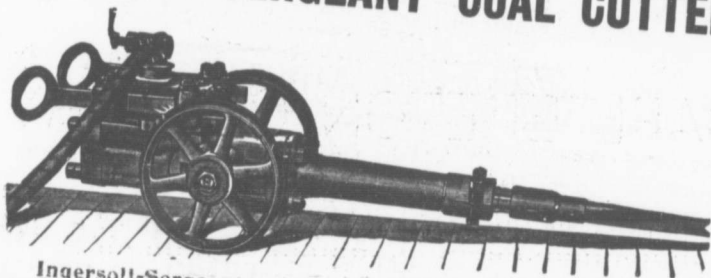
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Miners of  SCREENED STEAM STOVE SLACK. **COAL.**

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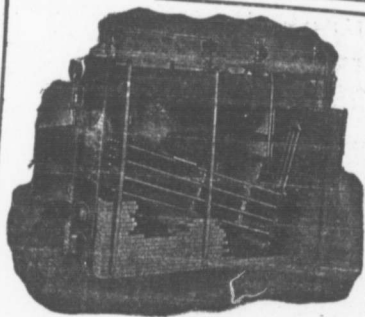
Special care is taken in preparing our coal for Domestic Uses. For stoves, Grates and Ranges, it has no superior in Cape Breton or Nova Scotia.
 For prices f. o. b. at Port Hood and delivered at any point including all stations in the Intercolonial or Dominion Atlantic Railways apply to
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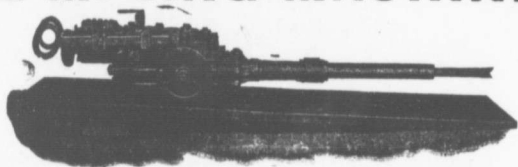
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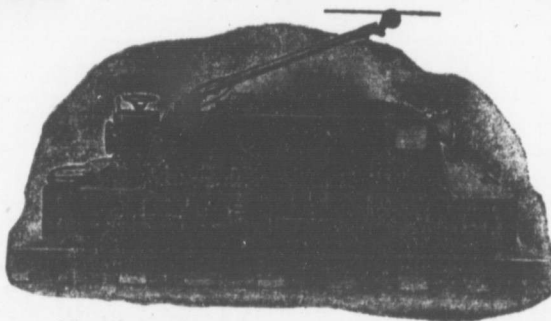
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There are more Jeffrey Electric Locomotives in use in mines and collieries, in Canada and other

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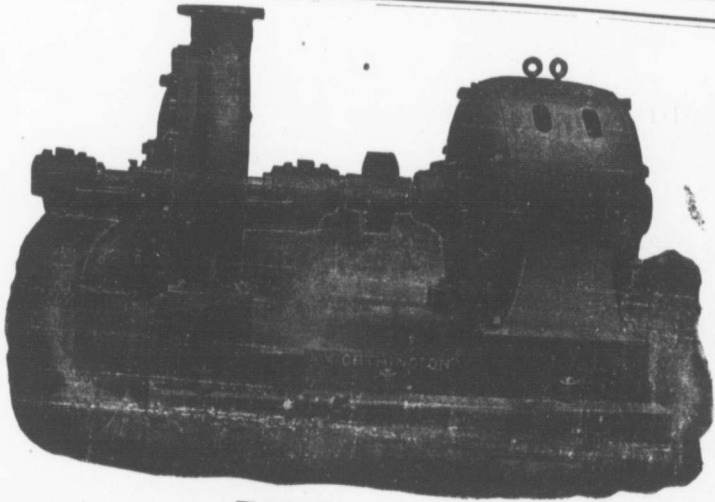
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The Reputation of this Coal has Steadily Advanced during the past 40 years and the Output of the new Mine is fully up to the old Standard of Excellence.

**Especially designed Piers for the rapid delivery of coal
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EIGHT INCH SINGLE-STAGE Worthington TURBINE Pump
Driven by an induction motor. Capacity 1,800 Gallons per min.
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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

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

Shipping facilities at Sydney, and Louisburg, C. 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 loadings 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

ALEXANDER DICK, General Sales Agent, Glace Bay, N. S. Canada.

Abner Klegman, Gen'l Sales Agent, for the St. Lawrence, Montreal, P. Q.

M. R. Morrow, Agent, 50 Bedford Row, Halifax, N. S.

Harvey and Co., Agents, St. John's, Newfoundland.

C. C. Marvel, 92 Milk Street Boston.

Penta Bros. & Company, Canal Street, N. Y. P. E. I.

R. P. and W. F. Starr, Agents, St. John, N. B.

A. Johnson and Co., Agent, Stockholm, Sweden.

Hull, Blyth and Co., 4 Fenchurch Ave., London, Eng.

G. M. Stanwood, Portland, Me.

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G. H. DUGGAN - THIRD 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%	28.41%
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

BEST COAL FOR
DOMESTIC CONSUMPTION.

IN Lots To Suit Purchasers.

BEST GAS COAL

Mines

Mined in the Province.

SPRINGHILL

Head Office

MONTREAL

N. S.