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Maritime Mining Record

SEPT. 14 1910

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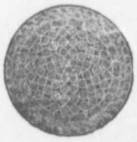

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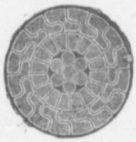

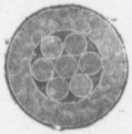

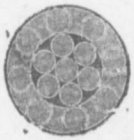

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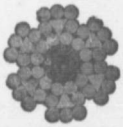

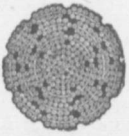

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CHRISTOPHER CHISHOLM

Commissioner of Public Works and Mines Halifax N. S.

The....
MARITIME MINING RECORD

Vol. 13, No. 5 Stellarton, N. S., Sept. 14, 1910. New Series

ELECTRICITY IN COAL MINES.

No system of power transmission is altogether free from danger; care in design, maintenance, and operation is therefore essential, whatever system may be adopted. Electrical transmission differs from other forms of power transmission in that neither the sense of sight nor that of hearing is affected by a dangerous condition of the apparatus, and it is, therefore, the more important that forethought be given to the design of an electrical system.

The dangers of electricity in its application to coal mining work underground (and all subsequent remarks have application only to plant underground, not to plant on the surface) are two in number, namely:

(a) Danger of shock to persons, owing to contact with 'live' metal, that is, metal electrically charged.

(b) Danger to persons and property, through the ignition of explosive gas, coal dust or other combustible material, by an electric spark.

(a) Danger of Shock.—As under normal conditions of working the cable conductors and portions of switches, motors and other electrical apparatus must of necessity be 'alive,' and as all voltages above 150 direct current or 125 alternating current may, under conditions not uncommonly met with, be dangerous to life, it follows that in order to guard against danger from shock such 'live' portions should be completely surrounded by some insulating medium. Further, it is desirable in order to provide against failure of this insulating covering, that it in turn should be enclosed in a metallic sheath which is prevented from becoming alive by being permanently and effectively connected to earth. Arrangements should also be made so that any leakage of current to the earthed metallic sheath will automatically secure that the faulty circuit or apparatus is immediately cut off from the supply. It should not be forgotten that the dividing line between conditions which will render a shock merely trifling and those which will render it fatal is so narrow that it is necessary to provide, in all cases, so far as is practicable, that no shock shall be received at all.

(b) Danger to Persons and Property by ignition of gas or Coal Dust.—When an electrical circuit is made or interrupted, whether purposely by a switch or accidentally from a breakdown of cable or plant, a spark ensues, and if this spark should be produced in a combustible mixture of gas or coal dust, all the elements necessary for an explosion are present. The current of modern opinion seems to be setting in favour of the view that danger from sparking is largely independent of voltage; that is to say, it is not obviated even if the pressure be kept below the 150 volts above referred to. Many persons maintain that it in fact exists in nearly the same degree whether the pressure be 50 or 5,000 volts. It remains to be seen whether this opinion will ultimately prevail. To avoid this sparking danger, it is necessary to isolate or limit the volume of explosive mixture which might be ignited under normal conditions of working, preferably by arranging for circuits to be made and broken under oil; or if this be impracticable, as it is if the current be continuous, in properly designed explosion-proof chambers.

The practical requirements for safety in operation may accordingly be given as below:

(1) Strong metallic coverings wherever accidental contact with current carrying parts would otherwise be possible.

(2) A good earth connection for the metallic coverings above mentioned.

(3) Provision for cutting off current automatically as soon as leakage begins to occur.

(4) Where there exists danger of igniting gas or coal dust, circuits to be broken either under oil or in properly designed explosion-proof chambers.

The physical conditions underground introduce in giving effect to these requirements certain difficulties which do not exist at the surface; and it is now proposed to indicate what seems to the writer to be the best means of meeting them, and incidentally of making 'a sound job' of an underground electric installation.

The Cable System.—The opinion was frequently expressed that the chief danger to be apprehended in working would arise from the cables in a mine rather than from the motors and apparatus, that is to say, from the transmission of electricity rather than from its application, and there could be much said in support of this view.

The question of the relative merits of the three-phase system of distribution as against the continuous current system occurs at the outset, and the writer is tempted to reply at once and without qualification in favor of the system. The sole merit of the continuous current system appears to him to rest upon the possibility of using the concentric system of working with a continuous uninsulated return in pits where safety lamps are not required, and where the limit of medium pressure is sufficient for economical distribution. The concentric system has special advantages also where cutters are extensively used, for no doubt can exist as to the frame of each machine being effectively earthed. In these circumstances, if it be well installed, the concentric system seems to offer almost perfect security for the workmen. The system is, however, inherently one of limited range, and the subsequent remarks in this section may, therefore, be considered as applying solely to high and medium pressure three phase systems.

That the transmission system in shafts and doorways should be well insulated goes without saying; and wherever there is reasonable ground, following a chemical investigation, for assuming that the water in the pit

will not attack lead, a lead sheathed and armoured cable is recommended. The alternative is fibre insulation with a sheathing of vulcanised bitumen instead of a sheathing of lead; the latter is preferred as better mechanical protection, but this is one of many points which cannot be decided from general considerations. Cables of good design insulated by vulcanised bitumen only have been successfully used, but the inherent disadvantages of the unarmoured cable system appear overwhelming, namely:

(1) Increased possibility of an arc appearing external to the cable.

(2) Difficulty in securing a good 'earth' for in-bye apparatus

(3) Danger of shock from bare parts of damaged cable.

One of the chief uses of the lead sheathing is to provide a continuous metallic covering (in addition to the armouring) which may be earthed, and thus provide a 'dead' earth inside the cable itself in case the insulation should be destroyed and one of the copper cores become displaced by mechanical damage. For this reason if an armoured cable with vulcanized bitumen insulation is decided upon, a continuous copper sheath may be used instead of a lead sheath. A cable of this kind has one advantage in being more flexible than a lead sheathed cable. But whatever type of cable be installed, both metallic sheathings, the armouring and the lead (or copper) should be connected to two earth plates—one at bank and the other underground—both placed in carefully chosen surroundings.

Where disconnecting boxes and joint boxes are inserted, the cable armouring should be securely fastened in metal outlet boxes so as to secure good mechanical and electrical connection.

The point to be observed is that metallic sheathings should be continuous from dividing box to dividing box, that is to say, from the point where the three cores are seperated for convenience in joining to the control switch at the generating station, to the point where they are again seperated for connection to the transformer or motor switch, as the case may be. The necessary end connections, probably of rubber covered cable, should be protected by an earthed steel pipe, properly bushed if there is any danger to the attendant of accidental contact, and they should also, if possible, be carried overhead and in sight. If a floor trench is unavoidable, the cables may be supported on porcelain insulators and the trench filled with clean dry sand or slag wool to keep it free from vermin. Given well designed switch gear, a transmission system such as that outlined is practically independent of voltage as regards risk of shock—at any rate up to 5000 volts, which is probably as high a pressure as will ever be used in colliery work.

Having dealt briefly with the means of safeguarding against electric shock, it may be asked what can be done to safeguard the risk of a spark appearing external to an electric transmission cable underground. Are present precautions sufficient or could they be improved upon? In other words, assuming a heavy fall to take place in the presence of an explosive mixture of gas and air, are the cable protective devices in common use sufficient to ensure that the gaseous mixture will not be ignited? That is to say, would they act with sufficient certainty and promptitude in cutting off current to prevent an external spark, and thus avoid an accident, under conditions favorable for an explosion? In the writer's opinion they would not. With the slow-acting methods of protection in common use, it would be quite possible for a spark to reach the outside air in the event of damage to a cable such as might result from a bad fall, and such a spark might very readily ignite an explosive mixture of gas and air or of coal dust and air.

Electrical circuits—that is to say, cables and apparatus together—are ordinarily protected in two ways:—(1) by fuses, and (2) by maximum cut-outs fitted to main control switches.

The first method is the cheapest, but it is uncertain in action, and in any event is not always admissible. The second method is that generally adopted in the case of main transmission lines in collieries. The maximum cut-out depends for its operation upon the current in the protected circuit exceeding a pre-determined amount. It usually consists of some variation of the solenoid principle, by which a trip coil releases a spring which in turn opens the switch controlling the circuit. Usually a switch of this kind is also provided with a no voltage release—that is to say, mechanism for opening the switch in the event of the pressure failing. This latter is, however, hardly a protective device in the sense under present consideration.

A moment's consideration will make it clear that if a heavy fall were to take place, cutting the cable and slightly seperating the two ends, or bringing the armouring into contact with live metal, and should the mishap occur in a gaseous mixture all the elements of an explosion would be present. For this reason the provision of merely a fuse or a maximum cut out does not afford complete protection for a transmission line in any place where safety lamps are compulsory.

There is, however, already on the market a method of protection which it is suggested may offer a solution of the difficulty. The action of this new protective system depends upon the physical fact that the current leaving a length of cable is exactly equal in amount to the current entering that length of cable, if the conditions be normal, that is to say if there be no leakage of current from the cable between the point of entry and the point of exit. One method of applying this principle is to make the difference in electrical conditions caused by leakage between A, the point of entry, and B, the point of exit, operate a trip gear, and thus open the circuit immediately the leakage begins to occur. It is hardly necessary to discuss here the details of how this effect is secured: The fact to note is that in the event of leakage, there is no waiting for the leakage current to reach a certain value and thereafter to establish its bona fides by maintaining this or a higher value; the cut-out is put into action immediately, and the circuit itself is broken as soon a the switch has had time to open. What may be termed the "balance" which normally exists between the electrical conditions at A and those at B is at once disturbed when a leakage begins; and the switch controlling supply to the faulty cable is, therefore, opened immediately, or as quickly as the mechanism can be made to act.

The particular method of applying the balance protective system above outlined requires a subsidiary or "pilot" wire to be run the whole length of the transmission main to be protected. It is, however, possible in the case of colliery cables (where in general the various circuits to be protected radiate from a common point, and are not in series connected) to apply the balanced principle without pilot-wires, and indeed to existing cables at comparatively little expense, in cases where the neutral point of the transmission system is permanently connected to earth.

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.

Advertising rates, which are moderate, may be had on application.

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R. DRUMMOND, PUBLISHER.

STELLARTON, N. S. September 14

THE UNITED STATES BEST CUSTOMER.

There is no wonder there should be a growing desire for reciprocity in the United States. Take the matter of coal. Canada is by far the best customer the United States has for that commodity. In the year ending June, 1910, Canada imported 2,909,000 odd tons of anthracite and 7,268,000 odd tons of bituminous, a total of 10,180,000 tons. In return for this the United States took from Canada 1,356,000 tons of bituminous coal. The United States takes practically no coal from Nova Scotia. Some slack goes there but even that is a diminishing quantity. The following extracts from the Coal Trade Journal indicate that it is with a heavy heart the United States takes any coal from Canada:

"It would be of much benefit to the producers of coal in the United States if they could capture the entire trade of this country so that there would be no necessity of importing coal. But it will be a long while yet before this ever happens, as consumers on the Pacific coast are somewhat handicapped in securing supplies of coal produced in the United States, so they are compelled to import it from British Columbia, Japan and other countries. The shipments of the Nova Scotia product into New England is gradually decreasing, so that it may be taken that whatever increase there was in the imports during the year just passed was all to the Pacific coast States.

"The increase was mostly from Canada, the total tonnage imported from that country into the United States during the year was 1,356,840 tons against 1,052,786 tons, an increase of 304,054 tons.

"The export trade both in anthracite and bituminous increased during the year, but the anthracite trade in foreign parts is quite small in comparison with bituminous. The total exports of this grade of coal amounted to 2,953,633 tons, against 2,869,762 tons an increase of 83,871 tons. The largest portion went to Canada, but this may properly be classed as home trade. The total tonnage shipped across the border amounted to 2,908,085 tons, which was an increase of 79,597 tons over that of last year.

"Of the exports of bituminous, which amounted to 10,413,439 tons, an increase of 1,394,572 tons over the exports of last year, Canada took 7,268,758 tons, an increase of 747,096 tons, which leaves but less than one-third of the total for other countries."

Canada's exports to the United States increased by 304,000 tons, wholly from B. C., while the United States exports to Canada show an increase of 826,653 tons or 175 per cent. greater than Canada's increased shipments to the U. S.

Rubs by Rambler.

The London Morning Post thinks it sort of treasonable for Canada to make trade treaties with the United States. For holding such an opinion the Toronto Globe takes the Post to task and gives this advice. "The Morning Post before waking the echoes of the Strand with the cry of treason should send some one out to Canada to study trade conditions on the spot". To the Globe it might be said, 'Physician, heal thyself, send a commissioner down to Nova Scotia to study conditions on the spot, and send another to New England on a similar errand before attempting to discuss the subject of reciprocity in coal.' After referring to the importation of anthracite, the Globe goes on to say:

"There is another sort of coal, bituminous, on which both Canada and the United States levy substantial duties. Perhaps treason to the Empire lurks in the suggestion that the duty be thrown off on both sides of the line. Let us see. In the twelve months ending March 31, 1904, the Dominion imported for consumption 5,690,576 tons of soft coal from the United States, valued at $11,441,129, and 1,289,624 tons of slack," valued at $1,538,002. The duties collected were $2,696,433, being at the rate of forty-five cents per ton on coal and twenty cents on slack.

There is a perference on coal from Britain, the duty being thirty-five cents per ton on coal and ten cents on slack. How did the British coal exporter look on the Canadian market? Was he keenly anxious to do business? Did he turn his eyes from the Baltic trade and the Mediterranean trade to supply coal for the industries of Ontario? Not altogether. Britain shipped to Canada last year exactly 1,752 tons of coal under the general traffic and 35,119 tons under the preferential. Since 1879 she has never sent in any one year as much as half a million dollars' worth of soft coal to Canada. In recent years, notwithstanding the preference, the trade has been falling away rapidly. It is quite evident from the figures presented above that the removal of the duty on soft coal on both sides of the border would be of no interest to the British miners' and that this change at all events might be made without earning lodgings in the Tower.

The simple truth is that the coal duties, like many others, are entirely matters of domestic concern. At present the manufacturers and railways and gas plants in the region between Montreal and Brandon pay almost three millions a year of what is really a revenue tax on coal. It affords little or no protection to Nova Scotia coal which has never been able to make a market west of Montreal despite the duty in its favor, and none to that of British Columbia, for carrying coal to Newcastle would be even less absurd than carrying it to our Pacific Province, which has some of the greatest deposits in the world. The removal

of the coal duties on both sides of the line would give Nova Scotia its natural coal market in New England, Pennsylvania and Ohio their natural market in Ontario, and Alberta and British Columbia the very great and growing market of the whole Pacific slope. Canada exported last year coal to the value of $5,285,866, of which four millions went to the United States. With free trade the Canadian exports would increase enormously and would soon overtop our imports.

The conditions of the trade would have to be carefully thought out. The Nova Scotia companies could scarcely be expected to go to the large initial expense of establishing depots and yards and agencies in New England on anything less than a twenty years' agreement. It is this that makes a treaty rather than concurrent legislation advisable. Concurrent legislation as a modus vivendi is always at the mercy of a sudden gust of passion in Congress or in Parliament. A sober decision to make coal duty free for twenty years on both sides of the line would be sufficient warrant for the rearrangement of the business of the producers and dealers.

The Morning Post may learn any day whether the manufacturers of Ontario would regard free soft coal as treason to the Empire."

The Globe is, perhaps, in error in saying that the removal of duty on bituminous coal would not affect the British miners. It might For the past few years a large number of British miners have found homes in Nova Scotia, who, but for the tariff, might have found homes in the United States. Many of these immigrants we admit are of the glaring red tie variety, for whom the atmosphere of the United States might be more congenial than that of Nova Scotia. Be that as it may they are British subjects and came to Canada because trade was brisk, the briskness due, in part, to the tariff. The Globe evidently thinks it sound policy that anthracite should be admitted free. Why? Because duty or no duty Ontario must have Anthracite. But why does not the Globe denounce the duty which the United States levies on coal coming from British Columbia. That coal is imported for the benefit of the people on the Pacific slope, who must have that coal duty or no duty. It is about time the Globe, and those who adopt a similar strain, gave up the idea that the New England States are the natural market for New England coal. The phrase 'natural market' has, with the immense advancement in transportation facilities, lost much of its meaning. It is vague. The natural market may not be the nearest, but where the largest and the most regular trade may be secured The New England States could not be depended on as a regular market, whether a treaty was made for twenty or more years. While the United States federal authorities can enter into a reciprocal trade arrangement with Canada, they cannot prevent the several states making regulations which would render any such treaty, so far as coal is concerned, abortive. This we pointed out in a previous issue. The several states can pass laws banning factory chimneys from emitting smoke in volumes, and unfortunately Nova Scotia coal has a reputation for not being smokeless. The Globe flippantly says that Ontario would not regard free coal as treason to the Empire. Surely not. Anything that Ootario demands, and Quebec is in the same boat, is not considered at all unreasonable, not to say treasonable. All the same the demand for free coal is treasonable to the Empire, if such demand is hurtful to Nova Scotia, which is still looked upon by some—a diminishing number it is true—as part of the Empire.

The day may have been when Nova Scotia would have benefited by duty free coal to the New England States. In the opinion of some that day has gone never to return. It is not the least likely that the United States operators who are trying to wrest from Nova Scotia her hold on the Montreal market, will quietly look on and allow Nova Scotia to capture the New England market which is now theirs. They will fight to the death to keep Nova Scotia coal out.

The talk of a twenty years treaty is not new and there is nothing in it, no, nor in a fifty years treaty. There are only five big importing ports in the New England States, and with the exception of Boston the trade is not sufficient to warrant the expenditure of large sums on discharging plants and store houses. There is only one, or possibly two companies in Nova Scotia that could afford to put up these plants, and we do not believe either thinks the game is worth the candle.

* * *

"Justice Goff has ruled in the U. S. Supreme Court, lately, that a strike to enforce the closed shop involves a conspiracy in restraint of trade. Justice Goff's decision granted an injunction to a member of the Manufacturers' Protective Association in restraint of acts of violence, threats, picketing, and patrolling by strikers. "The primary purpose of this strike," reads his finding, "is not to better the condition of the workmen, but is to deprive other men of the opportunity of their right to work."

He supports his ruling with a recent decision of the Court of Appeals against a large building corporation, which he cites. He then cites from the articles of compromise presented by representatives of the union to the manufacturers as follows:

"The association of manufacturers shall obligate each of its members to employ union men as soon as the union shall be able to furnish union men, who can do the work properly. Within two weeks the non union men shall join the union.'

This clause, he continues, which shows the purpose animating the strike, as interpreted by the court, is clearly unlawful, and he passes to the conduct of the strike. "If the unions,' he stated, "have not formally directed a systematic course of aggression by criminal acts, the members of the unions, acting in concert, have connived at and morally supported such acts on the part of many of their members in pursuance of a common object."

We are told that Mr. Gompers, head of the Federation of Labor, is very angry at the decision, asserting that the Judge based his decision on a wrong judgement of the Court of Appeals—in the case cited above. Mr. Gompers says the judgement is tyranny of the worst sort and says it shows to what lengths the bloated capitalists would go, or words to that effect. Mr. Gompers

if he cannot be logical, should try to be consistent. He says it is tyranny to declare against the closed shop. Is it not tyranny on the part of Gompers and those holding similar views to declare there shall be no open shop. In declaring for the open shop the manufacturers are doing nothing wrong, while in declaring for the closed shop the operatives are. The closed and the open shop are not opposites of each other. The closed shop means that all employees must be unionists; the open shop does not declare that all employees must be non-unionists, it leaves the question of unionist or non-unionist an open one. When the operators declare for the open shop they declare that union and non-union men shall be treated alike, and no questions asked. The leading papers tell us that the working classes are opposed as yet to compulsory arbitration; if that be so they disregard the only argument in favor of the closed shop. With compulsory arbitration there must be compulsory unionism, and until there is compulsory arbitration it is tyranny on the part of the unionists to declare there must be no open shop. Unionist leaders while shouting against tyranny should be careful themselves not to play the role of the tyrant.

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What was said by Mr. Cantley before the Royal Commission ought to be said by every Nova Scotian, who takes interest in the education of our boys and girls, where it will have more effect likely. The Nova Scotia department of Education should have bombs thrown at it from every village in Nova Scotia until it is induced to come down from its present high horse and reduced to take a more sensible view of matters than evidently it at present does. The school curriculum presently in use may be all right for the making of geniuses, who are the exception, but it is all wrong for the ordinary boy and girl—the many. The number of subjects which present day scholars have to flounder in is simply appaling. Fancy subjects are imposed on the scholars, to the neglect of the practical and necessary. We wise folks, I mean the large number of us who are giddy and thoughtless, make fun of our fathers, who were content if their boys had a thorough grounding in the three R's, and knew but little of the higher arts and sciences, such as are demanded of the ordinary pupils of the common schools of to-day. I make bold to say that the boys of forty years ago, were better spellers, better counters, and better informed on useful subjects than the boys of to day. They were not so bold in ascending the platform at entertainments, and making display of how ignorant their teachers were of the simpler rules in elocution. They had not the courage to laugh at their elders and call them o'd fogies, but they gave their seniors the credit of knowing some things better even than they themselves. They were not so precocious as the boys of to-day, but they knew their place, a most desirable acquisition. What they knew they knew fairly well. A boy was undergoing examination the other day for a position in a bank. This happened in the county of Pictou, one of the advanced counties in Nova Scotia. The answers to the questions were some of them laughable but not amusing. One of the chief cities of another country was credited to Cannda, and a famous mining district in Canada was credited to the other side of the world.

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Railing at trusts and combines, as if they were responsible for the high prices presently prevailing in nearly all articles of common consumption, a Halifax County paper declares that if the government does not put them down there will be a revolution that will devestate the country. But that is not what I particularly wished to call attention to though it is well to make the bad news known so that people may not be taken by surprise. The remark of the paper aforesaid that I wish to direct attention to is this:—"The farmer cannot combine, at least he never has". The deuce he cannot and the deuce he has'nt. Poor old hayseed, he is not so soft as he looks. If he has not combined he has a trick up his sleeve worth two of it. He gets twenty-two cents a dozen for eggs in the summer season where formerly he got ten, and a dollar fifty for new potatoes where formerly he was satisfied with the fifty alone. The commission that lately sat on prices asserts that the greatest advance in prices has been in provisions, the products of the farm. The farmer not a combinester! the sly old dog he is a fair pirate without bowels of compassion for the poor. It is also asserted that 'the farmers and workmen are being bled white by the fostering hand of a government which protects the wealthy while sacrificing the masses.' The farmer has proven himself an apt pupil: if the government is bleeding him white, then he in his turn is trying the blanching process on the community, and by George he is doing it in a way that makes a Montreal stock broker open his mouth. Curiously the farmer is immune from the attacks of the press who wail over high prices. The reason is that the farmer is a voter, and there is more of him than of any other single species.

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New Zealand has had women suffrage for some seventeen years. A writer, familiar with his subject, says that, contrary to predictions, the women as a whole, register, and from 70 to 80 per cent. of them vote. They generally vote as their husbands do except on social questions, such as prohibition. And yet suffrage to women has been a great disappointment. It was claimed that by giving women the franchise, the tone of public life would be improved, because the women would demand that only men of high character be chosen. But the women are emotional and sentimental, and a case is cited where they elected a man who had to be carried from a public platform drunk as a lord. They took pity on the man's wife and family. The women have their conventions and judged from what takes place there the political future of New Zealand may be looked upon with alarm by the males, that is if the women voters ever should have a preponderance of votrrs. The women are not only extreme prohibitionists, and not only down on gambling in every form, but if their official organ speaks their sentiments they are looking forward to the time when smoking shall be prohibited by law, and when every larder will be inspected by a government official to see that the housewife has no stores there likely to be detrimental to health or likely to be injurious in any way to the public welfare. One is not surprised that women should

go to extremes in New Zealand seeing at times they go the whole length of the tether in staid places like Nova Scotia. To be down on prohibition is all right, but on tobacco, why, they're crazy. Thank goodness the men have a big lever, if the women put down tobacco, then the men with some sensible women can put down the big hats, which make even piously disposed persons half swear in church, and as between the two evils there can be no question as to which is the worse.

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Here is a sample of the stuff dished out by those who seek to curry favor with the unthinking section of the working classes:—

"While Canadian members of international unions have the right to say, exclusive of so-called foreign leaders, as to whether they shall go out on strike when occasion arises or not, if it were not for the financial assistance afforded through international affiliation, the big canadian corporations like the G. T. R., and Dominion Coal Company, would make short work of them in a struggle. It is that that makes the big corporations and sympathizers sore on this international labor unionism. It is that which makes them so vigorously wag the old dag when a strike is on They exhibit no such loyalty when selling stock, or seeking markets. The big corporations would like to have their employes where they can prevent them from striking by the sceptre of "no work no bread." International unionism provides bread while the workmen pause in their daily labor to fight for better homes, food, and raiment for themselves and those dependent upon them"

1st. International unions with head quarters in United States can not only through their chief officers sanction a strike, they can call one on.

2. They can declare a strike off without consulting the Canadian members as witness the calling off of the Cape Breton strike by McCulloch without poor Dannies knowing anything about it, or without his even afterward being permitted to glance at the 'agreement' which the foreigner was careful to keep secreted in his breast pocket so that no inquisitive N S might peep at it.

3. The Dom. Coal Co and the G. T. R did not resile from their first positions notwithstanding the financial strength of the International unions. In both instances it is claimed that Canadians were sold by the foreign officers of International unions.

4. The companies are not sore over International ism: they simply take the ground of preferring to treat with Canadian unions than with foreign.

5. As to selling stock is'nt that an illagical argument. They do not sell it to benefit foreigners. In selling stock they very likely in some cases take in the others fellows, while the leaders of the foreign organizations take in the Canadian workmen all the time.

6. The public would like to have both workmen and operators where they could not strike, or lock out.

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While the bosses of District No. 26, the McLellans, Sutherlands, and Mosses, get nice fat salaries for perambulating about, the rank and file for doing real work are not paid half union wages. For instance in the financial statement of District 26 it is recorded that Angus McKeagan was paid in the blustery month of March for 24 days' work and expenses $27,50. Allowing $3,50 for expenses that leaves Angus a dollar a day, a wage far from sufficient to keep body and soul together. How sumptuously, on the other side, do the bosses fare. For instance for the last three months of 1909, besides his salary of $80,00 per month, Jas. B. McLachlan received in the way of expenses hotels and travel, over $200,00. Why, most of the time Jimmie must be living like a lord. He talks of how hard it is for the poor man to live. He is not in that class; he lives on the fat of the land. Who would cut coal and earn only three dollars a day so long as he could make three and a quarter and hotel bills paid, doing work which requires neither brawn nor brain. Happy day when Jimmie left bonnie Scotland for bleak C. B. A master stroke.

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A noted speaker said lately that nothing was so difficult as to get people to live up to their own labels. For instance, a working man would declare that every man ought to work for what he gets, and then he would go out and gamble on a horse race, and try to get his mates' money without working for it. 'I don't believe in the House of Lords,' cried another democrat. 'I'd have them all out, and I'd never make another peer. And now, as I've talked a lot, let's go out and have a drink.' And so, said Mr. Stevenson, he helps to drink some brewer into the House of Lords. If England stopped drinking there would be precious few brewers able to buy their way into the House of Lords. 'Christ is all right,' cried another democrat, 'but I can't stand the Churches.' Well said the speaker, suppose some of the Churches are imperfect, why don't you go in and make them better? You don't improve them by standing outside and criticising them. Only come into the Church as a Christian, and not as a politician who wants to capture the Churches to serve his own ends, or as a democrat on the make.

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One of the foremost of the Glace Bay socialists does not believe in christianity. At a meeting where God's blessing was asked, the wise man from the east said. "What is the good of praying to God, there is no God." That same thing was said years ago by one who was not called wise. In the hope, that if I cannot convert a sinner from the evil of his ways, I may perchance keep one from foregathering with the G. B. U. M. W. scoffers, let me quote what that ardent socialist Keir Hardie says: "I came to my socialism though my christianiy and he went with them to tell the continental socialists that they needed the moral inspiration which christianity alone can give."

ACTIONS AGAINST MINERS.

Mine owners located in the Irwin-Greensburg field have decided to determine once and for all whether or not they have any recourse for reimbursement for the expenses assessed on them by the attitude of their miners and the local and general bodies of the United Mine Workers of America. With this idea in view suits were entered against 87 miners and miners' union officials last week in the courts of Allegheny and

Westmoreland Counties, and others are to be entered in the United States District Court against the officers of the parent organization.

Damages aggregating about $1,000,000 are claimed as a result of the strike that was begun at their mines on April 1st., and to overcome which several hundred thousands of dollars were expended. It is insinuated also that certain operators in the Pittsburg district have been taking much more interest in the promotion and continuance of this strike than friendliness would suggest, and they also are charged with conspiracy and damages claimed.

Each of the accused miners has seven charges resting against him, and each is bonded for appearance on trial at $300.00 on each seperate charge, making the aggregate $2,100.

The entry of these suits for damages against the union and its agents, raises a question that has often been suggested, but never threshed out in the courts as to the legal responsibility of unions at law. The now celebrated Taff-Vale case in England is the only known precedent in such a cause, and another is the equally celebrated Brace Brothers' case tried in the courts of this county, and which Judge Jacob S. Slagle made the first judical declaration that a boycott is a punishable offence. The Messrs Brace carried their case to its logical finality by securing judgments against property held by one of the defendants, to escape execution on which (which was never contemplated) it was turned over to a son for a normal consideration, and the son turned his father out of the house, so that the latter lost his home.

Because of the large number involved and the points of law raised, these suits have aroused considerable interest among miners and operators, and their judicial determination will be watched with interest.

GERMAN COMPETITION.

Germany's industrial progress is frequently attributed to cheap transit, cheap mining royalties, and cheap labour. But in competition with Great Britain, it is not strictly accurate to contend that Germany's iron trade is favoured under these headings. That mining royalties do not count for much is proved by the fact that the pitmouth price of coal is higher in Germany than here. That cheap transit does not count for much either has already been explained in connection with Germany's long haulage distances, which completely destroy the alleged advantage of low tonmile rates. Nor does the German iron industry hold any advantage over the British industry in the matter of cheap labour. Nearly fifteen years ago the British Iron Trade Association delegates to Germany, after visiting the leading iron and steel works there, expressed their "surprise" at finding how very nearly the wages of the German workers approached those of our workers. Mr. J. Stephen Jeans, the secretary, declared that "in not a few cases" the wages for similar classes of work in the two countries "were practically on all fours." Since then wages in the skilled trades have gone up by 22 per cent in Germany against 11 per cent in Britain, and unskilled wages have risen by nearly 50 per cent. in Germany against no rise at all in this country. Wages per worker employed, and per unit of output, are actually higher in the iron group of trades in Germany than in Britain. No; German's success in the Iron and steel trade is not due either to cheap labour or superior resources—it is not due to any fundamental advantage over this country.

What then, is the secret of German success? The reply can be given in one word—organization. Without its vast system of syndication—its almost military-like productive and distributive methods—and the organized fostering of export trade by bounties, the German iron industry could not possibly have attained its present status. The production, price, and sale of practically every material and article of iron manufacture, from coal and ore to wire nails are controlled by some syndicate or manufacturers' union. A German syndicate does not, as a rule, control or own any works as do the Americans "trusts" but only the products of the works. Thus a German firm manufacturing a dozen different articles may be a member of a dozen different syndicates, and not a unit of a single trust. The usual syndicate system is for a number of experts to visit each of the works and ascertain its capacity of production and aptitude for any special line of business. Then orders, which are generally received by the central offices, are allocated to the various establishments having regard being paid to the geographical situation and mechanical equipment of the several firms in order to effect every possible economy. For example, a Russian or Austrian order would, other things being equal, be allotted to a Silesian works, while an English or French one would go to a Westphalian firm. The whole country is mapped out into trading zones, and if, after careful allocation of orders, any firm is placed at undue advantage in the matter of transit, &c., it is compensated to the extent of the extra carriage. Payments as well as orders usually pass through the central offices, and the syndicate attends to many trade, legal, and other affiairs in the interests of its constituents. These German syndicates are manufacturers' trade unions and co-operative societies combined.

In 1897 some of the German iron trade syndicates inaugurated the export bounty policy, and it is this ageney which has been mainly instrumental in promoting German competition with this country. The coal, coke, pig iron, and steel syndicates controlling raw materials agreed to supply their associated customers—the iron and steel manufacturers and engineers—with fuel, iron ingots, &c., at cheaper rates when such material were needed to manufacture for export than when required for the home market. From time to time the bounty rates, or rebates, have been increased or decreased in response to the fall or rise in the home demand. If the home demand has been brisk the bounties have been low; if it has slackened, up have gone the bounties in order to promote exports. Thus we have had the spectacle of Germany doing the trade abroad when there has been the smallest volume of trade available.

For the ten months ending March, 1910, the amount of taxes received from the 19 locals of the U. M. W's. in Nova Scotia was $1,798.17. (A third of this was contributed by Springhill). Judged by the account of the treasurer the U. M. W's. had not an average of over a thousand. In the ten months the expenditure exceeded the receipts by $500. From this out the receipts will probably shrink.

AROUND THE COLIERIES.

The surface plant at Dom. No. 14 and 15 collieries is looming up large. With the engine and other houses a new wash house for miners is being erected.

A coal washer is to be built by the Dominion Coal Co. near the site of the one burned down a year ago. This looks like getting back to former things.

It is reported that the Lorway seam at Reserve is to be tapped by a shaft sunk close to the Emery. The seam is said to be five feet thick and of the very best quality.

The U. M. W. of A boasts that it spent upwards of one million dollars in Nova Scotia for the P. W. A. territory. All it cost that little union to hold its own and come out victorious was $6,000. It has still a good surplus to its credit and does'nt need to levy either.

The coal shipments of the Nova Scotia Steel and Coal Co. for August, 102,000 odd tons, are the biggest on record, in spite of the many off days. The shipments of the Dominion Coal Co. for August are within a few tons of the shipments for 1908, and of course largely in excess of those for August of last year.

The East side of Caledonia colliery, Glace Bay, was affected by a crush lately. The strata settled from the surface which is a usual occurrence in the shallow upper workings of the collieries in the Glace Bay district. This section of the mine was worked out fifteen odd years ago and the pillars were made too thin. Because of this robbing where larger pillars should have been left the East side of Caledonia mine will be idle for at least two months, a large amount of money will have to be expended in timbering the falls of the crushed district, and regular work at Caledonia will be confused for some time. The new methods of mining leave large pillars to guard against crushing, and Deputy Inspectors of Mines are insisting on larger pillars.

The P. W. A. is certainly not strong in its publicity department. The accounts of its meetings in the daily press are of the most meagre description. The Grand Council is desirous that the government should see that the Draeger apparatus is installed at the several mines. Also that the government should test all explosives. This latter request must be based on the score of economy chiefly, and on the loss to the men from defective explosives, and not on that of safety solely, as accidents from explosives have been a minimum in Nova Scotia since the 'powder clauses' were passed. Grand Master McNeil has been given an assistant, and Grand Secretary Moffatt a sub secretary. This latter is a commendable action on the part of the Council. Thomas Hale, of Westville, unless we are greatly mistaken, is made of the right stuff. He will have back bone enough not to condone apparent wrong doing on the part of workmen as well as management. It is to be hoped Tom will turn his attention to Cumberland.

The Springhill strike is wearing on and away. There is a gradual if slow increase in output. The company houses will likely all soon be filled by new men.

There will soon be the predicted string of collieries from Victoria to Barrasois. Another new colliery has been plotted out on the Lingan side and the preliminaries to starting a couple of slopes taken.

The New Waterford district around Dominion collieries 12, 14, 15, and 16 has a town air about it. Houses, hotels, stores, halls, and churches are all in evidence, while the woods are disappearing as fast as fire can burn them. By and bye it will take rank with Glace Bay.

Notices were recently posted around some of the collieries for meetings of the U. M. W. of A. Scenting the truth afar off, but few of the faithful turned up. What few attended were greeted with diatribes against the P. W. A. and preachers, and were asked for a collection at the wind up. Four dollars a month was announced and the larger half of the meeting got out. The few that remained were men out of work and still awaiting places who had nothing to give or send except comfort to sorrowing brothers in the United States. The overflow meetings of the U. M. W. is over for good and stories of bumper houses in the past is now a memory, but counted 'dear' at four dollars a month.

Who will win in Illinois, the mine operators or the miners? Both are holding tight at present. The miners, under John Walker and other leaders are determined to fight to a finish. If they are beaten in the end it will be because the funds are exhausted, and the miners have no means of supporting themselves and their families. For some time previous to the late convention the men seemed to be without the active support of their president, T. L. Lewis, who was desirous of settling the case by a compromise. Whether Lewis now supports the strike is a matter of little consequence, as he played his part in spending a large amount of the strike funds in Nova Scotia, where they were not needed, and now levies are in order. Whether one would call the giving of one dollar per week a strike levy or the paying of back debts by Nova Scotia miners is of little consequence, as it will not be paid. That it is no free will offering was evidenced by the cusswords and the miserable back alley sneaking heard and seen on pay day last. If the Illinois miners win then woe be to T. L. Lewis. If they lose then Lewis will say, 'I told you so and you only got what any reasonable man foresaw you would get, a drubbing. This will undoubtedly lower the stock of John Walker, but he can always say that his hands were tied through want of strong backing. To say that President Lewis while fighting the P. W. A. in Nova Scotia was most effectively fighting a strong wing of his own organization by leaving it without means of support necessary to a successful campaign might be construed as far fetched, but there seems to be a lurking truth of realism about it that lends color to the statement.

Coal Shipments August, 1910.

—DOMINION COAL CO., LTD.—

—Output and Shipments for August, 1910—

	—Output—	—Shipments—
Dominion No. 1	49 847	
Dominion No. 2	67 222	
Dominion No. 3	26 212	
Dominion No. 4	36 687	
Dominion No. 5	33 225	
Dominion No. 6	25 677	
Dominion No. 7	20 705	
Dominion No. 8	16 626	354 033
Dominion No. 9	34 187	
Dominion No 10	14 964	
Dominion No 12	19 523	
Dominion No 14	4 355	
Dominion No. 15	1 026	
	350 256	

Shipments	Aug.	1910	354 033
Shipments	"	1909	248 629
Increase	"	1910	105 404
Shipments 8 mos.		1910	1972 344
" 8	"	1909	1701 362
Increase 8	"	1910	270 982

—INVERNESS RY. & COAL CO.—

Shipments	July	1910	24 212
"	"	1909	24 091
Increase	"	1910	121
Shipments 7 mos.		1910	145 905
" 7	"	1909	121 578
Increase 7 mos.		1910	24 327
Shipments August		1910	25 597
"	"	1909	23 858
Increase	"	1910	1 739
Shipments 8 mos.		1910	171 502
" 8	"	1909	145 436
Increase 8	"	1910	26 066

—INTERCOLONIAL COAL CO—.

Shipments	Aug.	1910	21 380
"	"	1909	23 976
Decrease	"	1910	2 596
Shipments 8 mos.		1910	164 038
" 8	"	1909	153 603
Increase 8	"	1910	10 435

—NOVA SCOTIA STEEL & COAL CO, LTD,—

Shipments	Aug.	1910	100 364
"	"	1909	90 765
Increase	"	1910	9 599
Shipments 8 mos.		1910	514 415
" 8	"	1909	459 331
Increase 8	"	1910	55 084

—ACADIA COAL CO.—

Shipments	Aug.	1910	25 360
"	"	1909	22 850
Increase	"	1910	2 510
Shipments 8 mos.		1910	168 545
" 8	"	1909	174 904
Decrease 8	"	1910	6 359

For two years the under sea workings of Dom No. 1 have been running parallel with the shore line about a quarter of a mile out. Recently it was found that a change had taken place in the coal measures and the coal was running rapidly out to sea. This means a long lease of life to Dominion and to other under sea collieries.

Speaking of Trades Unionism the Bishop of London had this to say in Halifax:—

"That the workingman, has no right to deprive his brother workingman to say he would work for more hours and take less wages if he wished. Why should there be such compulsion about unionism? It is on this account that there is so much much complaint about it. As carried out in Canada and the United States it is an intolerable tyranny. Surely all workingmen, union or otherwise, possess equal rights. How dared certain union men say: "You shall not do so-and-so, you shall not work for so much, or more than so many hours." We all knew the violence to which the non-union man was exposed. The hospital frequently revealed it. He had seen in his home city the street car system paralyzed for months, cars stoned and ruined, and so much bitterness aroused that the city corporation had to ask for military protection. This made the problem very terrible, almost beyond the control of law.

He hoped we were approaching a time when problems between nations would be settled by a peace commission instead of "the bloody arbitrament of the sword." Surely some such principle could be the case in time between unions and the public."

"The Jeffrey Manufacturing Company, Office & Works, Cor-Cote & Lagauchetiere Sts., Montreal Quebec, also having a Toronto Office formerly in the Dinoon Bldg., 8 Temperance St., has removed the Toronto Office to more commodions Quarters at 174 King St. B.

Mr. W. H. Scott, mechanical engineer, formerly connected with the Home Office of this company in Columbus, O., is now in charge of the Montreal Office and Works.

The Jeffrey Manufacturing Company are an old, established concern, making a specialty of elevating and conveying apparatus for handling all kinds of materials in lumber camps, mines, quarries, as well as conveying apparatus for handling materials from the docks, loading to vessels.

New machinery has been installed at the Montreal Works for more economical production.

This Company also has nearly 100 Branch Offices situated in the leading Commercial centers all over the world."

THE DETECTION OF FIRE-DAMP.

The study of the significance of the "cap" or halo which surrounds a flame burning in an atmosphere containing inflammable gas has been taken up by eminent men from time to time ever since the invention of the safety lamp but until it was definitely proved that the ignition of coal dust in a mine could, under certain circumstances, cause an explosion, and that the presence of small percentages of gas greatly increased the possibility of such ignition, mining men did not attach any great importance to recognition of "caps" which indicate these small percentages. The fact that these small amounts of fire-damp, though much below the proportion necessary to form an explosive mixture of the gas and air alone, could, in the presence of dust become dangerous, once recognized, a number of devices for the detection and estimation of the proportion of fire damp were introduced.

In order to render the pale blue "cap" more visible, the user of a safety lamp reduces the flame until only the darker blue and nearly non-luminous portion of the flame is visible. Several of the devices referred to therefore used the non-luminous flame of hydrogen or alcohol, with the further advantage that the greater heat of these flames, as compared with that of the ordinary safety lamp flame, gave a much larger and more distinct "cap." Perhaps the best example of the former type is the Clowes device, which consists of a small cylinder of hydrogen attached to the lamp, and provision for burning a jet of this gas inside the lamp. The Pieler lamp is a good example of the alcohol type. An arrangement depending on the increased "glow" of a heated platinum wire in the presence of inflammable gas has also been introduced.

Most of these arrangements however, are adapted for the use of experts only, and might even be dangerous in other hands. Estimations and tests made by experts, and communicated to the man who must put the results into practice, cannot be as useful as the men's own observations, if means are found to enable them accurately to assess the percentage value of the "cap." The "cap" or halo, which indicates the presence of inflammable gas, being of a pale blue colour shading into a still paler greeny blue, may be unrecognisable to a man whose colour perception is below normal. From the report of the Commission on Safety in Mines it is evident that the reports of the mines inspectors and the evidence placed before them impressed the Commissioners with the necessity of ensuring that the man on whom the duty falls should not only be able to see the "cap" but should able to put a true value on that "cap."

The man on whom this duty falls, in British coal mines, is the "duty" or "fireman" who is required to make certain daily tests with the object of ascertaining the presence or otherwise of gas in the workings under his charge. He is also the main source of information available to the management as to the state of the mine. The Commission recommend that this official—who need not at present hold certificate—should be required to obtain a certificate from a mining school or other place approved by the Secretary of State as to his ability to make tests for fire-damp."

The apparatus, designed by Mr. Winstanley and exhibited by him at a recent meeting of the Manchester Geological and Mining Society, would seem to provide the means of giving the instruction necessary and of testing the man's ability to make tests for fire-damp. It certainly appears to mark a distinct advance in the means available for the study of fire-damp "caps"—particularly from the standpoint of the practical man.

The apparatus consists of a gas holder, a mixing chamber, and an ordinary "safety" lamp, arranged to take all its supply of air from the mixiug chamber. The gas holder is a gas aspirator with necks for tap connections at the top and bottom. It is carefully calibrated into divisions equal to 1,200th (half per cent.) of the capacity of the mixing chamber. The mixing chamber is a copper vessel provided with the necessary taps and connections, a water-level gauge and a simple mixing agreement. The mixing chamber is first entirely filled with water and the bottom of the chamber connected, by means of short tubes, to the botton of the gas holder, the tops of the two vessels being similarly connected. If it is desired to have a 2½ per cent. mixture of the gas and air, water is allowed to flow from the chamber into the gas holder up to the division representing that precentage, displacing an equal volume of gas. The connections between the two vessels are now closed, and air is allowed to take the place of the remaining 97½ volumes in the mixing chamber, which now contains a 2½ per cent. mixture of gas and air. A simple arrangement insures the thorough mixing of the two, and by again slowly admitting water to the chamber a sufficient supply of the mixture to keep a safety lamp burning for about an hour is obtained. The only modification required in the lamp, which must be of the bonneted or shielded type, is the closing of the ordinary inlet holes, and the addition of a perforated ring tube encircling the gauze, inside the shield, which delivers air or a mixture of gas and air at the point where air would otherwise enter in the ordinary way. This pipe being connected to the mixing chamber the lamp must burn in an atmosphere, the composition of which is determined by the adjustment of the mixture in the chamber.

In the lamps in use in British coal mines, three illuminants, or classes of illuminants, are in use—colza or rapeseed oil with the admixture of various proportions of mineral oil, colzalene, and similar substances, and mineral oil. Each of these illuminants will give a "cap" of different appearance when burning in the same percentage of gas, so that a man must be able to see for himself the appearances presented by "caps" on the flame of the lamp with which he is to work in the mine when burning in known proportions of gas and air. This the apparatus described above would render possible. The main advantage is that the observer is not guided by descriptions or dimensions depending on the observation of someone else whose colour perception may differ materially from his own, but is able to note for himself the changes in the appearance of the "cap" in varying but known proportions of gas. Having once learnt the significance of the various "caps," he should be in a position to make sufficiently accurate tests of the presence or otherwise of gas in the mines; and, if present, to estimate the proportion which the particular "cap" shown represents.

INVERNESS RY. & COAL CO'Y

Time Table No. 28, Taking effect at 1 a. m OCT 17TH., 1909.

WESTBOUND Superior Dir.		STATIONS.	EASTBOUND Inferior Dir.	
58	57		54	52
P. M.	A. M.		P. M.	A. M.
3 30	10 40	P. TUPPER JUNCTION	3 45	11 00
3 25	10 35	INVERNESS JUCT.	3 50	11 05
3 17	10 29	PORT HAWKESBURY	3 55	11 11
3 09	10 12		4 08	11 30
P. M.	10 07	PORT HASTINGS	4 13	A. M.
	9 57	TROY	4 25	
	9 44	CREIGNISH	4 38	
	9 27	CRAIGMORE	4 50	
	9 08	JUDIQUE	5 05	
	8 55	CATHERINE'S POND	5 18	
	8 40	PORT HOOD	5 33	
	8 35		5 38	
	8 23	GLENCOE	5 53	
	7 50	MABOU	6 16	
	7 40	GLENDYRE	6 28	
	7 25	BLACK RIVER	6 48	
	7 12	STRATHLORNE	7 00	
	6 55	INVERNESS	7 10	
	A. M.		P. M.	

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

IN Lots To Suit Purchasers.

BEST COAL FOR DOMESTIC CONSUMPTION.

BEST GAS COAL

Mined in the Province.

Head Office MONTREAL

Mines SPRINGHILL N. S.