

136 Macdonald

Dr. R. Bell  
Chief survey dept.

# Maritime Mining Record

Oct. 25 1916

## DOMINION COAL COMPANY LIMITED.

OUTPUT:—5,000,000 tons yearly.

Miners and Shippers of the Celebrated

**"DOMINION" Steam and Gas Coal**  
**and Coal for Household Use**

from the well known seams

**'Emery,' 'Phalen,' 'Harbour,' 'Victoria' and 'Hub.'**

**"SPRINCHILL" Coal for Steam, Gas, and Household use.**

**Screened, Run of Mine, and slack.**

Used by Railways, Tramways, Steamships, Manufacturers, Water Works, Light and Power Stations in Ontario, Quebec and the Maritime Provinces, also in Newfoundland and the New England States, Mexico, Sweden, South Africa and the West Indies.

**Shipping Piers** equipped with modern machinery, ensuring Quickest despatch

—AT—

SYDNEY, LOUISBURG, C. B. and PARRSBORO, N. S.

**7000 ton Steamers Loaded in 7 hours.**

Special facilities for loading and prompt despatch given to sailing vessels and small craft. Box Car Loaders for shipments to inland points. Discharging Plants at Montreal, P. Q., Three Rivers, P. Q., Quebec, St. John, N. B. and Halifax, N. S., Capacity up to 1000 tons per Hour.



**BUNKER COAL.** The Dominion Coal Co. has unsurpassed facilities for Bunkering Ocean going steamers the year round. Steamers of any size promptly loaded and bunkered.

**IMPROVED SCREENING FACILITIES** at the Collieries for the production of Lump Coal of superior quality for Domestic trade and Household Use.

FOR TERMS, PRICES, ETC., APPLY TO

**Dominion Coal Co., Limited,**  
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" " " "

112 St. James St., Montreal, P. Q.  
Glacé Bay, Nova Scotia.  
171 Lower Water Street, Halifax, N. S.  
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**D. H. McDougall,**

General Manager

**Alexander Dick,**

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SYDNEY, N. S.

MONTREAL, P. Q.

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**Stellarton, N. S.**

Miners and Shippers of the

**Celebrated**

## **ACADIA COAL**

**Unexcelled for STEAM Purposes.**

**Popular for DOMESTIC use.**

**Manufacturing, Steamship, and Railway  
Companies give it high endorsements.**

**Shipments by water from Pictou Landing, N. S.**

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**For Prices and all Information, address General Offices,**

**STELLARTON, N. S.**

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High Grade Fuel for Steam Domestic and General Purposes.

**COKE**

From Coal Washed by Latest Process Growing more popular daily—and considered to give as good results for Foundry purposes as the United States Article.

**FIRE CLAY**

of Fine Quality.

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Better than Scotch seconds for Ladle lining etc.

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**CANADA FOR THE CANADIANS!**

**WIRE "DOMINION" ROPE**  
For Everybody.

PATRONIZE HOME INDUSTRY

The **DOMINION WIRE ROPE CO., Ltd.**; Montreal

## INVERNESS IMPERIAL COAL

INVERNESS RAILWAY and COAL COY.

Inverness, Cape Breton.

Miners and Shippers of INVERNESS (BROAD COVE)

**Screened, Run-of-Mine' Slack,**

—First Class both for Domestic and Steam Purposes.—

**BUNKER COAL** Shipping facilities of the most modern type.

at Port Hastings, C. B. for prompt loading of all classes and sizes of Steamers and sailing vessels.

Apply to Inverness Railway and Coal Company, Inverness, Cape Breton J. MCGILLIVRAY, General Manager.

### INVERNESS RY. & COAL CO'Y

Time Table No. 31, Taking effect at 12.01 JUNE 28TH., 1914

SOUTHBOUND		STATIONS.	NORTHBOUND	
Superior Dir.	461		Inverness Dir.	461
P. M.	A. M.		P. M.	A. M.
5 25	10 40	POINT TUPPER.	5 40	11 00
7 07	10 23	INVERNESS JUNCT.	8 45	11 15
8 12	10 25	PORT HASTINGS-BURBY	3 50	11 11
2 56	10 12	PORT HASTINGS	4 03	11 11
3 51	10 07		4 08	A. M.
	9 57	TROY.	4 20	
	9 44	CHERISH	4 33	
	9 37	GLASHBORO	4 45	
	9 28	JE DIOUE	5 00	
	8 55	MARYVILLE	5 15	
	8 41	PORT HOBOD	5 26	
	8 31	PORT HOBOD	5 33	
	8 25	GLENCOE	5 45	
	7 50	MARQU	6 11	
	7 40	GLEN DYRE	6 20	
	7 33	BLACK RIVER	6 30	
	7 12	STRATHLORNE	6 40	
	6 55	INVERNESS	6 50	
	A. M.			

4

MINING RECORD

# MARITIME COAL, RAILWAY, & POWER CO.

Miners and shippers of

CHIGNECTO High Grade  
—AND— STEAM  
JOGGINS. AND COAL.  
Domestic

Unexcelled for General Use.

Shipments by Intercolonial Railway and Bay of Fundy.

Collieries:—CHIGNECTO and JOGGINS.

Power Plant, CHIGNECTO, N. S.

R. J. BELL, General Manager, JOGGINS, N. S.



Manufacturers  
of  
**Wire Cloth**  
and  
COAL SCREENS  
in all Strengths.  
Double Crimped  
Process.

WE SPECIALIZE IN  
ORNAMENTAL IRON AND WIRE WORK.  
**Jail and Prison Construction.**  
"Have you an Up-to-Date Lock-Up in your District."  
**Canada Wire & Iron Goods Co.**  
HAMILTON.

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HALIFAX--MONTREAL  
**OCEAN LIMITED**

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Depart Halifax 8.00 a. m.  
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DAILY, except Sunday.

Depart Halifax 3.00 p. m.  
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Used by Collieries in Lancashire, Stafford-  
shire & Yorkshire

'XTERRA' COLLIERY LAMP OIL  
For Muesel, Muesel, Deflector, or Closed Lamp;

PURE WHITE FLAME. LOW PRICE  
E. WOLASTON, Dutton St. MANGHESTER  
Sole Representatives for Canada, AUSTIN BROS.  
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# LATCH & BATCHELOR

LTD.,

Wire Drawers, Manufacturers of all classes of Wire Ropes,

Patentees and Manufacturers of

**LOCKED COIL and  
FLATTENED STRAND  
WIRE ROPES,**

Hay Mills,

Nr. **BIRMINGHAM.**

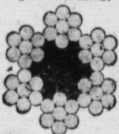
Agent:—

**H. M. WYLDE,**

P. O. Box, 529.

**HALIFAX, N. S.**

Fig. 2. HAULING.



## LANG'S LAY ROPES.



Fig. 26. WINDING.

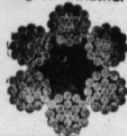
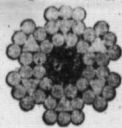


Fig. 1. HAULING.



## PATENT FLATTENED STRAND ROPES.



Fig. 4. WINDING.

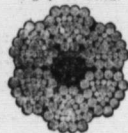


Fig. 13. SINKING.



### Advantages of Patent Flattened Strand Ropes.

1. Greater wearing surface, therefore longer life of rope and less wear upon pulleys.
2. Greater strength, thereby admitting of smaller ropes being used for existing loads, or of increased loads without increase in size of rope.
3. Spliced easily and more effectively.
4. Less tendency to twist and stretch in working.

Fig. 11b. CRANE, &c.

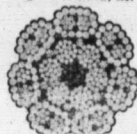


Fig. 13 for Sinking & Fig. 11b for Cranes, &c., are non-twisting.

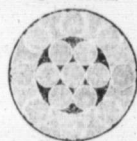
Fig. 15a. WINDING.



## LOCKED COIL ROPES.

Indispensable for deep shafts.  
Stronger than any other rope of same size.  
Entirely free from twist.  
Smooth surface reduces wear to a minimum.  
Duration far ahead of any other rope.

Fig. 20. GUIDE.



## CANADA.

# DEPARTMENT OF MINES.

Hon. P. E. Blondin, Minister.

### Mines Branch.

Recent Publications:

- Building and ornamental stones of Canada. (Quebec), Vol. III, Report on, by W. A. Parks, Ph. D.
- The Bituminous Sands of Northern Alberta, Report on, by S. C. Ellis; M. E.
- Peat, lignite, and coal; their value as fuels for the production of gas and power in the by-product recovery producer, Report on, by B. F. Haanel, B. Sc.
- The petroleum and natural gas resources of Canada. Vols. I & II, by F. G. Clapp, M. A. and others.
- Electro plating with cobalt, Report on; by H. T. Kalmus, Ph. D.

The Mines Branch maintains the following laboratories in which investigations are made with a view to assisting in the developing of the general mining industries of Canada:—Fuel Testing Laboratory, Ore-Dressing Laboratory, Chemical Laboratory, Ceramic Laboratory, Structural Materials Laboratory.

Application for reports and particulars relative to having investigations made in the several laboratories should be addressed to The Director, Mines Branch, Department of Mines, Ottawa.

R. G. McConnell, Deputy Minister.

### Geological Survey.

Recent Publications:

- Summary Report of the Geological Survey for the Calendar Year 1915.
  - MEMOIR 20. Gold fields of Nova Scotia, by Wyat Malcolm.
  - MEMOIR 44. Clay and shale deposits of New Brunswick, by J. Keele.
  - MEMOIR 59. Coal fields and coal resources of Canada, by D. B. Dowling.
  - MEMOIR 60. Arisaig-Antigonish district of Nova Scotia, by M. V. Williams.
  - MEMOIR 78. Wabana iron ore of Newfoundland, by A. O. Hayes.
  - MAP 150A. Pouchok Lake Sheet, Nova Scotia.
- Applications for reports should be addressed to the Director, Geological Survey, Ottawa.

The....

# MARITIME MINING RECORD

Vol. 19,

Stellarton, N. S.,

Oct. 25th., 1916.

No. 8.

**BROTHERHOOD.**

(Montreal Witness.)

To stick together and fight in order to win a victory over the enemy opposing our side, to be in with the stockholders when their executives make a coup or cut a melon, to be of the bosses who make the big earnings or of the laborers who contend with them for a larger share of them in wages—there is little of real brotherhood in such concerted action, in merely acting together. It is the motive and the spirit that count. Too many of the so-called brothers and brotherhoods in their motives and methods are comparable to birds of prey, with the public, humanity, all outside their organization regarded and treated as the prey. There is nothing brotherly about their ideas or plans or practices. There is a false and cruel misrepresentation, a hideous parody and pretence, a sinful misrepresentation of what was intended for the healing of the nation, the uplift of society, and for cementing the bonds of peace and good will among the widely wandering and far dispersed peoples of the earth. You cannot have brotherhood, you ought not to have it, unless you put into your organization and motives and methods and plans the principles taught by the Lord Jesus Christ and the pure sentiments felt and exemplified by Him during His ministry on earth.

The Christian idea of brotherhood is the one time idea of it. You may have all the organizations possible and apply the words where and to what you will, but without the Christlike feeling and the Christlike action you cannot have the fact, the reality, the thing itself. The influence of Christ must affect and pervade the whole sphere of human relationships which the word brotherhood connotes. From the Christian point of view our human brothers is our second self and we are to love our neighbor as ourself. A man must put in his mind and heart right towards his brother or God will never accept them as right towards Him. The unforgiving can never worship God aright. "If we love not man whom we have seen, how can we love God whom we have not seen? He who loves God should love his brother also." The test of our love of God is our love of humanity. This brings brotherhood down from the clouds of other-worldiness to its application in the affairs of our daily life. And yet do we not have to confess that all this sounds unreal, ethereal, even fantastic, the very opposite of the experience in this world today? Why, many brotherhoods with which we are familiar actually foment and stir up hatred and strife—comrades in arms, contending financiers on floor of exchange ready to tear one another's fortunes to pieces, mill hands pocketing and warning off those who want to work, trainmen hurl-

ing stones and destroying property. There is no brotherhood in all this because there is no Christ spirit in it. On the contrary, there seems more of the spirit of Dives and the devil in it.

A young minister, not without a touch of humor in his mental make-up, in the course of a homily on the pomps and vanities of the world, rather staggered his congregation by exclaiming—"Here am I standing preaching to you with only half a shirt on my back, while you sit there covered with gewgaws and other baubles." The next day a parcel containing several brand new shirts was left at his house by one of his hearers, a kind-hearted old lady. Meeting the donor a few days afterwards, he thanked her exceedingly, but expressed much surprise at receiving such an unexpected gift. "Oh," said the lady, "you mentioned in your sermon on Sunday that you had only half a shirt on your back." "Quite true," added his waggish reverence; "but you seem to forget the other half was in front."

Lord Burnham opened a National Economy Exhibition at the People's Palace, Mile End road. After paying a tribute to the work of Mr. Stewart, the Public Trustee, in this and other connections, Lord Burnham said that the true meaning of national economy was making the best of our lives, our homes, and ourselves. Throughout the country 7,659 War Savings Associations had been formed, with a membership varying from 50 to 5,000. This showed that people were not so improvident as they were made out to be. Mr. G. N. Barnes, M. P., said that in Scotland he had found picture palaces and public houses full to the doors.

Speaking at a meeting of the Labor Officials' Temperance Fellowship in Birmingham, Mr. Arthur Henderson, M. P., said that while sacrifices had been cheerfully made by most sections of the community during the war there had not been the same readiness in regard to the liquor traffic. Having, in the earlier days of the war, failed to accept total prohibition, the government could never take the drastic step afterwards. Mr. Lloyd George advocated complete State purchase, and he would support that, in spite of his previous opposition to it, if it would place the nation in a position to curtail licenses, and minimize the mischief. The Central Board did not go as far as he would like, but it had succeeded in doing something to mitigate the evils of the drink traffic.

During the first half of 1916 the quantity of coal raised from British mines was 128,135,000 tons, as against 139,994,000 tons in the first six months of 1914, states a Board of Trade return.

**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.

Subscription \$1.00 a Year. Single copies 5 cents

**R. DRUMMOND, PUBLISHER.**

STELLARTON, N. S.

Oct. 25, 1916.

**HOW TO PROMOTE SHIPBUILDING.**

At the meeting of the Manufacturers Association in New Glasgow the other day, President Cantley, of Scotia, read an interesting paper on shipbuilding, past and present, in Nova Scotia, from which we take the following extracts as printed in the Halifax papers. Shipbuilding is Old Scotland's greatest industry. With proper encouragement it may become the chief industry of New Scotland. Let the federal government and the provincial rise to the occasion. The opportunity is theirs.—

The maritime provinces at the present time give evidence of a revival of interest in the matter of shipbuilding, which for a number of years has been quiescent. The older men dreamed of the days when the maritime provinces, and particularly Nova Scotia from her more than a hundred yards, built and launched wooden ships which sailed the seven seas, manned and commanded by her own sons. In those days Canada occupied a foremost place among the maritime nations, owing as she did more tonnage per capita than any country in the world.

Then came the iron sailing ships, followed by the steel cargo steamer. These were larger and abler vessels, were operated at a lower cost per ton mile, and were conceded better insurance rates—in short, were more efficient and the inevitable result followed. Our wooden ships did much to develop a virile maritime people and added much to our increase of knowledge through travel; they carried our boys, our men and our captains to every quarter of the globe. This experience gave these men a broad and many-sided view of life, which had its influence not only on them but on their home folk. In short, it was an educational influence of the highest importance, and produced far-reaching results.

Shipbuilding and ship-owning was a lucrative employment which not only provided a livelihood, but brought comparative luxury to a large number of our maritime population, and laid the foundation of many a modest fortune.

Can that experience be now repeated on a scale commensurate with our general advancement during the last half century? The maritime provinces have every natural advantage necessary to the successful development of a shipbuilding industry, situate on the Atlantic coast, with numerous and splendid harbors, with an ample supply of timber, a large coal output, a well developed iron and steel industry. Nova Scotia today possesses greater advantages in this regard than any other province of Canada.

Have we not here and now the opportunity of not only regaining but more than regaining our position

as the premier shipbuilding and ship-owning province of the Dominion? The steel required for both sail and steam tonnage can be produced by both the Scotia and Dominion plants, at New Glasgow and Sydney, while at the former plant are facilities for supplying all the forgings necessary for hull construction and engine building of steam vessels of any size.

**Shipbuilding Elsewhere in Canada.**

There are today in Canada a half dozen yards building steel vessels, but these plants are practically all on fresh water, and none on the Atlantic seaboard. The people of Collingwood, Toronto, Port Arthur, Sorel, and Montreal, have exhibited great enterprise in the face of little encouragement, and are today engaged in building tonnage equal in every respect to similar vessels constructed either in Great Britain or elsewhere.

For eight years no further progress was made until now we have the Scotia Company building at New Glasgow a modern high-powered steel freighter of about 2,000 tons, dead weight, to be driven with geared high pressure steam turbines, with a steam consumption not to exceed 11½ pounds per shaft horse-power—a result of about 25 per cent. better than given by engines of the best modern triple reciprocating type.

**Can We Build up Shipbuilding in this Decade?**

The important and practical question now is:—Were the same methods by which the Iron and Steel industry of the Dominion was built up and developed, if now adopted by Canada, could we thereby develop a shipbuilding industry in the Dominion within the coming decade? In view of the more complex questions involved in the shipbuilding and ship-owning industry, than was the case with the development of the steel industry, various modifications would be necessary, but the broad fact remains, that the iron and steel trade of the Dominion as we now have it could never have reached its present satisfactory capacity, save for the fostering influence of tariff protection and bounty, and we assume that we have now reached the position in this country where even the most out and out free trader must and will admit that any sacrifice made by Canada to establish the steel industry has been fully warranted by the experience of the past two years. For it must be conceded that if the iron and steel industry had not been developed as it has been, no munition business would have been possible in Canada today, in which case the financial and commercial situation of the Dominion, particularly in the large manufacturing centers would be entirely different from what they are at this moment.

Steel shipbuilding on a large scale can be developed if the government of Canada are prepared to grapple with the matter in a broad and statesmanlike way. The measure of assistance which the country should extend to the shipbuilding industry is a matter for government decision. The present bounty is entirely insufficient and out of date, having originated in the days of wood shipbuilding when gross tonnage and net tonnage were almost identical, and when a rate of from sixty-five to \$1.15 per net ton fairly approached the amount of duty paid on the comparatively small quantity of iron and steel entering into the construction of wooden ships.

What shall be the extent of such a bounty, and what is the length of the period over which it should be given? Our opinion is that this bounty should

be ten dollars per ton deadweight, calculated on say Lloyd's summer freeboard in the case of all sail or steam vessels. While in the case of steamers this should be supplemented by a further bounty of \$2.50 per indicated horse power for the propelling machinery—provided such machinery, viz., propelling engines and the boilers are the produce of Canadian workshops.

Among the various systems and methods of assistance to shipbuilding adopted by different maritime nations, it would seem to us that in view of the present situation in Canada, that that of Japan is best calculated to meet our needs, which is practically that suggested above. During a period of twenty years the commercial fleet of Japan has increased from 360,000 to 1,500,000 tons. Practically all the ocean mail boats acquired by Japan in the last five years have been built at home, and these are vessels of some 8,000 to 13,500 tons cargo capacity, and are mainly, but not exclusively, engined by machinery constructed in Japanese workshops.

**Bounty Period and its Duration.**

This should be not less than ten years, and fifteen may be necessary, but the period for which the bounty is to apply should be clearly stated and embodied in the act so that prospective shipbuilders would know for a certainty just what bounty payments in the aggregate could be depended upon, and the capital expenditure on plant account that they were warranted in making. A scale of bounties as indicated above, extending over a period of ten or fifteen years will we believe result in the building up of a substantial amount of tonnage in the immediate future.

Another point of importance is that during a period of say a score of years the steam tonnage demand of the world has been increasing roughly at the rate of about ten per cent. per annum. Therefore, taking this and the present wastage of the war into consideration, the broad fact remains that there will be a tremendous demand for merchant tonnage not only while the war continues but for a decade thereafter.

In order that we in Canada, and particularly in the maritime provinces, may participate in supplying this demand, build up a Canadian mercantile marine and carry in Canadian bottoms our own exports and imports, which is even now a great trade and increasing mightily, immediate action is imperative.

**- Rubs by Rambler. -**

The Toronto Globe publishes figures obtained from some association interested in the consumption of the common articles of daily life which induces me to revise the figures I gave last week, as to the increase in the cost, to fifty thousand working class families, of four articles of consumption. I estimated that each household consumed fifteen tons of coal a year and two dozen eggs a month. The Globe's figures place the consumption of coal at five tons and eggs at seventy-eight dozen per family. I am afraid this estimate is too low as to coal, and too high as to eggs. Let a compromise be made, and say ten tons of coal and sixty dozen of eggs. The Globe's figures as to butter and milk are the same as those published

last week in the Record. The revised figures will therefore read:

Increased cost of 500,000 tons of coal....	\$ 500,000
Increased cost in price of butter.....	\$1,014,000
Increased cost in price of milk.....	547,500
Increased cost in price of eggs.....	450,000
	2,011,500

Difference.....\$1,511,500  
I said last week that the new order of Farmer Barons beat the old Coal barons by \$991,000. The correct figures put the old barons further in the hole, with the new order ahead by no less a sum than one million five hundred thousand odd dollars. The coal operators have thus forfeited all rights to be further classed as "Barons."

For the past two or three months there have been lively tilts in the Montreal Witness as to the propriety of singing "Rule Britannia." Some over-sensitive ones go the length of saying that the lusty, boastful singing of this good old sea song was one of the causes leading to the present war. A nation that would go to war because another nation displays a little light vanity must indeed be a churlish one. Patriotic songs must magnify their country else they are not popular. The Nova Scotia papers have been exultant over the deeds of the sons of Nova Scotia at the front. And in singing their praises words were not missed. Now, wouldn't it be foolish for the British Columbians, or Ontarions to take umbrage at this natural display. They would smile and say, "We will do the same by our boys." Every day somebody or other speaks of Britain being mistress of the seas. Is there any great harm in repeating a truth. The correspondents of the Witness who would have us quit singing "Rule Britannia" are far too mealy mouthed to be genuine patriots. Though the refrain of the song as now generally sang is not as originally written, what of it? "Britannia Rules the Waves." Can anybody deny it? At first, or when the song was written, the refrain was "Britannia Rule the Waves", and it could not then have been otherwise. He was a Scot who wrote, and Scots, as a rule, are not stupid, therefore he wrote "rule" and not rules. Take the first verse:

"When Britain first at Heaven's command  
Arose from out the azure main  
This was the charter, the charter of the land  
And guardian angels sung this strain—  
Rule Britannia, Britannia rule the waves."  
They would have been a funny lot of angels had they made the declaration that a nation just being born was ruler of the waves.

Conscription for Canada is in the air. The Halifax Herald had a long article upon it the other day, and advocated it with tremendous vigor. I am in favor of conscription, but possibly not of the kind asked for by the Herald, and hinted at by several other newspapers. If there must be conscription let it be by provinces. Let it be by the population of the provinces. Representation in the federal parliament is based on population, and why should it be otherwise in the case of representation in the army. If all the provinces had done as well as some there



would be no necessity for conscription; that is, if Canada's quota is put down at Sir Sam Hughes' figure of 500,000 men. Why should there be conscription in the provinces west of Ontario? Manitoba, Saskatchewan, Alberta and British Columbia have contributed more than their proportion of the 500,000. Ontario and the maritime provinces have done "not so bad." The one province sadly to fail is Quebec, the province which at the hands of politicians has been most tenderly, cuddled. If Quebec had done her share the 365,000 presently enrolled would have had 115,000 at least added to the number, making a total of 480,000, only 20,000 less than the number promised. And had Quebec done as well as the other parts, provinces, of Canada, the total of enlistments would have been over the mark, for undoubtedly not a few in the other provinces, taking example by Quebec, failed in enrolling. The offenders of the apathy of the people of Quebec say the French Canadians are peaceable, plodding people with an antipathy toward war and that they are not amenable to priests or politicians but have a mind of their own. Out on that. The Montreal Witness asserts that had their teachers but said the word Quebec would not be open to the reproach of being the one slacker in the Dominion. And yet, and yet, Quebec has been so petted and spoiled at the hands of the politicians that little wonder if she is careless of her bounden duty as a member of the Dominion. How is it that so little reference is made to Quebec's shortcomings in the matter of recruiting? Fear and cowardice, rak cowardice.

Let us have a look at the population of the several provinces and at their recruiting returns—round figures.

Ontario, population 2,500,000, recruits.....	152,000
Quebec, population 2,000,000, recruits.....	39,000
Mar. Prov, population 936,000, recruits.....	33,000
Man., Sask., Alta., population 1,328,00, recruits.....	108,000
B. C., population 392,000, recruits.....	36,000
	368,000

From the foregoing it will be seen that B. C. has done best of all; provinces west of Ontario second best; Ontario takes third place; the maritime provinces fourth, while Quebec holds a little corner at the end of the bench. Again I ask why should there be conscription in the west and B. C., seeing they have given 21,000 more than their proportion of 500,000? British Columbia alone has given 10,000 more than her quota, and is therefore by long odds the banner recruiting province.

The Toronto Globe, or some other leading light, made the assertion, a week or two ago, that the war tax was chiefly responsible for the high cost of living. And of course all the lesser lights followed in a like strain. Not one of them, however, gave a reason for the increased cost of living in Britain, or in the United States, where provisions are as dear as in Canada. Of course the seven and a half per cent. war tax adds to the cost of living, but then so does every tax. The editors who have so much to say about the war tax do not favor us with any opinion as to what form of taxation should have been substituted for the increase in tariff. There are only two ways for governments to "raise the wind", either by indirect or by direct taxation. I have not

seen and article from the cavillers suggesting direct taxation. I am inclined to the opinion that an income tax is the fairest of all taxes,—and the most unpopular—and because of its unpopularity few newspapers have the courage to openly advocate it. I have discussed and advocated the income tax, but I am not so strong on it as in former years. I have undergone a change of heart, largely because I am assured that it would lead to more perjury than the Scott or any other temperance act. Besides, direct taxation has proven to be a failing in at least the incorporated towns of Nova Scotia. People do not pay direct taxes cheerfully; in fact a majority pay with great reluctance and under the idea they are being mulcted. Every town has a big list of uncollected taxes. Now the peoples in the towns and cities are not behind in their payments to the Federal treasury, for the reason that the federal system of taxation is a sub rosa affair not payable by the common people in hard cash direct from the pocket.

I have been thinking over a paragraph I read the other day in a well known Montreal paper. It was in an article dealing with the high cost of living. The article admitted that taxation—for war purposes, &c.—is necessary, but objects to the kind favored by the Government. Here is a sentence: "The one greatest harm of indirect taxation is that the people do not know how much they are paying to the government, and often do not realize they are being taxed at all."

Phew! Is that so? If so it is surely a case of "Where ignorance is bliss 'tis folly to be wise." Why; the part of the sentence which declares that the people often "do not realize they are paying at all" has weaned me almost wholly away from the income tax idea. The people do know when they are paying directly, as in the case of town taxes, and this knowledge leads to a lot of profanity, I fear. In the interests then of morality I must revise my direct taxation idea. All householders are paying indirectly to the local government and they never think about it, but wouldn't they use peculiar language if the royalty on coal was paid direct by the consumer and the consumer was asked, once a year, to shell out a dollar and eighty-seven and a half cents by the Commissioner of Mines for the benefit of the government. From a poetical as well as a practical standpoint direct taxation may be the one defensible method; but, oh, the bitterness of it.

Any good Presbyterian who is not tearing his hair over the union question must take a lot of solemn amusement out of what is being said by ministers, laymen and the press on the subject. It is rare fun to see how mad some people can become over a subject which demands coolness and courtesy if it is to be discussed with profit. The ants seem to be most touchy. They are the fiercest assailants. This looks bad on the part of folks who are fighting as they claim for a high souled principle. Reference might be made to it in this column if the "Union" question did not seemingly obsess some people even more than the war. I am tempted to say something purely for the purpose of seeing how quickly certain writers will fly off their handle, thereby proving how deeply and unmistakably religious they are. But I will refrain as though I enjoy hard looks and words at times, this is no time to set a man at variance with his neighbors. I was told the other day

that I was no Presbyterian. That did not move me. If I could only be in all vital respects what I ought to be, I would willingly let the Presbyterian part of me go. However, while I must not say anything off my own bat on the subject I am at liberty to express the views of others. That is trench warfare. I will hide behind others. The following I take from the Sydney Post, simply asking that special heed be given to the two last sentences:

The Toronto News criticizes them with less bitterness, but declares their conduct reactionary and undeserving of much public sympathy, adding that "the arguments for union seem to be overwhelming." The cross-currents of opinion which have naturally developed in the course of a movement affecting the future denominational status of almost two-thirds of the Protestant population of Canada are discussed by the News in an interesting leader, from which the subjoined extracts are taken.

"It is said that most of the clerical anti-unionists are on the retired list, and so out of touch with modern tendencies. Many of them are very worthy men, but we fear that their attitude arises largely from spiritual and intellectual pride. They emphasize their own peculiar theological tenets and theories of church government, instead of the fundamental truths upon which all Christianity is based. It may be that over-enthusiastic Methodists have contributed to the Presbyterian revolt by rather gleefully proclaiming that, as the strongest body numerically, the church of John Wesley would absorb and submerge the two lesser denominations and that thus the united church would be merely a glorified and enlarged Methodism."

"The average Presbyterian, Methodist, or Congregationalist layman agrees with neither extreme. So far as he can see, the three bodies have too much in common to be kept apart by minor differences, when by amalgamation they would be newly armed for the enormous tasks which lie ahead. In a vast and sparsely peopled country, which under normal conditions annually attracts hundreds of thousands of potential citizens from the ends of the earth, there is need for an effective co-ordination of effort if the higher ideals of civilization are to triumph. A strong national church such as the half-achieved union would produce would prove a powerful factor in the assimilation and consolidation of the newly acquired elements in a diverse population."

It may be noted in passing that the statement of the News that of the three contracting churches, the Methodists are "the strongest body numerically" is not accurate. For some decades the Methodists have been the most numerous, but the last census shows that the Presbyterians are now slightly in the lead. The "absorption" argument, if it has been seriously used by the anti-unionists, therefore disappears. The weakness of the position of the "antis" is their attempt to force the majority to accept the views of a minority. Their desire to perpetuate a church with the precise organization, doctrines and practices of the Presbyterian church as at present constituted is natural, proper, and, many will think, highly laudable. And they obviously have every right to take the necessary steps to realize, if possible, that desire. But it will not help their movement to try to prevent the majority of their co-religionists from exercising the equally obvious right of proceeding with the union on which they have resolved.

When the first vote on union took place in the Presbyterian congregations, there was no organized opposition, and the affirmative majority was exceedingly heavy. When the second vote was taken, there was organized opposition, and the majority for union, though emphatic, was not so large. It would, however, be a mistake to conclude that the diminished, but still enormous, majority obtained under the second reference revealed an actual diminution in the strength of the union movement. There is little doubt that while organized opposition decreased the pro-union vote, it stiffened and vitalized the union movement by the injection of a touch of partisan spirit which keen opposition always provokes. It is also reasonable to assume that a very large number, and possibly a very large majority, of those who voted either negatively or affirmatively did so with the intention of abiding loyally by the ultimate decision of the Assembly. In view of the decision of the General Assembly and of the fact that committees of the three negotiating churches are now busy arranging final details, the question may be regarded as practically settled. It would, however, be marvellous if there were not some dissidents in this case, as there always have been when similar unions have been consummated. But there is no reason for recriminations or even ill-feeling between such dissidents and the majority. There is religious freedom in Canada.

The following is as good a skit as I have come across for some time. The heading of the skit is, "Don't Work too Hard", a suggestion that is in itself a satire:—

"Don't Work Too Hard."

"Abe," said Mawruss, "seems to me, y'understand, that working as hard as I do I oughter be gettin' more money."

"Well, now, Mawruss, let's see," said Abe; "there are 365 days in the year, ain't it?"

"Well, then, eight hours a day you are asleep, ain't you?"

"Sure," said Mawruss.

"Well, eight hours is one-third of the day, and one-third of 365 is 122 days, and that leaves 243 days, ain't it?"

"Of course," said Mawruss.

"Well, eight hours a day you be resting, ain't you? and eight hours a day is another third-day off; that makes 122 days?"

"That's right," says Mawruss.

"Well, 122 days, from 243 days is 121, ain't it?"

"That's so," said Mawruss.

"Well, you know every Sunday we close down, and that makes 52 days, and 52 off 121 makes 69 days, ain't it?"

"That's right," says Mawruss.

"Well, then, we also been closin' every Saturday half-holiday all through the year, ain't it? and that makes 26 days, and 26 off 69 makes 43 days, ain't it?"

"Sure," said Mawruss.

"Well, then, two weeks of the year you been restin' on a vacation, and that makes 14 days, and 14 days of 43 days leaves 29 days."

"It is," said Mawruss.

"And there was another two weeks when you said you were buying goods, and was being showed a good time by those traveller fellows, and can't count

that, and that makes 14, and 14 from 29 leaves 15 days, ain't it?"

"Sure," said Mawruss.  
 "And now I been noticin' you been takin' an hour off for lunch every day, and that makes 14 days off 15 days leaves one day."

"It does," said Mawruss.  
 "Well, I know you didn't work that day," said Abe, "cause that was Christmas."

**A BLUE LOOKOUT.**

The normal production of the collieries of Nova Scotia is 7,000,000 tons per year. The production in the year 1913 reached 7,250,000 tons, but this was a peak-point in the curve of outputs. The figure of 7,000,000 tons is a conservative and fair representation of what the collieries of Nova Scotia should be putting out at this time. The actual production of 1916 will not greatly exceed 6,000,000 tons. Unless some improvement takes place—and it is difficult to see where the improvement is possible—the production of 1917 will decline to about 5,250,000 tons.

There seems to be no good reason to anticipate a cessation of hostilities before the autumn of 1917, and there are many well-posted observers who think that hostilities will extend into 1918. In any case, demobilization after peace is declared will be a slow and delicate process, and no person can force the condition of industry and trade, when that much-desired time shall finally arrive. Some eminent men see great prosperity immediately following the war. Others again see trade depression, labor troubles, and many unpleasant things. The truth is that no one knows, and one man's guess is as good as another man's. Nevertheless, it seems in every way probable that during 1917 no great number of men will return from the colors to the mines, and it is not only probable, but very likely, that more men will leave the collieries to join the colors.

The threat of a railway strike in the United States recently revealed that dependence of Ontario and Quebec on United States coal. If this calamity had occurred Nova Scotia could not have raised a finger to help, because the production of coal is already fallen far below the needs of the Maritime Provinces and the bunker business. It is no secret that war munitions of various kinds are being manufactured from the Atlantic coast to Ontario. Is it wise to have all these industries dependent on the coal supplied by a friendly, but nevertheless neutral neighbor?

What would the people of Canada say were the acreage of Canadian wheatfields reduced by fifty per cent. Would there not be an immediate protest and strenuous endeavor to increase the acreage and the harvest yield? Yet it seems to be forgotten that without coal the wheat will stay in the West, and will never reach the hungry mouths across the seas. Without coal we could not have sent one man to France, nor shipped a pound of steel or a pint of toluene. The idea of a declining production of bituminous coal at the present time would be farcical in its utter ineptitude were not the reality so grave, and actually with us.—Mining Review.

The Philadelphia Quartz Company has offered a 10 per cent. increase of wages to all its employees who will promise to abstain from intoxicants and avoid places where they are sold. Ninety-nine per cent. of the men accepted the offer.

**Coal Shipments, September, 1916.**

—DOMINION COAL CO., LTD.—

Output and Shipments for September, 1916

—Output—

—Shipments—	
Dominion No. 1	35 064
Dominion No. 2	57 557
Dominion No. 4	31 435
Dominion No. 5	9 597
Dominion No. 6	21 574
Dominion No. 7	10 352
Dominion No. 9	20 747
Dominion No. 10	9 094
Dominion No. 11	8 210
Dominion No. 12	19 227
Dominion No. 14	25 612
Dominion No. 15	17 842
Dominion No. 16	19 423
Dominion No. 21	12 732
Dominion No. 22	16 422
	314 988

351 875

Shipments Sept.	1916	351 875
Shipments	1915	469 975
Decrease	1916	118 100
Shipments 9 mos.	1916	2 901 779
"	9 "	3 110 019
Decrease 9 "	1916	208 240

—SPRINGHILL.—

Shipments Sept.	1916	24 040
"	1915	27 478
Decrease	1916	3 438
Shipments 9 mos.	1916	213 338
"	9 "	249 895
Decrease 9 "	1916	36 557

—NOVA SCOTIA STEEL & COAL CO.—

Shipments Sept.	1916	48 846
"	1915	63 064
Decrease	1916	14 218
Shipments 9 mos.	1916	412 310
"	9 "	417 341
Decrease 9 "	1916	5 031

—ACADIA COAL CO.—

Shipments Sept.	1916	26 373
"	1915	27 184
Decrease	1916	811
Shipments 9 mos.	1916	262 433
"	9 "	203 994
Increase 9 "	1916	58 439

—INTERCOLONIAL COAL CO.—

Shipments Sept.	1916	9 826
"	1915	15 099
Decrease	1916	5 273
Shipments 9 mos.	1916	82 641
"	9 "	120 262
Decrease 9 "	1916	37 621

—INVERNESS RY. & COAL CO.—

Output Sept.	1916	19 722
"	1915	23 814
Decrease	1916	4 092
Output 9 mos.	1916	198 096
"	9 "	164 853
Increase 9 "	1916	33 243

## Around the Collieries.

## THE LAST PHASE—THRIFT IMPERATIVE.

There are twenty-five men now working at the Greenwood mine, and all legitimate efforts are being made to increase the force.

The large decrease in the shipments of the Dominion Coal Co. for September, as compared with those for Sept. 1915, affords ample proof of how seriously the shortage of labor is interfering with the outputs.

The output of the Greenwood Coal Co.'s mine is expected to be fifty tons a day in about a week's time. This with fifty tons a day from the Sutherland mine should help to relieve the coal famine from which householders are suffering.

The Greenwood Coal Co. has been incorporated. The president is Jas. R. Porter, of Stellarton, and the secretary J. W. McLeod, of West Pictou. Malcolm Beaton is, of course, general manager. The capital of the company is \$50,000.

The Record has had sent for its inspection a box of coal from the drift of the new Greenwood Coal Co. The coal, if all like the sample, is of excellent quality, for domestic purposes at any rate. There are no clinkers after burning, the residue being a fine ash. It is a free burner, but not what one would call a lively coal, that is, it emits no gas jets, nor "fuffing lomes", but burns steadily and brightly.

The question exercising coal seam experts is "what is the name of the seam being worked at Greenwood?" Some declare it is not the "six foot seam", and some are inclined to the belief that it is part of the McBean. The fact that there is a doubt as to what seam it is goes to prove that prospecting in and about Thorburn has been done in a desultory and not in a systematic manner. As the Record has stated, there is a good deal about the Pictou coal field yet to be learned.

The government, it seems, is as hard pressed for coal as domestic users. It will buy coal from any quarters, so as to meet requirements, and in any sized lots. Messrs. Noyles and McNeil, government inspectors, paid a visit to the Greenwood mine in an effort to ascertain if the coal was of the standard required by the railway. The report is favorable and shipments will be made as soon as the small branch railway is completed.

The prediction is made by—let us say—the coal end editor of the Mining Record, that unless a miracle happens the production of coal in Nova Scotia next year will fall to 5,200,000 tons. When, if that happens, it means that the provincial exchequer will suffer to the extent of \$250,000, and if it does happen wont Tanner conclude that it was a godsend that his party met defeat at the late election. The effects of the predicted deficit in royalty will be far reaching. How will the deficit be met? Will the hat be sent round, or will there be some direct taxation? Should the prediction be actually fulfilled, then some people who attach small importance to the coal industry may look at it from an enlarged, if unpleasant, view point.

There are abundant signs that the leaders of the common people are preparing them for the inevitable. We no longer hear of Germany conquering all, or of the immense indemnities they mean to exact from their enemies, and the annexationist party is slowly but surely being silenced by the course of events. Beginning as a war of conquest, the war has now, for the Germans, become a war of defence, and the people are not being asked to subscribe to the new war loan in order to help their country to victory, but are told that if they do not subscribe it will be impossible to avoid defeat. All this tells its own tale and shows that the hopes with which the Germans precipitated war have all been shattered. For us a great danger is removed. For centuries it has been the traditional policy of this country to prevent any one power becoming dominant in Europe, and there has always been good reason behind that policy. The danger was averted a hundred years ago by the intervention of this country, and it has been averted again now by the same policy. What remains now to be done is to see that the danger is not merely averted, for that has already been secured, but to see that it is removed, and that may mean a continuance of the national effort for some time to come. And that means that every one of us at home must do our share in order that the war may be brought to a speedy and completely successful conclusion.

The first thing we at home have to do is to take care of the national resources. We have to secure that all these are available for the winning of the war. Lord Kitchener told us at the beginning that the struggle would strain every resource of the Empire, and in that, as in many other things, he proved a true prophet. We must avoid waste of all sorts. When we are urged, in the national interest, to practise economy, it does not mean that we are to stint and starve ourselves, but that we are to take care to avoid waste of every sort, both nationally and individually, and to utilise all our energy in productive labour. There is a good deal of discussion at the moment on the question of coal production, and this completely illustrates the point we are trying to make. It is suggested that the mines should be controlled by the government in much the same way as the railways are controlled. Now coal production is probably more important as a munition of war than anything else we could name. It may sound paradoxical to say so, but the fact is that the more coal we produce at present the more we are practising that economy which is now so vital to the State. Some months ago we were told by the government that it was necessary to produce 14,000,000 or 15,000,000 more tons a year than we were producing. To help towards that end it was suggested that the Eight Hours Act should be temporarily suspended, that women should be employed in some of the work outside the pits now done by men, so as to relieve more men for hewing, that men without much experience of mining should be employed, and so forth. These proposals were resisted by the miners' leaders, who declared that the men would perform voluntarily all that was required and that production would be increased. Local committees consisting of representatives of coal-owners and the men were formed to deal with absenteeism, and for a time

these met with some success in reducing avoidable absence from work. But a table just published, giving the facts for 250 collieries in South Wales, shows that the evil of absenteeism is growing worse again, and, of course, production is suffering. It seems to be proved that a good deal of this is avoidable. The absences, for example, are always much more numerous on Mondays than on Fridays. That is one fact which accounts for the shortage of production. Another is that at the beginning of the war many thousands of miners, the young and lusty, and therefore the best hewers, joined the forces. These would have been doing just as good work in the mines. It is necessary for us to supply some of our allies with coal. The coal fields of France are in the hands of the enemy, and Italy requires as much coal as we can send. Add to this that we have to send coal to some neutral countries in exchange for food-stuffs, and it will be seen that coal production and coal economy is an extremely important matter. It is in order that more may be produced, and that the distribution may be regulated that it is proposed that the State should assume control of the mines.

If we were quite sure that State control would not lead to waste, but would be really economical, we should welcome the proposal heartily. But really, although the State has done marvels during this war, it has not exactly been noted for its economical management of anything. The recent revelations regarding the methods of management in the Royal Army Clothing Factory, for example, have not been such as to inspire public confidence in State management; and the distribution of sugar, particularly during the jam season, has left a good deal to be desired. If, however, the government feel that by regulating consumption they can help to economise our resources in this important matter of coal they will take advantage of the advice and help of those who know the trade and not leave it to bureaucrats in Whitehall. We must all realise that in burning less coal we are helping to win the war. Indeed, it is necessary to issue a warning again against unnecessary consumption of anything. Part of our trouble at this moment is that the consumption of so many things is increasing, largely because of the high wages being paid. We must remember that the whole alliance depends in the last resort on British credit, and that is why we must husband our resources. In this connection, too, we should like a word with those who are talking glibly about the necessity for raising more men. We hear it said that we must have a million more, some even say two millions more. Comparisons are made of the number of men provided and lost by France and by ourselves, as if that were a fair comparison of effort. Our contribution is much more than men, and we must not imperil our position and the position of the whole alliance by taking any further large number of men away from our industries. Those who complain of high prices should remember that it is the taking of so many men away from our national industries that has done more than freights, corn rings, and all other causes combined to raise prices. The hopes of Germany now rest mainly on a failure of the money supply of the allies.

There are no public houses in Lyons, Michigan, U. S. A., and the gaol has been empty so long that the municipal authorities have advertised it for sale.

An American war correspondent who has been visiting the British lines in France describes our army as possessing the universal belief that nothing can stop it from driving the German army out of France. "The fresh troops," he writes, "can hardly be held in reserve, but want to push on in emulation of the troops who have already gone before."

An anonymous donor has offered £2,000 to the Societe Nationale de Chirurgie, 12, Rue de Seine, Paris, to be handed over to the maker of the mechanical apparatus which best supplies the place of the hand. All competitors must belong to allied or neutral nations.

Experiments were carried out in the Brighton schools to ascertain what weight a child can carry without harming himself or herself, and the report states that the average boy of eleven can carry 22 lb., of twelve 27 lb., and of thirteen 26 lb., while a girl of eleven can carry 13 lb., of twelve 15 lb., and of thirteen 16 lb.

Mr. Ryan, Premier of Queensland, wants to increase the soldiers' pay. "It is anomalous," he states, "that men should risk their lives for 6s. a day when they receive double that amount in civil employment. Conscription of wealth should precede conscription of life."

Fish has to be supplied to soldiers one day a week. In the first experiments the allowance was  $\frac{3}{4}$  lb. of fish a man, but the R. A. M. C. urged that this was not enough, and it has been increased to 1 lb., exclusive of head, tail, and other offal. The Canadians have been having smoked and fresh fish twice a week for some time.

The Board of Trade Labour Gazette estimates that the average increase in the cost of living to the working classes since July, 1914, is about 45 per cent. A sovereign is now worth only 11s.

A monument to Lord Kitchener is to be erected on Marwick Head, in the Isle of Birsay, Orkney, near the sunken reef where the Hampshire foundered.

#### THE USE AND CARE OF MINERS' SAFETY LAMPS.

(Continued from last issue.)

(7) When the fount is filled the fluid should not be allowed to run over. Naptha and gasoline founts should be supplied with only enough fluid to saturate the cotton within the fount. The special filling devices provided by the manufacturers of naptha and gasoline burning lamps should be used, although a safety naptha-can may prove satisfactory. Only a good quality of naptha or gasoline should be used in lamps of this type. It should have a specific gravity of 0.70 to 0.72.

(8) Most oil-burning lamps are provided with a device (known as a "pricker") for raising and lowering the wick. This device usually consists of a stout wire extending through the front, and if properly made may be used to snuff the wick. Before the lamp is assembled the pricker should be

in such condition that it can be used, and when the pricker is not being used it should not hang below the bottom of the fount so that it may be bent by striking some object.

(9) After the wick has been lighted it should be adjusted to a low flame and all the parts of the lamp should be put in place and locked. The tightness of joints should be tested by blowing against the chimney joint while the lamp is being slowly revolved. Leakage will be evident by a wavering of the flame. Some modern lamp rooms have compressed-air coils into which the lamp is placed for making this test.

(10) If the lamp has been properly cleaned, repaired, and assembled it is in condition to be given out for use in a gaseous mine, but as a further safeguard it should be tested within a box containing an explosive atmosphere. Such testing boxes are in use at many lamp rooms and can be obtained from the lamp manufacturers.

#### Going Into the Mine With a Safety Lamp.

Each person, upon receiving his lamp, should examine it carefully to detect any possible oversight in assembling it. At the entrance to the mine an experienced safety lamp man, usually a fire boss or foreman, should examine each lamp taken into the mine, and should not allow any lamp to be taken in that shows defects or is improperly assembled.

When lamps that do not have internal igniters are extinguished within the mine they should be taken to the relighting station to be relit. Lamps that have internal igniters requiring special electrical appliances should also be taken to a relighting station. Before an attempt is made to relight a lamp equipped with an internal igniter that may be operated by the miner the lamp should be taken to fresh air or to a place where other lamps are burning. This precaution is especially desirable if the lamp was extinguished by being filled with gas. If the lamp is extinguished by a sudden jar or by overturning it may be safely relighted on the spot, provided another lighted lamp is at hand, so that the extinguished lamp can be examined to determine that it is not damaged. The other lamp should be used to test for the presence of gas before the "dead" lamp is relighted.

#### Testing for Gas (Methane).

When a lighted safety lamp is placed in an atmosphere containing inflammable gas (methane), the gas in contact with the flame is burned, and the burning of this gas increases the length of the flame. The length of the flame is a measure of the proportion of gas present in normal mine air.

Three general methods are in use by inspectors, foremen, fire bosses, and miners for testing for the presence of gas, as follows:

- (1) By the use of a normal flame, such as is used for lighting purposes.
- (2) By the use of a short or intermediate flame, about half the length of a normal lighting flame.
- (3) By the use of a "cap" flame, which is blue, rather than yellow, in color. This flame is sometimes called a nonluminous flame.

Each of the above methods has its adherents, each of whom, as a rule, strongly believes that the method he uses is the best.

If a safety lamp is lighted in the presence of gas, the height of the flame will be influenced by the per-

centage of gas present, and under this condition a normal or intermediate flame will fail to show the presence of less than 3 per cent. gas, unless the lamp is first taken to fresh air and the height of the flame observed.

A normal and intermediate flame when taken from fresh air into an atmosphere containing over 1 per cent. of methane will immediately indicate the presence of the gas by lengthening, but since fresh air may be some distance from where the test is made for gas, if the lengthening of the flame is to be determined exactly, some measuring device is necessary. The device may be a graduated limb or a platinum ladder, or sodium or other salts may be used in connection with a special testing device.

By means of the "cap" or nonluminous flame of modern lamps the presence of more than 1 per cent. of gas may be detected under all ordinary conditions, because the gas forms a blue cap on the flame of the lamp, the length of the blue cap being a measure of the percentage of gas present in normal air. The flame of the lamp need not be adjusted in fresh air, as is necessary in using the normal or intermediate flame; consequently the "cap flame" is the one most suitable for testing for small percentages of gas, up to 4 per cent.

There is often to be seen over the "cap flame" in fresh air another flame termed the "fuel cap," which is sometimes mistaken for the cap caused by fire damp. The "fuel cap" is in reality a gas cap caused by the heat of the flame turning some of the fuel into a gas. The size of the "fuel cap" depends on the kind and the quality of the fuel used. In a naphtha-burning lamp using a very volatile gasoline this cap is rather distinct. Before making a delicate test for gas it is well to observe in fresh air the appearance of this "fuel cap." Usually it differs from the "gas cap" in that it presents a rounded or uniform appearance and does not have a tendency to point.

A lighted safety lamp should not willfully be placed in an atmosphere within a mine that is known to contain over  $5\frac{1}{2}$  per cent. explosive gas, and if any place is known or suspected to contain gas in dangerous quantities it should be approached cautiously with a shortened flame of the safety lamp, the flame being frequently examined as the person advances.

#### Adjustment of Flame of Oil and Gasoline Lamps.

##### Using the Normal Flame.

In using oil lamps for detecting the presence of gas, at frequent intervals the wick should be adjusted and the end of the wick snuffed. After an oil lamp has been lighted and a normal height of flame has been obtained, the flame gradually shortens as the wick burns and crust accumulates. The pricker should then be used. Through practice the miner learns to maintain the flame at a height that is to him a normal working flame. This flame may be used for testing for gas, provided it has previously been adjusted or observed in fresh air.

In the use of a naphtha or gasoline lamp the flame has a tendency to increase in height as the bowl (fount) of the lamp becomes heated, and to maintain a normal height of flame may require occasional adjustment by lowering the wick slightly. In still or sluggish air the tendency to heat is greater than in a rapidly moving current. To test, with a normal or short flame, for gas under 4 per cent., the height of flame must be adjusted in fresh air, as with the

oil lamp.

**Using the "Cap" or Nonluminous Flame.**

The "cap" flame is the most reliable in testing for gas in every-day mine practice, because it may be used without previous adjustment in fresh air. The "cap" flame must be used in testing for gas in return air currents.

To determine accurately the percentage of gas in a mine the "cap" flame must be used, or some measuring device must be placed over the normal flame to indicate the height of the "gas cup" above the luminous flame.

In using the "cap" flame the normal flame should be reduced in size until the yellow color has disappeared, leaving a blue flame, which does not interfere with a good eye seeing the "gas cap" above the flame of the lamp. Some miners have nystagmus and can not easily see the "gas cap." It takes a good normal eye to see the "cap" clearly.

**Height of "Gas Cap."**

The height of the "gas cap" is a measure of the percentage of gas present in normal mine air, each type of lamp giving different heights of caps; the height for each lamp is governed by the temperature of the flame, which in turn depends upon the nature and the kind of fluid used in the oil vessel or fount.

The Bureau of Mines has undertaken a study of the height of "gas caps" as given by different types of lamps when burning different kinds of fluids. The results of this study will appear in a future publication.

**Precautions in Using Safety Lamps.**

Certain precautions that should be observed in the use of safety lamps are mentioned below:

1. Be sure the lamp is locked before taking it into the mine.
2. Examine it carefully yourself to see that it is in good condition, even if it has passed the lamp inspector.
3. Do not carry a key or other device for unlocking the lamp.
4. If you have to prepare the lamp yourself, put the parts together carefully; be sure that the glass is not cracked and that the gaskets are good and are properly placed. A slight carelessness in these matters may cost you your life and the lives of others.
5. Do not carry matches into the mine.
6. Do not attempt to open a lamp within a mine unless at a regular lamp station where the rules of the mine permit lamps to be opened and relighted.
7. Do not set your lamp on the bottom of the mine; it may be accidentally upset and extinguished, and the gas globe may be broken. It is better to hang the lamp on a timber by means of a stout nail.
8. Do not use a lamp that has dirt or oil on the gauze.
9. In testing the lamp in the lamp-room tester for its safety in gas, hang it by the handle.
10. In testing for the presence of gas in a mine, hold the lamp firmly by the bowl (fount).
11. In testing for gas be careful to prevent dripping water from striking the glass globe.
12. Do not allow the flame to smoke; soot may fill the gauze and you will have poor light.
13. Before entering a room or a "tight end," examine the flame of your lamp, and as you advance make frequent tests for gas. Make frequent tests during the shift and always before and after firing

a shot.

14. To avoid being left in the dark, fire bosses should carry two lamps, one for traveling and another for testing, unless the testing lamp is equipped with an internal igniter.

15. If possible, avoid testing for gas pockets while shots are being fired; the flame of your lamp may be driven through the gauze the external gas ignited.

16. When gas flames in your lamp, withdraw the lamp slowly and carefully, and if the flame goes out retire to fresh air before attempting to relight it.

17. If your lamp flames and the wick flame goes out, be sure to examine the gauze, because the gas may be burning within the gauze. To put it out, shut off the air supply, or take the lamp to fresh air, if near at hand. Some miners smother it with their clothes, but if the gauze is red hot it may ignite the clothes and may thus fire the gas.

18. Lamps that have not been used for some time often have rusty gauzes, a hardened wick, or gummy oil. Do not take a lamp in such condition into the mine.

19. Having detected gas, do not repeatedly put your lamp into it, but arrange for the removal of the gas by ventilation. One of the accidents mentioned in this circular was caused by putting a defective lamp into the gas immediately after the gas had been detected with another lamp.

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## Synopsis of Coal Mines Regulations.

**C**OAL mining rights of the Dominion, in Manitoba, Saskatchewan and Alberta, the Yukon Territory, the North-West Territories and in a portion of the province of British Columbia, may be leased for a term of twenty-one years, renewal for a further term of 21 years at an annual rental of \$1 an acre. Not more than 2500 acres will be leased to one applicant.

Application for a lease must be made by the applicant in person to the Agent or Sub-Agent of the district in which the rights applied for are situated.

In surveyed territory the land must be described by sections, or legal sub-divisions of sections, and in unsurveyed territory, the tract applied for shall be staked out by the applicant himself.

Each application must be accompanied by a fee of \$5 which will be refunded if the rights applied for are not available, but not otherwise. A royalty shall be paid on the merchantable output of the mine at the rate of five cents per ton.

The person operating the mine shall furnish the Agent with sworn returns accounting for the full quantity of merchantable coal mined and pay the royalty thereon. If the coal mining rights are not being operated, such returns should be furnished at least once a year.

The lease will include the coal mining rights only, rescinded by Chap. 27 of 45 George V. assented to 12th June, 1914.

For full information application should be made to the Secretary of the Department of the Interior, Ottawa, or to any Agent or Sub-Agent of Dominion Lands.

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

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## Concerning the 'Record'

The first Number of the 'Trades Journal' was issued the first Wednesday of 1880. The 'Journal', while taking a deep interest in the Coal Trade, was more particularly interested in matters affecting the welfare of those employed in the coal mines of the Province. Its aim was to secure for these better working conditions, and to give them the standing in the community to which, it thought, they were entitled. That much good was accomplished along these and kindred lines is acknowledged by all able to make comparison between conditions as they existed in 1880 and as they exist now.

In 1868 the name was changed to the **Maritime Mining Record**, in order to express more distinctly the place it was intended to occupy. Since then, till now, its pages have been devoted chiefly to coal mining, which is the staple industry in Nova Scotia. With the growth of the trade it has grown in influence, and is now considered the one reliable authority on all matters connected with the coal trade.

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