MARITIME MINING RECORD

AND

COAL AND METAL TRADE JOURNAL

Dr. R. Bell Geological Survey dept.

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

New Series Vol. 12 No. 4 August 25th. 1909 STELLARTON, N. S

A. B. C. & A. 1st Codes Used. Telegraphic Address, Latch, Haymills

LATCH & BATCHELOR, L't'd.

AMALGAMATED WITH

WEBSTER & HORSFALL,

(ESTABLISHED 1730.)

Works: HAYMILLS, BIRMINGHAM, ENGLAND.

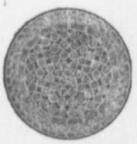
AGENT: H. M. WYLDE, P O Box, 529 HALIFAX N. S.

Patentees and Manufacturers of

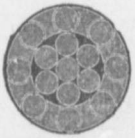
Locked Coil and Flattened Strand WIRE ROPES.

Manufacturers of all Kinds of WIRE ROPES for

Mines, Tramways, Aerial Ropeways, Suspension Bridges, Cranes, Elevators, Transmission of Power, Steam Ploughing and General Engineering Purposes.



Locked Coil Winding Cable.



Locked Coil Aerial Cable or Colliery Guide.

Lang's Lay or ordinary Patent Flattened Strand Winding or Hauling. Patent Flattened Strand, (non spinning)

DRAWERS OF all Sections HIGH CLASS STEEL-WIRE.

for Ropes, Springs, Pianos, Needles, Fish-Hooks Binding Armatures and all other Purposes.

NOVA SCOTIA.

Mines of Gold, Silver, Coal, Iron, Copper, Lead, Etc.

Titles direct from the Crown

At Moderate Royalties.

GOLD AND SILVER.

Licenses are issued for prospecting for Gold and Silver for a term of twelve months They Comprise areas 150 by 250 feet, and any number can be obtained, at a cost of 50 cents per area. Leases of any number of areas can be obtained, at a cost of $2.00 per area, for a term of 40 years; subject to an annual rental of 50 cents per area.

Licenses are issued to quartz mills, which make returns and pay royalty on the gold at the rate of two per cent, on milled Gold valued at $19.00 per oz.

Minerals other than Gold and Silver.

—LICENSES TO SEARCH—

over five square miles for eighteen months, cost $30,00; leases for four renewable terms of twenty years each can be selected from them at a cost of $50,00, and are subject to an annual rental of $30,00

All titles, transfers, etc., are recorded free of charge by the Department. The royalty on coal is 10 cents per long ton, and on other minerals in proportion

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

FOR INFORMATION APPLY TO——

CHRISTOPHER CHISHOLM

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

The....
MARITIME MINING RECORD

Vol. 12, No. 4. Stellarton, N. S., AUG. 25 1909. New Series

MINERAL RESOURCES OF CANADA.

(GEOLOGICAL SURVEY.)

Copper.—Nova Scotia.

In this province, though the presence of native copper was observed in the igneous rocks of the Bay of Fundy by Lescarbot shortly after the arrival of the early French explorers in that country, in the development of that province but little attention was directed to the nature of such deposits for more than two centuries. At a later date, 1828-29, the presence of this mineral was fully noticed by Messrs Jackson and Alger who made a somewhat extended examination of the igneous rocks along the Bay of Fundy, and in his report, 1836, Dr. Gesner called attention to the presence of ores of various kinds in different parts of the province. Numerous references were also made to the presenee of these ores by later writers, including Professors How and Hind, Messrs Poole, Gilpin and others, in papers to different scientific societies and in reports to the provincial government. Since the advent of the Geological Survey, in the Eastern provinces, subsequent to the period of Confederation, careful attention has been given to the occurrence of all minerals of economic value, and the localities where such minerals have been observed have been pointed out. Descriptions of many of these may be found in the several reports by Mr. Hugh Fletcher for nearly thirty years. From a study of the available information relating to this subject the following synopsis is presented. Certain information as to details of mining and economic results are of necessity omitted, since as regards the working of many of these deposits during the last forty or fifty years there is very little information of value to the general public to be obtained.

The copper ores of the province present considerable variety and occur under widely different geological conditions. In the broad srnse they may be classed under four general heads.

1—Those pertaining to crystalline rocks, mostly felsitic in character, and occurring at a number of points in the eastern part of the province, especially in the Island ot Cape Breton.

2—Those fonnd partly in connection with intrusive rocks which cut Devonian and Silurian strata of the eastern part of the province; and as compact deposits in these formations.

3—Those which occur in rocks of Carboniferous age, more especially in the upper Carboniferous or Permian beds in the area south of Northumberland strait. These ores evidently owe their presence to the action of organic matter in the form of plant remains upon copper in solution.

4—Those which are found in connection with the great trappean outflow of the North Mountain range and in similar rocks on the north side of the Bay of Fundy, from Five Islands westward to Cape d'Or. In this case the copper is principally in the pure or native state, sometimes becoming green on the surface through oxydation.

The ores of the first division.—The ores found in connection with the felsitic rocks of Cape Breton and elsewhere are usually in the form of copper pyrite associated with iron pyrite and sometimes with galena and zinc blende. At some localities gold has also been found in small quantities. Most of the occurrences in this district, in so far as described by Mr. Hugh Fletcher, in his reports to this Department, are undoubtedly small in extent and give but little promise of successful returns from their development. In some localities, notably at Coxheath and at Cheticamp, certain conditions have occurred which have produced a greater development of these ores, and at the former a large amount of capital has been spent in mining plants, for which as yet but small returns have apparently been realized. At Cheticamp the ores are found associated with schists, generally felsitic, and there is a greater diversity in their character, some of the ore bodies being of large extent. Usually however the copper pyrite is found along joints or fissures in the shattered felsite rock which is generally reddish or greyish in colour, resembling much of that found in southern New Brunswick and in parts of the felsite belt in the northern area of that province. In geological position, they have been referred to the pre-Cambrian series. Sometimes the ore occurs in irregular quartz layers which traverse the felsites.

Among localities where these ores have been found in the Cape Breton district in varying amount may be mentioned the following taken from Mr. Fletcher's reports.

Caribou Marsh road, two miles from Gabarus bay. Copper pyrite in compact felsite, nowhere apparently in paying quantity. Eagle head, Gabarus bay; deposits of rich ore in the form of pyrite and mined to some extent about thirty years ago. The felsite contains quartz layers, one band reported to have a breadth of four feet which was worked in the old shaft, but the prospect of finding a valuable deposit does not seem greatly improved. Associated with the feldspar and quartz, a band of whittish green soapstone was found in shaly layers by Mr. Angus Campbell of Sydney, with arsenical pyrites, bismuth-glance, iron pyrites, molybdenite and traces of gold. Report Geol. Sur. 1877-78, p. 29 F. The shaft is reported to be sunk to a depth of 75 feet.

In Gilpin's report on Mines in Nova Scotia, 1880, the belt of laminated quartz is said 'to have a thickness of 25 feet, intermixed with soft felspathic rock. The quartz layers are of varying thicknesses and carry the ore in irregular quantities..... Shafts have been sunk at the Eagle Head and French Road deposits by Mr. F. Ellershausen, and it is understood that well defined and

promising veins have be found. Work has been abandoned for some years.

In the section between Burnt point and Boulaceet harbour, copper pyrite in small quantity is found in veins cutting a grey micaceous laminated quartzite of the crystalline series; and at the silver mine on this harbour a rich pocket of galena, with copper and iron pyrite holding some silver and gold, was found in a small vein of ½ to 4 inches thick and mined to some extent by Mr. A. Cameron of Baddeck. Report Geol. Surv. 1876 77, p. 407.

Similar occurrences are recorded from the Washaback district, the copper and iron pyrite being in irregular quartz veins with blende and galena. In a conglomerate at Washaback near Crow point copper ores are found, probably induced through the agency of plant stems on the metal in solution, which have given by assay appreciable quantities of gold and silver. Gilpin, 1887, page 80.

In the felsite of Blue mountains small quantities of copper occur, as also in the White Granite hills near French River. The ore is in the form of porites with iron pyrite, but the amount appears to be of small economic importance.

At Three Island Cove, copper and iron pyrite are found as mere specks only, in quartz veins crossing black and grey slate and sandstone and the deposits are of no apparent value.

At Grantmire brook, iron and copper pyrite are found in layers in a compact gray and pink felsite, the ores yellow and purple, weathering into the green carbonate.

In a brook just west of Morrison road near West Bay, traces of green carbonate of copper were found in a quartz-felspar rock, associated with soft soapy calcareous rocks like those at Coxheath and Gabarus.

At North-east harbour and Skye mountain copper pyrite in small veins cutting felsite rocks, mined to a small extent.

Gillis Lake road, yellow and purple copper pyrite, scattered through a large mass of compact and brecciated felsite; in places calcareous and full of a soft soapy talcose material. Some mining was done at this place by Mr. Burchell.

Brooks near the Coxheath road at Battleman's above the mineral spring, traces of copper ore.

Green island; specks of iron and copper pyrite in small quartz veins cutting dark grey felsite; of no economic value.

Shore east of Big harbour; veins of copper ore traversing diorite, schist and gneiss; have been worked to some extent.

Stewarts brook; small specks of copper pyrite in veins and beds of limestone, with schist, felsite, quartzite and diorite,

Jerome brook; copper pyrite in quartz-veined syenite and compact red felsite with diorite Mined to some extent.

On Mainland, west side of Great Bras D'Or lake, opposite Man of War point, copper pyrite in a compact bluish-gray gangue; the ore by analysis gave, copper 14.28 per cent.

Coxheath mountain; probably the largest of these deposits at present known in this district. Opened first about twenty years ago and worked at intervals since that time. A large amount of capital expended in development works and mining plant. The ores are copper and iron pyrite in bodies sometimes of large extent, occuring in felsite which is often much fissured and broken; the ores carry small amounts of gold and silver. In the deposit there is a small quantity also of calcite and quartz. The first work was done in 1880, and four shafts have been sunk to depths of 300, 420, 100 and 45 feet. Numerous trenches and trial pits have also been made, in order to prove the extent of the deposit. The last shaft was sunk in 1892. Work has been suspended for several years. When examined by H. P. Brumell in 1892 he reported the cupriferous belt as 1,500 feet thick in which ore bodies occurred in veins from two to twenty feet wide. The underground workings consist of tunnels and drifts. A large quantity of ore estimated at from 2,000 to 3,000 tons has been extracted, portions of which have been hand-picked and partly crushed and jigged, but apparently no shipments of the ore have been made with the exception of small amounts for sampling. The quantity of copper in the ore is given in the last report of the Nova Scotia Department of Mines as seven per cent, from a sample taken across the ore pile. The expenditure of money in the development has been very large, but the area has not yet been placed on a paying basis.

George River mountain; R. A. L. Watson's area, chalcopyrite, some of high values.

George River mountain, Alex Matheson area, chalcopyrite.

French road, Cape Breton Co.; J. A. McKenzie & Co. chalcopyrite.

Cheticamp. The copper at this place was referred to by Mr. Fletcher in several of the early reports on this district as far back as 1882. He says of the locality (Report, 1882-84, p. 95 H.) 'For some years prior to 1865 a company was engaged mining for copper ore at Cheticamp, and in 1864 about 12 men were employed. A shaft was sunk to a depth of 106 feet and connected with an adit 410 feet in length. An air shaft 30 feet in height was also cut from the adit-level to the surface of the ground, but not proving productive the works were discontinued. They are situated in the vicinity of the trap and sandstones at the base of the Carboniferous. Professor Howe mentions that green and blue carbonate of copper, gray and yellow copper ore in calcite and chrysocolla are found at Cheticamp, probably at this mine or at Jerome brook, as well as perfect crystals eight inches long of red feldspar in the pre-Cambrian syenite of the neighbourhood.'

Quite recently the property has been taken up by the Eastern National Copper Co. which has begun development work at Grandin brook, L'Abime river. The ore which is chiefly chalcopyrite occurs in schists, and the ore bearing zone is said to have a breadth of 70 to 100 feet, but the present operations are confined to a thickness of 10 feet. The ore is reported to be mixed with galena and other minerals, and to show a small percentage of gold and silver. The copper contents run from 2½ to 5 per cent., with an average of 3 per cent. At present the work on the property is only in the development stage.

Adjoining this area is another known as the Richfield Mining Co. which is developing another ore body of presumably similar character. Along this shore of the island similar pyritic deposits are found in small quantity at several points north of Cheticamp, as at Poulet cove, near Money point and at Cape North. These are practically all copper pyrites in felsitic rocks.

From the evidence as yet presented regarding these pyritic areas, it would seem that the occurrences at most of the localities mentioned are too limited in extent to be of much economic importance. The largest ore bodies appear to be at Coxheath and near Cheticamp.

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. August 25

"Ha Coals"

(By the Editor)

Had the coal crisis in Scotland came to a climax, preparations had been made for the importation of large quantities of coal from Germany. This may sound curious, seeing that Scottish coals is daily exported in large quantities to that country. Germany is, however, a large exporter as well as a large importer of coal. Germany, Italy France and Russia are all good customers of Britain. As showing the large quantities of British coals finding their way into these and other countries, I give a selection of ports which imported over 50,000 tons each during the month of June:

Hamburg	411 000	Cronstadt and St. Petersburg	349 000
Genoa	203 000	Rouen	137 000
Venice	116 000	Bordeaux	114 000
Copenhagen	92 000	Stettin	75 000
Marseilles	68 000	Havre	66 000
Stockholm	64 000	Naples	58 000
Leghorn	54 000	Lisbon	53 000
Port Said	113 000	Alexandria	95,000
Buenos Ayres	152 000	Monte Videc	62 000

For the six months of 1909, ending June, Germany imported 5,000,000, and exported 10,000,000 tons of coal. Though the exports of coal from Scotland are fair, the trade is in a languid condition, and the probability is that there will be idle days for some months to come. While the miners have gained this point, viz: that the minimum wage shall be six shillings, or say a dollar and a half per day, the minimum wage for the next eight month will be more like 5/9 or about $1,45 per day. Some of those who went from here to Nova Scotia were won't to tell of the fine condition and good wages made in Scotland. They could not boast with reason at the present time. A writer in the papers asserts that the wages of the Fyfe miners are less than £2, 11, 0 a fortnight. That gives an average of $1.02 per day, or, as the men work not more than ten days a fortnight, the average may be put at $1.20 a day. The men of Fyfe have to be content with that wage, and the men in Lanarkshire with very little more, and, yet, some of these latter, who have gone to Cape Breton, make a big grumble when making treble the wages they did or could in Scotland. A late importation into C. B. had the cheek to sign a petition for a Board of conciliation, one of the reasons for requesting which was that, with safety lamps, the miners would be unable to make a sufficient wage. And yet this very chap's wages averaged for eight months four times the present wage earned in Scotland. It is really true that some people do not know when they are more than well off.

Keir Hardie is still very much in evidence. He is a very big blow. In reference to the settlement of the coal crises he declares, "We did it all." The papers, of both sides of politics, are unstinted in their encomiums of Winston Churchill, and give him praise for his industry and astuteness in the matter, Not so Keir Hardie. He declares that the only thing Mr. Churchill did was to prepare a cushion on which the coal masters might fall softly. He is a vain glorious old chap is Keir who thinks nothing is rightly done which he had not a hand in shaping.

The eight hour day is not proving to the liking of some who clamored for it. The mine owners, like the managing director of the Cumberland Railway and Coal Co., are determined that the men, having asked for a thing, and got it, should have the law, the whole law, and nothing short of the law. The eight hour law is not without its disadvantages. For instance:—On Monday, the 2nd. of August, the men in the five pits of the Banknock Coal Co. were idle because the company would not accommodate them with riding cages so that they could come up when they had finished their 'darg.' The contention of the men is that they should be allowed to leave the pits when their work is finished, and not have to remain in the mine until the statutory eight hour period has elapsed. A deputation of the men waited upon the managers and were informed that no concessions would be granted as they intended to abide by the law, and be loyal to the mine owners Association who had agreed to apply the act in this way. Of course the men contended that the act did not mean that the men must stay in the mine a specified time. The men in order to induce the company to come to terms have resolved to work only four days a week. If the men are to be allowed to come up at any time, and the pits are not allowed to work longer than eight hours the output will be disastrously, in some cases, affected. The miners had no need of an eight hour law, but they wanted something, and having got it are not grateful.

On the 31st. of July the papers published a cablegram, received by the Miners Officials at their office in Boothwell, sent, so it was declared, by the President of the United Mine Workers of America. The cablegram stated that the miners sent out by agencies in Scotland to Nova Scotia, were in a destitute condition, as there was a strike on. The 'Miners Official' said they wished to give the cablegram wide publicity, so as to warn men to steer clear of Nova Scotia for the present. Some one who, evidently, had little faith in any statement coming from a U. M. W. source, had the following in the Glasgow Herald of the Monday following, that is on the 2nd. August:—

"Sir:—On noticing in your paper a paragraph relating to destitution of Scottish miners sent out by agencies in this country, I sent a telegram inquiring as to the correctness of the statement, and received the following reply:—"No miners idle in

Nova Scotia who will work. 4500 working and paid Conciliation Board wages. 2000 idle in violation of Conciliation Board's agreement. Places rapidly filling. (Signed) Moffatt." I may explain that Conciliation Board wages means an average wage for miners of 12s, or $3 a day. Mr. Moffatt is the Grand Secretary of the Provincial Workmen's Association, a miners' union formed in 1879, and which has done splendid work for the miners of Nova Scotia, placing them in advance of all other miners as regards education, wages and legislation, looking to their comfort while at work. The United Mine Workers, who are the cause of the present trouble, are a foreign organization—American. The strike is due to the fact that the Nova Scotia mine operators, while recognizing the home society, refuse utterly to recognize the foreign order. Can it be expected that the Dominion Coal Company, at whose pits the strike is on, should recognize two unions whose objects are similar? If the miners' officials at Hamilton know the true inwardness of the so called strike in Cape Breton their sympathies surely would be with the provincial society, which is British and not alien. The members of the home society are not on strike, but at work."

Latest accounts on this side are that the U. M. W. are not having it all their own way in C. B This is good news, especially when coupled with the findings of the Sydney Mines Conciliation Board. It is a wonder the foreign society officials have not long ago recognized that there is no room for them in Nova Scotia.

The Sydney Post suggests that the way out of all this, and future trouble is for certain officials of the P. W. A. to resign. It accuses certain ones who persisted in holding on to offices, as the sole cause of the trouble. Bosh. Who wanted the e officials out? Was it not certain ones who wanted their places: was it not the leaders of the rebellion. Has the Post not wit enough to discern that if the angel Gabriel himself was the leader of a trades union there would be certain ones who would like to oust him on the expressed ground that they could run things better.

I see that Grand Sec'y Moffatt is going in for the formation of an all Canadian union. I scarcely know what this means. Let the P. W A affiliate with as many Canadian unions as it pleases but let them keep clear of any union which tries to embrace all trades and professions. The papers and their correspondents that called for an all Canadian Union to solve the C. B. difficulty, or rather a similar occurrence, did not in very truth know what they were talking about, and I regret that Grand Sec'y Moffatt has seemingly been effected by their drivel.

Rubs by Rambler.

Of W. C. Milner, the author of the "Free Coal League, one thing can be said with perfect assurance. He has no originality. To the Toronto Mining Journal he writes one of the same old letters. His two principal arguments are stolidly reiterated, as if being so good, they got better by repetition. Perhaps he imagines that, like Scotch whiskey, they are improved by being tumbled about; in the original package. His first great argument is that Mr. Drummond, previous to 1893, was in favor of reciprocity; and the second that that same person said years ago that the operators had jumped prices too quickly. The Free Coal League is so innocuous a chap, and therefore so loveable that one could wish he had just a trifle more wit. Had he a little preception he might see that the advocacy of reciprocity in 1892 was excusable—not to say justifiable. Nova Scotia was suffering keenly in the coal trade from restricted markets. Extended markets she must have somewhere. The total sales of coal that year for N. S. were a million and three quarters; less by a quarter of a million than the quantity sent last year, to Quebec alone. In 1802 the probable gain in New England, reciprocity in vogue, would, it was thought, offset any failing off in sales in Quebec. It looked that way. But it does not look that way now, and hence many people, Mr. Drummond included, have changed their views on reciprocity, and the change came about without any sinister, exterior, influence. Mr. Milner, as a child with a rattle, is pleased with that little jumping joke of his. Why should one seek to rob him of it?

Many things have been proposed and many acts passed by the government for the betterment of the condition of our colliery workers, which have not fully been taken advantage of, if not, in some instances, wholly neglected. The mining companies too have taken some interest in their workingmen, which has failed of proper appreciation. Workmen, like other people, frequently clamor for a thing, which after it is secured is neglected. Take for instance the inspection of collieries by committees of the workmen. It was asked of the government that they amend the Mines Act so that the employees, by committee, should have the right, once a month, to inspect the mines. Very seldom, indeed, has the right been, or is it exercised. It is doubtful, taking all the collieries in Nova Scotia, if there is an inspection once a year. Before the right to inspect was established by law the workers thought a great and necessary boom was denied them. When they got the boom they were careless of it. Some years ago there was a loud outcry, in some of the mining counties, that the land in the vicinity of the collieries was held by the companies, who refused to sell. The time came when the companies were ready to sell, but . . . . . the workmen were slow purchasers. 'Night Schools' were asked for, and obtained as a necessary, or thought to be necessary, corollary to the mining schools. While the latter have far more than realized the best hopes of their promoters; the latter, so far as the colliery districts are concerned, have not been so successful as expected. Night schools were primarily asked for in the interests of colliery workers, more especially for those among them who had not opportunity, or were in some way denied it, when young, of getting even an elementary education. At the time the schools were asked for there were many who could not 'count', some who could not 'write', and a few who

could neither 'count', 'write', or 'read.' It was these latter, more especially, the promoters of the night schools had in view. It was a hard thing for these to swallow their pride. Young lads, whose education was meagre, and who sought to have it enlarged, could not well be denied attendance. The attendance of the lads had a disastrous effect upon that of the grown up men. To sit spelling out words on the same form with lads who were rapidly learning to do 'sums' was, to the older men, humilating, and the consequence was that they gradually ceased to attend. The night schools were more of a success in the country than in the colliery districts. Indeed the trouble the education department had was to keep down the country night schools. Many applications had to be refused on the ground that the schools were not intended for those who had full opportunity, or who still had the opportunity of attending day schools.

I have often wondered why there is on the authority of J. W. Madden, the Post, numerous writers to the press, and socialists societies, so much discontent in Cape Breton, seeing that for eight years past, until last Oct. or Nov., the workers were earning bigger wages and enjoying more comforts than ever before. I have come across an article which solves the problem. It seems the better off some people are the more discontented they become. It is asserted that revolutions do not come from the most miserable or from those who lack wealth. The article proceeds as follows:

"Take, for example, the French Revolution or the American Civil War. These are among the greatest in modern history. The countries in which these agitations developed were not ripe for rebellion until they had come to a degree of prosperity which developed the idea of personal rights and liberties. Perhaps also it may be contended that there will be no revolution in Russia for a long time to come, because the common people in that country are so miserable that they have been and will be unable to develop a dissatisfaction acute enough to make sucessful rebellion possible. Again, freedom and education make for unhappiness because they bring serious responsibilities, because they force the fact of the actual inequality of men upon individuals, because they flood society with problems that tax the mind and scar the heart. The suicides in the United States have more than doubled in number during the last eight years, and the greatest increase of suicides occurred during the period of most remarkable prosperity. There are more suicides in the brilliant and beautiful months of summer than during the dark days of winter. The gloomy weather seems in unison with a frowning enviroment. June is the worst suicide month, with its long days of radiance and roses. When prosperity is generally vocal and triumphant, the man who has been left behind is stung to the heart. There are no suicides in the Dark Continent; the people are all on the nude level of nature. Africa is not prosperous enough to produce the unhappiness that ends in self destruction. But in the civilised nations there are multitudes of men and women who wear themselves out trying to keep up with the procession, and if they fall behind they perish by their own hands.

Culture is often an enemy of happiness. In stories the happy ending is a rule, and it is only if we extend the word very far indeed that we can believe that all stories end in happiness. What we know of life is that the ideal often mocks. The happiness, the blessedness, and the triumph we have aspired to after are never reached. The fortunate turns are not in the common way. They are in utter contrast with the sad experience of failure which falls to so many lives. Again, nostrums have failed to do their work. Dr. Small says that the forefathers of America believed in political democracy as the remedy for all social wrongs. Their children have tried it. They have twisted it, and stretched it, and revised it, and have in the end found that it has brought corruption and social unrest. New doctors are in the field, and their cure-all is social democracy. "The bigger the dose the quicker and surer the cure," is their motto. Theirs is another case of emergency medicine. Swallow it quick and diagnose the case afterward is what those social physicians would have us do. But let us beware. We have been sorely disappointed in political democracy; may not social democracy bring just as many and just as trying complications."

TWENTY YEARS' PROGRESS IN EXPLOSIVES.

The whole vast field of progress in blasting and military explosives for the last twenty years was reviewed by Oscar Guttmann in the Cantor lectures delivered recently in London before the Royal Society of Arts. We quote below portions of an abstract made for the 'Engineering Magazine'. In the first place, it is noteworthy that, despite the great recent progress in high explosives, the use of the old black powder shows little sign of dying out. In Great Britain, we are told, more than half the explosives used in 1907 consisted of black powder. Practically no progress has been made in this blasting agent since 1886, but a number of rough mixtures similar to black powder have been revived and are used extensively in Germany. We read:

"Among these may be mentioned 'sprengsalpeter,' practically a black powder with sodium nitrate instead of potas-ium nitrate, 'petroklastite' containing coal pitch and bichromate, and 'cahucite,' a mixture of potassium nitrate, sulphur, lampblack, cellulose, and iron sulphate. In America large quantities of sodium-nitrate powders are used.

"There has been no special improvement in dynamite since blasting-gelatin was invented in 1875. This explosive and the gelatin dynamites have in most countries driven 'kieselguhr' dynamite out of the field. Considerable advance, however, has been made in the removal of one of the chief objections to dynamite, its liability to freezing. The addition of nitrobenzine to nitroglycerin was one of the first expedients tried, but it was found that the presence of the nitrobenzine reduced the explosive power when used in sufficient quantities to prevent freezing. Later dinitrotuluene was used, and in 1904 the addition of dinitroglycerin to trinitroglycerin explosives was patented, together with a practical method of manufacturing dinitroglycerin. The latter is now made on a large scale in Germany. A large number of other additions have been tried, but none has been definitely adopted for the manufacture of unfreezable dynamites."

Perhaps the main advance in explosives during the

last two decades, the writer goes on to tell us, has been in safety explosives for gaseous collieries, and this has been largely due to the use of ammonium nitrate. This is absolutely safe in all quantities, and although it cannot be used alone, a minimum quantity of added combustible avoids flames of great length and duration. The account goes on:

"Explosives containing potassium chlorare were for long excluded from the list of safety explosives on account of their extreme liability to explode under impact or friction. The recent advent of electrolytic methods for the manufacture of potassium chlorate has brought the price of this chemical down to a point where it can be used commercially in the manufacture of suitable explosives and a great deal of research has been applied to the investigation of methods of eliminating its dangerous qualities. Success has been attained by the addition to the explosive of some oil . . . .

"The first real safety explosive was a nitroglycerin explosive, carbonite. Curiously enough, it has not been surpassed for safety, though it has not been on the market for twenty years. The composition is saltpeter, cellulose, nitroglycerin, and sulfureted oil. The investigation of nitroglycerin safety explosives has shown that the addition of cellulose to nitroglycerin compositions, as rye flour to carbonite or wood pulp to other explosives, renders them highly inert in fire damp mixtures.

"In every European country the use of gunpowder is prohibited in fiery mines. One black powder-like mixture, bobbinite, however, has passed even the most stringent tests in England and has been admitted to the list of permitted explosives."

A GREAT CORNISH INVENTOR.

Time has dealt hardly with the name of the great Cornish inventor Richard Trevithick, in whose memory (and that of Sir Humphry Davy) the Prince of Wales has just given a donation to the new museum of the Royal Institution of Cornwall. Most people who know all about Watt and Stephenson do not know also that neither of these two men, but Richard Trevithick was the real inventor of the steam locomotive. It was his lot to strike out mechanical ideas which were elaborated and made practical by his successors. His long life—it was a life crammed with adventure and achievment—ended in 1833. Stories are told in Cornwall of his inventive genius as a boy and his great strength as a young man. He was a wonderful West-country wrestler, and at South Kensington they show a smith's tool weighing ten hundredweight which he wielded as a youth of eighteen.

Trevithick has made model steam engines which would run on the table as early as 1796, and in 1801 he perfected a steam carriage which carried the first load of passengers over moved by steam. This was the 'puffing devil,' as it was known in Cornwall. In 1803 Trevithick built a second steam carriage, which was shown in London and made trial trips in the suburbs, but after a mishap the engine ended its days driving a mill. A little later he brought out the first steam locomotive which ever ran on a railway. This pioneer engine, in February, 1804, carried ten tons of iron and seventy men 9½ miles at the rate of about five miles an hour. This engine is the base of Trevithick's claim to be the real inventor of the locomotive. There

things are a few from a great list of the deeds of this imprudent, brilliant Cornishman. One of his memorials is the Trevithick Engineering Scholarship at Owens College, founded twenty years ago.

THE SCOTS INVASION.

Sometime ago the Saturday Review published a rather amusing article entitled 'Novissima Scotia,' in which the writer discusses the invasion of England by the Scot. He says:—"No nation has carried the principle of peaceful penetration to a higher pitch than Scotland. In nearly every profession in England it is a Scotchman who now rules the roost. The Irish are always complaining of the English garrison in Ireland and its denationalising effect, but the ascendency in its prime of England over Ireland has never been so thorough as the moral and intellectual domination of Scotland over England to day. The political hegemony, for instance, is virtually complete. It may be said to have started when Mr. Gladstone went over bag and baggage to Midlothian. Since then we have had an almost unbroken sequence of Scotch Premiers, beginning with Lord Rosebery and including Mr. Balfour and Sir Henry Campbell Bannerman. But the Government of to day has broken all records. It is no hyperbole to say that not Downing Street but Scotland Yard would be for it a far more appropriate address. Its dans Mr. Sinclair, Lord Elgin, Lord Tweedmouth and Mr. Bryce. Even the sorry handful of Englishmen in the Cabinet mostly sit for Scottish constituencies, and, like the unhappy license holders, they are therefore more or less tied down to represent the whisky and oatmeal ideals of the country of their adoption.

HOW FRENCH WORKMEN LIVE.

Worse off than the British.

Correspondence to the volume comparing the life of the British working classes with those of Germany, the Board of Trade has issued a volume on the conditions of industrial life in France. Comparison shows that an average British workman's family would find the cost of living—rent food and fuel—considerably greater than in England (though not so great as in Germany), while wages are much lower and hours of work longer. In about half the principal towns of France the workpeople live in tenements mainly; in about one-third in seperate cottages; elsewhere both kinds of dwellings occur. In England—outside London, Tyneside, and Plymouth—the seperate cottage is universal. While in England a family has generally four or five rooms, in Germany the usual number is three (or two), in France two (or three). Rents for the same accommodation are about 20 per cent. less in France than in England or Germany. A smaller proportion of income is spent on food in France than in England, while Germany comes between the two. Both French and German workpeople spend more on bread and flour, meat and fish, vegetables and fruit than the English, who spend more on tea and coffee and much more on sugar. The French get much more variety in the way of meat, and 11 2 per cent. of their meat is horseflesh, which they eat for preference, believing also

in its medicinal properties. Butter and milk are cheaper in France than in England, potatoes the same price: beef costs about 10 yer cent. more, bread 15 per cent. and flour over 50 per cent. more, while coal is 70 per cent. dearer On an average the French workman receives only three-forths of the wages of the British workman, and the average German wages are only 83 per cent. of the average wages in England. To take particular trades, for every 100 shillings an English mason or bricklayer receives the Frenchman only gets 65 and the German 75, while against the English carpenters 100 shillings the Frenchman receives 72 and the German 77. And, further, the English workman has a week of only 52½ to 53½ hours, whereas the Frenchman works 59½ to 64½ hours, and the German almost universally 58 to 59½. Altogether the British workman seems distinctly better off than his Continental brother.

SAFE WORKING PRESSURE OF BOILERS.

The safe working pressure of a boiler is a pressure sufficiently below the estimated bursting pressure to warrant confidence in its perfect security at that lower pressure, which therefore involves a factor of safety. For example, a boiler whose bursting strength would be estimated at 400lb per square inch would have, at a factor of safety of 5, a safe working pressure of 80lb. Various rules are used for this calculation, some partly empirical, and none upon which all authorities are ready to agree as to correctness. The rivited joint is the feature which complicates the problem, and which largely affects the strength of a boiler. Joints of different types have different degrees of strength relative to that of the solid plate, and each must therefore be treated individually in calculations. However, for a simple general rule for safe pressure we may quote that of the U. S. statutes, governing marine boiler inspection. This is P eq 2 t T eq. 6 D where P eq safe working pressure in lb. per sq. inch, t eq. thickness of plate in inches, T eq. lowest tensile strength stamped on any plate, in lb. per square inch, and D eq. diameter of boiler in it. The factor 6 is supposed to represent the combined factor of safety and efficiency of the riveted joint. The formula as given is for single rivetted joints, to which 20 per cent. is to be added for double riveted in both cases.

EFFECTS UPON RESPIRATION.

The engineer who attempts to master the problems of mine ventilation, should be familiar with the effects upon human respiration of an atmosphere containing more or less than the normal proportion of oxygen. A normal atmosphere may be regarded as consisting of two gases—oxygen and nitrogen—mixed together in the approximate proportion of 21 per cent. of the former to 79 per cent. of the latter. The proportion of oxygen in mine air may be reduced to as low as 15 per cent. before a person is likely to experience any difficulty in breathing, although lamps and candles will not burn in such an atmosphere. Any further reduction, however, is attended with serious consequences. When only 7 per cent. of oxygen is present in air, the face of the individual becomes gray, the lips blue, there occurs palpitation of the heart and a general dulling of the senses. Since a small deficiency of oxygen occasions such little actual discomfort, great care must be exercised in entering places where there may be a lack of this life-sustaining ingredient, as there are no preliminary symptoms, and in an atmosphere entirely deficient in oxygen a man would become unconscious in 30 or 40 seconds, with little or no preliminary warning. It is also true that in deep mines, where the atmospheric pressure is greater than that ordinarily prevailing at the surface, a man may safely breathe an atmosphere containing a slightly lower per centage of oxygen than might be considered sufficient at ordinary pressure.

GAS OR DUST ?

One of the important points brought out at a recent meeting of coal mining men was with reference to the general tendency of attributing most of the recent mine explosions to coal dust as the destructive agent. A number of engineers now claim that the coal dust theory is being brought in to explain explosions that are due to gas. Attention was called to the fact that in a number of recent cases, the miners, evidently realising that something had gone wrong in the mine, were trying to escape by rushing to manholes when a second explosion occurred and killed them. First of all, there was an explosion caused probably by the firing of a shot, and a second explosion accompanied by the production of a partial vacuum, ensued after a short interval. The general opinion was that the second explosion was due to gas and was more disasterous than the first. One investigator called attention to experiments made in a gallery of boilers, where the real damage was caused by a detonation where there was an open end to the gallery, only three boiler lengths away. In explaining the results of this experiment, the speaker said that when the first explosion had taken place, carbon monoxide was left behind, and in this particular instance, the carbon monoxide was detonated.

BROTHERHOOD OF MAN.

A remarkable illustration of the dangers of pit working and the self-sacrifice of miners to help a comrade has come to light from Saline Valley Colliery, Fifeshire. Three men—Richard Bennett and John Gillespie, contractors, and David Cleminson, fireman—were on duty driving a mine from the 'Wee Pit' to work a seam of coal in the eastmost pit, which has been standing idle since the beginning of the year. Suddenly an enormous burst of water took place from the pavement'. The inrush of the water had the effect of extinguishing the lights of the three men, who lost each other. Bennett was not well acquainted with the workings, and lost himself in seeking to gain a place of safety from the rapidly rising water. Immediately the circumstances of his imprisonment were realized, Mr. Cleminson, the manager, organised a rescue party of four, with three others to watch the rising water and to give prompt warning when it threatened to cut them off. Before they could reach Bennett, who was lying in a high place in the 'waste', the rescuers had to cut through twenty feet of a fall, necessitating several hours' work. By this time the water had attained a great depth, and before Bennett could

reach a place of safety it was necessary to swim across a particularly deep part. Two of the rescuers supported Bennett when the water was being negotiated, The others soon followed, and all the party were dragged into safety by the men who had been keeping the light aloft as a signal. Those men, it may be said, took turns until they were partially cramped at standing in the ice cold water keeping the lighted signal on their caps. Before the rescue was effected the water was up to their necks, and when Bennett was reached it was little more than a hand's breadth from the top of the roof.

TREATMENT OF DUST.

There has been considerable discussion concerning the relative merits of salt, as compared with calcium chloride for the treatment of dust on the roadways and chambers of coal mines. Salt of itself has not the power of attracting moisture, but owes what little power it does possess to a small amount of impurity which it contains in the form of magnesium chloride; what little moisture salt does attract is again yielded up at a very few degrees rise in temperature above the normal. On the other hand, calcium chloride retains its moisture at temperatures considerably above 350 deg. F., as this temperature is much exceeded in its manufacture. It holds moisture most tenaciously, even at the above temperature,

POINTS IN RESCUE WORK.

In carrying on rescue work those in charge should not overlook the temperature of the mines in which the work is being done, and the clothing of the men engaged in this work. Investigation has shown that it is impossible for a man to work in a place where the wet-bulb registers 85 degrees F., without suffering a rapid rise of body temperature, and consequent danger of heat stroke. It does not matter what the dry-bulb temperature is, for the power of the body to regulate its temperature adequately depends almost entirely on the wet-bulb temperature. If the air is hot and wet, the rescuer cannot keep the body temperature down by the evaporation of sweat. It is therefore advisable that the leader of the exploring party should take the wet-bulb temperature in the mine, and if this temperature is over 80 degrees F. the men should not be exposed for more than 30 minutes; the rescures in such hot, wet atmospheres should be stripped of clothes as far as possible. The mouthpiece of the apparatus used in such a temperture should be of a kind that the man can detach with safety, in order to drink, so as to keep up the supply of water in the body for sweating. All men who are expected to do rescue work under such conditions as above described should be practiced in a chamber filled with hot, moist air and observations should be made on their power to work, rectal temperture, need for drink, etc.

Coal-dust is not much used as a fuel in this country, and therefore it is interesting to note the opinion of Mr. R. K. Meade, who has had considerable experience with pulverised fuel in America. The coal most suitable is one rich in volatile matter, such as gas coal or lignite, but others less rich can be successfully burnt if ground very fine. The cost of grinding is said to be about the same as the cost of gassifying, and since 25 or 30 per cent. of the available heat is lost in a gas-producer plant, Mr. Meade considers that pulverised fuel has the advantage over gas in the matter of economy. It is also possible with coal to obtain a higher temperture than with producer gas. For the effectual combustion of coal-dust a capacious and preferably brick-lined combustion chamber is desirable, and for this reason coal dust, although very successful in metallurgical work and cement burning, has not achieved much success in boiler firing. The dust is forced into the furnace and thoroughly mixed with air by means of an injector fed by a screw conveyor, and supplied with air at a pressure of about ten ounces. It may be remerbered that an attempt was made at the Glasgow Exhibition to run an internal combustion engine of the Diesel type on coal dust fuel, but it was unsuccessful.—Science and Art of Mining.

A Swiss experiment for the transformation of crude oil into liquid gas is reported by the American Consul at Zurich to have met with great success. The product is a transportable liquid, which is simply evaporated as used, and can be used for liquid, heating, cooking soldering, and welding purposes. The gas is non-poisonous and three times less explosive than ordinary gas. The installation cost is said to be low, and manipulation simple and without danger. If mixed with oxygen liquid gas produces a heat so intense that an ordinary bar of iron 1 inch in diameter can be cut in two almost instantly by placing it in the flames of a liquid gas burner. The new gas is competing successfully with coal gas and electricity.

The report of the Board of Conciliation appointed to enquire into the complaints of the employees of the Cumb. Coal & Railway Co., Springhill, N. S. was made public on July 24th.

As regards recognition of unions, the Board's finding is that it should be left to the employers' discretion to decide how far they will recognize organizations having central authority outside of Canada and controlled by interests that may at any moment engage in acute competition with Canadian producers.

The report, temperately and carefully phrased indicates that the Board does not consider recognition of the U. M. W. A., either necessary or desirable.

As if to lend dramatic force to this report, two incidents occurred in Cape Breton. One was a brutal assault on an old man by the pickets of the U. M. W. A; the other an attempt to blow up the house of the manager of one of the Dom. Coal Company's collieries.

For the first incident the U. M. W. A. is directly responsible. As for the second instance it cannot be held guiltless.

We are confident that the U. M. W. A. will not flourish on Canadian soil. The organization proclaims its own unworthiness. Its ways are ways of violence and hate. It glorifies selfishness and is altogether unlovely.—Can. Mining Journal.

U. M. W. A. METHODS.

The United Mine Workers' Journal, the official organ of the U. M. W. A., is a a weekly published in Indianapolis, Its editorial columns are filled with the kind of stuff that incites ignorant men to violence. From casual inspection of its editorials we are led to conclude that its methods are mediaeval.

For instance, in referring to the Glace Bay strike, the U. M. W. Journal of July 22 remarks editorially that the Dominion Coal Company pays a maximum wage of $1.40 per day. This is so absolutely absurd that it warrants the conclusion that the U. M, W. A. is consciously hard up for an excuse, and that its organ is doing its best to manufacture a colourable story.

Unionism of this kind is not wanted in Canada. As we suggested in our last issue, deportation of U. M. W. A. agitators is a necessity—Canadian Mining Journal.

THE MANUFACTURE OF COAL GAS.

The manufacture of gas from coal has now reached a state of perfection, and it may be informing to many of our readers to know how the process is carried out.

This is done in a series of closed vessels. The first process is to break up the coals to about 2 inch cube, and then place them either by hand or by machinery into clay retorts, placed horizontally about 20 feet long. This coal (in about 7 cwt. charges) remains there for about six hours, at the end of which time most of the gas has been driven off by the application of heat surrounding the retorts. The heat is derived (in all modern work) from producer gas, worked on the regenerator system, to a temperature of from 1,600 to 2,500 degrees Fahr. After the gas leaves the retort it passes up an ascension pipe about 6 inches diameter to a hydraulic main, from thence to a larger main pipe, and then to condensers which consist of a series of pipes for further cooling the same, and bringing it down to the temperat ire of the atmosphere. During this process a large quantity of tar and ammoniacal liquor is formed, which runs down into the tar well. The gas then passes on through another large vessel called a tar extractor, which is filled with various devices for removing the whole of the tar from the gas. It then proceeds to another vessel for the removal of the whole of the ammonia, and this is generally accomplished by passing a stream of water distributed over a service of boards in a large vessel. The gas passes through this vessel and the water absorbs the whole of the ammonia left. It then proceeds towards the purifiers which consist of large cast iron boxes which are filled either with oxide of iron or lime in various thicknesses according to the size of the works. In large works the gas passes through several feet of these materials which remove the sulphuretted hydrogen and carbonic acid and other impurities. The gas then goes forward to be measured through what is called the Station Meter, which continuously records the hourly make of gas. From thence it goes to the large gas holders and is distributed by governors and other apparatus under varying pressures to the several districts in the town.

The quantity of gas obtained from each ton of coal varies according to the quality of the coal, and ranges from about 10,000 to 11,000 cubic feet.

The tar produced varies from 9 to 12 gallons per ton, the ammoniacal liquor from 25 to 45 gallons per ton of coal carbonised and the coke produced is about 14½ cwt. per ton of coal carbonized.

In the early days of gas manufacture there was very considerable difficulty in getting rid of the tar and ammoniacal liquor, but now by the aid of chemistry and science they have become very valuable. The tar is distilled, and from the products all the beautiful aniline dyes are made, and the ammonia is manufactured into sulphate of ammonia which is one of the best fertilisers now so largely used for agricultural purposes.

WORLD'S PRODUCTION OF GOLD IN 1908.

The world's production of gold in 1908 was valued at £88,876,462, as compared with £82,258,891 in the previous year. The production in 1908 was not only the largest on record, but it also showed a larger increase compared with 1907 than for any time since 1898. Large increases in production are shown by the United States, Canada, Mexico, Russia, Rhodesia, and the Transvaal. The production of British India was about the same as in 1907. The only important gold producing country which showed a decrease was Australia. In spite of the lower price of silver there was an important increase in the production of that metal, which amounted to 200,655,383 ounces in 1908, as against 183,386,250 ounces in 1907. The decreases in the United States and Australia are explained by the reduced outputs of some of the base metal mines which yield silver as a by-product of copper and lead The large increases in Mexico and Canada are explained by the extension of the application of the cyanide process to the treatment of silver ore in the former country, and to the large production of the Cobalt district in the latter country.

MINE WATERING AND DUST.

With reference to the problem of watering mines to prevent dust explosions, a number of engineers have lately condemned this system as inefficient, not only because of the increase in fatalities from falls of roof, but also because of the explosions at the Reden, Radbod, and other collieries in Europe and America, where the sprinkling system was in use, showed that this method of watering does not render dust innocuous. In dealing with this question, Mr. Frostmann, taking the case of the Reden mine in Germany, says that although the system of water did fail in the Reden mine, it must be admitted that this system was on account of the fact that sufficient attention had not been paid to the danger of the mine drying up through the large quantity of air passing in the cold season. The explosion at Reden took place on a Monday morning shortly after the descent of the miners. The mine had therefore not been watered for about 36 hours. The average temperature of the outside air was at that time about 26.6 degrees F. The air left the mine with a temperature of 78.3 degrees F. Each cubic

metre of air, therefore, took up about 20 grams of water, if it left the mine saturated with aqueous vapour; and the total quantity of air, about 2,200 cubic meters, absorbed from the mine 45 kg. of water per minute, and therefore in 36 hours about 95 cubic meters of water were absorbed. Under these conditions the mine would be quite dried up on Monday morning. The original fire-damp explosion was thus extended by the coal dust and caused the loss of 150 lives. In order to avoid such accidents in the future, the mines are now watered during the night after they have been idle, and before the descent of the ordinary shift of miners.

The total exposed area of the seven important coal fields of England and Wales is 2,786 square miles. There are in the various fields 190 seams of coal of more than 2 ft. in thickness, at a less depth than 4,000 feet. These beds represent a total thickness of 666 feet, an average of about 3 feet 6 inches per seam. According to the recent report by the Royal Coal Commission, the amount of fuel still available in the above areas excluding all seams of less than two feet in thickness and more than 4,000 feet deep, is 79,000,000,000 tons. The thinner and deeper seams are estimated to contain an additional 70,000,000,000 tons. According to this estimate, and basing calculations on the present annual rate of extraction, the combined coal resources of Great Britain should last about 600 years.

CHANGED MINING CONDITIONS.

Mr. J. R. Wilkinson, in his inaugural address to the Yoskshire Branch of the National Association of Colliery Managers, remarked that, in reflecting upon his earliest recollections of mines, mining, mining appliances, and mining men, and comparing them with the same to day, he saw very great changes. Mines considered extensive and outputs of coal large at that time were thought very ordinary now. In these days large and powerful combines were formed, extensive areas of unworked coal secured, and arrangements made for working out the coal in the least possible time. Wider shafts were sunk to greater depths, and appliances were put down for raising and dealing with outputs of coal unthought of by their grandfathers. The ventilating of mines had become a science in itself, and mechanical ventilation had so far taken the place of furnace ventilation that in up-to-date mines the furnace was becoming a thing of the past. The lighting of mines had also undergone changes quite as great. The Davy and Stephenson lamps, quite common forty years ago, were now obsolete, and others had taken their place which would with safety resist currents from six to ten times more than the Davy and Stephenson, and at the same time gave two or three times the light. These two improvements alone had enabled them to fight with some measure of success one of the greatest sources of danger met with in mines—fire damp—and at the same time had rendered possible the working of areas of coal from fiery seams and at greater depths from the same shaft that would have been impossible without them.

THE THRIFTY GERMAN.

The Berlin correspondent of the London Daily Mail gives some interesting figures showing "how people of small means have to struggle for existence in modern Germany". These figures are to be found in a publication just issued by the Imperial Statistical Office, which a year ago caused 800 families in different parts of the Empire to begin keeping a systematic account of their incomes and disbursements. Every family received an account book in which it was requested to keep an itemized record of money spent on food, clothing, fuel, medical attention, presents, education, amusements, etc. A teacher and his wife, without children, whose income was £145, contrived to save £6. Another teacher and his wife, also childless, earned £160 and spent £171. Their deficit was caused by them spending £25 more for food and £8 more for entertainment than the other teacher. A married couple with three children, the father being a brewery workman, earned £88 and saved £7 10s The family spent only £33 10s. on food. It is added that in order to accomplish the above result the most spartan economy was required, in most cases not a single farthing being spent unnecessarily. The statistics attract especial interest in view of the new internal revenue taxes on various commodities which will shortly come into effect, making articles such as tobacco, cigars, cigarettes, coffee, tea, sugar, matches, beer, cognac, and gasmantles dearer. The Westminister Gazette thinks these figures are effective ammunition with which to meet the contention of the tarriff reformers that a protective tarriff will not increase the cost of living.

MINING AND QUARRING STATISTICS.

A volume of statistics on mining and quarrying in various parts of the world, issued as a Blue Book, states that the number of persons engaged in the industries at home and abroad in 1907—statistics for that year not having been received until the present year was well advanced—exceeded 5⅔ milions. Of this total roughly speaking, nearly one-fifth were employed in the United Kingdom and more than one-third in the British Empire, more than half of the total number were employed in getting coal alone, Great Britain employing over 925,000, the United States 680,000, Germany 611,000, France 183,000, Russia145,000, Belgium 142,000, Austria 126,000, and India 112,000. The total amount of coal produced was 1,117 million tons, the value of which is estmated at more than 418 million pounds sterling. The quantity and value, compared with 1906, showa an increase of 104 million tons and 74 million pounds sterling, respectively. Gold shows an increase of 16,096 kilograms, the total output being 614,732 kilograms, (19,764,078 ounces) of which the value is estimated at nearly 84 millions sterling. The British Empire supplied nearly 61 per cent. of the output, Australia contributing 16-per cent., the Transvaal more than 32½ per cent., and Canada, India, New Zealand, and Rhodesia, combined more than 9⅔ per cent. of the total. The United States contributed 22 per cent. In the case of iron the United States with an output of over 26 million tons is considerably ahead of any other country. The German Empire, with 7¼ million tons, Great Britain nearly 5¼ million tons, and Spain, with nearly 4¾ million tons come next. The total value of the minerals and metals raised throughout the world in 1907 is roughly estimated at 935 millions sterling.

INVERNESS RY. & COAL CO'Y

Time Table No. 26, Taking effect at 1 a. m. OCT 11TH., 1908.

EASTBOUND		STATIONS.	WESTBOUND	
Read Down			Read Up	
No. 52	No. 54		No. 51	No. 53
a. m	p m			p m
L 10 45	L 3 20	P. TUPPER JUNCTION	A 1 0 35	A 3 35
S 10 51	S 3 35	PORT HAWKESBURY	S 10 27	S
A 11 10	A 4 08		L 10 07	L 3 10
	L 4 13	PORT HASTINGS	A 10 02	
	F 4 25	TROY	F 9 52	
	S 4 38	CREIGNISH	S 9 39	
	F 4 50	JUDIQUE	F 9 27	
	S 5 05	CRAIGMORE	S 9 04	
	F 5	ATHERINE'S POND	F 8 48	
	A 5 33		L 8 35	
	20	PORT HOOD	A 8 27	
S 5 53		GLENCOE	S 8 16	
S 6 16		MABOU	S 7 46	
S 6 28		GLENDYRE	S 7 36	
6 48		BLACK RIVER	F 7 11	
S 7 02		STRATHLORNE	S 7 02	
A 7 15		INVERNESS	L 6 47	
p m			a m	

Trains make close connections at Pt. Tupper Jct. with I. C. R. passenger trains, excepting the Maritime Express.

'Have you any alarm clocks?' inquired the customer of a jeweler recently. 'Yes ma'am' said the man behind the counter. 'About what price do you wish to pay for one?' 'The price is no object it I can get the kind I am after. What I want is one that will rouse the girl without waking the whole family'. 'I dont know of any such alarm clock as that ma'am,' said the man. 'We keep just the ordinary kind—the kind that will wake the whole family without disturbing the girl.'

An Oxford dean had a tortoise who was a great favorite with the students. He was a privileged pet, and allowed to wonder about the quadrangle at will. A party of undergraduates one afternoon were trying to feed him while the dean looked on from his study window, unseen, behind a thick elm. After watching their fruitless efforts for a considerable time, the dean could repress himself no longer. He threw up the window, and shouted to them, 'Try the other end!', which they did, and this time with complete success.

DOMINION COAL COMPANY, LIMITED.

Miners and Shippers of the Celebrated

"DOMINION STEAM COAL,"

Gas Coal and Coal for Household Use

from the well known seams

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

12 Collieries in Operation. — OUTPUT: 3,500,000 tons Yearly

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, and GLACE BAY, Cape Breton Island, Nova Scotia, Canada.

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, Glace Bay, Nova Scotia.
" " " " 112 St. James St., Montreal, P. Q.
" " " " 171 Lower Water Street, Halifax, N. S.
" " " Quebec, P. Q.

AND FROM THE FOLLOWING AGENTS:

R. P. & W. F. Starr, St. John, N. B. — Harvey & Company, St. John's Nfld,
Peak Bros. & Co., Charlottetown, P. E. I. — Hull, Blyth & Co., 4 Fenchurch Ave., London, E.C.

G. H. Duggan,
2nd Vice-President and Gen'l Manager.

Alexander Dick,
General Sales Agent.

GENERAL OFFICES, GLACE BAY, NOVA SCOTIA, CANADA.

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.