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### CIRCULATION.

During the year ending with March 1st, 1908, 91,750 copies of THE CANADIAN MINING JOURNAL were printed and distributed, or an average of 3,822 per issue.

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### MINING SOCIETY OF NOVA SCOTIA.

On another page full notice is given the annual meeting of this live and energetic body. The vigor and hospitality of the Mining Society have become proverbial. Its announced ambition is to develop and advertise the mineral resources of Nova Scotia. With this in view representatives of the Canadian and United States Geological Surveys and of sister societies were invited to attend the recent annual meeting. These distinguished visitors were asked for advice and they gave it.

The freedom of the Ontario Bureau of Mines from political influence was pointed out by one speaker. Another described the work of the United States Geological Survey, especially in its relation to State surveys. Substantial assistance was promised from the Mines Branch of the Federal Department of Mines. On behalf of the Geological Survey, a continuance of the invaluable work done by Messrs. Fletcher and Faribault was assured.

This should be eminently encouraging to Nova Scotia mining men.

Two points, however, accentuated by two of the speakers, should always be borne in mind.

The first of these is that no government can afford to undertake work that should be performed by private individuals.

Secondly, co-operation amongst the operators themselves is essential to progress.

These, doubtless, are truisms. But they are important truisms.

Governmental paternalism weakens any industry. On the other hand, judicious assistance from the government, given at the right time and in the proper way, may galvanize a moribund industry into healthy and permanent activity.

It remains for the Mining Society of Nova Scotia to determine just what assistance the mineral industries of the Province require. And this is a question the seriousness and complexity of which must not be overlooked.

Bounties are temporary expedients. Tariffs have a larger field of application, and, in some instances, must be considered. But, more vital than these, is the necessity of *knowledge* of the extent and value of already discovered mineral deposits. This can be secured only by intelligent private enterprise, assisted by the Federal and Provincial Bureaus. Topographic and geologic surveying and diamond drilling are legitimate forms of government assistance. To these may be added the publicity given by means of official publications.

If, however, these official efforts are not utilized fully and promptly by the mining fraternity, they become worse than useless.

We would therefore urge the Mining Society of Nova Scotia to follow keenly the campaign laid out during its recent annual meeting. Nothing will be accomplished if matters are allowed to drift until next year. Even at the cost of much expense and inconvenience, monthly or, if necessary, fortnightly meetings should be held. There are not a few ardent workers in the Society, who do not receive the encouragement and praise due them. Their enthusiasm should be utilized.

Organized effort alone will bring Nova Scotia into the position that she deserves.

### THE GRANBY CONSOLIDATED.

Stevens' "Copper Handbook" is an annual volume whose appearance is welcomed by copper workers the world over. As the work of one man, it is a monument of industry and intelligent discrimination. It is reliable and comprehensive. Of dubious enterprises it expresses its opinion unhesitatingly. Hence it is of extraordinary value to the investor.

It is pleasant to read Mr. Stevens' warm praise of a Canadian copper concern. In concluding a detailed description of the Granby Consolidated Mining & Smelting Company's mines and works at Phoenix and Grand Forks, B. C., Mr. Stevens speaks thus of the company's execution:—

"Both mine and mill have been brought to a high state of efficiency, and the cost sheet is one of which any directorate well might be proud. . . The Granby is one of the few copper properties of the world of which a careful investigation leads to the verdict that there is nearly everything to commend, and scarcely anything to criticise."

Mr. Stevens' praise is worth something.

### TRANSVAAL STOPE DRILL COMPETITION.

We have received from the London secretary of the Transvaal Chamber of Mines the following communication to which we are glad to give a prominent position:—

#### TRANSVAAL STOPE DRILL COMPETITION.

"The Transvaal Government in co-operation with the Transvaal Chamber of Mines has arranged for a practical trial of small rock drills suitable for narrow stoping work under the working conditions obtaining on the Witwatersrand.

"All types of rock drill are eligible to compete. Drills using compressed air will be supplied with a pressure varying from 60 to 75 pounds per square inch at the working face. The mining regulations require the provision of dust-allaying appliances, and competitors must make provision accordingly.

"Two prizes, of £4,000 and £1,000 respectively, are offered. The trials and the judging will be so arranged

as to decide which machine performs the most economical work.

"The competition will commence early in 1909, and entries will probably close with the end of 1908. The trials will last about six months, the drills being tested in the first instance on the surface, and those considered suitable being given a more prolonged test underground in several stopes in various mines on the Witwatersrand.

"The detailed conditions governing the competition, including the exact date of closing entries, will be published as soon as possible.

"All enquiries should be addressed either to:—The Secretary, Stope Drill Competition, Transvaal Chamber of Mines, Johannesburg, Transvaal; or to:—The London Secretary, Transvaal Chamber of Mines, 202, 203 and 206 Salisbury House, Finsbury Circus, London, E. C."

### CLEAN ADVERTISING.

We have had occasion in the past to allude to dishonest and illegal advertisements published in supposedly reputable newspapers. It has always been our contention that newspapers and, indeed, all periodicals are morally responsible for the fitness and decency of the advertisements that they carry.

It is therefore gratifying to mark the vigorous position taken by Mr. Medill McCormack, a Chicago journalist. Addressing the Canadian Press Association, Mr. McCormack spoke in part thus:—

"The newspaper is only as clean as its advertising columns . . . We endeavor through our editorial columns to secure the confidence of our readers, and, having gained that confidence, we must not stand sponsor for any man who is not fit to come within the family circle. We must no more thinking of giving letters of introduction to the thief, or the liar, or a monger of filth than we would of giving a black-leg or a libertine a card to our clubs or inviting him to dine with our home folks."

### THE CLIMATE OF KLONDIKE.

Distance lends enchantment to the view. Given some thousands of intervening miles, a writer may safely constitute himself an authority upon topics of which his knowledge is by no means complete.

In THE CANADIAN MINING JOURNAL of January 15, 1908, we drew attention to the general inaccuracy of the articles in dredging in the Yukon, written by Mr. J. P. Hutchins in the Engineering and Mining Journal of New York. Our criticism was offered with the utmost good will. Unfortunately Mr. Hutchins has chosen to take offense. In the Engineering and Mining Journal of March 1, he devotes five columns to us. Most of what he writes is—to say the least—not appreciative.

In fact it may be fairly described as vituperative. Consequently it does not require further attention. But we regret that no attempt has been made to answer any of our criticisms.

That Mr. Hutchins' articles are misleadingly depreciatory may be inferred from his statement about the climate of the Klondike. To prevent misconception we shall quote this passage verbatim:—

'In the Klondike, May 1st. is about the earliest in normal years that dredging can begin; but owing to the superficially frozen ground, which is found even in the milder areas, such as the Klondike valley, it is rarely advantageous to begin so early. Besides even at that season the day and night temperatures approximate 50 degrees F. and —15 degrees respectively. Dredging can be continued until October 15th, when the day and night temperatures are about 30 degrees F. and —15 degrees F. respectively.' We interpreted this in our criticism as follows:— "The extraordinary statement is made that the average night temperature on the first of May and on the fifteenth of October is fifteen degrees below zero F.," which seems to us the only rational interpretation possible.

Mr. Hutchins in his reply, however, says, "I said nothing about average temperatures. I cited figures to show the extreme night and day temperatures." We shall, for arguments' sake, allow Mr. Hutchins' version to stand, although these two statements are manifestly contradictory. But even his last statement is far enough from the truth to need serious correction. Fifteen degrees below zero has never been officially recorded in the Klondike either in May or October. The Canadian Meteorological Service has been taking temperature observations in the Klondike for a number of years. The lowest temperature that has ever been recorded officially in the Klondike in May is 5 degrees above zero F. and the lowest October record up to the 31st of the month (not the 15th) is 10 degrees below zero F. The weather therefore, at such times of the year, is not nearly so cold as Mr. Hutchins would like us to believe. In fact his damaging statement about the climate is but in keeping with the general tone of the whole article.

On several occasions it has been our duty to expose or correct inflated accounts of mining properties in different parts of Canada. It is equally our duty not to allow a grossly derogatory description of one of the greatest mining camps in Canada to go unnoticed and uncorrected.

### "THE FALLS OF NIAGARA."

Some weeks ago we referred with pain to the possible publication of Dr. Spencer's "Falls of Niagara." We spoke warmly, not that we wished to interfere with the worthy author's desire to see himself in print, but because we thought that the volume should not appear under the aegis of the Geological Survey of Canada.

However, the book appeared. We preserved a silence equalled only by our desire to express our feelings. That silence we shall observe. Yet we are forced to notice briefly a scathing review of Dr. Spencer's tome that appeared in a late issue of our exceedingly outspoken contemporary, *The Mining and Scientific Press*, of San Francisco.

The *Press* vivisects "The Falls of Niagara" in a style that is all its own. It rubs salt into the incisions. "This," it remarks, "is the delirious trimmings of scientific literature."

To all this we shall say neither "yea" nor "nay." But we shall point out one error into which our contemporary has fallen.

The credit (or otherwise) of the appearance of the volume under consideration lies neither with the Acting Director of the Survey nor yet with the brilliant and energetic editor. The latter, indeed, stands absolved from all complicity.

The facts appear to be that Dr. Spencer insisted upon holding the Survey to an ancient contract, made under a former regime. And in his preface the author, albeit somewhat obliquely, states that he himself, and only he, is the person responsible.

We hope, then, that the *Mining and Scientific Press* will relieve itself of the misconception that "The Falls of Niagara" is the acknowledged child of the Geological Survey. The Survey's child it is, but it was found upon the doorstep.

### THE NEED OF PROSPECTING.

Mr. Leach, in his paper read before the Canadian Mining Institute, refers to the small amount of systematic exploration that has been done upon the Moose Mountain Range. If this is true of Moose Mountain Range, it is even more true of the other Ontario, Quebec and Nova Scotia iron ore districts. Mr. A. B. Willmott, in his excellent monograph on "The Iron Ores of Ontario," makes a striking and effective comparison. He refers thus to the work done in one small section on the United States side of the Lake Superior country and contrasts it with what has been attempted in Northern Ontario: "The amount spent on exploration on the Vermilion range alone, between Tower and Section 30, a distance of say thirty miles, probably surpasses all the money spent in actual exploration of the hundreds of miles of similar ranges in Northern Ontario." This fact is eloquent.

One of the conditions that hamper the development of Canadian iron deposits is the fact that owners usually stipulate for excessive royalties or grossly over-estimate the value and extent of their holdings. Another cause is the apparent unwillingness of Canadian consumers to grant reasonable terms to possible shippers. In other words, with one or two exceptions, there appears to be a decided diffidence on the part of Canadians in embark-

ing on the development of our iron ore deposits. The situation is a complicated one. But of this we are sure, namely, that Federal and Provincial bounties should be so adjusted as to encourage directly the use of Canadian ores.

### MINERS' RELIEF SOCIETIES.

In the Province of Nova Scotia there are 12,000 colliery workers. At present there are sixteen miners' relief societies. The report of the Commission appointed some months ago to enquire into old age pensions and miners' relief societies, sets forth some of the weaknesses of existing relief societies. The entire lack of co-operation is, perhaps, the most serious drawback to the present system. The heavy cost of administration is also a hardship upon the miners.

The Commissioner's report therefore recommends that the Government of Nova Scotia take over the management of the funds of the several societies in excess of \$1,000, and that the societies themselves be organized into one large body with local branches.

We cordially agree with the idea of consolidation. The risk of insolvency will thus be reduced and the rates should become cheaper. But we see no justice in the claim that the Government should handle and administer the funds. It will be far better for all concerned, it will make for peace and mutual respect, if the miners' organizations control their own affairs. The suggested arrangement smacks of class legislation.

### A CORRECTION.

Our Glace Bay correspondent has drawn our attention to an item that appeared in our last issue under Mining News of the World. The statement is there made that after the late Hamstead colliery disaster the rescue apparatus proved ineffective. This was by no means the case. Such a statement, indeed, is calculated to destroy the growing and much-needed confidence of operators and workmen in the apparatus used. In our next issue the matter will be given more attention.

## THE MONTREAL RIVER DISTRICT.

BY HAROLD P. DAVIS.

With one conspicuous exception, there are no promotions in the Montreal river field, and few capitalized companies. The small amount of development work has been done by individuals. It is clearly understood by the owners and prospectors in the district that, with the present attitude of the investing public towards Northern Ontario mining fields, the development of this section depends upon their own efforts, and that there is little hope at present of obtaining assistance from outside sources. It is yet impossible to draw definite conclusions as to the persistence of the veins, or the depth of the silver enrichment.

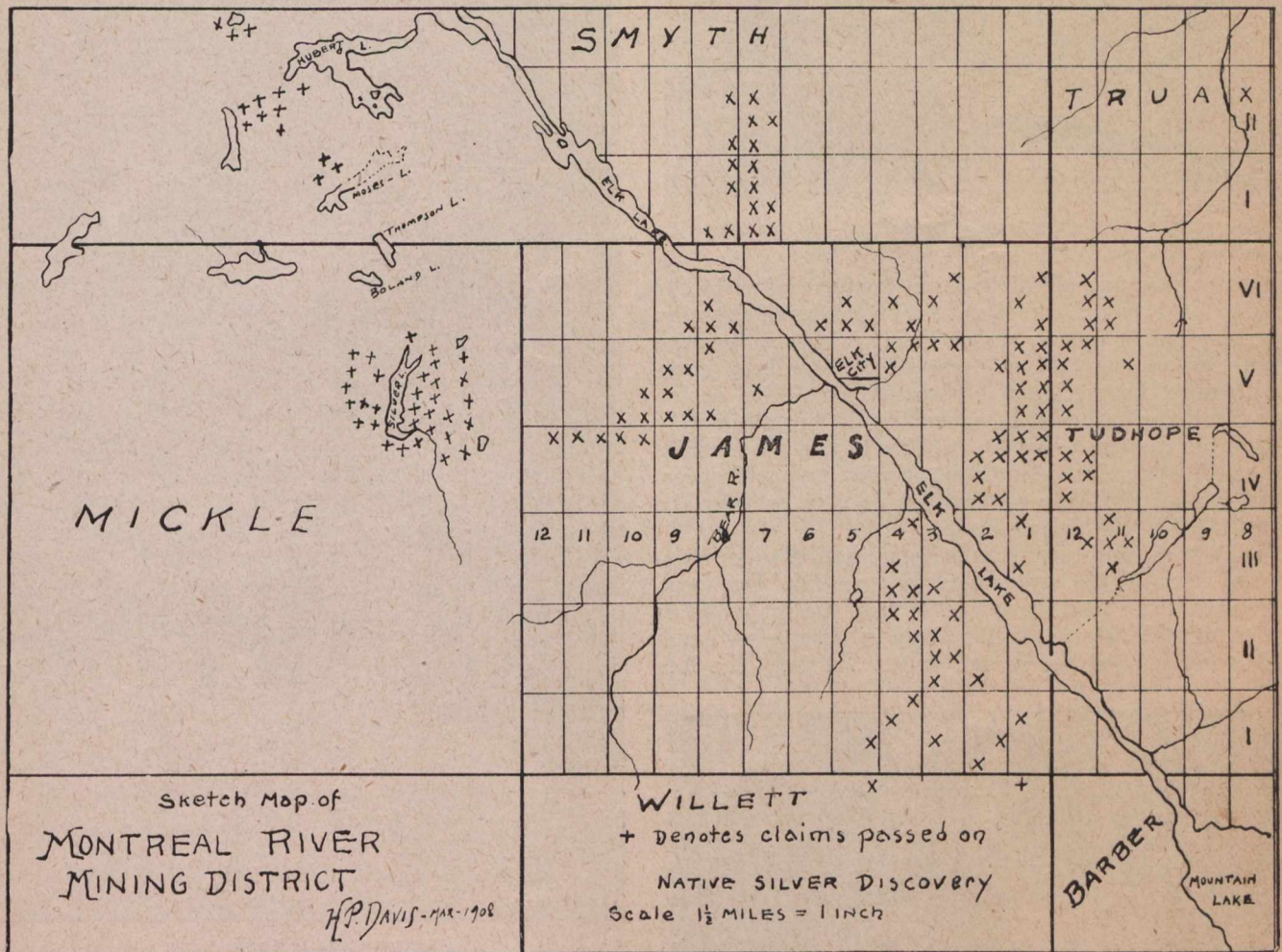
With adequate funds devoted solely to development work, and the evidence of values which seemingly justify this development, the coming spring and summer should demonstrate whether the diabase areas in the vicinity of Silver Lake, Hubert Lake, and in James, Smyth, Tudhope, and Willet Townships, have or have not silver values in shipping and milling quantities. Strangely enough, although nothing is mineralogically exceptional in a region radiating from Cobalt, the values are seemingly confined to the diabase, and so far no evidences of silver and very few veins, of any sort have been noted in the conglomerate upon which Cobalt primarily pinned its faith. If the development of the rich outcropping veins confirms the surface showings, and the sinking of shafts or diamond drilling demonstrates the values existing at depth, ample funds will be forthcoming, and there is no doubt in the minds of those familiar with this section that it will take but little of such work to prove up shipping mines. While the areas of enrichment have not been definitely determined, the district under immediate exploration extends from Mountain Lake to Hubert Lake; Elk Lake which is an

expansion of the Montreal river intersecting them for a distance of fifteen miles.

Approximately twenty miles to the west, in the vicinity of Bloom Lake, there has been more or less activity with very favorable results. However, it is the six townships surrounding Elk Lake which will either register another silver camp in the Nipissing district, or a mineralogical freak. The areas of diabase and gabbro disclosing silver, smaltite, and associated minerals, include that portion of James township from its north west corner along the south bank of the river to the southeast corner. The area along the boundary of James and Tudhope includes lots 1 to 4 in the former; and lots 12, 11 and 10 in the latter, the section north of the river in lots 4, 5, and 6 in James; lots 7 and 8, concessions I and II Smyth; and the territory extending from Hubert Lake south through Thompson and Boland Lakes to Silver Lake. It has been remarked that the richest sections are generally in the narrower bands or belts of diabase which are outlined by quartzite and granite, the prevailing rocks of this district. The vein matter is calcite, barite, or aplite. The silver which probably was carried up with the vein filling occurs as leaf and fine grains. These veins are from a few inches to two feet in width and carry in places from a few ounces to several thousand ounces of silver. The calcite veins vary in width from narrow seams to 18 or 20 inches, and are in many instances decomposed on the surface, the silver being found in fine grain and leaf disseminated through a black muck. A pit sunk on one of these veins a few feet in depth usually reaches the rock calcite which carries as a rule a varying percentage of chalcopyrite, and in many cases smaltite and niccolite. There are also a number of outcropping veins of

specular iron often carrying small amounts of silver and in some instances showing native silver. In the narrow diabase tongue in lots 7 and 8 in Smyth rich veins have been located. Out of the sixteen claims in lot 7 concessions I and II all are passed, and nine have native silver finds. In lot 3, concession VI, James, on one of the seven claims of the Montreal River International Mines passed on native silver discovery, a vein of calcite uncovered for over four hundred feet exists in the contact between the conglomerate and diabase which is 14 inches wide, and carries smaltite, niccolite, and a little silver. In lot 7, concession I, Smyth, on another claim belonging to this company a vein 18 inches in width with a barite gangue has a streak of calcite 3 inches wide containing smaltite and native silver along the hanging

claims in this section all have native silver in calcite or aplite veins, which also generally carry a large percentage of chalcopryrite. On the Gates claim in lot 8, concession VI, James, nuggets of silver weighing over fifty pounds have been taken out, while the values are reported to have pinched out in this vein at the depth of fifteen feet, the loss of values in a narrow vein of calcite in the one test pit sunk is not by any means to be taken as a fair test. From the surface indications it would seem that this property has a good chance of proving valuable. South of Gates in lot 8, concession V, on one of the Downey claims is a four inch vein of calcite and silver which compares favorably with the veins in Cobalt. Active work will begin on this claim in the spring. Sixteen claims in this vicinity have native silver showings.



wall. Native silver also occurs in the barite but is more generally distributed in the calcite. A shaft has been sunk on this vein to the depth of fifty feet, and drifting at this level showed the vein equally strong as at the surface. The barite at this depth is largely replaced by calcite.

On the property of the Moose Horn mines north of Elk City in James township a number of rich narrow veins carrying high silver values are being developed. In the northeast corner of James township, on the Meyer and Ellis claims, are some promising veins of aplite. Native silver has been found in four leads in this group one of which is eighteen inches to two feet wide and has been uncovered for four hundred feet. The Munroe and Mitchell, the Harbeck, and the Bradshaw and McVittie

On a large percentage of the claims in the diabase area in the vicinity of Silver Lake, native silver has been found. Four out of five of the claims belonging to the Clinton and Steindler Syndicate have one or more veins showing native silver, and the fifth a galena vein eighteen inches to two feet wide which runs 37 1-2 per cent. lead with a little silver.

A vein which showed cobalt bloom and decomposed calcite on the surface, turned to rock calcite, smaltite and silver in a few feet. Specimens from this vein are difficult to distinguish from the typical high grade ore from Coleman township. Otisse Brothers have three high grade silver veins on a lot west of the lake adjoining Clinton and Steindler, one of 4 inches in width which carries high values. These discoveries were all made

by the Otisse Brothers with prospecting picks, and practically no trenching has been done. The richest vein in this section yet discovered is on the Shane-Downey lot southeast of Silver Lake, the title of which is now in dispute. The vein matter is aplite and was recently described in a report written by an eminent authority on Canadian mining fields as being six to eight inches wide, and carrying twenty-five per cent. silver. A total



CAMP ON BEAR POINT.

of twenty-nine out of thirty-seven passed claims in the vicinity of Silver Lake have native silver discoveries. The cross marks on the sketch map which accompanies this article indicate claims upon which have been made one or more discoveries of native silver. A line drawn round and including these claims would approximately outline the diabase areas of the Montreal river district, and at the same time include all the important discoveries so far made. This area would be greater than the proven field in the Cobalt camp.

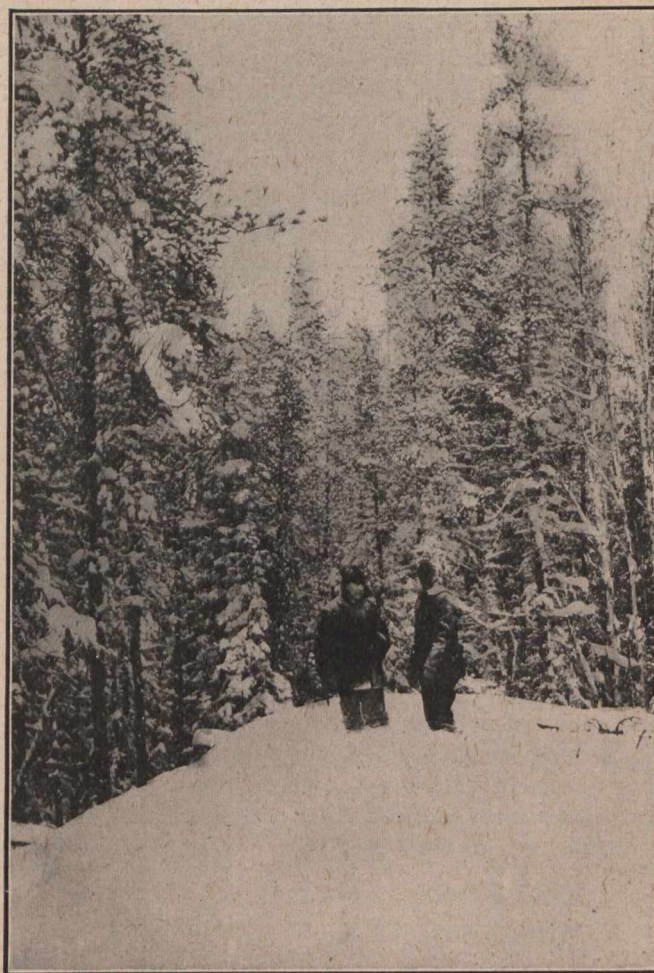
Owing to a most unfavorable combination of circumstances very little systematic prospecting has been attempted. The first discovery in this district made in the fall of 1906 was not followed up in time to see much work accomplished before the winter set in. The late



A PROSPECTOR'S TENT.

spring and exceedingly wet summer of 1907 made prospecting difficult. However, some important discoveries were made this winter in spite of the snow. The arrangements which have been entered into for the inauguration of extensive work on a number of the most important properties as soon as the snow leaves the ground, and the rapidly increasing number of outfits entering the field with supplies and equipment indicate

that the proving of this district will shortly begin in earnest. Whilst the fact that conditions do not favor a repetition of the Cobalt "boom" may possibly delay the early development of the Montreal river district, there can be no question that this will make for the ultimate good of the new camp. Specimens of ore such as are reproduced on the title page of this issue of THE CANADIAN MINING JOURNAL, while not to be taken as average samples of the discoveries, are sufficiently characteristic of this district as to be distinctly encouraging. An engineer who is recognized as one of the foremost authorities on the mineral deposits of Ontario stated recently in a report to his company: "It seems more than probable that in the coming summer when the conditions for discoveries and prospecting will be more

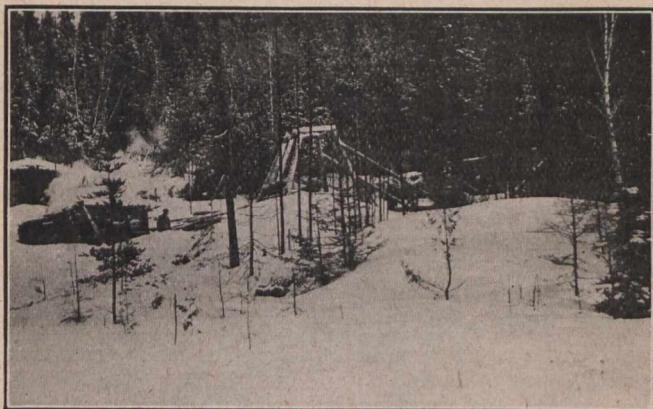


WINTER SCENE AT SILVER LAKE.

favorable that many wider and richer veins will be found. The region is one of great and wonderful promise."

At present the only means of reaching this district is by the winter road from Earlton on the T. and N. O. R. (Government Railway) through the townships of Armstrong, Beauchamp, Bryce and Tudhope, to Elk City in James, a distance of thirty two miles. As soon as the ice is out traffic will be by boat up the Montreal river from Latchford, a station south of Cobalt on the T. and N. O. R. R., about fifty two miles southeast of Elk City. Two lines of small steamers will be operated. It is practically assured that the Charlton branch of the T. and N. O. will be extended to Elk City, a distance of seventeen or eighteen miles, as soon as sufficient evi-

dences of the importance of the mineral deposits are given. Already two rival towns have sprung up, and over one hundred and fifty lots have been sold by the company that controls "Elk City", the town site on the northeast bank of the river. A comfortable hotel and several store buildings have been built. On the opposite bank of the river at Bear Point is "Smyth", a town site reserved by the government, and which is being sold by sealed tender. Here also a number of substantial buildings have been built, and it is understood that the Recorder's office of the Montreal River Mining Division will shortly be removed from Latchford to "Smyth" in order that the inconveniences entailed by long jour-



THE DOWNEY CLAIM, NEAR SILVER LAKE.

neys may be obviated. A few miles south on Mountain Lake a sawmill is in operation providing lumber for construction purposes.

Considering the fact that practically no systematic development work has been attempted, and that last season was by far the most unfavorable for prospecting for many years, this new silver camp has made a record that warrants a favorable belief in its future, and a belief that the spring and summer of 1908 will see the development of a new mining district in northern Ontario, which will be an important factor in the silver production of the Dominion.

### SUBMARINE COAL MINING.

By JOHN JOHNSTON, Sydney Mines, Cape Breton.

(Paper read before the Mining Society of Nova Scotia, 25th March, 1908.)

In preparing a paper upon the above subject, it is impossible to deal exhaustively with the many different phases which may present themselves, but for the present this paper will simply deal with the matter in a general way.

As is undoubtedly known to mining men, our principal heritage along the eastern seaboard of the County of Cape Breton is the valuable coal seams, from some of which the coal has been extracted for more than seventy years. The coal has been almost all taken from the land areas, and the quantity mined has increased in proportion to the demands of trade.

In 1902, the attention of Mr. H. M. Whitney and other capitalists was drawn to the rapidly increasing demands for coal, the possible expansion of the trade, and the necessity of reducing the cost of production, which eventually led to the amalgamation of a number of coal com-

panies (whose operations as individual companies were not always attended with satisfactory results) into what has since been known as the Dominion Coal Company, Limited.

To the companies thus depending entirely upon water communication to reach a market for their product, conditions presented themselves which seemed beyond control, viz., shortness of shipping season and the need of a regular and continuous market, which subjected their business to extreme fluctuations, from producing all that was possible during the season of shipping, to enforced idleness during the winter months.

All this has been changed by the energetic action of far-seeing men, and since 1897 new markets have been found at home and abroad, requiring a constant supply of coal. Trade has expanded beyond the most sanguine expectations, and as a result collieries are required to work continuously, and labor has been given, not only to those who hitherto were compelled to remain idle during a large portion of the year, but to a largely increased number.

Up to the present there has been but little done in the way of submarine mining, except by the General Mining Association of London, which has been absorbed by the Nova Scotia Steel & Coal Company, which is at present continuing the workings. Mr. Henry S. Poole, of Halifax, N.S., read a paper before the Institute of Mining Engineers of England, at a meeting held at Nottingham, England, on September 3rd and 4th, 1903, and which is to be found in that society's transactions, in which he clearly set forth the conditions under which the coal in these submarine areas was then being extracted. The writer has much pleasure in confirming all that Mr. Poole has said relative thereto.

But a new condition of things is arising: certain well-known seams are rapidly being worked out on the land areas, and the necessity of generally extracting the coal from the submarine areas of our country, greater by far in quantity than that originally contained in the land areas, is becoming acute.

Naturally the question now is, not so much one regarding the extraction of coal from a submarine area extending about a mile from and parallel to the adjoining shore, but how should the operations in leases next to the shore line be undertaken, so as to enable investors to reach out several miles from the shore to extract coal therefrom, that they may have a fair return for the money invested; also, how should we guard with safety all those who may be engaged in the prosecution of the work, and how may we win the greatest possible quantity of coal from those areas, leaving uninjured the outlying properties and successfully meeting the requirements of trade?

These are problems of the highest interest, and in the proper solution of which, it appears to the writer, are involved matters that might be the duty of the government to investigate.

Extending for a distance of forty miles along the eastern seaboard of Cape Breton are coal-bearing strata, upon which, until a recent date, no submarine leases were granted, excepting those to the General Mining Association at Sydney Mines, at Barasois and at Lingan, to Charles Campbell at Burnt Head, and to the Blockhouse Company at Cow Bay. Recently, a large number of leases extending miles seaward have been applied for and granted—in fact all the distance mentioned has been covered. The descriptions in the leases have not always been accurate or clear, and litigation has arisen as a consequence, and more is likely to follow.

Two questions might here be asked. First: Why were not proper monuments for reference established, so there could not be any doubt about the location of each and every lease or area, whether submarine or land? And, second: Will not a large amount of coal be lost if the present apparently unsystematic distribution of coal leases is not modified?

In England, where this question has had the careful consideration of mining men for years, it has been demonstrated beyond a doubt that not only can coal be mined successfully in submarine areas in the usual way by bord-and-pillar, but, under certain conditions, all the coal can be extracted therefrom. It has also been demonstrated that the extraction of coal from submarine areas can be successfully done at quite a long distance from the shore line, as instanced at the White Haven collieries of Cumberland County, England, and several other places where coal is being extracted and drawn a distance of four or more miles. There the principal difficulty appears to have resulted from the number of faults, dislocations, anticlines and synclines which were encountered. So far as is known, the submarine areas of Cape Breton County are entirely free of any such conditions, and therefore are of very great value from a commercial standpoint.

In the mind of the writer, some of the principal questions to be considered (in addition to any that may have already been mentioned) are as follows:—

1st—How should this territory be successfully opened up so as to leave sufficient protection, and so as to extract coal five or more miles from the shore line in a manner that would give a fair return to the investor?

2nd—What is the best method of providing for ventilation, safety of workmen, haulage, and the extraction of the largest possible quantity of coal from the several seams at this distance?

3rd—Where pillars are required to be left, what size should they be?

4th—Under what conditions should the different sections of a mine be worked?

5th—Can all the coal be taken in the first workings?

6th—Under what conditions can all the coal be extracted?

7th—What would be the proper method of procedure to lay out a mine in a submarine area where all the coal is being extracted?

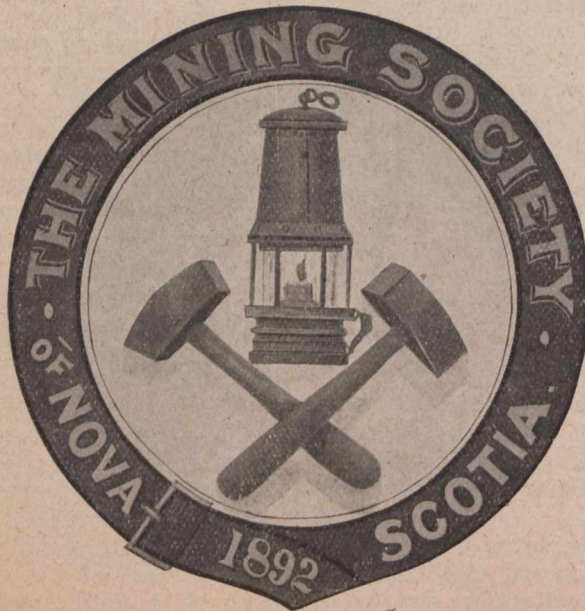
8th—What is the most efficient method of ventilating workings in a submarine area, where coal is being extracted, two or more miles from the shore or exit?

9th—What is the most efficient system of haulage from submarine areas two or more miles from shore or exit?

10th—What is the best method of taking workmen to and from a given point two or more miles from shore or exit?

## THE SIXTEENTH ANNUAL MEETING OF THE MINING SOCIETY OF NOVA SCOTIA.

Held at Halifax, March 25-28, 1908.



As indicative of the growing interest manifested in the annual meeting of the Mining Society of Nova Scotia it may be mentioned that four instead of two days, as heretofore, were necessary for the transaction of business, reading of papers, and social amenities. The attendance was large, the papers were timely and the discussion representative, although far too little time was assigned to this last item.

On Tuesday evening, March 24th., the annual meeting was opened informally by a "smoker" in the comfortable rooms of the Society's headquarters.

The formal opening took place on Wednesday morning, March 25th., in the commodious council chamber of the Halifax Board of Trade, which immediately adjoins the Society's quarters. As mentioned above, the attendance was good. In addition to the regular members



there were many guests from other parts of Canada and from the United States. Amongst these were Mr. R. W. Brock, Acting-Director of the Geological Survey; Dr. Eugene Haanel, Director of the Mines Branch, Ottawa; Dr. W. G. Miller, President of the Canadian Mining Institute; Messrs. Hugh Fletcher, E. R. Faribault and Leech of the Geological Survey; Dr. E. W. Parker, representing the United States Geological Survey; Mr. McLeish, Statistician of the Mines Branch, Ottawa; and Mr. J. C. Murray, editor of THE CANADIAN MINING JOURNAL, Toronto.

President C. J. Coll's address, entitled "Remarks on Some Recent Explosions in Coal Mines" was a valuable, lucid, and powerful review of recent coalmine catastrophies. After outlining the causes of these disasters, the address concluded with recommendation as to necessary regulations to be enforced in coal-mines. The whole address is reprinted in this issue of THE CANADIAN MINING JOURNAL.

Dr. Parker and Dr. Haanel discussed the president's paper, after which routine business was transacted.



PRESIDENT C. J. COLL.

The Wednesday afternoon session was followed in the evening by the Annual Dinner held in the St. Julian room of the Halifax Hotel. About one hundred and fifty covers were laid. Music was supplied by the band of the Royal Canadian Regiment. The speeches, all of which were admirably brief, were of unusual merit. Whether it is the proximity of the Atlantic Ocean or fish diet or some other factor unknown it is profitless to guess; but the truth remains that Nova Scotians speak fluently in public. Moreover, their hospitality induces eloquence in their visitors.

In responding to the toast of "Canada" Lieutenant-Governor D. C. Fraser referred to the Dominion's magnificent opportunities for development in the next twenty five years. The Hon. O. T. Daniels, M. P. P. speaking to the toast of "Nova Scotia" alluded to the sterling work done by the Mining Society. The Society, Mr. Daniels stated, had more than justified its existence by securing for Nova Scotia a system of technical education. Speaking to the same toast, Mr. C. E. Tanner, M. P. P. leader of Nova Scotia's loyal opposition congratulated

the Society upon the earnestness and whole-heartedness with which it had attacked the problem confronting it.

The Hon. C. P. Chisholm, Commissioner of Works and Mines, responded to the toast of "Our Mineral Resources." He was followed by Judge Drysdale, a former occupant of that office.

Dr. W. G. Miller, President of the Canadian Mining Institute, spoke to the toast of "Our Sister Societies." "Our Guests" was responded to by Dr. E. W. Parker, Dr. Eugene Haanel and Mr. R. W. Brock. Other speakers were Mr. Hugh Fletcher, Mr. Badger, Mr. Faribault, Mr. J. C. Murray, Mr. W. W. Leech, Mr. H. E. Coll, Mr. H. Piers, Mr. F. H. Sexton and Mr. H. M. Wyld.

So well arranged was the whole affair that all making of speeches was over by midnight.

Part of Thursday's and Friday's sessions were devoted to the discussion of what had been chosen as the keynote of the meeting—the exploration of Nova Scotia's mineral resources. Dr. Haanel, Mr. Brock, Dr. Miller and Dr. Parker spoke inspiringly upon the work of the bureaus that they individually represented.

Beside the regular papers read, Dr. Miller on Thursday afternoon delivered, before a large audience, a lecture on Cobalt. After showing Cobalt's relation geologically to the surrounding sections of Ontario, he traced its history and development. The lecture was illustrated by lantern slides.

An incomplete list of papers read and discussed or read by title is:—

W. J. Priske—"The West Gore Antimony Mine." H. E. Coll—"Shaft Collar at No. 1 Allan Shaft." A. L. McCallum—"The Testing of Nova Scotia Fire Clays." H. S. Badger—"The Mining and Metallurgy of Gold at the Boston-Richardson Mine." T. J. McKavanagh—"Electricity in Mining." A. A. Hayward—"Gasification of Fuel." J. E. Woodman—"The Financial Value of Economic Geological Studies." E. Percy Brown—"Structure of the Ore Body of the Boston-Richardson Mine." J. Read—"Recent Cyanide Practice in Mexico." J. E. Woodman—"The Mapping of Mining Properties." A. A. Hayward—"The Occurrence of Primary and Secondary Brines."

The election results, announced on Friday afternoon were as follows:—President, Mr. C. J. Coll; 1st. Vice-President, Professor F. H. Sexton; 2nd. Vice-President, Mr. T. J. Brown; Sec-Treasurer, Mr. H. M. Wyld; Council, Messrs. R. H. Brown, A. Dick, G. W. Stuart, Jacob A. Johnson, B. F. Pearson, Hon. R. Drummond.

## A PRACTICAL SUGGESTION FOR THE TESTING OF THE GOLD MINES OF NOVA SCOTIA.

BY FRED. P. RONNAN.

Editor "Industrial Advocate."

(Read before the Mining Society of Nova Scotia, 25th March, 1908.)

Various plans have been suggested for the encouragement of gold mining in Nova Scotia, and the necessity for taking some practical steps in the development of that branch of the mining industry will be admitted without debate by all persons who have witnessed the slow and irregular progress of the past ten years in Nova Scotia. It is to the credit of the government of Nova Scotia that it has signified its willingness to extend any reasonable measure of financial assistance that may be

necessary, and this desire has found expression in the placing on the statute books of Nova Scotia an Act directed to the extending of financial help to mining operators of responsibility and standing, who will undertake to carry on deep mining.

So far as it goes, this is praiseworthy, but no move has yet been made by capitalists to take advantage of this exceptionally favorable proposal; and to any person who has devoted a reasonable amount of time to the study of what is required in this province, it is plainly manifest that some more practical means of realizing on our great mineral deposits must be put into force, not only through the initiative of persons engaged, but in the necessary oversight by the authorities. It would be idle to recall to the reader's recollection the various facts which have been proved in connection with the wide extent and distribution of the gold-bearing deposits of this section of Canada. These are patent to persons who have made only a cursory study of the subject; and in fact, as one authority has frequently put it, the chief trouble with Nova Scotia is that there are so many openings and opportunities for the investment of capital in gold mining, effort and capital are in consequence divided, and the result is a want of concentration, which on one or two properties would prove them to be very successful and object lessons to those who think that our gold deposits have only a limited range in depth and value. There are without doubt in this province to-day, as many as a thousand "gold mines," so-called. To the owners, no doubt, they are such, but in the opinion of the hard-headed, matter-of-fact mining engineer they are but prospects, and as such will remain, unless development work is undertaken on the best possible lines. Almost all these properties have had more or less money expended upon them, much of it wasted so far as actual results are concerned. The majority of them have engineer's reports concerning their value and extent, but still the industry lags, and Nova Scotians possessing, as they do, a splendid mining country, are last to become interested financially in the proper development of these deposits. Indifference and dishonesty there are in all mining sections of the world, and if we suffer from either one or the other, or both of these conditions, we are not alone in this respect: but there is a remedy for even these causes, and I propose to submit to the mining men of the province and others interested a plan which I think might at least be found worthy of trial, or at all events worthy of criticism from the standpoint of the desire to improve our present position, as a producer of precious metals. In view of the fact that political elements will enter into even the most carefully restricted questions, and that further, sectional jealousies are always more or less apparent, it is necessary that a suggestion to improve mining conditions must be based on some plan by which these considerations will be eliminated, and I submit as the result of some study of the question, the following plan, which while not put forward as one that is absolutely perfect or free from flaw or objection, is one which seems to me fairly well calculated to meet a condition as it exists to-day in this most important industry.

If I had the honor and responsibility of filling the chair or Department of Mines in Nova Scotia, I would start the ball rolling by inviting the attention of all practical mining men to the fact that the government is prepared to undertake gold mining development with the sole object in view of creating a very much wider measure of interest in the same than at present exists. I would next issue an invitation to all owners of gold

mines throughout Nova Scotia to forward to my department within a certain date, as complete a description of their property as they could furnish, accompanied by maps, mill returns, etc., and also an offer in a formal way, of the property to the government at as low a price as they consider they could accept. I would ask them each to specify that the government would have the right to a three year's working option, if required, without charge.

I have not the slightest doubt that the response to such an invitation would be a most generous one. I would employ two or three practical mining engineers who have had the necessary training in picking out prospects which promise the making of good mines, and whose judgment in nine out of ten cases is usually found correct, as verified in many western camps. I would then take the most promising property selected by those experts, one from each district, and on a certain day to be determined, in the presence of those interested, I would draw by lot the property to be exploited. In this manner I would avoid, as far as possible, any charge of partiality toward any district or any one property, and I believe it would be the only way to determine which one of, say a dozen properties, each equally promising, should enjoy the first attention. With the property selected, then I would map out, or have my engineers plan a scheme of development for the purpose of placing in sight bodies of ore, and in short the making of a mine. I would then ask for an appropriation of sufficient money to carry on this work and see that it was prosecuted vigorously and scientifically to its logical conclusion.

We will assume, for instance, that after selecting the property in this manner, that it has been decided in consultation to spend up to the sum of \$50,000 in making a mine of this prospect, and assuming further, that as the result of six month's careful underground work the results are satisfactory from an engineer's standpoint in the way of producing a measureable pay ore body, then I would hand the property back to the original owner and relinquish the option of purchase, letting him have the benefit of the expenditure so far incurred, and which had not resulted as expected, leaving him to carry on any further work.

I would then repeat the operation as already described on another property, and we will assume, for illustration, that the second property as the result of the expenditure of, say \$50,000, within six months is so far satisfactory as to warrant a still further amount, and we will assume that conditions keep improving, and that after two years' working we have made a mine which may be submitted to the most exacting tests required by competent mining engineers, then I would as Minister of Mines inform the owner that the government would exercise its option of purchase on the price first agreed on, and the property would then belong to the people of Nova Scotia, together with all improvements. If it were thought necessary to carry on the development still further, very good. But if already in a position to be called a mine, then I would cause to be prepared a full, frank and complete statement of the property, describe it in detail, illustrate its ore occurrences, the tonnage of ore that had been developed, and such other facts as may safely be predicted by an undertaking of this kind. I would advertise this property in the leading mining and financial journals of England, Europe, United States and Canada, stating that on a certain date in the future this property, as described, would be offered for sale by public auction to the highest bidder, thus provoking com-

petition from the keenest mining investors all over the world and backed by the unquestionable evidence of actual ore bodies blocked out, and with their qualities, there would be little difficulty, in my opinion, in effecting a sale at a price far beyond the original cost of the property and the improvements. The sum derived from such a sale would then be turned into a fund for repeating the operation indefinitely in the various districts as fast as they could be reached, thus permitting an absolutely necessary work being carried on without cost to the government, and focusing attention upon one of the most valuable possessions which this province enjoys, viz., its undeveloped gold resources. The operation would then become continuous, and with the steadily added string of mining properties which had been proved beyond question, would come a very great revival of interest and enthusiasm in our properties, and it might even be unnecessary for the government to continue the programme unless its merits had entitled it to a foremost place as a practical method of progress.

The above is a hastily outlined sketch of what I think I would be very strongly tempted to undertake if I were to be placed in a position to do so. I submit it to the consideration of the members of the Nova Scotia Government, and in particular to the Hon. Mr. Murray and his associates, who, I am sure, have the future develop-

ment of the country at heart, and while there may be, and doubtless are, minor obstacles in bringing about such a measure of improvement, yet I do not believe they are great enough to be considered insuperable. If there are any arguments, objections, unforeseen contingencies, or any other possible obstacles in the way of putting such a plan in practice, I invite most earnest the criticism, friendly or otherwise, of this plan. I believe at the present writing that it is entirely feasible and within the reach of practical application, and I cannot conceive of any other than a favorable outcome to such an attempt, but in case there should be, I would be glad to review whatever objections may be urged against a trial at least of the methods suggested. We ask the mining men of this province to take up this matter seriously. Study it in all its bearings, and let us have as full a criticism of the subject as it will be possible to make. The matter could be extended to many more pages, indeed, by the addition of detail, not necessary to the present outline, but the main skeleton of my plan is shown above, and could be readily approved or disapproved at less cost than any other method, more particularly that which depends on the unorganized individual attempts to mine gold in Nova Scotia with insufficient capital, inadequate knowledge and very often incompetent management.

## REPORT OF THE DEPARTMENT OF MINES, NOVA SCOTIA.

For the year ended September 30, 1907.

In our last issue we published the statement of the mineral production of Nova Scotia during the past fiscal year and noticed editorially the general aspect of that province's mineral industry. But the 'Report' calls for more attention than it was then possible to give.

From October, 1906, to July, 1907 the province paid in bonuses on each ton of coal consumed in the manufacture of iron and steel in Nova Scotia, the amount of \$40,331.45 of which the Dominion Iron & Steel Company received nearly three-quarters. The remainder was divided between the Londonderry Iron & Mining Company and the Nova Scotia Steel & Coal Company. The Dominion Iron & Steel Company receives 6 1-4 cents per ton; the other two companies, 5 cents.

### COAL.

The returns of coal sold during the year 1907 show, compared with the returns of 1906, as follows:

	1906	1907
Nova Scotia .....	1,962,206	1,842,419
New Brunswick .....	434,882	427,128
Newfoundland .....	149,506	146,502
Prince Edward Island .....	76,809	77,493
Quebec .....	1,739,308	1,709,592
West Indies .....	.....	2,598
United States .....	769,775	616,312
Mexico .....	.....	7,591
Other countries .....	62,104	12,483
Bunker .....	.....	204,572
Total .....	5,194,590	5,046,690

The reports of the deputy inspectors on the collieries of the province are given in full. They contain much

useful information; but are somewhat diffuse. In looking over them we notice some facts that are significant. We shall group these facts under separate headings and thus cover the field roughly.

*Lamps.*—Bonneted Marsaut lamps are used at the Springhill collieries. They were introduced in March 1891. 1300 are on hand in the lamp house and 1,150 are in use. The Marsaut is supplied with double gauze chimneys.

At Joggin's Mines Meuselers are used. They were introduced in January, 1904 and 200 are in commission.

The Chignecto mines use open lights. The slope is down 1,800 feet. The Minudie also use open lights.

The Dominion Coal Company's Dominion No. 1 colliery has used closed lights since 1903. There are 750 Ackroyd and Best safety lamps here, of which 600 are in use.

The use of the safety lamps was commenced at the Sydney No.1 colliery of the Nova Scotia Steel & Coal Company in 1897. There are now 680 Marsaut safety lamps in daily use. At the same company's Sydney No. 5 colliery there are 173 Marsauts.

The Port Hood colliery uses open lights. The Mabou and Gulf Coal Company and the Inverness Railway & Coal Company also are without safety lamps.

The Intercolonial Coal Company 18 years ago began using safety lamps. 640 Marsauts are in commission a reserve of 120 is kept in stock.

The Acadia Coal Company uses, at their Vale colliery, a total of 272 safeties, of which 78 are Marsauts, 64 Meuselers, and 130 Clannys. At their Marsh mine open lights are used. The Wolf safety lamp (self lighting) is used at their Acadia colliery to the number of 220, 385 of these lamps are used at their Albion mines.

The Dominion Coal Company's Dominion No. 2 colliery is equipped with 1,000 Ackroyd and Best safeties. These have two gauzes and are lighted and unlocked by electricity. Dominion No. 9 has 600 of the same type. At the Hub colliery 100 Hughes safety lamps are employed. There are also 738 Ackroyd and Best lamps at the Caledonia colliery, 500 at Dominion No. 3 colliery, 220 at the Emery colliery and 1,076 at Reserve. At Dominion Co. 6 there are 324 Marsaut safeties.

Dominion No. 1, Bulldog, Dominion No. 2, Excelite, Dominion No. 9, Bulldog, Hub, Bulldog, Caledonia, Bulldog, Dominion No. 3, Bulldog compressed, International, Bulldog compressed, Emery, Bulldog and Balfurite, Reserve, Bulldog and Excelite, Dominion No. 6, Bulldog.....	3,456,937
North Atlantic, Bulldog (loose) and Acadia pellet .....	981

The composition of Monobel powder, manufactured by the Nobel Explosive Company of Glasgow, is given as follows:—

	Maximum	Minimum
Nitrate of ammonia .....	82	78
Nitro-glycerine .....	11	9
Woodmeal (dried at 100 degrees C.) .....	10	8
Moisture .....	2½	½

GOLD.

The production of gold during 1907 was 15,006 ounces. For 1906 it was 14,079 ounces. The gold produced, excluding that obtained from the antimony ore shipped from West Gore, was 13,687 ounces, valued as \$260,053, extracted from 64,657 tons of ore, representing an average return of \$4.02 from each ton of ore mined and milled. Compared with 1906 this shows an increase of 639 ounces of gold recovered, 162 tons of ore milled and 18 cents in value per ton. Twenty four mines were operated and 483 men employed. In two districts, Gold river and Middle river, new properties were opened up.

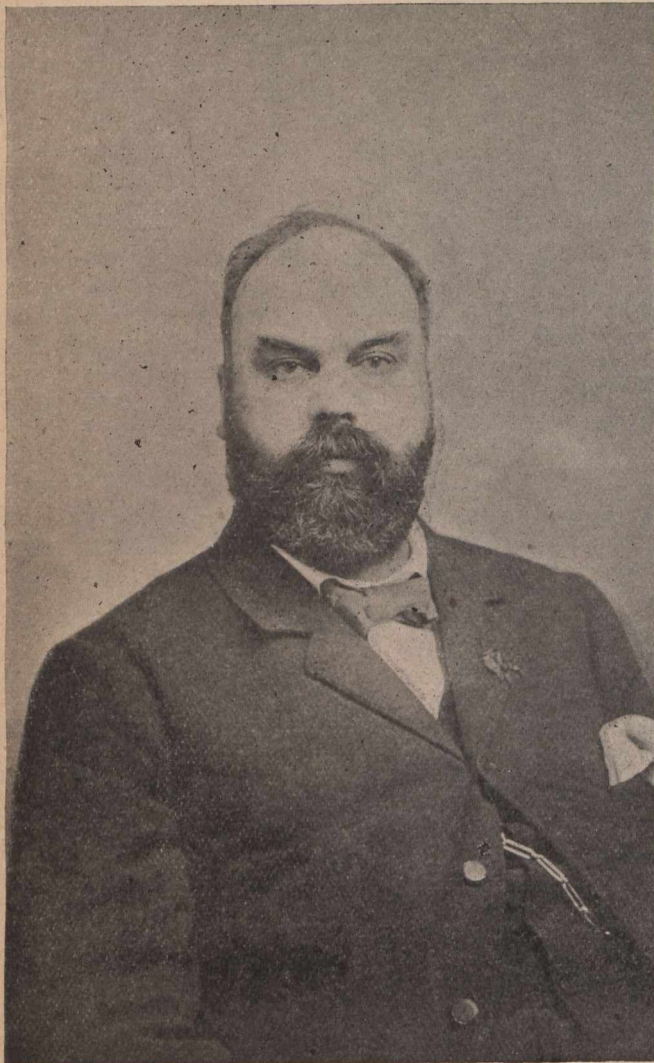
*Wages.*—The average wages paid to the different classes of labour, skilled and unskilled, at the different gold mines in the province, is as follows:

	Per day.
Shift bosses .....	\$2.00
Machine drill men .....	1.75
Machine helpers .....	1.50
Timbermen .....	1.75
Trammers and muckers .....	1.40
Engineers .....	1.60
Blacksmiths .....	2.00
Blacksmith helpers .....	1.50
Amalgamators .....	2.50
Millmen .....	2.00
Ordinary labour .....	1.35

*Cost of Coal.*—The cost per ton of coal at the boilers of the different gold mines throughout the province varies greatly, and depends principally upon the method of transportation, distance of the mine from tide-water or railway station, and quantity purchased. The following figures in this connection, covering over half the gold produced during the year, may prove of interest.

To mine and mill 51,725 tons of ore from which 8,156 ounces of gold were extracted valued at \$154,964.00 or \$2.99 1-2 per ton. 7,097 tons of coal were used costing \$26,418.05 or \$3.72 1-4 per ton, being \$0.51 for each ton of ore mined and milled, \$3.24 per ounce of gold extracted or \$0.17 for every \$1.00 worth of gold recovered.

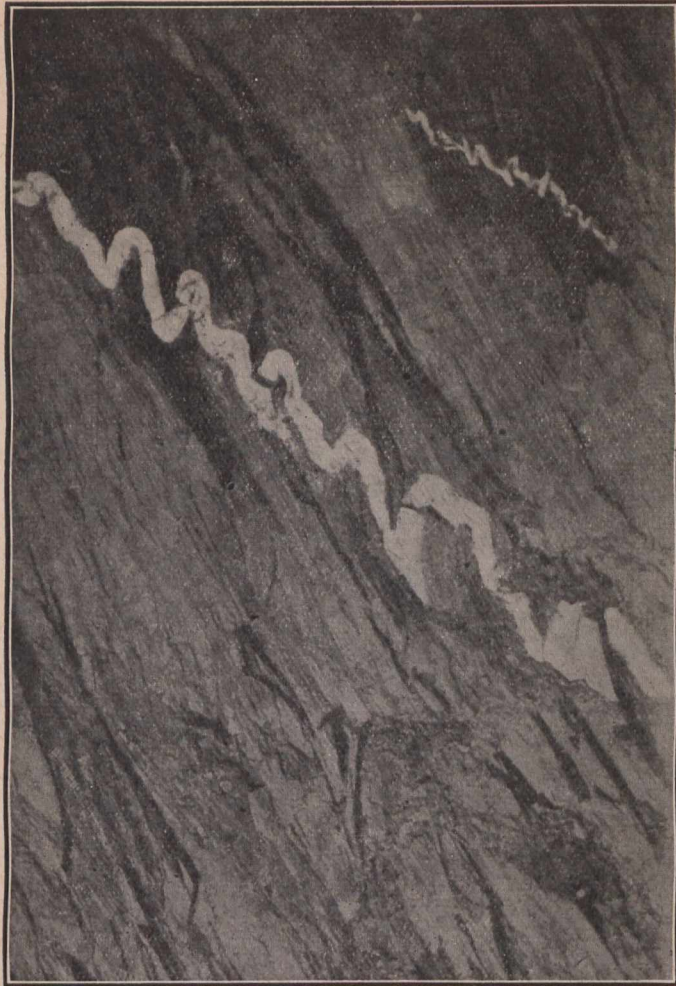
*Guysboro County.*—Boston-Richardson Mining Company, Isaac's Harbour.—Employing 104 men this mine produced 43,456 tons of ore, yielding on the plates and by cyanide 6,504 ounces of gold, an increase of 1,685 ounces of gold extracted.



HIRAM DONKIN, ESQ.  
Deputy Commissioner of Mines for Nova Scotia.

*Explosives:—*

Colliery and explosives used	Output of Mine. Tons
Springhill No. 2, Springhill No. 3, dynamite.....	339,039
Joggins mines, black powder .....	50,385
Chignecto mines, black powder .....	44,143
Minudie mine, No. 3, black powder, American blasting powder, dynamite.....	44,107
Sydney No. 1, Sydney No. 3, Sydney No.5, "Bull Dog".....	664,484
Port Hood, No. 3 black .....	76,083
Inverness Ry. & Coal Co., black powder..	261,004
Allan Shaft No. 1, Monobel powder, Vale, No. 3 black, Marsh mine, No. 3 black, Acadia, none, Albion mines, Monobel..	385,006



MINNIE MILLER LEAD, MOOSE RIVER CARIBOU.

Mining is done mostly by contract. Last year's prices for different classes of work were as follows:  
 Sinking incline shaft. \$12.00 per foot, shaft 23 x 10 feet.  
 Driving . . . . . 4.25 per foot between walls 9 feet high.  
 Stopping . . . . . 18 cents per superficial foot through the belt.  
 Cross-cutting . . . . . \$4.50 per foot, 10 feet wide, 7 feet high.

In sinking, drifting and cross-cutting, the contract includes breaking down and delivering ore to the skip. The contractors supply steel, dynamite, light and general supplies; the company providing drills, hoisting and tramming facilities, timber when necessary, and air at 90 pounds pressure, at drills. Drill parts broken or lost are charged against the contractors. The management at the mine state that this method is giving splendid satisfaction, both to men and company.

The cyanide plant produced 1,101.12 ounces of bullion out of the total of 6,504 ounces.

Several shipments of concentrates have been made to Germany for arsenic extraction tests. If these prove satisfactory a plant will be erected at the mine.

Beaver Hat Gold Mining Company, Lower Seal Harbour. Twenty men are employed. A total of 1936 tons crushed yielded 635 ounces of gold. The mine was closed for 1 1-2 months on account of shortage of coal and three months during construction operations. The mill is equipped with ten 800-pound stamps.

McDonald and Copeland (Modstock) Forest Hill. Thirty six men employed. From 155 tons of quartz

mined and crushed 375 ounces of gold were extracted. The Wine Harbour Gold Mining Company, Wine Harbour. Forty two men employed. 6,333 tons of ore crushed yielding 1,017 ounces of gold.

*Halifax County.*—Ecum Secum Gold Fields Limited. During eight months 456 tons of ore were crushed giving 339 ounces of gold.

Harrigan Cove Gold Mining Company, Harrigan Cove. 1,267 tons of ore yielded 259 ounces 10 dwts. of gold.

Dominion Mining Company, Tangier. 647 tons of quartz yielded 201 ounces 15 dwts. of gold.

Dixon Mine, Caribou. From 174 tons of quartz crushed, 119 ounces 18 dwts. gold were extracted.

Consolidated Mines of Canada, Moose River. 2,895 tons of ore returned 219 ounces of gold.

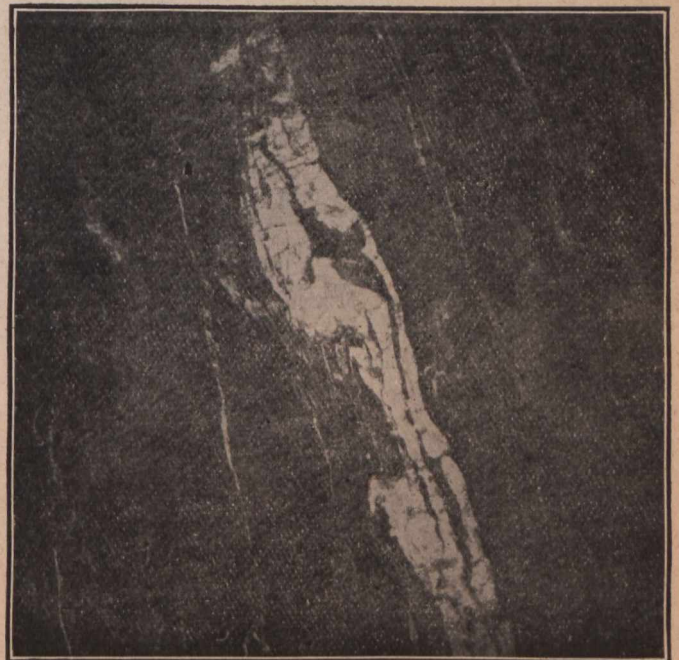
Oldham Sterling Gold Company. From 362 tons of ore, 853 ounces 3 dwts. of gold were extracted, a yield per ton of 2.36 ounces. During the two months of August and September the returns show 67 tons crushed and 274 of gold extracted, or almost 4.01 ounces per ton.

*Lunenburg County.*—Chester Basin Gold Syndicate. From 761 tons of quartz a total of 926 ounces 9 dwts. was obtained. Hand steel was used. The mine is operated wholly by water power.

Reardon Reeves Property. A crushing of 72 ton 16 cwt. of quartz gave 278 ounces 12 dwts. of gold. The property was worked on tribute.

Miema Gold Mining Company, Leipsigate. 2,583 tons of ore yielded 683 ounces 17 dwts. of gold and 116 ounces 8 dwts. of silver.

*Hants County.*—Dominion Antimony Company, West Gore. 3,042 tons of auriferous antimony were mined during the year. Of this 1,403 tons were shipped, most of which was No. 2 or "20 per cent." ore. The average amount paid to the company was \$48.39 per ton. The ore contained 1319 ounces of gold, only part of which was paid for by the smelters. The purchasers were:—Hoyt Metal Company, Matherson & Company, Meallgesellschaft, Merton & Company, and the American Metal Company. The ore shipped contained from 17.58 per cent to 45.12 per cent. antimony and from 0.77 to 2.06 ounces of gold per ton.



CAMERON LEAD, 120 FEET LEVEL, ECUM SECUM.

**IRON ORE.**

The total amount of iron ore mined during the year was 48,337 tons, from the following districts: Torbrook 29,085 tons; Londonderry, including East mines, 15,557 tons; Brookfield, 3,406; George's River, Cape Breton County, 289 tons.

**COPPER.**

Colonial Copper Company, Cape D'Or. This company mined and concentrated 1971 tons of ore from which was produced 12,320 pounds of copper.

The copper smelter at Pietou was in operation but a few months. Newfoundland and New Brunswick ores principally were treated.

**CEMENT.**

The Sydney Cement Company manufactured 58,762 barrels of slag cement, which was marketed in Eastern Canada and Mexico.

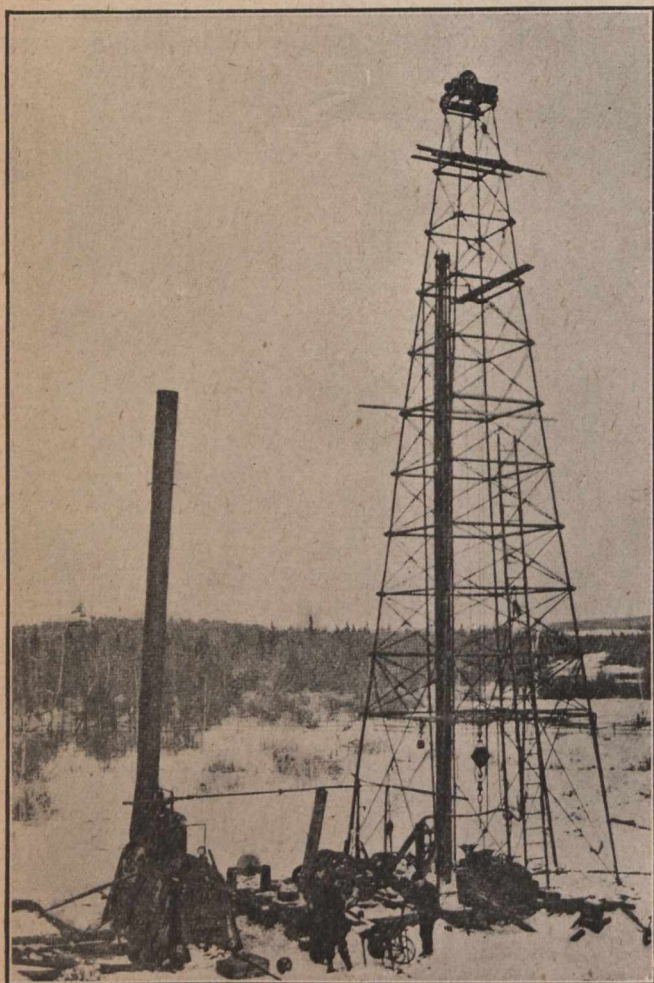
and one hand calyx. The drills are stored and repaired at Hantsport.

In 1907 a total of 6,273 feet of boring was performed at a cost of \$3,247.31 to the department. This is a record in work done. The outlay of money also is lower considerably than in any previous year. The average cost per foot for all drilling done is creditably cheap, being about \$1.50 per foot. Indeed in the past two years 9,112 feet have been bored at an average cost of \$1.19 per foot. Only three holes were lost last year.

The total cost per foot for carbon wear with the diamond drills was 1.29 cents against 4.7 cents for shot for the calyx drills.

The total average cost per foot bored by the diamond drills was 0.73 and by the calyx drills \$1.71.

The fastest average rate of boring was 1.75 feet per hour with a steam diamond drill, sinking in sandstone.



GOVERNMENT DRILL No. 6.  
(Steam Calyx, 6 inch. Core capacity, 3000 feet.)

**GYP SUM.**

Ten companies quarried and shipped gypsum to the total amount of 332,345 gross tons. This is a large increase over 1906 and is the largest amount ever shipped in one year. Practically the whole output was shipped to the United States.

**GOVERNMENT DRILLS.**

The government owns seven diamond and calyx drills—three steam calyx, one steam diamond, two hand diamond

**WAGE SCALE AT COBALT.**

From the March Labour Gazette the following Cobalt wage scale is taken:—

Carpenters .....	\$3.50
Mechanics .....	3.50
Pipe lifters .....	3.00
Blacksmiths .....	3.50
Helpers .....	2.75
Engineers, nine hours .....	3.25
Over nine hour, 32 1-2 cents an hour ...	
Firemen, nine hours .....	2.75
Over nine hours, 27 1-2 cents an hour. ...	
Ore sorters .....	2.75
Hammermen .....	3.00
Teamsters .....	2.75
Hoistmen, nine hours .....	2.75
Over nine hours, 27 1-2 cents an hour ...	
Cage or bucketers .....	2.75
Other labour on the surface .....	2.50

*Underground.*

Timbermen .....	\$3.50
Machine men .....	3.50
Helpers .....	3.00
Cage or bucketers .....	2.75
Other underground labour .....	2.75

**TREATMENT OF GRAPHITE.**

Mr. J. F. Latimer, a well-known assayer of Toronto, has after a long series of experiments, succeeded in perfecting a process for refining graphite by which he claims to be able to extract in high grade condition from 75 to 90 per cent. of the graphite contained in the ore. The process and the apparatus for employing it are covered by patent.

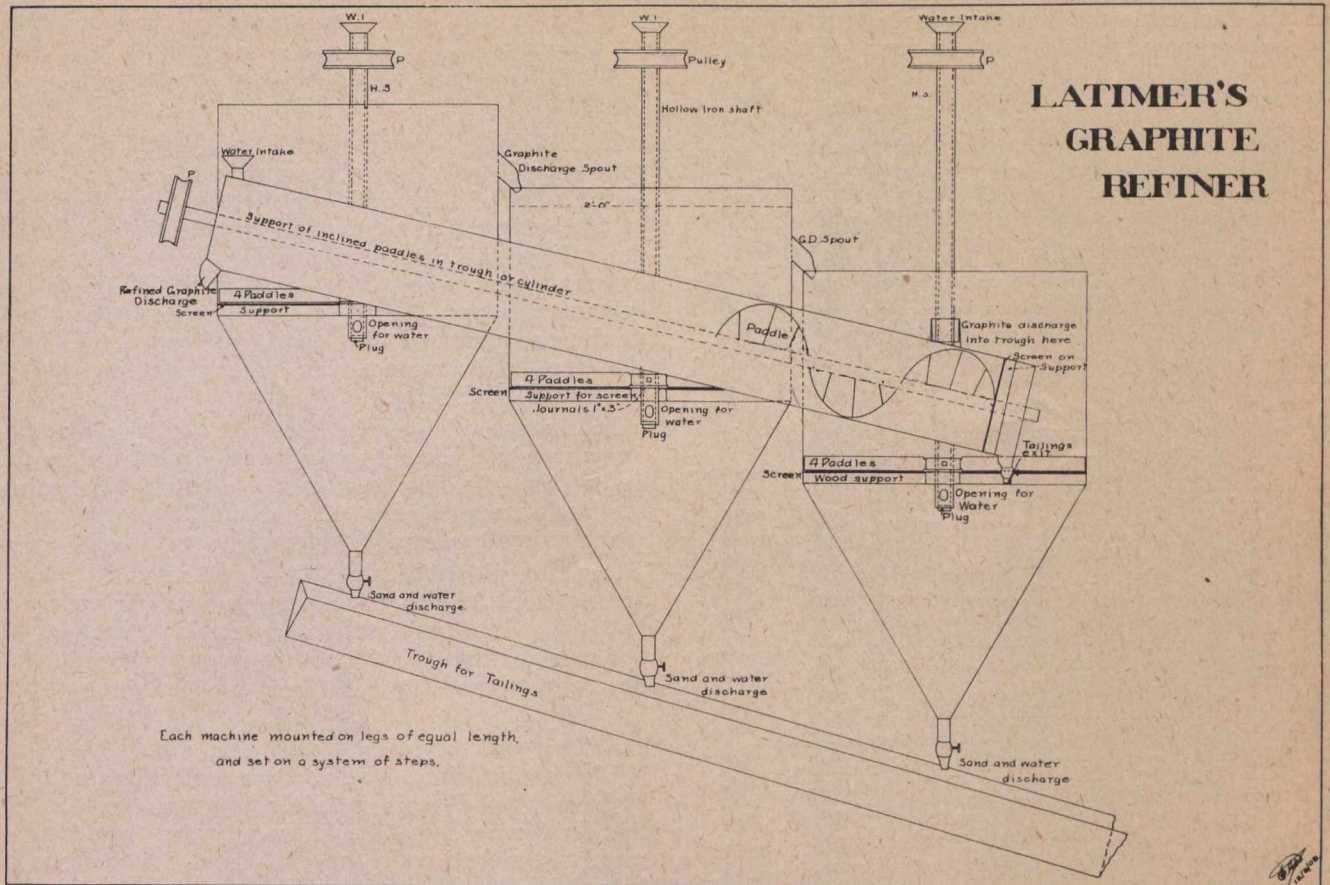
The following is a brief description of the apparatus and its application. The apparatus employed consists of an upright cylinder or drum open at the top and funnel shaped at the bottom, with a water tap at the apex to permit of the discharge of tailings. A screen is placed across the drum just above the funnel-shaped bottom on a firm support. A hollow shaft through the centre of the drum passes down through the screen, and is boxed in the screen support. Adjustable paddles are fixed to the shaft just above the screen. The hollow shaft is revol-

ved by a pulley above the drum, carrying the paddles around longitudinally at such velocity as is found requisite.

In operation, the pulverized ore is first mixed with a small proportion of crude oil, which causes the particles of graphite to cohere and so prevents them passing through the screen. Water is now allowed to flow down through the hollow shaft till it begins to flow up through

inclined paddles and discharged at the upper end not only free from sand but with all the dust washed away. The tap at the apex-shaped bottom being sufficiently opened to permit the tailings to escape, sufficient water is admitted through the hollow shaft to cause a suitable overflow at the top of the cylinder to carry over the graphite.

Calcic material treated in this manner was found after treatment to contain not a trace of lime.



the screen, then the prepared graphite is fed in near the centre of the drum. The sand or rock particles to which the oil does not adhere passes down through the screen, while the graphite is carried upward along the sides of the drum and up an inclined way and out through a spout near the top of the drum, automatically into a second or if desirable into a third drum, and thence, if deemed requisite, into an inclined trough, up which it is carried against a stream of water by a series of in-

Mr. Latimer states that arrangements are being made for utilizing some promising properties in Central Ontario by this process.

We wish this and all other inventions and enterprises undertaken for development of the natural resources of the country unqualified success.

Mr. W. H. Matthews of this city is associated with Mr. Latimer in handling this process.

## CLASSIFICATION OF COALS BY THE SPLIT VOLATILE RATIO.

D. B. DOWLING.

(Written for THE CANADIAN MINING JOURNAL).

Efforts to classify coals by the results obtained in proximate analyses only, have been mere approximations owing to the different methods pursued in the laboratories in the determinations of moisture and volatile combustible matter. Were uniform methods adopted it seems possible that a system of classification could be arrived at that would meet the needs of the general public. It is true that the ultimate analysis of a coal should

be the proper basis for classification, and the carbon and hydrogen contents seem to be the principal items to be considered.

With the prospector and the general public supplied with an approximate analysis only, some scheme must be devised whereby they can judge of the proper grade of their coal without the added expense and loss of time in getting an ultimate analysis made.

With this end in view, as far back as 1877 Professor Persifer Fraser proposed for the coals of Pennsylvania that the fuel ratio be adopted—that is, the ratio obtained by dividing the fixed carbon by the volatile combustible matter. As these coals all contained a very small percentage of moisture, the fuel ratio served very satisfactorily as a means for grading them. When the western coals came to be examined it was found that the moisture content played a more prominent part and for these coals the fuel ratio did not serve as a true index. It was next proposed that for the poorer coals that the

To test the value of this ratio it was applied to the coals classified by the United States Geological Survey from the results of the St. Louis trials, using the ultimate analyses as a basis. The result gave a list which did not materially disarrange their position as given in the official scale, the greatest variation being in the centre or among the bituminous coal, the poorer grades following very closely the proper order and the position of the harder coals not being disturbed.

With the exception of cannel coals and coals altered by intrusions, such as those of the Telkwa River, B.C., it is hoped that the ratio proposed will serve for a working guide.

To illustrate the arrangement both by *fuel ratio* and *split volatile ratio* two diagrams have been prepared, in which a list of fifty coals are plotted, excluding the ash as not being a part of the fuel, on the same scale. The first diagram illustrates the order that would be given by arrangement according to fuel ratio, or the old Pennsylvania system. It will be seen at once that the better grades are arranged very nearly as they should be, but that for the poorer coals no one could agree that they were at all satisfactory.

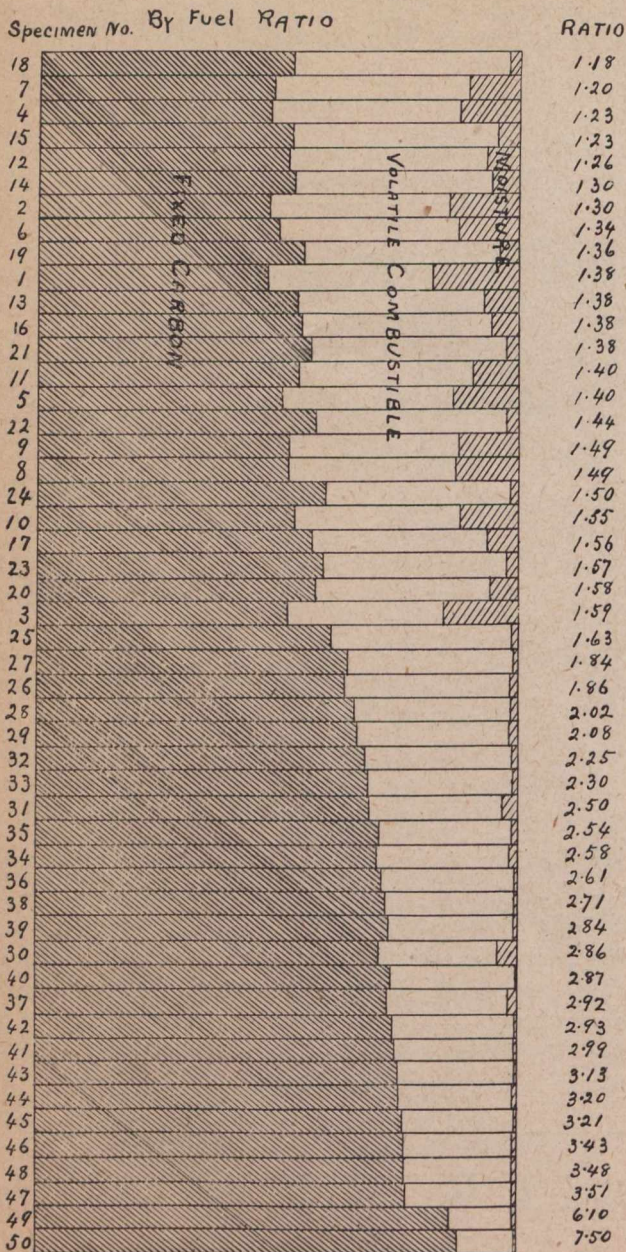
In the second diagram they are again given in the order in which the split volatile ratio would place them, and in this it would seem that the better coals maintain their relative positions as in the old fuel ratio, and also that the low grade coals are in a more rational order.

A third diagram might be constructed to show the arrangement by either moisture or fixed carbon content, but it is evident that either one could not be used without considering the other and the arrangement would not be of much value.

CALORIFIC VALUE.

The researches of Messrs. Parr and Hamilton, of the University of Illinois, published in Bulletin No. 17 of the University, have conclusively shown that there is a rapid deterioration in the coal from the moment it is brought from the mine, and unless the examination is made within a short time of the sampling the maximum results are not obtained. Exposure to the open air is proved to be generally far more destructive to the fuel value than if the coal is kept submerged. The loss in seven months from outdoor exposure varies from 2 to 10 per cent., so that samples from natural exposures can be no guide to the fuel value of the coal. The list of coals discussed in these notes are, in the majority of cases, from the outcrops and therefore to test the scheme of classification by referring to the calorific determination it would be necessary to have also a uniform method of sampling which would exclude all weathered coal. To show that these coals are weathered and some even kept for an undue time before examination, it is only necessary to refer to diagram No. 3, in which the calorific value for pure coal in B.T.U. is plotted to go opposite diagram No. 2. As it is impossible to get a maximum line for this series an approximate one is plotted from a similar series in the St. Louis experiments, which are as near fresh mined coal as we are apt to get. The specimens which give results approaching this maximum are from mines marked with an X and a few others, which are evidently samples taken by digging into the seam to beyond the badly weathered portions.

No. 30, the one which shows the poorest result or the greatest deterioration, is a sample collected by the writer from a seam that was discovered when he did not have a shovel, and the surface was scratched over by a ham-



moisture content be taken as an index, and all coals having over ten per cent. moisture be classed as lignites. This has been found to be unjust to many coals, such as those of Missouri, and some other scheme has to be devised.

In the paper under the heading Classification of Coals that the writer read before the March meeting of the Canadian Mining Institute in Ottawa, the proposal was made to use as a ratio for classification the following: Fixed carbon + 1/2 volatile combustible over Moisture + 1/2 volatile combustible. The analysis to be of an air dried coal.



mer. The coal was weathered to dust and the samples were handfulls tied up in a handkerchief.

No. 46, from Fernie mines, was very high in ash, and it is just possible that the sample burned in the calorimeter did not have as high an ash content as the portion assayed, so that the slight change in per cent. (the coal had about 15 per cent. ash) would easily disturb the result.

The diagram will show the necessity of obtaining fresh samples and having them analyzed shortly after collection.

Specimen No. **BY SPLIT VOLATILE RATIO** RATIO

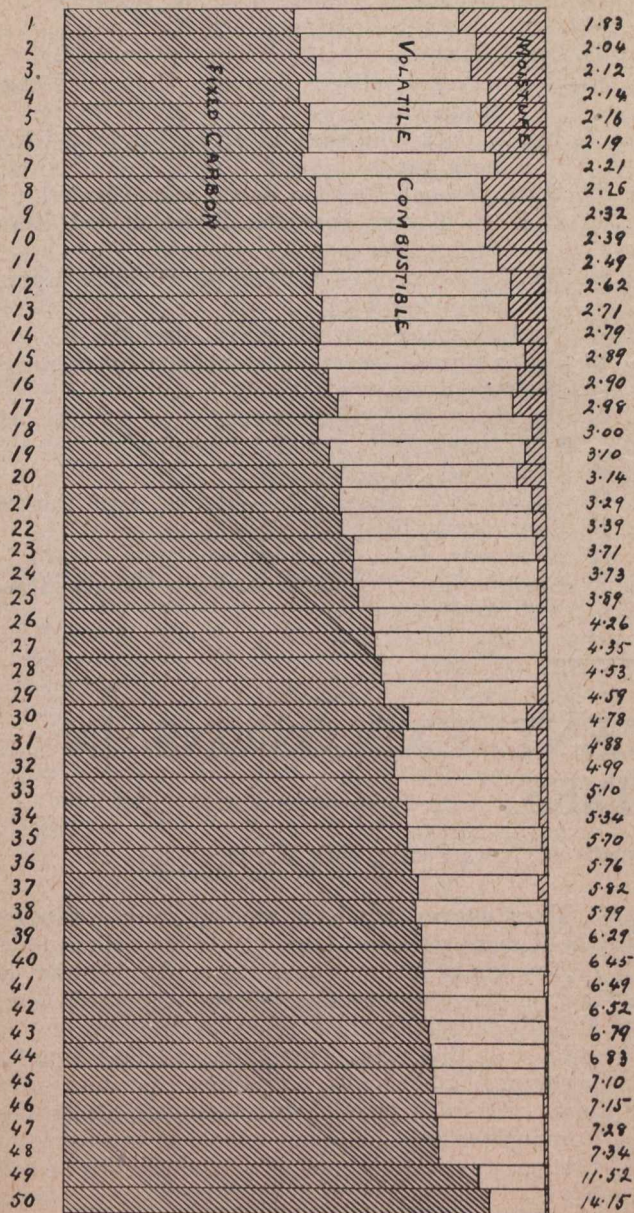


Diagram No. 2.

It also gives us a clue to another line of enquiry that would be profitable. It has been shown that from the maximum the deterioration is rapid at first, but pursuing this to trace the curve for the deterioration for subsequent time means a long wait. Could we not start at the weathered coal and trace it back into the seam until we arrive at the maximum and so determine the depths to which coal is subject to this loss from the air exposure, as well as finding at the same time the maximum loss to which each coal is liable?

If it were not for this trouble with weathered specimens, it seems to the writer that the scale of classification could be so plotted that the coal could be put in its proper place and an idea of its fuel value given, as is suggested in diagram No. 3.

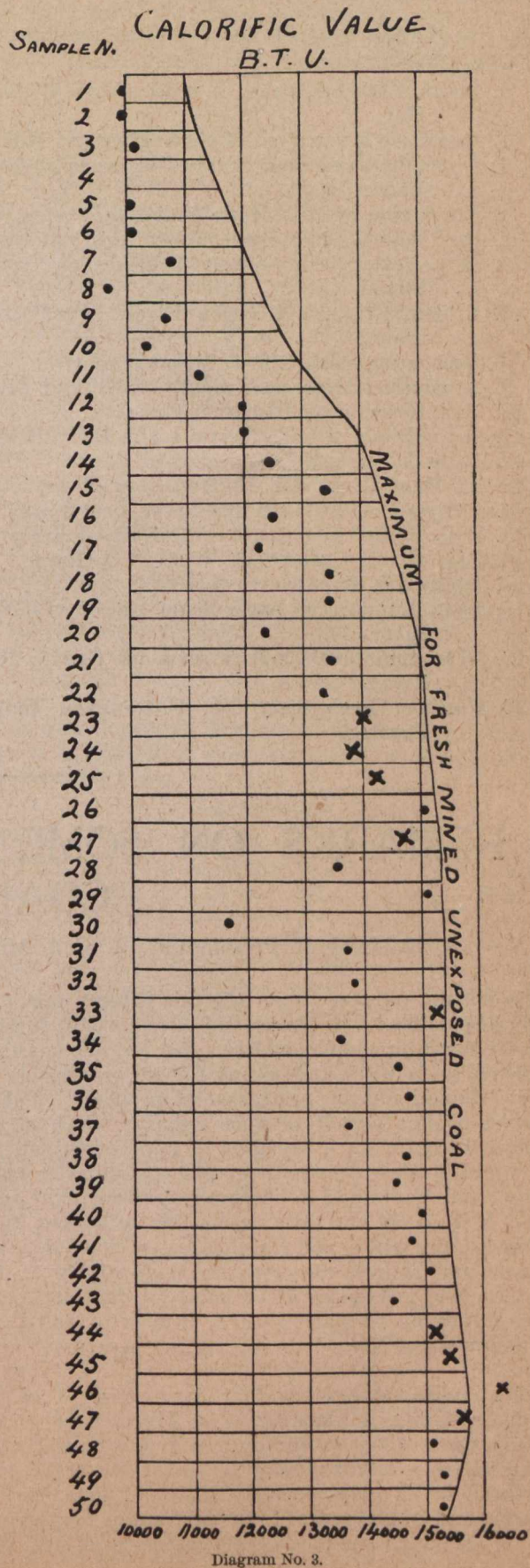


Diagram No. 3.

*Note.*—As several of these analyses are over 20 years old and the samples are still to be found, it would be interesting to repeat the analyses as nearly under the same conditions as to apparatus and moisture content as at first, and find the effect of air exposure for a period of upward of 20 years in some cases.

The list of coals used for the diagrams are from the following localities:—

- |  |   |
|--|---|
| <p>No. 1. South Saskatchewan, 10 miles above Medicine Hat.</p> <p>No. 2. Red Deer River, 7 miles above Hunters' Hill.</p> <p>No. 3. North Saskatchewan River. Big seam at Goose Encampment.</p> <p>No. 4. North side of Milk River Ridge, thin seam.</p> <p>No. 5. Red Deer River, near mouth of Rosebud River.</p> <p>No. 6. Bow River, seam 4 feet 6 inches on Grassy Island.</p> <p>No. 7. Prairie Creek, Athabaska River. Coal Creek branch.</p> <p>No. 8. Edmonton, seam 6 feet, in banks of river.</p> <p>No. 9. Athabaska River, near mouth of McLeod River.</p> <p>No. 10. Bow River, near Blackfoot Crossing.</p> <p>No. 11. Belly River, 5 miles below Little Belly River.</p> <p>No. 12. Belly River, main seam at Coal Banks.</p> <p>No. 13. St. Mary River, 7 miles from Bow River.</p> <p>No. 14. Prairie Creek, Athabaska River, near Forks.</p> <p>No. 15. Belly River, near south end of Blood Reserve.</p> <p>No. 16. Bow River, Coal Creek, west of Cochrane.</p> <p>No. 17. Highwood River, north fork.</p> <p>No. 18. Near Lundbreck, lower seam on Crow's Nest River.</p> <p>No. 19. Near Lundbreck, upper seam on Crow's Nest River.</p> <p>No. 20. Pincher Creek seam at Government Indian Farm.</p> | <p>No. 21. Wellington Mine, Nanaimo, Vancouver Island.</p> <p>No. 22. Pine River, 5 miles above Lower Forks.</p> <p>No. 23. No. 5 Southfield Mine, Nanaimo, Vancouver Island.</p> <p>No. 24. Harewood Mine, Nanaimo, Vancouver Island.</p> <p>No. 25. Extension Collieries tunnel vein, Nanaimo.</p> <p>No. 26. Marlen Creek, B.C., Peter seam.</p> <p>No. 27. Union Mine, Comox, Vancouver Island.</p> <p>No. 28. Mill Creek, Alberta, 4 miles above mill.</p> <p>No. 29. Marten Creek, B.C., Jubilee Seam.</p> <p>No. 30. South Branch Brazeau River, seam No. 6.</p> <p>No. 31. South Branch Brazeau River, seam No. 5.</p> <p>No. 32. South Branch Brazeau River, the Big Seam.</p> <p>No. 33. Union Colliery, Comox, B.C., Pit No. 5.</p> <p>No. 34. South Branch Brazeau River, Kidd seam.</p> <p>No. 35. South Branch Brazeau River, seam No. 2.</p> <p>No. 36. Saskatchewan River, opposite Bighorn Range, seam No. 3.</p> <p>No. 37. North Fork Old Man R. or Livingstone River, near gap.</p> <p>No. 38. South Branch Brazeau River, seam No. 1.</p> <p>No. 39. Bighorn River, seam No. 2, branch of North Saskatchewan.</p> <p>No. 40. Saskatchewan River, opposite Bighorn Range, seam No. 4.</p> <p>No. 41. South Branch Brazeau River, seam No. 4.</p> <p>No. 42. South Branch Brazeau River, seam No. 8.</p> <p>No. 43. Bighorn River, seam No. 3.</p> <p>No. 44. Morrissey, B.C., 18 ft. seam.</p> <p>No. 45. Coal Creek, B.C., 6 and 8 ft. seam.</p> <p>No. 46. Coal Creek, B.C., 9 ft. seam.</p> <p>No. 47. Michel, B.C., No. 3 mine—highest seam worked.</p> <p>No. 48. Coal Creek, B.C., mine No. 3.</p> <p>No. 49. Morrissey, B.C., 18 ft. seam.</p> <p>No. 50. Cascade River, exposure between Bankhead and Anthracite.</p> |
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## REMARKS ON SOME RECENT EXPLOSIONS IN COAL MINES.

(Address of President C. J. Coll, Mining Society of Nova Scotia, 25th March, 1908.)

It is not my purpose to go into this subject except as briefly as possible. The causes and effects would furnish material for innumerable papers. We are all, however, interested as to ways and means for the prevention of loss of life and for the protection of property. I shall therefore confine myself to some remarks which in my opinion will make for a lessening of mine explosions.

It would be absurd to contend that any rules or regulations could be framed to absolutely prevent mine accidents. It is an old and trite saying that so long as there are mines there will be mine accidents—so much depends on labor, and, indeed, too often the same applies to officials. Lack of knowledge of the most fundamental principles pertaining to safety, wilful neglect of rules and instructions tend toward increasing the hazards of mining.

The appalling explosions that have occurred in the bituminous mines of Alabama, West Virginia and Pennsylvania, where about seven hundred lives were lost, have started vigorous discussions by technical and trade papers, as well as the press generally, state and mine officials, operators and employees, as to the best means for the prevention, as far as possible, of a recurrence of such dis-

asters. Many suggestions have been made, covering enactments of more stringent laws, closer inspection under such enactments as are now in force, and a healthier co-operation on the part of mine owners as regards discipline and the carrying out of mines' regulations.

It would seem that many of our laws relating to mines and mining are cumbersome, and admit of varied interpretations. All such laws should be as simple as possible, inasmuch as many officials who have intimately to deal with questions arising as to interpretations in connection with the carrying out of mine laws are not familiar with legal phraseology, and err at times through a misconception of what is intended, and not by wilful neglect of certain provisions.

It has been suggested in the United States that a general law be enacted by the Federal Government for the protection of life and property throughout the entire country. There has also been some such measure proposed for Canada. I do not think such laws would be as effective as state or provincial regulations. It is beyond contravention that conditions in coal mining are of such a varied character that it would be practically impossible to frame legislation to meet them. The re-

sponsibility for the enforcement of any such general law rests with local authorities, and depends almost entirely on reports of inspectors familiar with conditions in their respective districts. Such being the case, the details of inspection and enforcement of legislation should remain in control of state and provincial governments. In order to carry this out effectively all laws connected with mining should emanate from states and provinces.

No matter how rigid legislation may be, in order to obtain results aimed at, inspection and enforcement should be in keeping. No evasions should be permitted, except so far as they are at times necessary in order to improve dangerous conditions. The laws should apply alike to each and every mine. Operators anxious and willing to not only meet rigid requirements but to go beyond them in an endeavor to reduce to a minimum causes of accidents should not be made the willing horse to bear the burden of unreasonable demands on the part of constituted authorities, while at the same time competitive mines, from a market standpoint, are permitted to carry on operations in a slipshod and careless manner. I am glad to say the Mines' Regulation Act of Nova Scotia is an admirable one, and affords ample means for the correction of dangerous practices where they arise. Much, no doubt, is left to the discretion of the officers whose duties are to see that its provisions are properly carried out; but with strict, conscientious, discriminating officials, little trouble need be experienced. Added to this, however, workmen and operators should at all times give their hearty co-operation. Let us briefly consider some of the causes of the recent explosions which have occurred.

#### YOLANDE-ALABAMA.

To sum up a report made for the Governor of the State, two members of a commission were of the opinion that gas was ignited by an open light, and on account of the dry, dusty condition of the mine the flame was extended to the other workings. The other member of the commission was of the opinion that a charge of dynamite which a miner was handling exploded, and this, in connection with coal dust, caused the explosion. We may conclude that open lights, coal dust, non-flameless powder and probably firedamp caused the explosion.

#### MONONGAH-WEST VIRGINIA.

The investigation into the causes of this calamity were very thorough and probably received more attention than any which have occurred on this continent. From all evidence adduced and from the reports published the ventilation of this mine was very good. On the other hand, it is known that firedamp was generated, whether in negligible quantities or not there seems to be some question. Gas, however, was reported the morning of the explosion. The mine was very dry and dusty; black powder was used as an explosive; electric chain undercutting machines were in use, and this type of machine grinds the cuttings into extremely fine dust, and by reason of their low cut require a much larger charge of powder to blow down the coal. There was also evidence that fast shooting, at least to some extent, had been in practice. There seems to be some divergence of opinion as to the cause, being variously ascribed to open lights, which were in use throughout the mine, igniting firedamp; a blown-out shot flaming into an explosive mixture of dust; short circuiting of electric wires, and a runaway trip raising an unusual volume of dust, which was in turn ignited by an open light. Here again we have the same elements as at Yolande—dry, dusty mine,

with at least some firedamp, in which open lights, non-flameless powder and electricity in addition were in use.

#### NAOMI-PENNSYLVANIA.

It would practically be reiteration of what has been said as regards Monogah to state the probable causes of this disaster, with two exceptions—this mine was more gaseous and ventilation was not deemed adequate.

#### DARR.

This, the greatest mine disaster in the history of coal mining in the State of Pennsylvania, following closely that at Monogah, was also a matter of much investigation. The report of a special commission appointed by the Chief of the Department of Mines of Pennsylvania is to the effect that this was a gaseous mine. The system of ventilation and electric undercutting chain machines were condemned. These machines undercut to a depth of six feet, with a height of cut of about four inches. This mine was partly very dusty and partly damp. Open lights and black powder were used throughout.

To sum up for all these explosions, we have, for our consideration, two or more of the following dangerous elements—open lights, electric mining machines, explosives, coal dust and firedamp. Let us take these in the order in which they have been named, and treat them briefly in the relations they bear to each other, and from the standpoint of mine owners or managers desirous of protecting life regardless of cost and preventing loss of property, which is coincident with and invariably a resultant of a mine disaster. Not the least of the troubles which follow is absolute disorganization of operating force, through fear of a recurrence or superstition, whereby output is so affected that even if the mine has not sustained serious damage (which is not often the case) it is difficult to bring the mine up to a profitable basis for some time.

#### OPEN LIGHTS.

While a strong advocate of locked safety lamps, I would not go so far as to say that there are not mines where open lights may be used without danger. Where a condition exists such as a seam of coal having a light uniform cover, where breaks readily and quickly reach the surface, and little dust and no gas are to be found, I would not hesitate to use open lights. On the other hand, where coal is blown by any explosive, I would certainly use safety lamps.

Again, it would be folly to have safety lamps and use a non-flameless powder. Where firedamp is being generated in a coal seam or is likely to come from overlying or underlying strata, no open lights should be permitted. In the case of firedamp existing in porous overlying strata, it usually follows that where a fall takes place in drawing pillars or in longwall work firedamp will follow the fall. If open lights are in use there is every likelihood of contact with workmen's lights, at or near the face of the workings—indeed I have seen large sections of mines fouled in this way many times. It is my opinion that only under the most favorable circumstances (rarely to be met with in coal mines) should open lights be used, and under no conditions should open and closed lights be used in the same mine. While on the subject, I may be pardoned if I digress to say that many of the objections raised by workmen against safety lamps are not warranted. It has been said that accidents from falls of roof and coal are less with open lights. This I do not admit, inasmuch as dangers of the sort are rarely visible to the eye. The ordinary practice (one of the first

things a man learns in a mine) is to test for such dangers by sounding. To do this, light is of no avail. As regards light required for actual mining, approved modern safety lamps furnish ample for all practical purposes. As a matter of fact, the only persons whose amount of work accomplished is cut down are shift men, who are not on a contract basis: so that to my mind the only sufferers by reason of curtailment of returns is the operator. From a sanitary standpoint there is no comparison.

#### ELECTRIC MINING MACHINERY.

Generally speaking, I would not use electricity in any dusty, gaseous mine for any purpose, except as introduced at a low voltage, and then only when confined to intake currents. I do not think it safe practice to use electric machines at a working face except under the most favorable conditions—no gas and wet coal—nor would I consider the use of motors on main haulage roads under above conditions, except in an intake current and where saturation of dust was complete—bottom, sides and roof. The machines of the chain undercutting type have been strongly condemned in various reports made on the accidents subject of these remarks. What the outcome of certain recommendations will be is matter of interest.

#### EXPLOSIVES.

Probably no question in connection with coal mining in recent years has attracted more or wider spread attention than this—both before and after the explosions under discussion. More especially is this true in Great Britain and on the continent, where many commissions have been appointed to make careful examinations of powders for coal mines. As a result of such commissions, legislation has been enacted whereby only such powders may be used as have passed the most rigid tests and come under the head of permitted explosives, and named for specific conditions and purposes. It is within the scope of this paper to touch but briefly on this subject. It is not claimed by the manufacturers of so-called flameless powders, nor if so claimed would it be admitted by practical mining men, that under any and all conditions such powders are "safe." The question that confronts us is that for economic reasons we are obliged to use some explosive to blow down coal. This being the case, what explosive shall be used? Certainly not those which on every hand (from past experience) have been condemned. I would therefore not consider the use of any other than a so-called flameless powder. Even with this there are dangers well known to the officials and workmen who are in daily contact with its use. It is needless to say that it should never be fired in the presence of gas, nor should it be used for fast shooting, especially in a dry, dusty mine. It is a well known fact that a shot well placed and exerting its maximum amount of energy in material won is least dangerous: hence the danger of blown-out shots.

Again, it is well known that even the best of the flameless powders will not explode, but burn in the hole. Taking into consideration the proportion of coal which may only be won economically by shooting, it remains for the mine manager of to-day to use the explosive least liable to cause such disasters as have taken place within the past five months, as I am of the opinion that nearly all of them were directly due to the use of so-called non-flameless explosives in the presence of other elements of danger. The essentials of shooting to reduce as far as

possible every chance for disastrous results are comprised within certain precautions:—

First—The working face to be shot should be properly mined and sheared (if a close cut) to permit of the greatest effective energy of the charge being consumed in the breaking down of the coal.

Second—Holes should be so drilled as to bring maximum results from a minimum charge. This is a matter of education, as it will usually be found that there are miners or officials who make a close study of this question. Returns will show day in and day out that certain men will put out more coal per given quantity of powder than others. Their method of holing and charging should be the basis for like conditions.

Third—No fast shooting should be allowed under any circumstances or condition. I feel sure this position is subject to attack both by operators and workmen. A detailed defence of this declaration would of necessity be a paper in itself. I will therefore confine myself to a simple assertion that there are more dangers connected with fast shooting due to the possibility of blown-out shots than with all other troubles combined incident to the use of explosives. This has been recognized in some districts, and is a matter of legal regulation.

I offer for your consideration the rules governing shooting which have recently been put into practice in the mines of the Acadia Coal Company:—

1. When a miner holding a shot firer's certificate is given permission to fire his own shots, before firing he must carefully examine the place where the shot is to be fired, and if he discovers any noxious gases, defects in the roof, or danger from any other source, no shots must be fired until such danger is removed.

2. No shot must be fired until the face is either sheared, mined or undercut, not less than three feet deep, the full size of the place, or having an open end equal to the same, without special permission.

3. No shot must be fired, when the borehole used for firing extends beyond such mining, shearing, undercutting or open end. All holes found beyond such mining, shearing or open end will be termed fast shots.

4. No shot must be fired with the timbering at a greater distance from the working face than eight feet, or closer if required by the management, or by a special permit that timbering may be a greater distance from the working face.

5. He must return immediately to each shot after it fires, and if he should find that the shot has lighted a blower of gas, liberated a quantity of gas or disturbed the roof or timber and caused danger beyond his control, to either extinguish, repair or make safe, he shall immediately notify some official at the time in charge of the mine or district in which he is working.

6. When a "bench" shot has been fired, the miner must immediately proceed to turn over the coal or load it out.

7. If the shot fails to go off, no person shall be permitted to enter to the working face, until such time as he receives permission from and is accompanied by the examiner of that section.

8. No holes shall be charged for a longer period than 30 minutes before being fired.

9. If, owing to an insufficient charge of powder, a face shall be "hung up," all the coal to the depth of that shot must be mined out by hand pick or machine, unless permission is given by the examiner of that section to drill and fire another shot.

10. No miner or shot firer shall leave any charged hole in his working face, when quitting work for the day.

11. No person shall drill any hole in such manner that when fired it will be liable to shoot into either roof or bottom of the coal seam.

12. If a miner, at any time before or after firing a shot finds that any timber requires to be set or replaced, he must not leave the place until such requirements are duly executed.

13. He shall also set sufficient holing props when required to do so, and to work his place in a safe and proper manner.

14. In firing shots with a battery, the wires shall be first connected to the fuse wire, and the connection to the battery shall be made only by the person who has made the connection to the fuse wire.

15. Every precaution must be taken to ensure each person being in a safe place before any shot shall be connected up to a battery.

16. No battery shall be tested or tried at any point outside of the lamp station.

17. No batteries shall be permitted to be used by any other than one holding shot firer's papers.

18. No person shall be permitted to fire shots without permission from the examiner or official in charge of the mine.

By special order another rule has since been put into effect, namely, that all holes must be stemmed with clay. It will be noted no mention is made of stemming bars or needles, as the Mines' Regulation Act of Nova Scotia provides that none other than copper tipped or wood be used.

No person other than a regularly appointed official shot firer should be permitted to fire a shot. It should be his duty to examine every place before shooting, and also to see that holes are properly placed and drilled, and to make a study of the amount of charge required under any condition which may arise. It should also be his duty to instruct unskilled labor in their duties and warn them of dangerous conditions.

There are two bugaboos facing operators in changes (so far as operators are concerned in their relation to labor), namely, from open to closed lights and in explosives. The antagonism to such changes on the part of workmen is largely one of sentiment. I do not hesitate to say that when better and safer means are adopted for the preservation of life and protection of property, and when workmen become familiar with such means, they would object as strenuously if the old customs and practices were restored.

#### COAL DUST.

This menace to all coal mining has probably been the cause of more heated discussion for and against its explosiveness than any condition connected with mining. From the days of Faraday and Lyell until the present time this question has been a matter of dispute. That it will augment the force of an explosion of firedamp from any cause is, however, recognized by practically all mining men. It is also generally admitted that so-called negligible percentages of gas and coal dust may, under certain conditions and mixtures, become explosive as a mixture. The careful mining man should not be led into splitting hairs in any matter wherein there is the barest possibility of danger. Such questions had best be left for discussion to persons whose interests are not of a financial nature in mines or mining. Fewer accidents will happen if the gun is always treated as being loaded.

The theories advanced that in itself (coal dust) more danger is to be apprehended in winter than in summer, in intake airways than in returns, in high air velocities than in low should receive no consideration from mine managers whose duty it is to keep a mine up to its highest effective point, which precludes the possibility of accident, where accepted measures of practice, if employed, would avert them. The only known effective and practical solution of overcoming the difficulty of dust is humidity.

The simplest and no doubt the best plan is by sprinkling. Obviously the more nearly this approaches saturation the better. At this juncture, I wish to lay particular stress on thoroughly wetting floor, sides and roof. Especially is this necessary in main haulage-ways used as an intake, for the reason that explosive forces invariably travel against the current of fresh air, and it is also true that such explosive forces have spent or been greatly reduced when such an airway or district has been reached when coming from inbye, the usual source of an explosion. It has been suggested that a small proportion of lime added to water will reduce the combustibility of dust materially. Humidity may also be greatly increased by means of sprays in the intakes. This is readily accomplished in deep mines where a head of water may be obtained from discharge columns. From there, small lines may be run to intakes. By small perforations in coils air may be thoroughly saturated. While much of the moisture would no doubt be precipitated within a short distance, enough would remain in suspension to overcome the difference in humidity as between summer and winter. In other words, it would be uniform the year round.

#### FIRE DAMP.

Little need be said about this, for, like the poor and taxes, we have it with us always. Well regulated and distributed ventilation is the only remedy. Constant vigilance, frequent inspection and rigid discipline are absolutely necessary in order to prevent accidents. In my opinion the barometer should be carefully considered as a means of warning. Treated as such, it will induce extra precautions and watchfulness during periods of atmospheric disturbance. It may be of interest to the members to know that it was remarked by the officials of the Acadia Coal Company that during the latter part of the year 1907 there were frequent and violent fluctuations of the barometer recorded. It was during this time the explosions under discussion occurred.

In conclusion, I would recommend as follows:—

First—Frame simple, effective, stringent laws to cover local conditions.

Second—Operators obey the laws. When it is known that no evasions on their part are countenanced or contemplated, workmen will be more amenable to discipline.

Third—Court the closest inspection under the laws and take suggestions even beyond the laws which make for the betterment of conditions.

Fourth—Exercise strict discipline with workmen, and educate ignorant or unskilled labor to meet dangerous conditions.

Fifth—Use none other than approved safety lamps where firedamp or dust are likely to occur.

Sixth—Abolish electric mining machines in dry, gaseous mines.

Seventh—Prohibit the use of all explosives except non-flameless ones.

Eighth—Permit no fast shooting.

Ninth—Prohibit the use of coal dust for tamping.

Tenth—Supervision as to placing of holes and amount of charge.

Eleventh—Employ regularly appointed competent shot firers to fire all shots.

Twelfth—Alloy coal dust as much as possible by sprinkling or other means.

Thirteenth—Remove all coal dust after machines before firing shots.

Fourteenth—Have adequate ventilation and regulate to meet conditions.

Fifteenth—Employ competent, conscientious officials, and see that all parts of the mine are visited at frequent intervals.

If such regulations had been carried out in the spirit as well as to the letter, the appalling calamities which have been the subject of this paper would not have occurred.

## BOOK REVIEWS.

**THE COPPER HANDBOOK—A MANUAL OF THE COPPER INDUSTRY OF THE WORLD. VOLUME VII. COMPILED AND PUBLISHED BY HORACE J. STEVENS, HOUGHTON, MICH. U. S. A.**

Volume VII, of the new edition of the Copper Handbook, has just been issued by the author, Horace J. Stevens, of Houghton, Michigan. The book has 1228 pages, octavo, brier type, being materially larger than before. The author apologizes for his inability to revise the book throughout, explaining the fire, sickness and loss of five months time prevented. However the new volume contains about 180,000 words of new matter, equal in length to three ordinary works of fiction, in addition to the matter remaining unchanged from the preceding issue.

The new edition of the Copper Handbook contains 25 chapters, an increase of nine, treating of copper under the headings of history, geology, chemistry, mineralogy, mining, milling, concentrating, hydrometallurgy, pyrometallurgy, electrometallurgy, alloys, brands, grades uses, substitutes, terminology, geography, copper deposits, copper mines and statistics. The treatment given the subject in 1228 pages is encyclopaedic in scope, but the logical and orderly arrangement of the great mass of facts presented, coupled with a table of contents, full index and alphabetical arrangement of districts, countries, mines, minerals and glossary, renders it possible to ascertain any given fact with almost as much ease as a word is found in the dictionary. This is a point of much value to readers that has been overlooked in many otherwise excellent works of reference.

The Copper Handbook is not intended to replace other works for the use of technical men, but it does supplement all other technical books on copper, while for the average reader its hundreds of pages devoted to the scientific and technical features of the subject will be found to cover every point of interest. The language is plain throughout, and the layman, whether miner or investor, will find the clear and easily understandable exposition of scientific facts a great aid, as the highly technical language used in many of the best scientific works is a serious stumbling block in the path of the man not technically trained.

In whatever light the Copper Handbook is viewed, whether in describing the thousands of different copper mines, in all parts of the world, in the plain descriptions of intricate processes of mining, milling, smelting and refining, or in the forty pages of statistics covering the copper industry of the globe in its various commercial and financial aspects, the book must stand as a monument of patience and labour, since it is the unaided work of a single man.

The descriptions of the mines are written without fear or favor, and several hundred mining companies, some very prominent, are handled without gloves, and in a

manner that would justify no end of libel suits were the author not sure of the facts. In view of the exceedingly plain speaking in this book, in which scores of companies are termed swindles and frauds, it seems rather surprising that in the seven years of its publication not one libel suit has been brought into court, though many have been threatened. In fact the author of the Copper Handbook has turned the tables on some of his critics by placing a few of them in prison, for their frauds upon the investing public.

The price of the Copper Handbook is five dollars, and the selling plan used is absolutely unique in the book trade. For five years past Mr. Stevens has sent his book, all carriage charges prepaid, without a penny payment in advance, to any person in any part of the world, on one week's approval, subject to return if unsatisfactory. It speaks well for the book that only about one copy in thirty has been returned, and well for the honesty of average human nature that only about one man in thirty keeping the book has failed to pay for it. On these unusual terms anyone interested in copper can well afford to send to Mr. Stevens for a copy of the new edition of the Copper Handbook.

**SIMPLE MINE ACCOUNTING—BY DAVID WALLACE, EXPERT MINE ACCOUNTANT. HILL PUBLISHING COMPANY, 505 PEARL STREET, NEW YORK. 9 1-2 x 6. PP. 63. PRICE, \$1.**

There are very few subjects upon which a hand-book is so badly needed as on mine accounting. As a branch of bookkeeping it receives little attention in the ordinary business college. So true is this that almost invariably the mine accountant is forced to invent a system of his own after he has gone through the inevitable period of mistakes and waste.

It will therefore be conceded that the book before us is timely. It is intended primarily for those who have had no opportunity to study bookkeeping. It is also intended to be of use to mine accountants and bookkeepers. These aims are praiseworthy.

We believe, however, that the book will be of more assistance to the trained bookkeeper than to the superintendents, mine foremen, and others for whose benefit it was largely designed. It is doubtful if an inexperienced man could follow the somewhat intricate methods presented by Mr. Wallace.

All the forms given are good, although Form No. 20, page 50, is complicated and not particularly necessary. Incidentally the phrase "Waste" is used without explanation. In Form 15, bracketted figures are used to indicate the distribution of items to accounts. The explanation of these figures is not given until the next chapter.

A series of footnotes would have made the forms more easily intelligible.

These are, after all, incidental faults. It is probable that there will be a large demand for the book. Experience will show exactly in what respects it needs alteration.

CANADA'S FERTILE NORTHLAND—EDITED BY CAPTAIN ERNEST J. CHAMBERS, GENTLEMAN USHER OF THE BLACK ROD. PUBLISHED UNDER DIRECTION OF R. E. YOUNG, D. L. S., SUPERINTENDENT OF RAILWAY LANDS, DEPARTMENT INTERIOR. GOVERNMENT PRINTING BUREAU, OTTAWA, 1907.

The evidence heard before a select committee of the Senate of Canada during the Parliamentary Session of 1906-7 is here condensed and collected.

The report deals with the mineral, agricultural, timber and fishery resources of those parts of the new provinces of Saskatchewan and Alberta that lie north of the Saskatchewan watershed, of Ungava, of Keewatin, and of Mackenzie, which lies north of Saskatchewan and Alberta. The total area of these districts is 1,637,559 square miles or more by 300,000 square miles than twice the combined area of the four original provinces of Confederation.

Dr. A. P. Low, Mr. R. G. McConnell, Mr. J. B. Tyrrell and Mr. D. B. Dowling are among those who gave evidence upon mineral possibilities and transportation in the region west of Hudson Bay.

The navigability of Hudson Bay is touched upon and valuable meteorological tables are included.

The pamphlet is timely, especially in view of present and proposed railway extension.

## EXCHANGES.

*The Mining World*, March 21, 1908—The system of government inspection of mining claims in Ontario is the subject of a short paper in this number of the *Mining World*. Mr. J. B. Tyrrell of Toronto is the author. He gives an illustration from real life of the practical working of Ontario mining law.

Last summer Mr. Tyrrell was professionally engaged by a prospecting syndicate to inspect claims staked out in the vicinity of Montreal river. He had, of course, no interest whatever in the properties, but inadvertently some of the claims were, by power of attorney, staked in his name. Two claims, A and B, were staked and worked alternately by a small gang of men. Word was received that claim A would be inspected on August 1st. The foreman waited for two or three days, but the inspector did not appear. The foreman was then called to a distant claim and in his absence the government inspector arrived. About a month after this, word was received that the claim was thrown open and notice to that effect was posted in the recording office. Those visiting the office had, naturally, the first information and a rush was made to restake the claim.

It was first restaked by J.— at some distance from the original discovery. A government inspector immediately passed the discovery and J.— was given the claim.

Later in the summer claim B passed inspection in favour of the syndicate on a native silver discovery.

Mr. Tyrrell concludes by stating that it would be difficult to conceive any plan more effectively discouraging to investors than this arbitrary criticism by government officials. He suggests that the government should be entirely grateful to any man who is putting his money into the development of mining claims.

*The Engineering Magazine*, April, 1908—The leading article in this number is "Rescue Appliances in the Mines of France." The author, M. Jacques Boyer, is a French consulting mining engineer.

After the Courrieres catastrophe a commission of four selected engineers was appointed to enquire into the merits of respiratory apparatus. The commission report led to the issuance of a decree (April 15, 1907.) directing that mining in France should provide, for all workings when more than 100 men are employed, "portable respiratory apparatus ready for immediate use and permit-

ting the wearer to remain at least one hour in an irrespirable atmosphere." This and other requirements were to be fulfilled within one year of the date of the decree.

Rescue appliances date back to 1785, according to an official memorandum issued in 1824 by the French Government, describing three types of apparatus and requesting mining companies to procure a number for rescue work. The first apparatus described was a French invention and consisted of a nose clip, a mouth piece, and a respiratory tube for free air. To it were subsequently added an anti-memphitic respirator with two valves, and a lamp supplied with air through a branch of the respiratory tube. The second apparatus included air reservoirs carried in a rescue car. To the reservoirs respiratory tubes were attached. The use of compressed air was suggested. The other suggestion was the use of respiratory tubes supplied by blowers and suitable piping.

This memorandum was disregarded and it was not until 1864 that progress was marked by the appearance of the Galibert respirator, a reservoir of pure air carried upon the miner's back, a respiratory tube from the bottom and an exhalatory tube from the top, both connected with the mouth. The ivory mouth-piece had two orifices and by closing these alternatively with the tongue he inhaled air from the bottom and exhaled it from the top. A man could use this apparatus for fifteen or twenty minutes, but the air became greatly vitiated. Later, Galibert attached a device for absorbing the carbonic acid gas and partly regenerating the air.

Rouquairol-Dinayronze in 1870 brought out his *aerophore*, consisting of a large sheet-steel tank containing air compressed to 20 atmospheres. A pressure regulator was attached and the nostrils of the user were closed by the pince-nez.

In 1884, Dr. Regnard applied the principle of revivification of the air by means of a reservoir of oxygen and of the passage of the exhaled air into another receptacle filled with pumice-stone saturated with a solution of caustic potash.

Up until 1880 no apparatus was devised that could pass satisfactory practical tests. But in 1903 Lieutenant Vanginot of the Paris Fire Department invented, and in 1907 improved, a respirator that has been used in many places with success.

The two types of rescue apparatus in use in French mines are:—

1. Portable appliances which permit the bearers to move at will.
2. Apparatus with pumps and piping, having a limited range of action and adapted rather for work than for rescue.

The portable appliances may be divided into two classes: First, regenerative apparatus, and, second, apparatus using ordinary air.

In the former class may be noted the ancient *pneumatophores* (used more commonly in Germany and Austria than in France), which consist of oxygen tanks, usually without any regulator, delivering into an air-tight bag from which the man inhales and into which he exhales. An absorbent in the reservoir purifies the exhaled air by the removal of the carbonic acid gas. This type has been abandoned as has also the Shamrock.

The Draeger-Guglielminette respirator is complicated and its parts are fragile. It comprises an oxygen reservoir, a pressure reducing regulator, a respiratory mask, and a regenerator. The oxygen tank consists of one or two steel reservoirs holding one litre each and containing oxygen at 110 atmospheres. The exhausted flasks may be replaced with full ones or may be refilled in place. The newer forms of the apparatus permit the exhaled air still containing oxygen to pass two or three times to the lungs. The apparatus, though ingenious, is most complicated and is little employed in French mines.

The *pneumatogene* of M. M. Bamberger and Friedrich Bock is also a regenerative appliance. It is based upon the reactions that take place when the products of respiration are passed over the peroxide of sodium and potassium.

The early types permitted only 30 to 35 minutes stay in an irrespirable atmosphere; later types may be used for two and one half hours. They are generally used in Austria, but very little in France.

The Tissot respirator, invented in 1907 is one of the best conceived French apparatus of the type. Its five essential parts are:—

1. A nose-piece with valve, adjusted to the nostrils of the wearer by means of two nipples fixed on the tube, and attached firmly to a round cap by means of straps. A potash regenerator removes the carbonic acid; and the regenerated air passes to the reservoir bag.
2. A regenerator fixed on the case, which serves also for the protection of the gas bag.
3. A reservoir sack for the air, in which the regenerated products of respiration are accumulated.
4. An automatic safety or escape valve of the slide type, operated by the walls of this air reservoir.
5. A receiver for compressed oxygen provided with a reducer and a gauge by which a constant flow of oxygen is obtained and is regulated at will by the wearer.

The time limit of the Tissot respirator is three and a half hours. Since the apparatus is borne upon the chest the wearer may crawl upon his stomach without hindrance.

The Vaginat apparatus consists of three parts:

1. A battery of air accumulators.
2. An indicating reducing gauge.
3. A respiratory mask or helmet.

In construction it is simple, being put into operation by merely opening a stop-cock. A special arrangement permits the wearer to travel any distance without using

the air supply stored in the battery. Another warns the operator when he has but fifteen or twenty minutes supply left. With a sufficient supply of reserve compressed air accumulators the rescue party may remain at work indefinitely. The apparatus is carried on the back.

The aerolith, or liquid-air respirator, on account of the costliness of liquid-air, is rarely employed.

## PERSONAL AND GENERAL.

Mr. F. P. Jones is visiting various steel plants in the States.

Mr. H. E. T. Haultain is paying a professional visit to Cobalt.

Dr. A. B. Willmott passed through Toronto on the 7th inst. on his way to Cobalt.

Mr. Charles D. Warren of Toronto has been elected president of the Lake Superior Corporation.

Mr. George Stairs, of Halifax, N. S., whose death occurred suddenly last week, was a director of the Nova Scotia Steel Company.

Mr. J. H. Plummer, president of the Dominion Steel Company, arrived in New York on April 1st after a protracted visit to England.

Mr. Philip E. Clinton, a representative of the Guggenheim interests was in Montreal recently investigating some Canadian mining propositions.

Prof. James W. Hayward, assistant professor of mechanical engineering at McGill University, Montreal, has resigned his position to devote himself to outside engineering work.

Dr. James Douglas, of New York, also is a graduate of Queens' University, Kingston, Ontario, has subscribed \$10,000 towards the endowment fund of the School of Mining affiliated with the University.

Mr. G. Becker, Vice-President of the Northern Dredging Company of Chicago, which has a 15 mile gold dredging concession on Saskatchewan river near Edmonton, has arrived here to direct operations on the opening of the season.

A Fort William, Ontario, syndicate have secured 61 iron mining claims in a locality about 100 miles west of that city on the main line of the Canadian Pacific Railway. Test pit indicate that there is an extensive deposit of valuable iron ore.

Mr. R. Watson, an experienced mining man also has been associated with Mr. Wm. B. Thompson, of New York, in various enterprises has been elected general manager of the Nipissing Mining Company, in place of Mr. T. R. Drummond, resigned.

Mr. J. C. Dufresne, who lately resigned the position of mill-superintendent of the Bluebell mine near Kaslo, British Columbia, was presented with a gold watch by the employees of the Canada Metal Company. Mrs. Dufresne, at the same time, was given a pendant.

Mr. Frank C. Loring, of Toronto, who is at present in London, England, was recently interviewed by a representative of "Canada." In his replies to interrogations Mr. Loring alludes to the elimination of "wild-cats" from Cobalt. He also speaks confidently of the future of the camp; especially when custom smelting rates have been adjusted to a sound commercial basis.



## SPECIAL CORRESPONDENCE

## Nova Scotia.

## GLACE BAY.

The weather during March has been of the mildest character and the supply of labour at the collieries more plentiful than for some time past. The result of this favourable combination is shown by the outputs, which exceed anything yet attained in the month of March. The outputs of the Dominion Coal Company's mines for the month of March in the last five years has been as follows:

1904. . . . .	232,245
1905 . . . . .	228,765
1906 . . . . .	310,220
1907 . . . . .	212,831
1908 . . . . .	346,529

Compared with the first three months of 1907, the 1908 outputs so far show a gain of well over a quarter of a million tons, and it is expected if all goes well that by the end of the year the gain will amount to over 400,000 tons, and that the year's output for 1908 will be within 100,000 tons of 4,000,000 tons. As the entire Canadian coal output is between eight and nine million tons it will be seen how large a proportion of this comes from Cape Breton, when the outputs of the remaining island operators are added.

It is anticipated that shipments to the St. Lawrence will commence at the end of this week, or about the 5th of April. If this can be done the shipping season will commence practically six weeks earlier than in 1907, and unless some unforeseen hindrance takes place the St. Lawrence shipments this season will exceed any previous performances. The Dominion Coal Company have chartered a fine fleet of coal carriers, all of them self-trimmers and averaging between 6,500 and 7,000 tons cargo capacity. These boats are new and fast and it is hoped to make weekly round trips with them. Things were never in better shape for the shipping season's work than at present, and with all labour disputes satisfactorily adjusted we are confidently looking forward to an excellent showing for 1908.

The statement made by Mr. James Ross at the Annual General Meeting of the Dominion Coal Company in Montreal on the 5th of March has been printed in pamphlet form and distributed to the shareholders of the company. It has excited general interest in Nova Scotia and has created almost a revulsion of public opinion in favour of the Coal Company's contentions. The general sentiment of Nova Scotia has been up till now very strongly in favour of the Steel Company, but this sentiment or atmosphere one might term it, so all pervading was it last summer, was based very largely upon an industriously cultivated impression grounded on superficial facts that the Steel Company was the under dog and was being mercilessly worried by the Coal Company. This illusion has been dispelled by Mr. Ross's statement, which is a masterpiece of lucidity, coldly marshalling an array of damning facts that put the arbitrary actions of the Steel Company in a very poor light. In the light of events during the past three months it is difficult to understand the actions of the Steel Company, unless they were deliberately intended to embarrass the Coal Company. In the spring of 1906, the Steel Company, broke their promise under the *modus vivendi*, that they would make a bank. This year, fearing a strike of the Coal Company's miners, the Steel Company have managed to gather a bank of over 50,000 tons. The whole trouble between the Steel Company and the Coal Company in 1906 arose from the Steel Company's refusal to provide a bank in the spring months when labour was plentiful and the Coal Company's outlet restricted, coupled with the Steel Company's abrupt refusal to accept slack coal and their demand for run of mine at the very climax of the St. Lawrence season, that season by the way one that had been beset with most unusual difficulties. We may quote Mr. Ross here: "The Steel Company's

course of action appeared to your directors to be wholly unreasonable. The slack, which it refused, it had been taking for a year, and had volunteered the statement that it was satisfactory. The run of mine, which it insisted on, it had to crush to the same size as the slack before it could use it. The Coal Company had slack, but could only get run of mine with great difficulty. The time chosen was the one at which such action would most embarrass your company. There was no advantage to the Steel Company to justify its action. There was, however, the possibility that such action taken at such time would embarrass your company that it might fail to deliver quantities and the Steel Company could then have closed its works at your risk and dictated terms." After summing up his position, Mr. Ross remarks: "I feel I hardly need to ask any of you what you would do under similar circumstances" and we think the most peaceably minded of men might very well have made the same remark in similar circumstances. What other action the President of the Coal Company could have taken without betraying his company's shareholders it would be hard to say.

Remarkably good progress is being made at the new collieries of the Dominion Coal Company at Victoria. The building of 50 houses with a boarding hotel and a manager's house has been commenced and will be rapidly pushed. It would be difficult to find a more ideal location for a colliery than that of No. 12. The neighboring colliery is to be called No. 14. Even the Coal Company makes concessions to a superstition, and we suppose their so doing has a very real financial basis. Miners are a superstitious race. We have known many a man turn back from his work in the early morning because he met that harmless and necessary creation—a woman! However, that was not in Cape Breton.

The report of the Department of Mines of Nova Scotia ending 30th September 1907 is to hand, and is an interesting publication. There are few innovations over previous reports, but as yet the newly appointed Commissioner of Mines has not had time to make any very radical improvements. We prophesy that the report for 1908 will be a much fuller and better arranged publication than the one now before us. In the summarized figures on the first page we notice several items that do not appear in the 1906 column. One is building stone. It has often been a source of wonder to us that we have not more buildings in Nova Scotia of native stone. In Cape Breton alone we have a remarkable assortment of valuable and durable building stones. We have granite, marble of most excellent quality it is said, porphyry and syenite, limestone, sandstone, etc. The quarrying industry is one that is bound to grow as the forests become more and more depleted, and as the cities of the Dominion increase in wealth and dignity.

There are a number of spelling mistakes especially in proper and proprietary names which need revision. We notice "Janesville for Jeanesville, "Muesselar" for Meuseler" and several similar slips. An interesting feature of the Deputy Inspectors reports is the growth of the use of safety explosives in our mines. It would be interesting to have a better classification of accidents, and showing the chief divisions of accidents, such as gas, dust or powder explosions, falls of roof and sides, haulage accidents, etc. Not to be hypercritical it seems to us that an official report is hardly the place for personal encomiums even for "young men of natural ability and good training." Such remarks rather detract from the dignity that should attach the report of an Inspector of Mines. We must say the reports of the inspectors make good and interesting reading, and we think the report should be given a wide distribution among the colliery managers and underground officials. The photographs illustrating the report will materially increase its value as an advertisement of the provinces mineral resources, for which purpose we take it they were introduced. We notice also the flow sheet of the Dominion

Antimony Mine at West Gore. Specific information of this kind is very valuable. Altogether we think the department is to be congratulated on its 1907 report and as we said before we shall be surprised if the 1908 volume is not an improvement on any of its predecessors.

### Ontario.

#### COBALT.

Nipissing.—Mr. T. R. Drummond, the manager, leaves on the 20th of this month for Utah, his resignation having been accepted. He will take charge of some properties there for some men who are also heavily interested in Nipissing. He will be succeeded here by Mr. R. B. Watson, late consulting engineer for the Shannon Copper Company of Arizona. Mr. Watson is also a director of the Nipissing. The annual meeting of the stockholders of the Nipissing Mines Company will be held on April 20th. The number of shareholders in Canada and the United States has nearly doubled within the last year. There are now 14,000 on the books.

Silver Leaf.—The shaft is down 115 feet. A carload of ore is ready for shipment and will be sent out early next week. This car should run up very well, as rich ore has been taken lately from the shaft.

Rothschild.—Work has been discontinued here for the present and the diamond drill plant moved to the Shamrock, where work will be carried on. This is being done by the Montreal Ventures Syndicate.

City of Cobalt.—A new departure in shipping was made here. Two carloads of low grade ore have been shipped to the smelter at Trail, B.C. A freight and treatment rate of \$19.50 was obtained—\$12 freight and \$7.50 treatment.

Duchess.—A complete mining plant is to be installed here, and no more mining will be done until the installation is completed.

Ferland-Chambers.—Captain Jeffrey, formerly superintendent of La Rose mine, has a crew of men at work. A shaft will be sunk close to the Right of Way workings.

Crown Reserve.—Work has been started on the new shaft, which will be sunk to a depth of 100 feet and a cross-cut run to the vein. A new boiler, hoist and compressor will be installed. This company is capitalized at \$2,000,000, of which \$1,500,000 had been issued. The stock was selling at 28, when an issue of \$250,000 more stock was made. The shares dropped to 6, but are now back at 23. The property is looking very well.

Little Nipissing.—Mr. Madden, the superintendent, has a carload of ore sacked and ready for shipment.

Abitibi Mining Company.—This company are putting in a plant and work will commence at once.

Kerr Lake (Jacobs Mine).—There were 8,600 ounces of metal-lics in a 30 ton car shipped from here to Copper Cliff this month.

Colonial.—After having been shut down for some months, this mine has started up again, and four drills are being run.

Green-Meehan.—Work is to be resumed here shortly.

Cleveland Cobalt.—Mining on this company's property at Clear Lake has been suspended. The power plant is still running, supplying power to the city of Cobalt mine and also the lighting for the town of Cobalt.

Badger.—The shaft is down 115 feet and ore carrying a quantity of native silver is being taken out.

Coniagas.—The mill is to be enlarged, so that instead of about 55 tons a day being run through as at present, the capacity will be 80 tons. A producer gas plant will be put in. Work is going on well with the new shaft house, which will be completed in the next week or so.

Right of Way.—Connections at the first level, between Nos. 1 and 2 shafts, has been made and the hoisting, etc., will now be all done at the No. 2.

Savage Mine.—Work has been stopped here until a new boiler is put in.

Wetlaufer.—Work has been stopped here until the boiler and hoist are installed.

Casey Cobalt.—This is a new shipper, 40,000 pounds being sent to Glasgow.

The smelter at Deloro, which has been running on ore from this camp, has made a shipment of bullion to England, worth between twenty-five and thirty thousand dollars.

#### LORRAIN TOWNSHIP.

Some of the holders of large interests in the Nipissing have been trying to get hold of the Keeley claim. An offer of \$225,000, the owner to keep ore now on dump, was made, but refused. There is \$25,000 worth of ore now sacked, all taken from a pit seven feet long and twenty feet deep.

Native silver has been found on the Crawford claim, a mile and a half from here.

The other claims being work are showing up well. The roads in are in bad shape.

#### MONTREAL RIVER.

Chas. Gifford has 40 sacks of high grade and as much more low grade ore ready for shipment.

High grade ore carrying native silver is being sacked on a claim in the Township of Smythe.

The White claims on Maple Mt. have been bonded to an English Syndicate for \$150,000. Men have been sent in to cut roads and arrange for development.

#### LARDER LAKE.

Mr. Hough, the Recorder at Larder City, has brought down some very fine samples of gold-bearing quartz from the dump at the Maxwell-Harris mine. The gold can be seen all through it. Owing to poor fuel, not enough steam could be raised to keep the mill running, but dry wood is now being brought in. If it is found that this property and the Reddick have plenty of ore that can be mined and milled at a profit, it will mean that there will be much more development work going on in that district this summer than there would otherwise have been. From all accounts both these properties have plenty of ore that can be cheaply mined, so it depends upon the values and what can be saved.

The Reddick Company has been re-organized and work will be resumed shortly.

Dr. Beattie Nesbitt, of Toronto, has acquired control of the Barnard claim on Larder Lake.

A find of placer gold has been reported on the Nottingham river up north, and some parties have been sent out to investigate.

### British Columbia.

#### ROSSLAND.

Owing to the increased quantity of gold that is now being carried in Rossland ore the Trail smelter has just been able to send away the richest car of matte that they have ever shipped. The car, which was sent to the Tacoma refinery, was valued at over \$32,000, and the matte carried 41 per cent. copper, 35 ounces silver and 45 ounces gold per ton. The Consolidated Mines will increase their shipments about 100 tons per day in the near future, bringing their daily tonnage up to about 550 tons per day. Development in the gold-bearing ore recently uncovered at depth in the Le Roi and Consolidated mines is giving gratifying results. Mining men here seem to consider the discovery of this good ore at depth an indication of the approach to the rich zone which prominent mining engineers have said would eventually be encountered in the lower levels of the camp. Several more South

Belt claims have been leased, including the Nest Egg and Mayflower. The Blue Bird lessees are still working in good ore. It is stated that the Blue Bird Company may buy the lease back and work the property themselves on a larger scale than the lessees are now operating. A large number of the properties that have lain idle will be worked on leases this coming season; while some of them may encounter good ore and continue to work, there is little doubt but the most of the lessees will give the thing up as a hopeless task after they have worked a while without obtaining any results.

Shipments from the camp for the week ended March 28th were:

	Week.	Year.
Centre Star . . . . .	3,220	42,638
Le Roi . . . . .	1,960	22,054
Le Roi Two . . . . .	350	7,928
Evening Star . . . . .	31	387
California-Giant . . . . .	....	60
Totals . . . . .	5,561	73,067

A \$30,000 steel furnace is to be added to the smelter equipment at Trail. A number of the old, lapsed claims hereabouts are being re-staked, mostly in a speculative way.

#### BOUNDARY.

Work is continued at high pressure at the Granby mines and smelter in the Boundary. During the week ended March 21st they shipped 25,388 tons, which was a larger week than any previous one in their history, and then for the week ending March 28th they shipped 27,288 tons, the heaviest shipments in the history of the mine. The totals for the year to date are: 246,796 tons mined and 239,587 tons smelted.

One day recently the company shipped 4,048 tons from its mines in 24 hours. Each of the furnaces have been treating 428 tons daily, which is working them to the very limit of their capacity. The Granby shipments during March touched the 100,000 ton mark, this being the greatest tonnage ever got out of the mine in its history, or, in fact, in the history of any copper mine in Canada. It is hardly expected that April will be as big a month as there are several improvements to be made around the plant which will take up eight or ten days' time. The coke and ore bins at the smelter have been enlarged, making it much easier to handle these products.

Boundary mining men hardly expect now that copper will take any great rise for some time. Owing to the heavy fixed charges at the Granby mines and smelter they deem it advisable and more profitable to work, even with copper at its present low figure, than remain idle. These charges may be the cause of some of the other Boundary companies resuming, if copper remains down for some time. It was rumored in this district last week that the Consolidated Company would absorb the British Columbia Copper & Dominion Copper companies. This report is denied by Mr. Keffer, of the British Columbia Copper Company, who states that his company will start their mines and plant up in their own interest just as soon as the copper values warrant such action. The Granby, Snowshoe, Sally and Crescent are the only mines that have shipped from the Boundary so far this year. A five stamp mill is now being installed at the Golden Zone mine, near Hedley.

The Provincial Government will not permit the City of Greenwood to issue bonds for \$50,000 to bonus the tunnel scheme proposed at that point, which places another obstacle in the way of the promoters. Work on the E. P. U. is being carried on by a Greenwood-Phoenix syndicate. The British Columbia Copper Company has placed an order for eight 30 ton slag pots, which will be installed and ready for work when they start up. These pots will weigh eight tons each. The Providence Company has placed \$50,000 worth of its 5 per cent. gold bonds. The money derived from the sale of these bonds will be put into development work.

Phoenix men have begun development work on a group of five claims which adjoin the Oro Denoro in Summit Camp. The showing at present on these claims warrants a little exploration work.

#### NELSON.

A delegate from Nelson recently visited the principal towns in Alberta in an effort to get them to aid in the work of obtaining a renewal of the bonus on lead mined in Canada. As a result of his trip the boards of trade of Edmonton, Stratheona, Wetaskiwin, Calgary, Medicine Hat (Lethbridge and Red Deer have endorsed the petition of the Slocan lead miners and have forwarded resolutions to the Government at Ottawa along these lines. It looks as though the Slocan people would get their way, if hard work and pertinacity will gain them their end.

It is now known that the cause of the close-down of the Hall Mining & Smelting Company was the loss that was being incurred at the smelter. During 18 months' operation the Silver King mine produced a profit of \$30,000 and the Emma made about \$15,000, but all of this was converted into a loss of \$24,000 at the smelter. This was no doubt mostly caused by lack of modern facilities, but part of it was due to mismanagement.

The hopes of the Slocan miners who have quantities of zinc in their ore are all hanging on the zinc smelter, now about completed. The process (electric) being installed has been successfully tried on the continent, and should prove satisfactory here if properly worked.

The new company that has taken over the affairs of the Ymir mine are said to have sufficient funds to do the work that is necessary to place the Ymir mine in the position it should be in. Development work and lots of it will have to be done, and it is stated that the men now in charge are in a position to do this work vigorously.

Spokane men have staked placer claims on the Columbia river at its confluence with the Pend d'Oreille. The company will purchase a dredge and work it on these claims. They should be able to locate gold with their dredge, as it was found in quantities on the benchland in the early days.

#### SLOCAN—E. KOOTENAY.

The property of the Sullivan Group Mining Company is in the hands of the sheriff. The Crow's Nest Pass Coal Company has taken action to collect a bill of \$7,000 for coke, and the employees of the mine and smelter have filed liens for \$20,000 for their January and February wages. A. I. Goodell has entered proceedings for \$10,000 for alleged breach of contract. The company has levied an assessment of 7 cents per share, which is necessary to clear up the present indebtedness of \$50,000 and the outstanding bonds, amounting to \$225,000. The assets of the company are its smelter, valued at \$500,000, and the mine, with 150,000 tons of ore blocked out, which will average 15 per cent. lead and 6 1-2 ounces silver. It is stated that at the annual meeting some of the clouds were cleared away and that work will be resumed in a short while.

Thirty men are now employed at the Hewitt. The small tram has been connected up to the main one. They have a considerable quantity of low grade ore in sight. Work will be resumed on the Alpha early this month. The assets of the Pioneer Mining Company, owning the Black Prince, Bank of England and other claims, have been sold to a syndicate of Nelson men, headed by C. Bell of that city. They have located a body of hard iron oxide ore in the old upper workings of the North Star. This ore is shot through with native silver. It is to be regretted that they have not opened up this ore in the lower workings of the Star. The Victor-Silver Leaf group, near Fort Steele, owned by Spokane people, is showing up well under development work. Iron pyrites in the ore carry from \$10 to \$12.60 in gold. The Great Northern Railway has promulgated a new rate on coal, by way of the Fernie-

Michel extension to points in Idaho and Washington, of \$2.25 per ton. This rate is twenty-five cents lower than the old one.

#### COAST, ETC.

Ore that carries from \$60 to \$100 in copper is being taken out of the Ikeda mines by the Japanese owners. About 20 tons per

day is being mined at the present time, but orders have been placed for an addition to the plant, and when the new machinery is installed the output will average 50 tons per day. The Treadwell Gold Mining Company is having trouble with its employees, and it has been found necessary to send troops to Treadwell as a measure presentative to violence.

## GENERAL MINING NEWS

### NOVA SCOTIA.

SYDNEY.—The Dominion Coal Company's shipping fleet this year numbers sixteen steamers, six of which are owned by the Company, the balance being charter boats, most of the latter being big vessels, over 6,000 tons. The list is as follows, with capacity tonnage:

Owned by company—	Tons.
Bonavista .....	1,200
Cabot .....	440
Cacouna .....	1,750
Cape Breton .....	2,250
Coban .....	1,200
Louisburg .....	2,200

#### Chartered steamers—

Borgestad .....	6,600
Dominion .....	5,650
Fornebo .....	6,000
Kron Prinz Olav .....	6,600
Mystic .....	5,600
Catalone .....	5,700
Stigstad .....	6,600
Tanke .....	800
Ocean .....	6,600

The first sailings of coal steamers for the St. Lawrence during the last seven years have been as follows:

1901 Louisburg .....	April 22
1902 Alderney .....	April 14
1903 Alderney .....	April 15
1904 Britanica .....	April 20
1905 Britanica .....	April 22
1906 Scottish Hero .....	April 17
1907 Fornebo.....	April 18

Operations at the site of the Dominion Iron & Steel Company's coal areas, near Port Morien, have been practically suspended for a short time. For the past few months a party of over 40 was engaged in boring for a new slope and drilling at the site, and excellent progress was made. A sufficient quantity of coal of excellent quality was mined to run the engines and drills, and was extracted with little difficulty. A sufficient staff has been retained at the areas drilling and keep the engines running.

### ONTARIO.

OTTAWA.—The first instalment of coin turned out from the Canadian Royal Mint at Ottawa was distributed on April 2nd. A total of \$24,000 was sent to various parts of the country.

The coins were all denominations, and an equal quantity, so far as value was concerned, of each class, was sent out.

There were twelve thousand 50-cent pieces, 24,000 25-cent pieces, 60,000 10-cent pieces, and 120,000 5-cent pieces, making \$6,000 worth of each denomination.

The money was shipped by Dominion Express to the receivers-general in Toronto, Montreal, Vancouver, and other cities, who will deal the coins out as they are applied for.

DELORO.—From the reduction works of the Deloro Mining & Smelting Company more than eight tons of silver bullion have already been shipped.

COBALT.—It is not probable that there will be friction between the operators and the miners' union this spring. The nine hour shift will be considered seriously by both sides.

The high grade ore of the O'Brien mine is being shipped to Deloro.

The first carload of 30 tons of high grade concentrates and ore has been shipped from the Coniagas mine to the Thorold smelter.

The City of Cobalt Mine has arranged to ship two cars of low grade ore to Trail, B.C.

### BRITISH COLUMBIA.

VICTORIA.—Official notice was given in the British Columbia Provincial Gazette of the last week of March that a section of Moresby Island is reserved for Government purposes. The notice read thus: Notice is hereby given that the following described tract of land, situated on Moresby Island, Queen Charlotte group, is reserved for Government purposes: Commencing at a point at the southwest corner of Harriet harbor, Skincuttel Inlet, Moresby Island; thence south 40 chains; thence east 60 chains; thence north 160 chains; thence west to the shore; thence southerly following the shore line to the point of commencement. The area reserved is close to the Ikeda and the Swede mines. It is supposedly well-mineralized.

VANCOUVER.—The Tyee smelter has taken an option on the Leckie group of claims on Moresby Island.

NELSON.—In the week ended March 28th the War Eagle mine shipped 850 tons of ore, averaging \$42 per ton. Of this amount 200 tons came from the 11 foot or deepest level in the mine. This ore averaged \$55 in gold to the ton.

Official announcement is made that the Granby Consolidated Company will expend \$200,000 in enlarging and improving its smelting plant at Grand Forks, B.C. The ore and coke bunkers just completed are included in the appropriation. The other improvements to be made this year will give the works a capacity of 4,500 tons a day.

ROSSLAND.—Deep mining is to be a feature of the Centre Star and its allied mines. The main shaft is to be deepened from the fourteenth to the sixteenth level, which will give a total depth on the dip of the ledge of about 2,400 feet. This depth should bring the workings down to the permanent water line, where it is thought by prominent mining experts there will be a considerable change for the better in the ore deposits. It is thought that the mines here, should the ore prove fairly rich at depth, can be mined at a profit to a depth of 5,000 or 5,500 feet. There is not much water to contend with, which is an important consideration, as it costs considerable to keep the water pumped from the workings of wet mines. Good ore is being met with on the lower levels of both the Centre Star and War Eagle of late, which greatly encourages the management. The ore body on the Blue Bird has widened out to

four and a half feet. The ledge is strong and well defined. This is the most important find that has been made in the south belt for a good many years. A steam drill has been installed, and, as there was a boiler on the property, the development work and the extraction of ore can be done with more speed and less expense than when the work was all done by hand.

CRANBROOK.—The Sullivan smelter at Marysville and the mine equipment at Kimberley have been seized by Deputy Sheriff Morris. Two executions for \$861 and \$785 respectively have been issued. A writ also has been served for \$7,000 at the suit of the Crow's Nest Pass Company for coal and coke supplied during the past few months.

## MINING NEWS OF THE WORLD.

### GREAT BRITAIN.

The Stavely Coal & Iron Company, Derbyshire, have just had their new Devonshire works completed at a cost of £300,000. The plant consists mainly of blast furnaces, built on the latest principle.

South Wales has made a new record for coal production, the figures for 1907 approximating 50,000,000 tons. The most remarkable growth has been in the output of anthracite in the Glamorganshire district.

The rescue station and experimental gallery erected by the Lancashire and Cheshire Coal Association at Howe Bridge, Atherton, for the collieries in the Bolton and Wigan districts was officially opened on the 2nd inst.

### NORWAY.

The owners of the old Ranen lead and silver mines have concluded an arrangement with the Compagnie Laval to exploit a new process for zinc. A number of cyclone furnaces are to be built at these mines to obtain zinc oxide, and also an electric furnace at Trondjem, or some other suitable point.

The Hassel iron mines at Skotselven, which have not been worked since 1854, are to be started again.

### FRANCE.

The Central Committee of French Collieries has placed at the disposal of the Commission appointed to investigate mine explosions a firedamp experiment station at the Lievin mines with an experimental gallery. Another experiment station is to be built in the Pas-de-Calais for testing and repairing rescue apparatus.

### AUSTRIA.

Coal said to be of excellent quality has been discovered in the Vorarlberg, near Bregenz, and favorable results have attended the sinking of bore holes at Orlean.

### BELGIUM.

The output of pig iron during the first two months of 1908 was 235,360 tons, as compared with 236,860 for the corresponding months of last year.

### AUSTRALASIA.

Several large outcrops of copper ore have been discovered between Jingellie and Ournie, New South Wales, on the western slope of the range overlooking the Murray river.

The granulation plants erected by the Minerals Separation Company at the Central mine, Broken Hill, New South Wales, with a capacity of 3,000 tons of tailings weekly, have started work on a dump of 300,000 tons.

The Cobar gold mines, Fort Bourke, New South Wales, which have been idle for some years, have resumed crushing operations.

The Elmore concentrating process for treating refractory ores is being installed.

### SOUTH AFRICA.

The Transvaal Government has increased the amount of prizes to be awarded for the stope drill contest in 1909 under actual mining conditions, so that it will be possible for the winner to gain £4,000. It is proposed that the test be continued for some four months.

Six months' work on the tin mine of the Transvaal Government on the Zaaiploats farm is regarded as having proved the value of the tin fields in the Potgeitersrut district. A four foot reef has been struck and traced for 250 yards and is stated to assay 30 per cent. tin. On the neighboring farms a number of men are working with good results.

Native labor is stated to be more plentiful than at any time in the history of the Rand. There has been a large influx, owing to the general depression and the cessation of public works throughout South Africa.

There is a continuous increase in the number of gold properties in Rhodesia operated by small workers, owing to the policy of the British South Africa Company in making them advances for the purchase of machinery. In January there were 175 of these mines at work.

### UNITED STATES.

Bituminous coal miners to the number of about 250,000 men in the Middle and Western States went on strike on the 1st inst. on account of the failure of the United Mine Workers and the mine operators to agree upon a wage scale. A conference between the employers and men of the central mining field, including Illinois, Indiana, Ohio and Western Pennsylvania, was arranged to be held at Toledo, Ohio, on the 15th inst. to effect a settlement.

About 70 miners lost their lives by two explosions on the afternoon and night of March 28th in a mine of the Union Pacific Coal Company at Hanna, Wyoming. The first explosion killed 18, the other victims being a party of rescuers under Mine Inspector D. M. Elle.

A deposit of barite near Cartersville, Georgia, is being mined on a large scale.

The Copper Queen Company of Cochise County, Arizona, produced approximately 7,000,000 pounds of copper from eight furnaces in February.

### MEXICO.

The Anglo-Mexican Mining & Exploration Company, with \$650,000 capital, has started work on the Justicia group of mines in Jalisco.

The smelting plant of the Greene-Cananea Copper Company has been thoroughly renovated and nearly 1,000 men are now employed.

Mr. John Hayes Hammond has become interested in a project to develop the Laduz group of mines in Guanajuato, and a large company, capitalized at several millions, will shortly be organized. It is proposed to erect a reduction plant with the usual capacity of 1,000 tons per day.

# STATISTICS AND RETURNS.

## STATEMENT OF BOUNTIES PAID ON IRON AND STEEL DURING THE CALENDAR YEAR 1907.

	Pig Iron.	Steel.
Dominion Iron & Steel Co., Ltd....	\$313,573.42	\$497,212.07
Hamilton Iron & Steel Co., Ltd....	121,422.26	102,124.04
Nova Scotia Steel & Coal Co., Ltd..	63,343.25	115,867.08
Canada Iron Furnace Co. (Radnor)..	13,850.09	.....
Canada Iron Furnace Co. (Midland)	32,577.79	.....
John McDougall & Co.....	5,200.93	.....
Londonderry Iron & Mining Co., Ltd.	43,534.61	.....
Algoma Steel Co., Ltd....	177,570.26	378,698.73
Deseronto Iron Co., Ltd..	4,487.00	.....
Atikokan Iron Company, Ltd....	17,210.46	.....
Electric Reduction Co.....	235.20	.....
Lake Superior Iron & Steel Co., Ltd..	.....	5,719.68
Ontario Iron & Steel Co.....	.....	251.77
<b>Totals.....</b>	<b>\$793,005.27</b>	<b>\$1,099,873.37</b>

### CORRECTION.

The Crow's Nest Pass Coal Company's output. The item on page 124 of the Journal should have read thus:—

Coal in 1907 .....	981,939
Coal in 1906 .....	806,901
Coke in 1907 .....	231,368
Coke in 1906 .....	213,295

The output of the collieries of the Crow's Nest Pass Coal Company for the week ending March 21st was 18,458 tons, or a daily average of 3,076 tons. For the corresponding week of last year the output was 20,674 tons, a daily average of 3,445 tons.

The output of the collieries of the Crow's Nest Coal Company for the week ended March 27th was 15,688 tons, or a daily average of 2,615 tons. For the corresponding week of last year the output was 20,434 tons, a daily average of 3,406 tons.

The output of the collieries of the Crow's Nest Pass Coal Company for the week ended April 5th was 19,687 tons, a daily average of 3,281 tons. For the corresponding week of last year the output was 18,970 tons, a daily average of 3,162 tons.

For the month of March the output of coal in the three collieries of the Nova Scotia Steel & Coal Company was another record-breaker.

The new No. 4 colliery is not included in the figures given, as it is practically idle while new electric machinery and equipment is being installed.

	Tons,
No. 1 .....	23,124
No. 3 .....	26,635
No. 3 .....	7,645

This gives a total of 57,404 tons, which is an increase over last month, with No. 4 colliery included, of 4,604 tons.

The same activity prevailed at the steel plant, there being 6,200 tons of iron turned out, coke 8,592 tons, and steel 7,200 tons, which is about 2,000 tons more than for the month of February.

## DOMINION COAL COMPANY'S OUTPUT FOR MARCH, 1908

No. 1 colliery .....	50,101
No. 2 colliery .....	69,494
No. 3 colliery .....	34,057
No. 4 colliery .....	44,997
No. 5 colliery .....	53,059
No. 6 colliery .....	21,849
No. 7 colliery .....	7,038
No. 8 colliery .....	15,916
No. 9 colliery .....	34,140
No. 10 colliery .....	13,478

344,129

Shipments from the collieries of the Cumberland Railway & Coal Company, Springhill, N.S., for the month of February were 35,400 tons; for March, 38,656 tons.

## NEW LISKEARD ORE STATEMENT.

Week Ending March 21st, 1908.

March 17th, Casey Mining Company, to R. C. Farrell & Company, Glasgow, Scotland, 40,000 pounds.

Following are the weekly shipments from Cobalt camp, and those from January 1 to date:—

	Week end	
	Mar. 21	Since Jan. 1
	Ore in lbs.	Ore in lbs.
Buffalo .....	65,700	409,540
Kerr Lake .....	63,080	207,370
La Rose .....	140,000	707,732
Nipissing .....	63,230	820,170
Nancy Helen .....	80,420	80,420
O'Brien .....	252,410	1,325,040
Silver Queen .....	60,000	356,700
Townsite .....	40,000	85,100
Temiskaming .....	61,420	238,536

The total shipments for the week were 826,260 pounds, or 413 tons.

Following are the weekly shipments from Cobalt camp, and those from January 1 to date:—

	Week end	
	Mar. 21	Since Jan. 1
	Ore in lbs.	Ore in lbs.
Coniagas .....	61,340	322,210
Cobalt Lake .....	64,310	180,610
City of Cobalt .....	127,970	228,080
Kerr Lake .....	63,010	270,380
La Rose .....	140,000	847,732
McKinley .....	61,900	757,980
Nipissing .....	63,320	820,170
Temiskaming .....	121,600	237,210
Trethewey .....	66,020	304,556

The total shipments for the week were 706,350 pounds, or 353 tons.

Following are the weekly shipments from Cobalt camp, and those from January 1 to date:—

	Week end April 4 Ore in lbs.	Since Jan. 1 Ore in lbs.
Buffalo . . . . .	62,780	472,320
Coniagas . . . . .	58,700	380,910
Cobalt Lake . . . . .		180,610
Cobalt Central . . . . .		49,700
City Cobalt . . . . .		288,080
Drummond . . . . .		92,340
Foster . . . . .		168,600
Kerr Lake . . . . .		270,380
King Edward . . . . .		127,240
La Rose . . . . .	238,820	1,086,552
McKinley . . . . .	80,640	838,620
Nipissing . . . . .	80,000	900,170
Nova Scotia . . . . .		80,790
Nancy Helen . . . . .	60,000	140,420
O'Brien . . . . .	59,280	1,384,320
Right of Way . . . . .		60,210
Provincial . . . . .	93,210	143,210
Standard . . . . .		39,730
Silver Queen . . . . .	123,500	480,200
Silver Cliff . . . . .		52,000
Silver Leaf . . . . .		62,000
Townsite . . . . .		85,100
Temiskaming & H. B. . . . .		318,000
Temiskaming . . . . .		237,250
Trethewey . . . . .	182,560	487,110
Watts . . . . .		114,430

The total shipments for the week were 1,039,530 pounds, or 519 tons. The total shipments from January 1 to date are 8,915,248 pounds, or 4457 tons. The total shipments for the year 1907 were 28,081,010 pounds, or 14,040 tons, valued at \$6,000,000. In 1904 the camp produced 158 tons, valued at \$130,217; in 1905, 2144 tons, valued at \$1,473,196; in 1906, 5129 tons, valued at \$3,900,000.

SHIPMENTS FROM THE COBALT DISTRICT FOR THE MONTH OF MARCH, 1908.

Mine.	Tons of 2,000 lbs.
Buffalo mines . . . . .	53.35
1. Casey Mountain . . . . .	20.00
City of Cobalt . . . . .	60.97
2. Cobalt Lake . . . . .	30.76
Cobalt Central . . . . .	24.85
Coniagas . . . . .	93.30
Kerr Lake . . . . .	92.73
King Edward . . . . .	25.90
La Rose . . . . .	398.37
McKinley-Darragh . . . . .	121.33
Nancy Helen . . . . .	69.52
3. Nipissing . . . . .	125.93
Nova Scotia . . . . .	20.00
O'Brien . . . . .	258.78
Provincial mine . . . . .	24.60
Right of Way . . . . .	29.35
Silver Queen . . . . .	19.59
Temiskaming . . . . .	56.12
Temiskaming & Hudson Bay . . . . .	36.15
Townsite Mining Company . . . . .	20.56
Trethewey . . . . .	153.11
<b>Total . . . . .</b>	<b>1,835.27</b>

This was shipped as follows:—

Canada, 713.56 tons, or 38.88 per cent.
England, 30.56 tons, or 1.66 per cent.
Scotland, 20.00 tons, or 1.09 per cent.
Germany, 31.45 tons, or 1.72 per cent.
United States, 1,039.70 tons, or 56.65 per cent.
Totals, 1,835.27 tons, or 100.00 per cent.

Notes.—1. Shipped from New Liskeard to Scotland. 2. 410 lbs. shipped by express. 3. 1,000 lbs. shipped by express.

BRITISH COLUMBIA SHIPMENTS.

Following are the shipments for the past week, ended April 4th, and year to date:—

Boundary Shipments—

Mine.	Week.	Year.
Granby . . . . .	24,687	271,433
Other mines . . . . .		462
<b>Total . . . . .</b>	<b>24,687</b>	<b>271,895</b>

Rossland Shipments—

Centre Star . . . . .	3,461	45,149
Le Roi . . . . .	1,756	21,820
Le Roi 2. . . . .	695	8,700
Iron Mask . . . . .	38	38
Other mines . . . . .		462
<b>Total . . . . .</b>	<b>5,950</b>	<b>76,169</b>

Slocan—Kootenay Shipments—

St. Eugene . . . . .	419	7,091
Whitewater . . . . .	46	358
Whitewater, milled . . . . .	280	3,780
Poorman, milled . . . . .	250	2,600
Queen, milled . . . . .	185	2,395
Second Relief, milled . . . . .	145	1,085
Richmond . . . . .	28	468
Rambler-Cariboo . . . . .	24	347
Nugget . . . . .	24	306
Kootenay Belle, milled . . . . .	25	175
Silver Cup . . . . .	35	82
Mother Lode . . . . .	15	15
Other Mines . . . . .		13,332
<b>Total . . . . .</b>	<b>1,476</b>	<b>31,901</b>

GRANBY SHIPMENTS.

For the purposes of comparison, the following table will show the output of the Granby mines for each month of the first quarter in 1907 and also in 1908, in tons:—

	1907	1908
January . . . . .	34,192	74,203
February . . . . .	32,465	80,155
March . . . . .	63,826	110,223
<b>Total . . . . .</b>	<b>130,483</b>	<b>264,581</b>

Granby shipments for week ended April 4th were 24,687 tons, against 27,288 tons the week previous. The total to date is 27,288 tons.

