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CIRCULATION.

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PORCUPINE.

History is being made rapidly in the Porcupine district. Despite bad trails and the utter absence of decent mail service, telephone or telegraph communication, the camp is abundantly vigorous. Owners and prospectors are too busy and too enthusiastic to give more than casual expression to the many grievances that in less strenuous circumstances would be magnified into first-class sores. This is well.

In a previous issue we printed an article on the Porcupine trail, written by Mr. Reginald E. Hore. Already that article is in need of revision, for the Government road, in part bad, in part worse, and in part passable, has been pushed through from Hill's Landing to Golden City. This, along with the establishment of a recorder's office and the careful geological mapping of the region, embraces practically all the attention paid to Porcupine by the Ontario Government. We shall revert later to the question of the Government's duty to the new mining district. Meanwhile let us glance hurriedly at the present condition of the camp.

Porcupine has had a singularly auspicious early history. Large corporations have shown an unequivocal desire to get a strong footing, and several have succeeded. On one property in particular, intelligent and systematic work has been done to determine the character and extent of one section of the ore bodies. Although this work has extended over several months, and although much is now known as to the satisfactory nature of the ore, yet every day adds a little to that knowledge. In other words, every step taken is planned to bear definitely upon the past and the future. At another mine, one that has received a great deal of publicity, work is being conducted vigorously but most unsystematically. Whilst it is now known that the ore bodies here are large, the operators are still very much in the dark as to the distribution of the precious metal. Consequently the tendency to accept insufficient evidence of richness still persists.

On the hundred and one newer properties the chief work done consists in stripping and trenching. On numerous claims only assessment work has been completed. After looking over a few of the typical claims, the observer is amazed at the extraordinarily wide dissemination of gold. Sometimes that gold is visible to the naked eye. Sometimes close inspection will not reveal the tiny yellow specks until the more experienced Porcupiner has pointed them out. The total impression remaining is one of confused conviction that the chances are well worth taking.

There is no lack, of course, of absolutely worthless ground. There never is. But in Porcupine there is abundance and to spare of territory that can be de-

scribed as ranging all the way from moderately attractive to irresistably seductive. And when we find mining engineers from all parts of Europe and America spying out the land, it can be taken as indicating that there the game is worth the candle.

As of all new camps, it is true of Porcupine, that there are no fixed standards whereby to evaluate prospects and properties.

Prices are in the main exorbitantly high, and prices will remain high as long as the demand lasts. This is human nature and from one point of view may be good business. But the custom of refusing to consider workable terms is decidedly detrimental to the whole camp. Reasonable terms of payment are essential—more essential indeed than the magnitude of the total purchase price. Except in odd cases we have heard no fair terms discussed or offered by owners.

In an article elsewhere in this issue Mr. R. E. Hore discusses the form and character of the lodes, veins, and vein systems of Porcupine. His article is a clear exposition of our present knowledge of the subject. Much yet remains to be learned. Probably it will become more and more clear that Porcupine gold veins differ only incidentally from other Canadian deposits. We hope that in the one essential they will stand in a class by themselves.

It is a truism to state that Porcupine is not yet a proven camp. Naturally it cannot be and will not be for many moons yet. On the other hand, nothing has yet been adduced to discourage the investor. And that is saying a good deal.

Of Porcupine's needs volumes could be written. Nature will provide for one of the most pressing. The advent of winter will solve transportation problems for a time, and will render possible the moving in of machinery and other heavy freight. Temporary as this relief will be, it is hard to overestimate the meaning of this. One must have seen for himself the quagmires, the ruts, the liquid mud, the paralyzing corduroy of Porcupine trails, before he can realize what the mine operators have to contend with. Incidentally, it is surprising to notice the lack of co-operation between mines in the matter of good roads.

The lack of telephone and telegraph lines is a costly gap in the organization of Porcupine. Precious hours and days are lost. Loss also is daily incurred through an unspeakably bad mail service.

Now we shall not discuss the point as to what may or may not be the moral obligations of the Ontario Government towards Porcupine. It will serve our object better to review matters from the commercial side, a side that is not without its appeal to most of us. For the first time on record there is developing in Ontario a gold mining camp that is the cynosure of mining men of both hemispheres. It is situated in a part of the Province that must soon be opened up in any case. It is in no need of booming, but it very decidedly does need a fair proportion of assistance. In all probability

Porcupine will soon have netted the Provincial Treasury about \$75,000 in revenue from miners' licenses, transfer and recording fees, etc. This is a direct gain. But indirectly Porcupine has brought and will bring many hundreds of thousands of dollars into the Province. At least two or three thousand persons will find employment there this winter. The Government railroad will be taxed to its utmost capacity to carry the quantities of freight that will be shipped in. In these and in other ways Porcupine will be profitable to Ontario. And this will be the case whether the life of the camp is three or thirty years. As with Cobalt, so with Porcupine, as regards agriculture. The farmer will follow the miner just as soon as economic conditions become normal.

It seems, therefore, that for reasons of business expediency alone, it is shortsighted for Ontario to withhold her instant support. A railway charter for a branch line from a point on the T. and N. O. has been granted; but we believe that no serious effort is being made to enforce the chief condition of that charter, which implies speedy construction. We would suggest that every day lost deprives the Province of a large and sure income. Because of some complications with the Canadian Pacific Telegraph Company, the erection of a telegraph line has not been proceeded with. This entails loss and hardship upon Porcupine itself, and upon interested outsiders. These instances in themselves indicate a departure from the policy that built up the country north of Cobalt.

The attitude of the mining public towards Porcupine warrants the Ontario Government in giving prompt consideration to requests for assistance. In giving that assistance the financial risks assumed will be relatively nothing. The returns to the Government throughout the period of construction and installation will be enormously in excess of any appropriations that it is likely to make.

The men who are putting their money into Porcupine are in earnest. They are taking all the chances, and they are glad to take them. They ask for fair treatment, especially in respect to public utilities. Rather than delay their plans they are willing to construct a railway and erect telegraph lines themselves. We believe that the Government can do both without laying itself open to the charge of rashness. Neither the operators nor the Government can see far into the future. But both can justify present expenditure by present prospects.

THIRD ANNUAL REPORT OF LA ROSE CONSOLIDATED.

We are inclined to agree with the statement made by Mr. D. Lorne McGibbon in his prefatory remarks, to the effect that the position of La Rose Consolidated has been strengthened during the past fiscal year. The net profits have increased from \$1,320,147.82 to \$1,472,005.03. This is especially gratifying in view of the fact

that the cost per ounce of producing silver during 1909 was only 61.31 cents per ounce, whereas the cost per ounce recorded in 1910 is 23.27 cents per ounce. A contributory factor in the larger net profits was the higher average selling price of silver. During 1909 the average for the fiscal year was 51 cents, while the average price for the period covered by the report under consideration was 52.261, a difference of 1.261 cents per ounce, aggregating a gross advance of \$39,974.05. This figure, however, is incidental. A truer basis of comparison is afforded by the total expenditure on production. In 1909 this expenditure amounted to \$475,562.53. During 1910, the sum of \$737,842.37 was expended. Of this latter amount, \$152,403.38 was spent in trenching and general development. Whilst the tonnage shipped during the year ended May 31st, 1910, was slightly greater than that shipped during the preceding period, the average silver content was also higher. The averages stand respectively 480.8 ounces per ton for 1909, and 491.05 ounces per ton for 1910. These averages are affected principally by the larger tonnage of ore concentrated—649.79 tons as compared with 31.62 tons—during 1910. The average silver contents of high grade, low grade, and concentrated ores are, respectively, 1181.98 ounces, 133.84 ounces, and 649.79 ounces.

As the third annual report is more completely itemized than is the previous report, it is possible to follow the distribution of expenditure. The largest item in mine operation is "development and exploration," which amounts to \$144,223.21. "Stoping" comes next with \$71,906.11. The charge for mine operation per ounce of silver mined was only 0.089 cent in 1909, whilst in 1910 it ran up to 0.1414 cent, an increase due almost wholly to development. In other charges there are only relatively slight changes.

During 1909 the total footage of drifting, raising, crosscutting, and sinking was 6,303 feet. The corresponding figures for 1910 are 10,059 feet. But in stoping and trenching the difference is most marked. The figures for 1910 are 18,789 cubic yards, as against 7,477 cubic yards for the previous year, and 5.16 miles of trenching as compared with 12,145 feet.

The Lawson mine enters as a producer for the first time, being credited with 173,730 ounces.

The Princess produced 113,146 ounces, whilst the output of the University is negligible, and the Fisher-Eplett does not appear at all.

Concentration as carried on by contract at the plant of the Northern Customs Concentrator, Limited, appears to be eminently satisfactory. An extraction of 79.12 per cent. is reported on ore carrying 28.58 ounces.

Ore reserves have been maintained. Their total silver content is 5,544,000 ounces, as compared with 4,968,418 ounces estimated one year before. However, the great bulk of this year's reserve is mill rock. Of the total reported reserves, 65,849.7 tons, only 2,876.7 tons is high grade. Close comparison with the previous year is not practicable, for the reason that only one

classification of ore in the mine is now adopted, namely "Developed and Partly Developed." In the former report, reserves were thrown into two categories, "Partly Developed Ore," and "Indicated Ore." We take it that General Manager R. B. Watson's present classification is less speculative than was that formerly used.

Whilst the general manager is to be congratulated upon the really excellent showing that he has made, it is a matter of regret that the annual report of so important a concern as La Rose Consolidated should not be more ample. Plans of the workings should be shown. Assay maps would throw much light upon points that are now necessarily obscure. We would suggest, therefore, that in future the annual report of this corporation be fittingly illustrated and greatly amplified.

MINING OPPORTUNITIES IN CANADA.

The new fields of Northern Ontario and Northern British Columbia are so much in the public eye that other districts are overlooked. In fact, the foreign investor is prone to imagine that Cobalt, Porcupine, and Portland Canal offer the only sound chances for venture. This, of course, is far from the truth.

In an editorial that appeared in THE CANADIAN MINING JOURNAL, January 15, 1910, we alluded to a few of the sound ventures and investments that are open in unadvertised regions of the Dominion. The time is ripe to draw attention once again to these overlooked districts.

The full benefit of keen foreign interest in new fields cannot be felt if that interest is permitted to centre exclusively in one camp. Any one camp, no matter how meritorious it may be, is bound to bring disappointment and failure to many. The irrevocable law of averages holds in prospecting and in mining as in everything else. Hence it is unwise to place all of one's eggs in one basket. Furthermore, there has never been a better time for impressing upon the representatives of capital the desirability of investigating the merits of mineral deposits and mines in other parts of Canada. Any newly discovered bonanza should be merely a point from which increasing waves of activity radiate.

Advices are constantly reaching us of the revival of mining in places that have long lain dormant. For instance, the placer gold of Eastern Quebec, the gold-antimony ore of Nova Scotia, the iron deposits of Eastern Ontario, the gold mines of Lake of the Woods, and many almost forgotten metalliferous mines in southern British Columbia, are all receiving active attention. This is particularly true of Nova Scotian gold mines and of various non-metallic mineral deposits throughout Eastern Canada.

It is appropriate to point out here that in some respects British Columbia and Nova Scotia are still pre-eminently our mining provinces. In both mining has long been a leading industry. The development of transportation facilities has been influenced, therefore, very largely by the requirements and growth of mining.

The movement of large quantities of such commodities as iron ore, coal, and gypsum demands traffic organization that is adequate and expansible. It is unfortunate that in Quebec, Ontario, and Alberta the railways are yet far behind the pressing needs of the industry. Hence the two previously mentioned Provinces afford in many instances better industrial surroundings than do the others. Time, of course, will bring improvements all over the Dominion.

But, harking back to our original theme, there are specific localities where foreign capital can seek investment with strong chances of success, chances heightened by an improving market for Canadian mineral products. The molybdenite and graphite deposits of western and northern Quebec require investigation. Much of the unexploited coal area of Nova Scotia is entirely worth while. The building and decorative stones that are found so frequently in the older geological horizons have as yet been practically neglected. Such minerals as gypsum, barite, infusorial earth, paint ores, and so on, await commercial development. In all these there is money to be made, provided always that the investor employs men who know their business and are thoroughly familiar with working conditions.

Another legitimate channel of investment lies in the careful selection and equally careful consolidation of mines now abandoned. This, naturally, is treading upon very delicate ground. But the life history of the average mining camp, more especially of camps that have been opened with a boom, points to the conclusion that the steadiest profits may be expected long after the period of bonanzas is past. Cases could be cited here that would astonish readers who are not conversant with the mining history of Canada. But it is not well to be too specific. Suffice it to say that consistent study of Provincial and Federal reports is one of the best possible guides. Above all it is desirable that the foreign investor be advised by a mining engineer practising in Canada. Not only are initial mistakes avoided, but energy, time, and money are saved by employing a professional man who knows the customs, laws, and red tape of the Dominion. And in dealing with lands controlled by the Federal authorities it is absolutely necessary to possess a first-hand knowledge of red tape—not infrequently adhesive.

To the foreign mining investor who is in earnest, who knows what he wants, and who is capable of taking ordinary pains to be sure that he gets it, Canada is a land rich in possibilities.

STANDARD ENGLISH.

"Mines and Minerals" for September contains an editorial on "Standard English," which is mainly a plea for the use of plain English in mining literature, and the avoidance of localisms. Most persons will thoroughly agree with such a plea, but the writer goes a little further. He states that so far the people in the United States have "spoken better English with fewer

dialects than the inhabitants of the British Isles," and there is not any reason why Americans should adopt old English localisms "that originated in fun or ignorance." The writer then goes on to explain the origin of "inbye" and "outbye," as follows:—

"The former had its inception from some old miner who remarked 'are you going in, bye?' instead of 'are you going in the mine, boy?' and 'outbye' followed naturally."

This explanation must have originated either "in fun or ignorance," for it is utterly fantastic. The words "inbye" and "outbye" have been used in Scotland and the north of England for generations beyond memory, and it may be suggested, with due deference to the boasted freedom of the American nation from dialect, that the pronunciation of "boy" as "bye" smacks more of Pennsylvania than of either Durham or Fifeshire. There are many English localisms that should not be introduced into American mining literature, but the writer in "Mines and Minerals" is unfortunate in picking out for attack such convenient and useful expressions as "inbye" and "outbye." It is a fair challenge to ask what he would substitute for them. The phrases "up track" and "down track" have their significance on railways, the words "indoor" and "outdoor" are good English not liable to be misunderstood, and "inbye" and "outbye" are legitimate words sanctioned by long usage. The idea they convey cannot be otherwise conveyed but by the use of a phrase containing at least half a dozen words, and even then there is a risk of ambiguity. The writer of the "Mines and Minerals" editorial has evidently had little experience in English coal mines or with English miners, else he would not have used the word "boy" in his very ingenious explanation; the English miner says—"lad." It is more charitable, however, to assume that the account of the origin of "inbye" and "outbye" is intended as a solemn joke.

EDITORIAL NOTES.

Analyses of iron ore from Arisaig, Antigonish County, Nova Scotia, as reported by the Mines Branch, Ottawa, range from very low iron contents up to 53 per cent. Sulphur is uniformly low. Phosphorus ranges from 0.5 per cent. to 1.20 per cent., whilst lime is usually in the neighbourhood of 2 per cent.

A special committee of the British Home Office is considering amendments to rules governing the installation and use of electricity in coal mines. The rules under revision were formulated in 1903 and are adapted rather to the alternating-current system of power transmission than to the continuous-current system.

The silica content of finely divided sulphide concentrate can very seldom be reduced to less than 20 per cent. without disproportionate loss.

During the calendar year 1908, the quantity of silver issued for use in the industrial arts throughout the United States amounted to 23,775,422 ounces.

PORCUPINE GOLD DEPOSITS

(Written for the CANADIAN MINING JOURNAL by REGINALD E. HORE, Houghton, Mich.)

The gold at Porcupine occurs chiefly in pyritic quartz. In lesser amounts it is found in the country rocks.

The quartz in most cases is white in colour, with reddish-brown patches of iron oxides. Less commonly, but including some spectacular veins, the colour is greyish-blue.

The gold is, in part, coarse and readily visible to the naked eye. In most of the quartz, however, it is very fine. The greater part, 50 to 65 per cent. is readily won on crushing. A smaller percentage is more intimately allied with sulphides and will probably be treated by cyanidation.

The country rock is usually either pyritic grey schist or rusty-weathering mixed carbonates. Less often it is a conglomerate.

arrangement of the pebbles with their longer dimensions parallel, gives a decided schistose appearance.

Form of the Deposits.

The deposits vary greatly in shape. Some appear at the surface to be well defined single fissure fillings or veins. In some cases there is a series of fissure fillings running nearly parallel and enclosing large and small masses of rock. These are conveniently referred to as vein systems. In another type numerous quartz veins run through ferrodolomite beds. We may designate these as ferrodolomite lodes. There are also large quartz masses of irregular and unknown form, which cannot be well designated as veins or lodes. They appear to be lenticular rather than tabular in shape. From the nature of outcropping surfaces, they have been called



Quartz Ferrodolomite Lode—Foster Claims. Quartz Veinlets In Ferrodolomite.

The schistose country rocks are for the most part altered volcanics, and are of various types. Many are sericitic and all are impregnated with carbonates. Small cubes of pyrite are usually abundant. Copper pyrite occurs; but in very subordinate quantity.

The carbonate rocks are grey to yellowish-grey, crystalline and massive. They are iron—calcium—magnesium carbonates, such as are common in the iron formations of Ontario and the Lake Superior states. Such rocks range in composition from siderite through ankerite to dolomite, and on the iron ranges are called ferrodolomite. The percentage of iron in the Porcupine rocks, as in most Keewatin carbonates, is less than in normal ankerite.

The conglomerate is composed of light-coloured pebbles of various types set in a fine grey coloured matrix. An

“dome.” Until their true character is known, it seems best to refer to them as quartz masses.

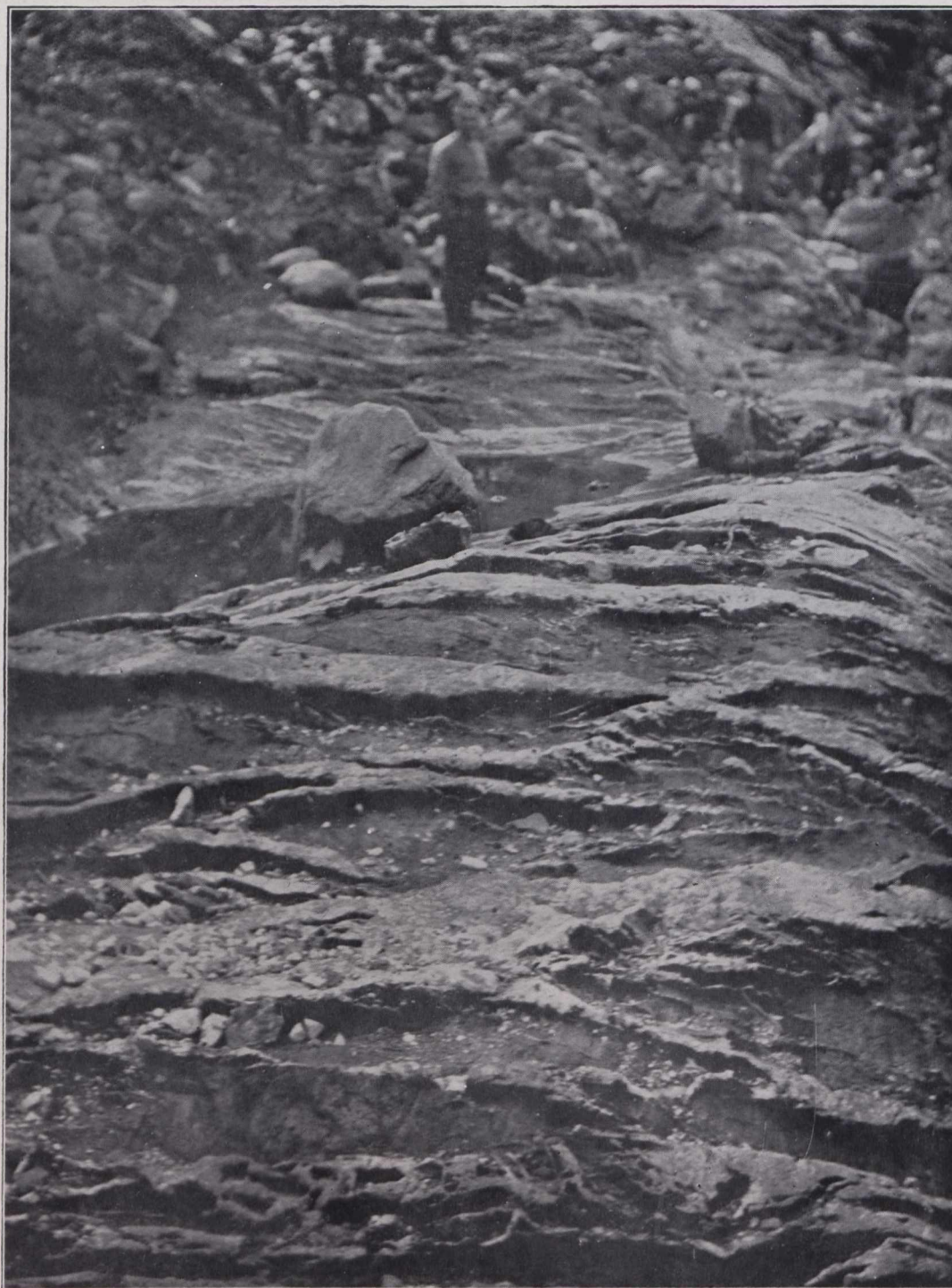
These four types may be illustrated by description of four claims in Tisdale Township. For a single quartz vein we may take one on the Connell property. A system of quartz veins is exposed at the Timmins mine. The most striking example of quartz ferrodolomite lode is the Foster. A remarkably large quartz mass or “dome” is that at the Dome mine. None of these deposits has been thoroughly explored, and observations on their nature must therefore be confined almost entirely to superficial characters. The Dome is being tested by drifts and cross-cuts at the 60-foot level, and by diamond drilling to a few hundred feet. One of the veins at the Timmins is being drifted on at the 100-foot level. The Foster lode and the Connell vein have each

been carefully stripped; but neither has yet been tested for more than a few feet in depth.

Quartz Vein.

The deposit selected as an example of this type is located on the Connell claims, just south of the centre

and crevices for a few feet downwards. Portions of the vein which were protected by a mantle of soil, show similar alteration, but to a much less degree. Some such portions show scarcely any weathering and appear brilliantly white in the sunlight.



Quartz Ferrodolomite Lode—Foster Claims. White Bands of Quartz Stand Out. In Relief from Rusty Ferrodolomite.

of Tisdale Township. The vein has been exposed almost continuously for over 200 feet. At the western exposure it is 15 inches and at the eastern, where it dips into low ground, 5 feet wide.

The quartz is milky-white and vitreous. Where it has been directly exposed to the weather, it is coated with yellowish-brown iron oxides. Streaks and patches of this secondary material are found filling small cavities

Free gold can be seen for several feet along the vein. It is coarse and readily detected by the naked eye. The most spectacular and richest portion is a streak about 15 inches wide on the north side of the vein. Here countless particles of coarse gold appear on the surface. It occurs especially in rusty cavities and in minute dark streaks, which fill crevices in the quartz. The gold particles are even more numerous, however, on the vein



Quartz Vein, Connell Claim. Showing Well Defined North Wall.

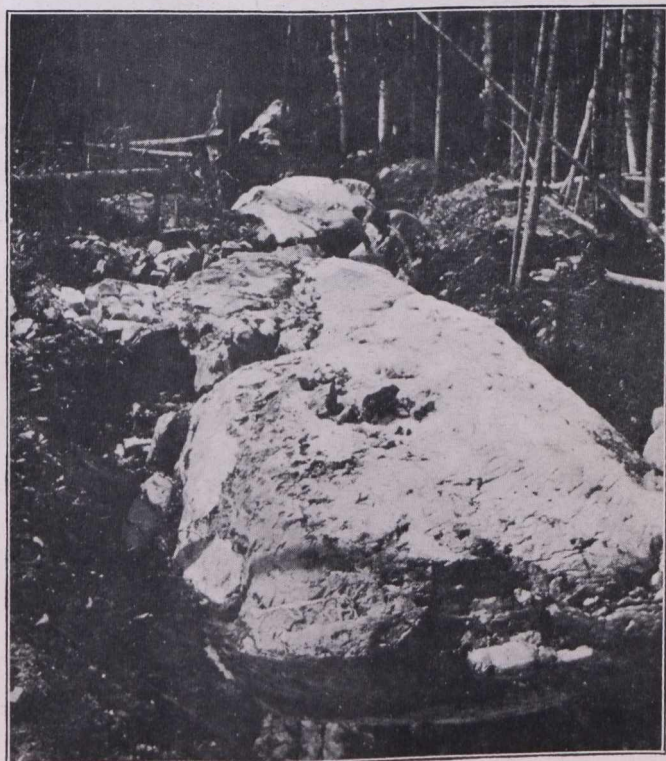
wall. This wall is very clean cut, and has but a thin selvage of dark greenish colour. It is slickensided and shows pronounced grooves running nearly vertical. These grooves, running normal to the undulatory strike, produce a decidedly corrugated surface, as may be seen in the accompanying photograph.

The wall rock is a rusty weathering ferrodolomite. At the immediate contact it is disintegrated for a foot in depth. A foot or more from the contact it is quite massive, except for a few inches at the surface. The fresh rock is of light grey colour, finely crystalline and soft. It effervesces slowly with dilute acid. Scattered through it are striated cubes of pyrite. Veinlets of white quartz penetrate in all directions.

The carbonate on the north wall is only a few feet wide, and is succeeded by dark-coloured, fine-grained porphyritic igneous rocks. South of the vein the rocks are not exposed.

Quartz Vein System.

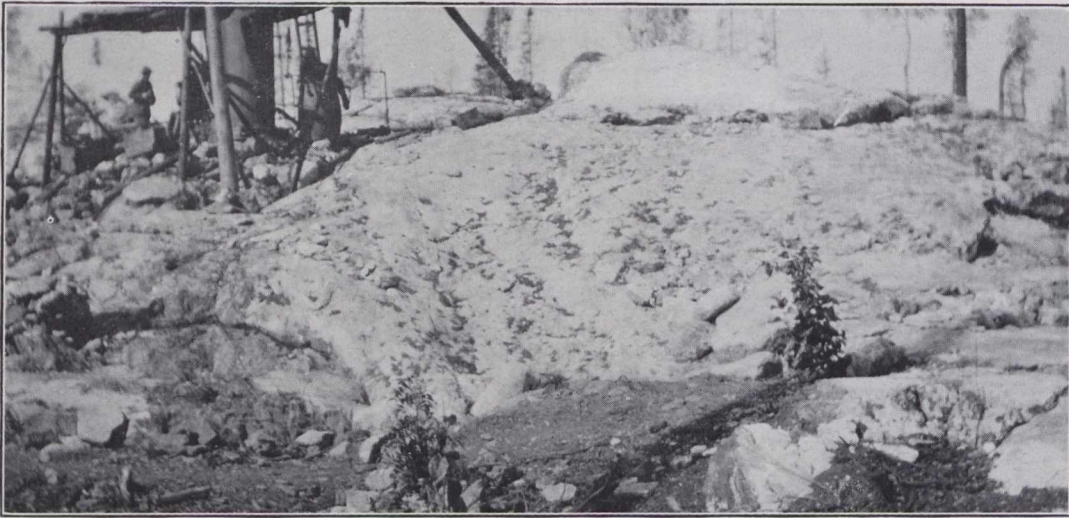
At the Timmins mine there are a number of large quartz veins striking in a northeasterly direction. Some of them are but a short distance apart and appear to converge and enclose large masses of rock. Others running parallel, and supposedly of the same vein system,



Quartz Vein, Connell Claim.



Quartz Vein, Connell Claim. Looking East along Strike showing Vein for 200 feet.



Quartz Mass, Dome Mine. All Quartz except at lower left corner.



Quartz Vein, Connell Claim. Undulating and grooved Slickensided wall
Coarse gold particles are abundant on this wall. Left half of photo
shows Disintegrated Ferrodolomite wall rock.



Quartz Veins, in Grey Schists, Timmins Mine. This illustrates, in miniature
a Vein System.

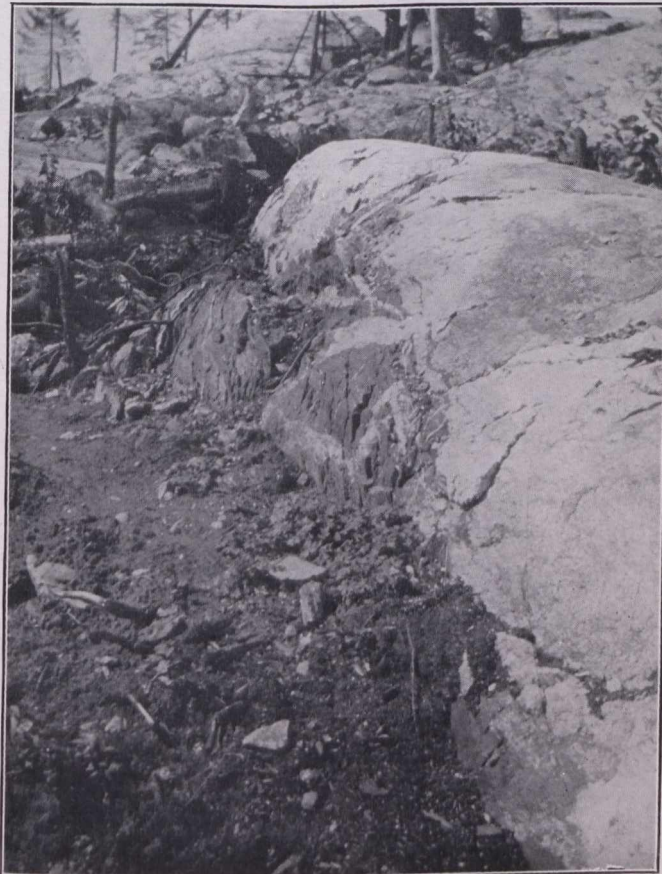


Quartz Mass, Dome Mine. Showing nature of Contact.

are 200 feet and 400 feet apart. The larger members of the system themselves enclose numerous fragments of schist similar to the country rock. This vein system appears to be part of a larger veined zone, which extends northeast to and north of Pearl Lake.

The quartz is in most of the veins white in colour, except where stained brown with iron oxides. An exception is a vein of greyish-blue colour, which cuts across one of white quartz. The veins are commonly 4 feet to 10 feet wide, and one vein, now being developed from two shafts 250 paces apart, is 8 feet to 15 feet wide.

There are a large number of veins which show free gold on the surface, generally in rusty patches or in minute fractures. The ore from a few feet below the surface is remarkably free from iron stains, and the pyrite crystals have scarcely any tarnish. Ore impregnated with par-



Quartz Mass, Dome Mine



Quartz Vein, Connell Claim. Rich Streak containing coarse gold in centre.



Dome Mine. Shows Veins in Schists near Large Quartz Mass.

ticles of coarse gold has been taken from a drift at the 100-foot level, and it is more spectacular than any of the surface showings. The workings are in ore at almost all points, and the ore is high grade.

The wall rock is a grey pyritic sericite schist impregnated with carbonates. The pyrite occurs both as small cubes scattered through the rock, and in less perfect crystals in little veinlets. Mr. C. W. Knight has suggested that the schist is an altered phase of quartz porphyry, which occurs in the vicinity. It is similar to, but not so siliceous as, some of the sericite schists at Temagami, which Dr. Barlow showed to be mashed quartz porphyry.

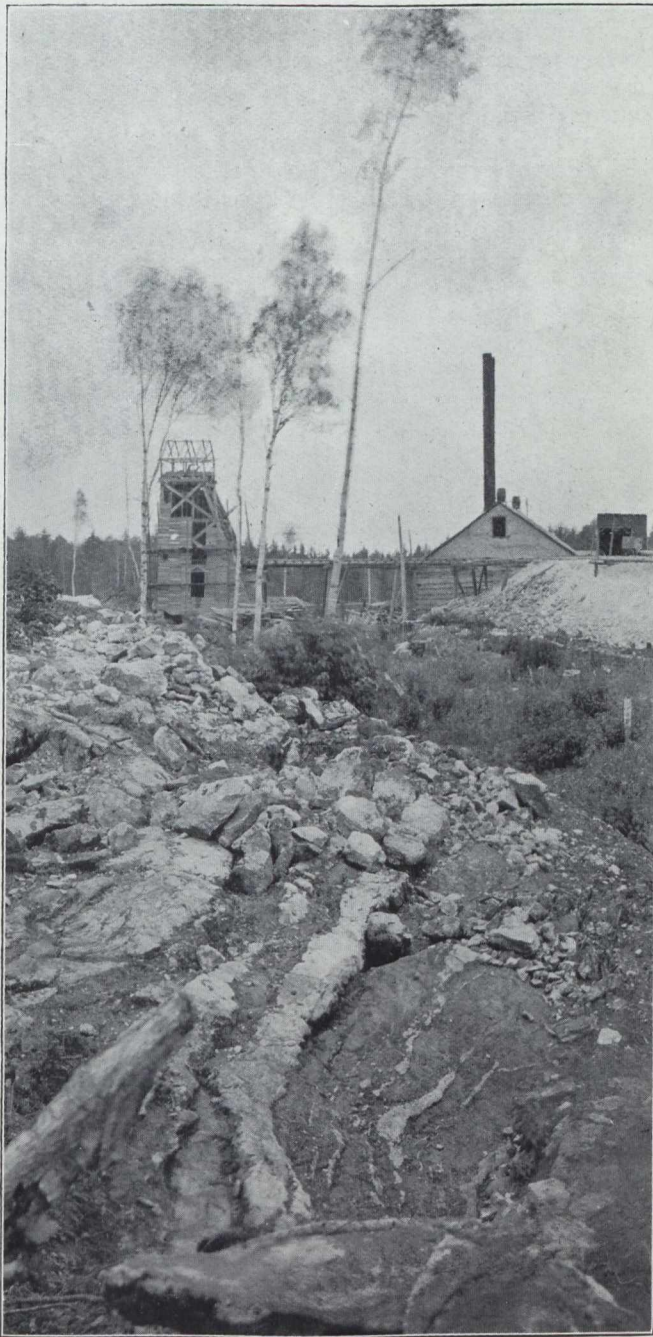
It is as yet impossible to trace out the individual members of the vein system. Many of the outcrops are small

and separated by low ground. The strike of veins on neighbouring outcrops is frequently too divergent to permit the interpolation. Considerable stripping has been done and a few veins traced continuously for several hundred feet.

A remarkable outcrop is the greyish-white quartz "dome" beside which No. 1 shaft has been sunk. For the greater part it shows, as may be seen from one of the accompanying photos, a marked similarity to some marbles. In places it is stained with iron oxides, and in such rusty patches are many particles of coarse gold. The exact relation of this mass to the vein in the shaft is not evident. From the far side of the shaft house, a vein 3 feet wide, runs northeast for a few paces along the edge of the stock pile, and then is lost in low ground.

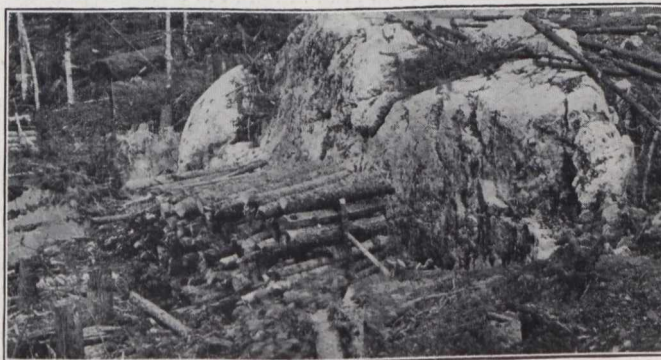


Timmins Mine, Nodular Quartz Masses in Crumpled Grey Schist.

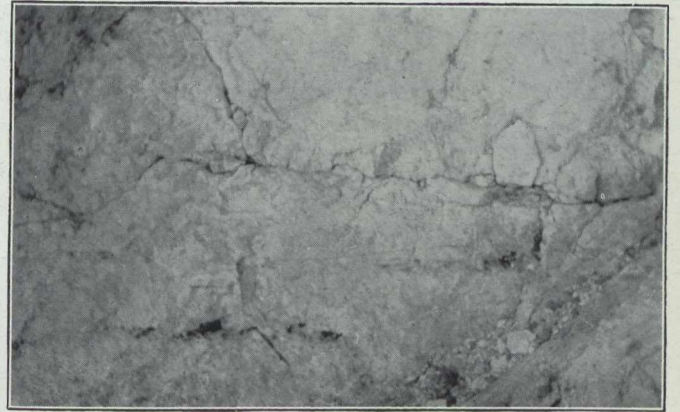


Timmins Mine, White Quartz in Grey Schists.

Several hundred feet along the strike another outcrop shows similar quartz. Southwest from No. 1 shaft there are fairly continuous outcrops of quartz, which are probably parts of one vein, and which have been tested



Timmins Mine, one of the larger Veins, showing decided Tabular Shape.



Timmins Mine. Face of White Quartz Mass at No. 1 Shaft.

by two shafts. From the further shaft a drift is being made at the 100-foot level towards No. 1.

In some outcrops east of No. 1 shaft, a variety of structure is shown by quartz veins in the schists. In some places the veins cut distinctly across the foliation of the country rock. In others there are veins of similar quartz, which conform closely to the schistosity and terminate abruptly in the sharp folds.

Quartz-ferrodolomite Lode.

On the Foster claims gold occurs in quartz veins which run through a band of rusty weathering ferrodolomite. The largest lode has been stripped for about 250 paces. It shows a width of 5 feet to 20 feet, and for a considerable proportion of its length, averages over 10 feet.

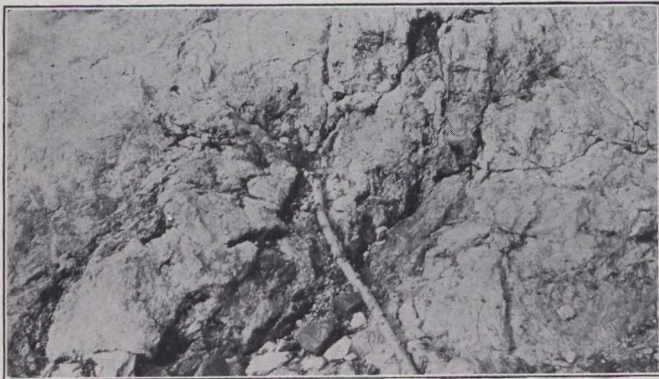
The quartz stands out in relief from the more deeply weathered, red brown, oxidized ferrodolomite. Several quartz bands, 4 inches to 10 inches wide, run normal to the strike of the lode, and the carbonate is impreg-



Timmins Mine, showing Quartz Vein in Grey Schists. Stockpile at Left.

nated with a multitude of very small quartz veins. Many of the latter occur in two sets which divide the carbonate into small rectangular blocks.

The quartz is white in colour, but stained with iron oxides. The red rust comes partly from the oxidation of small pyrite crystals, which are abundant in patches of the quartz, and in part from the weathering of the ferrodolomite. In some of the rusty crevices there are spectacular showings of coarse gold.



Timmins Mine, showing Rusty Spots where Coarse Gold is found in Quartz Mass.

The lode strikes nearly due west. The country rock is a pyritic grey schist impregnated with carbonates.

Quartz Masses.

At the Dome mine a smooth hummocky outcrop glistens white in the sunlight. It is chiefly made up of huge masses of quartz which enclose large and small fragments of grey schist. The country rocks are grey sericite schist, grey slate and a schistose conglomerate.

One mass, which is almost entirely quartz, has a surface area 100 feet by 200 feet, and there are numerous smaller masses of elliptical plan. An oval-shaped area,

including much country rock, but of which about one-half is quartz, is 600 feet by 200 feet. In addition to the large masses, there are numerous veins one foot to three feet in width, which penetrate the country rock. Some of these are almost conformable with the schistosity, but many cut distinctly across it.

The dome-shaped masses show rather varied relations to the enclosing rock. In some cases the contact is nearly vertical, while in others it is but gently inclined. The



Timmins Mine, showing Contact of Quartz with Grey Schists.

boundaries are seldom nearly straight lines, but elliptical or circular.

Coarse gold shows at several places on the surface. It, together with pyrite, is especially abundant in the vicinity of enclosed schist or the country rock. A large tonnage of quartz carries workable quantities of fine gold. The pyritic schist itself is known to carry some gold values. Small striated cubes of pyrite are abundant in both the schist and the quartz. Copper pyrites also occurs, but is probably not in such quantity as to interfere seriously with the recovery process.

ANNUAL REPORT OF DEPARTMENT OF PUBLIC WORKS OF THE PROVINCE OF ALBERTA, COAL MINE BRANCH

That the coal mining industry in the province is steadily expanding may be seen from the following comparison of outputs for the last few years. The year 1909 shows a considerable increase in output over 1908, and doubtless this increase would have been still greater had it not been for a dispute between the operators and their workmen during the early part of the year, which had the effect of closing down most of the large mines in the southern part of the province for about three months and shutting off approximately 75 per cent. of the total coal production of the province during the period of inoperation.

Year.	Output in tons for N.W.T. (Alberta and Saskatchewan)	Output in tons Alberta.
1901	346,648	.....
1902	510,674	.....
1903	622,939	.....
1904	782,931	.....
1905	.....	811,228
1906	.....	1,385,000
1907	.....	1,834,745
1908	.....	1,845,000
1909	.....	2,174,329

The above figures show that there has been an increase of 17.85 per cent. over the 1908 output.

Classification of Output of Coal in Alberta During the Year 1909.

	No. of tons.
Lignite coal	763,673
Bituminous coal	1,197,399
Anthracite coal	213,257
Coal used in coke production.....	148,104
Coke produced	87,812
Briquettes produced	89,785

Summary of Statistics.

Number of mines at present in operation.....	121
Number of new mines opened in 1909.....	32
Number of mines abandoned in 1909.....	8
Number of tons of coal mined	2,174,329
Number of tons of coke produced.....	87,812
Number of tons of briquettes produced.....	89,785
Average number of persons employed inside the mines	3,893
Average number of persons employed outside the mines	1,314
Number of fatal accidents inside the mines..	7
Number of fatal accidents outside the mines..	2

Number of non-fatal accidents inside the mines	47
Number of non-fatal accidents outside the mines	13
Number of mine manager certificates issued..	27
Number of pit boss certificates issued.....	23
Number of fire boss certificates issued.....	44

Summary of Inspector's Report.

Edmonton, January 15th, 1910.

John Stocks, Esq.,
Deputy Minister of Public Works,
Edmonton, Alta.

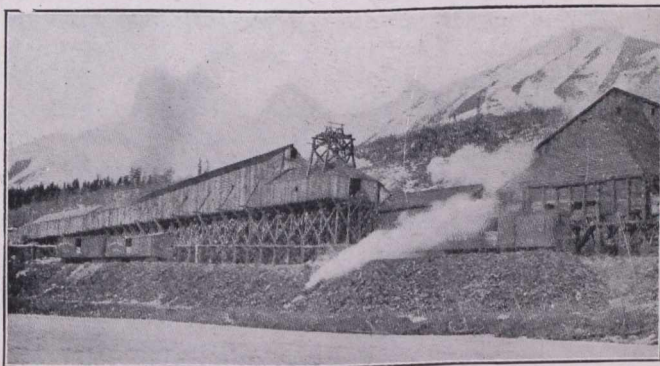
Sir,—As Provincial Inspector of Mines, I have the honour to submit herewith my annual report for the year ending December 31st, 1909.

The development work in connection with the coal mining industry throughout the province has been very active during the past year and several important mines have been added to the list.

At Taber a number of the small companies have consolidated and three larger and more substantial companies formed, viz.: The Great Western Coal Company, The Alberta Consolidated Coal Company, Limited, and The Rock Springs Sootless Coal Company, Limited. All three of these companies have installed good sized plants, including complete compressed air plants and coal mining machines, and two of them have already procured railway facilities.

In the Lethbridge district the Diamond Coal Company, Limited, have completed the installation of their plant, put in a spur line of railway and are now in a position to push the development of their mine ahead, which will put them in a position to produce a much larger output during the coming year. The Royal Collieries, Limited, are pushing the development of their mine ahead rapidly and are getting it into shape for a much larger output. The new plant of the Alberta Railway & Irrigation Company, at their No. 6 mine, has been completed, and the development of the mine is being carried out on a large scale.

In the Crow's Nest Pass the Leitch Collieries, Limited, have opened a new mine, erected a tippie and obtain-



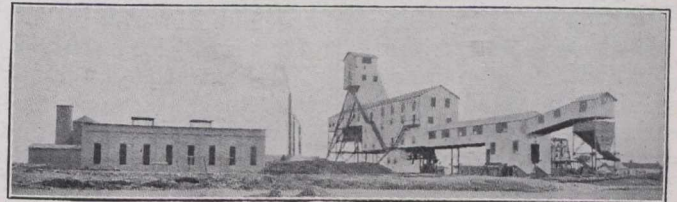
Surface Plant No. 2 Mine, H. W. McNeill Co., Ltd., at Canmore.

ed railway connections. At Burmis there is another mine opened by the Davenport Coal Company, who have procured railway connections. At Blairmore a new mine has been opened by the West Canadian Collieries, Limited, which should develop into a large mine. West of Coleman the McGillivray Creek Coal & Coke Company, Limited, a new company which has been formed, has opened a mine on a 12-foot seam of coal and a new tippie and plant are in course of erection.

In the Pincher Creek district the Western Coal & Coke Company, Limited, have had a gang of about thir-

ty men prospecting the coal seams on their property during the last few months, and are now opening permanent tunnels.

West of Edmonton, along the Grand Trunk Pacific Railway, a number of companies which have recently organized have secured extensive properties and have done considerable work in proving the coal seams. At least two of these companies have ordered machinery and are making preparations to develop their mines, and I understand will have railway connections during 1910, which will place them in a position to produce a



Surface Plant Nos. 5 and 6 Mines. Alberta Railway and Irrigation Company Lethbridge.

fair amount of coal by the end of the year.

Following you will find a summary of the development work in the various districts during the past year:

INTERNATIONAL COAL & COKE COMPANY, LIMITED,
COLEMAN.

Additions have been made to the machine and carpenter shops and the following tools installed: Two new lathes, hack saw, steam hammer, band saw, pipe cutter and threader. The boiler house has been extended and two 100 h.p. Leonard return tubular boilers installed, bringing the total boiler capacity up to 1,250 h.p. Two condensers have also been installed. Two additional compressed air locomotives of 19,500 pounds weight have been put into use, making a total of eight compressed air locomotives in use at the mine. The company's snow sheds have been extended. A 10-inch water supply pipe has been laid to the plant and a 500-gallon fire pump installed. The track in the mine has been relaid with 45-pound steel. A considerable amount of rock tunnelling has been done and preparations are being made to work the coal to the dip of the present gangway.

BANKHEAD MINES, LIMITED, BANKHEAD, ALTA.

A hoisting engine has been installed at the head of slope in No. 4 seam. A rock tunnel has been driven from the slope workings in No. 4 seam to No. 5 seam and is now being extended to intercept No. 6 seam. The use of explosives for blasting coal has been discontinued, excepting in the No. 6 seam, in which Monobel powder is used. This has greatly added to the safety of the mine and has also increased the percentage of lump coal produced.

HILLCREST COAL & COKE COMPANY, LIMITED, HILLCREST MINES, ALTA.

A wash house with concrete floor and walls has been erected, and snow sheds have been extended. Monobel powder has been introduced into the mine and is now used exclusively for blasting the coal, which adds greatly to the safety of the mine.

THE H. W. MCNEILL COMPANY, LIMITED, CANMORE.

The following machinery has been installed:

No. 1 mine, above ground—One 18-foot x 66-inch 125 h.p. tubular boiler. One exhaust steam Hoppes feed water heater with boiler feed pump. One first motion 22-inch x 36-inch hoisting engine for hauling coal from main slope. The wash house has been enlarged and has now a total of 250 lockers.

No. 1 mine, below ground—One 6-inch x 10-inch 7-ton compressed air locomotive. The main air courses have been improved and enlarged. A rock tunnel has been driven from No. 3 seam to No. 1 seam across a fold, a distance of 200 feet, and has reduced the length of the main haulage road about 1,500 feet.

No. 2 mine, above ground—A tippie and screening plant with a capacity of 100 tons per hour has been completed and is now in operation. The wash house has been extended and is now fitted up with 140 lockers and hot and cold water shower baths.

No. 2 mine, below ground—The main air courses and travelling roads have been enlarged and improved.

The fire bosses at Nos. 1 and 2 mines have been provided with safety lamps of the Wolf pattern. All lamps which were fitted with the screw lock are now fitted with the lead plug lock, which adds considerably to the safety of the mine.

CANADIAN COAL CONSOLIDATED, LIMITED, FRANK. (Successors to Canadian-American Coal & Coke Company, Limited.)

Old Mine:—Preparations are being made to recommence the working of the slope. The main gangway has been improved and enlarged. Safety lamps are used in all places above the level of the main gangway. The use of dynamite has been discontinued and Monobel powder is used for blasting the coal, shots being fired Bickford-Smith igniters. The fire bosses have all been provided with safety lamps of the Wolf pattern, and the Clanny lamps which are now used by the workmen are gradually being replaced by the Wolf lamp.

Shaft Mine:—The following additions have been made to the surface plant: A new bankhead has been erected; two Stirling water tube boilers, 225 h.p. each; one low pressure Ingersoll air compressor for operating rock drills; and a saw mill with a capacity of 25,000 feet per day have been installed. Foundations have been laid for four Babcock & Wilcox boilers of 250 h.p. each. A power house is being built to accommodate a 500 k.w. electric generator, exciter, switchboard and necessary fittings, which are now on order. A ventilating fan has been placed at the mine and the development of the underground working is being pushed ahead.

WEST CANADIAN COLLIERIES, LIMITED, BLAIRMORE.

A steel tippie fitted with the Green dump with a capacity of 1,500 tons per day is being erected by the Bartlett Snow Company, and one high pressure compressed air plant, one eight-ton and two five-ton compressed air locomotives have been installed. The present mine track is being relaid with 40-pound steel. One 78-inch Sirocco fan, capable of giving 100,000 cubic feet of air per minute with a two-inch water gauge and one 150 k.w. electric generator for lighting purposes, driving fan, tippie, etc., have been put in. The power house is being built of masonry. A considerable amount of diamond drilling is being done on the property to ascertain the quality and position of the coal seams at a depth of 400 to 500 feet.

Lille Mine.

Safety lamps of the Wolf pattern have been installed in all districts where gas has been found. A considerable amount of prospect work has been done on this property in order to prove the thickness and quality of the coal.

Blairmore Mine.

This is a new mine which has been opened during the past year. The main and counter gangways have been driven a distance of 2,600 feet on strike of coal seam, which is 6 1-2 feet in thickness and is known as the

No. 2 seam. A prospect tunnel is being driven to locate No. 4 seam. A coal dumping and loading station for railway cars has been erected and a spur track laid from the C. P. R. Crow's Nest line to the mine, a distance of about half a mile.

MCGILLIVRAY CREEK COAL & COKE COMPANY, LIMITED, COLEMAN.

This is a new mine which has been commenced at Carbondale, near Coleman. No. 2 seam, which is 12 feet thick, is being developed. A steel tippie with a handling capacity of 5,000 tons per day is being erected by the C. O. Bartlett & Snow Company, of Cleveland, Ohio. A power house, built of masonry, has been erected, size 88 feet x 60 feet. A machine shop, 102 feet x 28 feet, also built of masonry, and fitted up with a full complement of all necessary tools, and new offices have also been erected. The following machinery has been installed: One 150 k.w. Ridgway generator, for supplying power for locomotives, tippie and machine shop and for lighting purposes; one five ton electric locomotive with rack rail for hauling the coal from the mine to the tippie, a distance of nearly two miles; a Sirocco fan, electrically driven, capable of giving 60,000 cubic feet of air per minute with a 3-inch W. G. Steel cars with a capacity of 4 1-2 tons, with automatic couplings, are used. The mine track is being laid with 55-pound steel. Two 150-pound Waterous boilers have been installed. A well has been sunk and a water supply for the plant is pumped up to a tank with a capacity of 10,000 gallons. Railway sidings have been put in and foundations are being prepared for a box car loader.

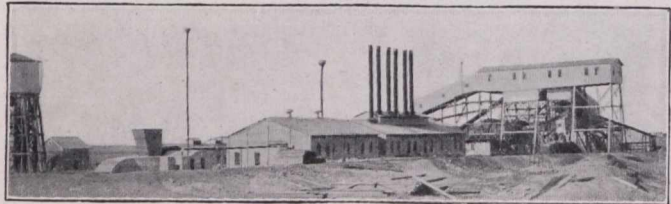
THE DAVENPORT COAL COMPANY, BURMIS.

This property was formerly operated by the East Crow's Nest Coal Company, Limited. Considerable development work is being done, also grading for railway sidings. This mine should be a large producer in the future.

LEITCH COLLIERIES, LIMITED, PASSBURG.

The output for the past year from the old mine, which is south of the Canadian Pacific Railway, Crow's Nest Branch, is more than double that of 1908. Safety lamps of the Wolf pattern are now used throughout this mine.

A new mine has been opened about two miles north of the old mine and a seam of coal 15 feet in thickness is being developed. A spur track has been laid from the C. P. R., a distance of 1 1-4 miles, to where a tippie is erected, equipped with scales, shaking screens, picking tables, etc. A power house has been built and the following machinery installed: Two locomotive boilers, hoisting engine and low pressure air compressor.



Surface Plant of Canada West Coal Company, Ltd., Taber.

GALBRAITH COAL COMPANY, LIMITED, LUNDBRECK.

No. 2 seam has been opened up and is being developed. The tippie has been extended and a revolving screen installed.

MAPLE LEAF COAL COMPANY, BELLEVUE.

This company has opened up a new seam of coal during the last year and is now operating two seams. Monobel powder is used for blasting the coal and is giving good results. Safety lamps of the Wolf pattern are used throughout the mine.

CARBON HILL COAL & COKE COMPANY, BURMIS.

This company has done considerable prospecting during the past summer and has proved nine workable seams, some of which are over eight feet in thickness and of a good coking quality. It is expected that the railway which has been surveyed will be built in to the property in the early part of next summer.

THE HEAD SYNDICATE, LIMITED, LUNDBRECK.

This company has done a considerable amount of prospect work, on what is known as the Hastings property, and has been successful in proving a seam of coal of excellent quality, with an average thickness of 10 feet and there are indications of other seams of a good quality on this property. Most of the prospect work has been done along the north side of Lynx Creek.

WESTERN COAL & COKE COMPANY, LIMITED, PINCHER CREEK.

This property is located in township 6, range 2, west of the 5th meridian, about 12 miles west of Pincher Creek. Considerable prospecting work was done on the property during the past summer, and several coal seams proved, one of which is seven feet thick and of a good coking quality. This seam is opened up by a tunnel, which has been driven a distance of 1,500 feet and will be used as a permanent opening. The following plant has been installed to carry on the work: Two boilers, one hoisting engine, two pumps. A number of temporary buildings have been erected, including offices, wash house, engine house, blacksmith shop, etc.

ALBERTA RAILWAY & IRRIGATION COMPANY, LETHBRIDGE.

The steel tippie at the No. 6 mine referred to in the report for 1908 is now completed and is equipped with Ramsey pusher for caging cars, car retainers, cross-dumps, weigh scales, screens, picking tables, and necessary conveyors for handling four sizes of coal and rock. The tippie is designed for four loading and one by-pass track, and is fully equipped for handling 1,800 tons of lump coal in eight hours.

In addition to the tippie, the following equipment has been installed: Two sets of railway scales; Ottawa tilting box car loader; Sirocco ventilating fan, 114-inch diameter with a capacity of 200,000 cubic feet of air with the 6-inch W. G., rope driven with a pair of 16-inch x 36-inch Leonard Corliss engines; two units of Babcock-Wilcox water tube boilers, 500 h.p. each, equipped with Babcock & Wilcox chain gate stokers and induced draft; and two American Blower Company's fans.

The boiler house is built to accommodate two additional units of Babcock & Wilcox boilers, which will be installed when required.

The power house is built to accommodate three Rand air compressors, three electric generators, two boiler feed pumps, feed water heaters and hoisting engine. Of the above, the following are now installed: One duplex Rand air compressor, simple steam, cross-compound air, with a capacity of 3,000 feet of free air per minute; one 200 k.w. generator, A.C., direct connected to a Robb engine; two Wier boiler feed pumps; two feed water heaters; hoisting engine, 30 inches x 48 inches, direct connected to a 12-foot drum and equipped with a steam brake, steam throttle and Nicholson automatic stop. A travelling crane for erecting machinery has also been installed in the power house.

The shaft is equipped with cages 18 feet in length, each carrying two cars placed tandem, and plow steel hoisting ropes, 4 7-8 inches in circumference. The pit bottom is made large and roomy, the roof being supported with 18-inch steel beams. The underground workings are laid out for endless rope haulage.

ROYAL COLLIERIES, LIMITED, LETHBRIDGE.

The development of the underground workings in this mine has been pushed ahead rapidly during the past year and now an output of about 200 tons per day is produced and the indications point to a large increase in this output during the coming year. A number of new cottages for the workmen and new office buildings have been erected. Four Ingersoll-Sargent coal cutters have been added to the equipment of the mine.

DIAMOND COAL COMPANY, DIAMOND CITY.

This company has during the past year installed the following equipment: One new electric generator, A.C., 105 k.w., 2,200 volts, 75.5 amp., 3 phase, 60 cycles, 240 r.p.m., direct connected to a Robb steam engine 15 inches x 16 inches, together with exciter, switchboard and necessary fittings, one Morgan-Gardner electric chain coal cutter; one Jeffrey electric chain coal cutter. A new branch line of railway has been laid from Kipp to the mine and equipped with locomotive, passenger coach, etc. This mine is now fully equipped for an output of 1,000 tons per day. The development of the underground workings is being pushed ahead and the indications point to a large increase in the output from this mine, which will add materially to the supply of domestic coal during the coming year.

LETHBRIDGE DISTRICT.

The Lethbridge district is the largest domestic coal producing centre in the province and will no doubt retain that position for some time to come. The building of the C. P. R. viaduct across the Belly River valley at Lethbridge has opened up a large coal area just north and west of the river, on which several prospect shafts have been sunk and a number of bore holes put down during the past year, with favourable results. The development work at the mines and prospect work throughout the district have been actively carried on during the year and from present indications there will be a substantial increase in the output from these collieries for the year 1910.

CANADA WEST COAL COMPANY, LIMITED, TABER.

The output from this mine is gradually increasing and has now reached 850 tons per day. An air shaft has been put down near the face of the main north entry and has reduced the length of the airways by 50 per cent. When the airways which are now being driven are connected, all ventilating doors can be removed from the main haulage road, which will facilitate to a certain extent the transportation of coal and will insure a more efficient supply of fresh air at the working face.

GREAT WESTERN COAL COMPANY, LIMITED, TABER.

This company has during the past year installed the following machinery: One Ingersoll low pressure air compressor, with a capacity of 800 feet of free air per minute; a number of coal cutters (Ingersoll puncher) with pipe lines and necessary fittings; two new Jenckes locomotive boilers and a new hoisting engine. The tippie has been remodelled and fitted with screens for sorting two sizes of coal.

ROCK SPRINGS SOOTLESS COAL COMPANY, TABER.

This company has during the year installed three locomotive boilers with a combined capacity of 300 h.p., one straight line single stage Ingersoll air compressor with a capacity of 1,000 feet of free air per minute, and nine coal cutters, viz.: Three Ingersoll-Sargent punchers, four Siskols and two little Hardies. A new tippie has been erected, equipped with scales, screens, etc. A spur line of railway and sidings and railway scales have been put in.

ALBERTA CONSOLIDATED COAL COMPANY, LIMITED, TABER.

This company has during the year absorbed the Seranton and Central Coal Companies and has put in the following equipment: Three boilers with a combined capacity of 270 h.p., hoisting engine, one straight line single stage Ingersoll air compressor with a capacity of 1,000 feet of free air per minute, eight coal cutters (Ingersoll-Sargent punchers), and necessary pipes and fittings, a water supply system, including pumping station, 7,000 feet of 5-inch water main and stand pipe with a capacity of 40,000 gallons. A tippie has been erected, equipped with screens, etc., for sorting two sizes of coal. Railway sidings and spur lines have also been laid.

Other coal mines operating in the Taber district are as follows: The Bullock mine, operated by the Domestic Coal Company; the Independent mine, operated by Messrs. Fox & Simms; the Monarch mine, operated by the Monarch Collieries, Limited; the Hopeful mine, operated by John Howells; the Star mine, operated by the Southern Alberta Coal Company; the Golden West mine, operated by the Golden West Coal Company; the Superior mine, operated by the Superior Coal Company; and a number of small mines operated by individuals who each employ a few men. The total daily output of these mines is approximately three hundred tons.

The Taber district is now an important mining centre, being the third largest domestic coal producing district in the province, and when all the mines in that district are working full time the output reaches approximately fifteen hundred tons per day. Owing to lack of railway facilities, however, the smaller operators are only able to compete on the market during the busy season of the winter months.

A considerable amount of prospecting work has been done throughout the district during the year and a number of valuable coal properties proven, and indications point to a continued increase in production in this district during the next few years.

MEDICINE HAT, GRASSY LAKE, AND MILK RIVER DISTRICTS.

A few small mines are operating in vicinity of Medicine Hat, Grassy Lake and Milk River, but owing to lack of railway facilities the output so far is regulated to a great extent by local demand.

LITTLE BOW DISTRICT.

In the Little Bow district, about 50 miles north of Lethbridge, there are seven small mines operating, producing a few tons of coal, the output being regulated by the requirements of the settlers throughout the district.

BIG BOW COLLIERIES, LIMITED.

This property is located in township 17, range 17, west of the 4th meridian, on the Big Bow River, about 16 miles south of the C. P. R. main line. Considerable prospecting work was done on the property during the year and a 5-foot seam of domestic coal of good quality, with a sandstone roof, has been proved.

SOUTH FORK OF THE OLD MAN RIVER.

A considerable amount of prospecting has been done in this district and a large number of coal seams have been proved. Owing to the lack of transportation facilities there has been practically no development work done yet. A number of different companies have secured extensive properties in this district, and with the coming of the railways a considerable production is to be expected. The coal is of a good quality and should find a ready market. It is expected that early next year a railway will be built from Burmis in to the Carbon Hill Coal & Coke Company's property, and from it branch lines into the other properties in the district.

THREE HILLS AND KNEE HILL DISTRICT.

The mines in this district are being worked on a small scale. Owing to the lack of transportation facilities the amount of coal produced is regulated entirely by the local demand. It is expected, however, that within the next few months a railway will be built through this district so that when the railway does get through they will be in a position to ship a considerable output.

EDMONTON STANDARD COAL COMPANY, LIMITED, EDMONTON.

During the past year this company has installed at their mine a hoisting engine, locomotive boiler and ventilating fan, and the output from the mine has been increased about 40 per cent. over that of the previous year.

ALBERTA COAL MINING COMPANY, LIMITED, CARDIFF.

The tippie at this mine has been remodelled and screens for three sizes of coal installed.

RITCHIE COAL COMPANY, EDMONTON.

The following machinery and equipment has been installed at this mine during the past year:

A 50 h.p. Leonard return tubular boiler, hoisting engine, ventilating fan, two pumps, weigh scales and tippie capable of handling about 250 tons of coal per day.

CLOVER BAR COAL COMPANY, LIMITED, EDMONTON.

A spur line has been laid from the G. T. P. railway, a distance of about a quarter of a mile to where a new shaft has been sunk, and the following machinery installed: Two 100 h.p. Robb return tubular boilers; Hoppes feed water heater; hoisting engine, 14 inches x 30 inches direct connected to a 4 1-2-foot drum, and a 10 k.w. electric generator for lighting purposes and driving tippie machinery. The main entries in the old mine are being driven to connect with the new shaft and when the tippie and plant are completed all the coal from the old mine will be hoisted and dumped direct into railway cars.

HUMBERSTONE COAL COMPANY, EDMONTON.

This company has sunk a new shaft and installed the following machinery: Hoisting engine; locomotive boiler and two pumps. A temporary tippie has been erected and the main entries are being driven to connect with the workings of the old mine.

The output from the mines in the Edmonton district for the past year shows a considerable increase over that of 1908. This increase is, to a certain extent, due to the gradual widening of the market, more coal being shipped to outside points. The mines in this district are operated on a comparatively small scale, still the aggregate output taken from all the mines is fairly large and Edmonton stands as the second largest domestic coal producing centre in the province.

West of Edmonton the first coal lands that have been prospected are along the north side of Wabamun Lake. Small seams of coal crop out on the railway cuttings and a number of prospects have been sunk in the coal, which reaches a thickness of from 18 to 22 feet, with one band of shale about the centre ranging from six inches to a foot.

Further west we reach the crossing of the Pembina River where the coal can be seen out-cropping on the river bank. At this point coal mining has been carried on in a primitive way for a number of years. Besides these outcroppings on the river, a large amount of money has been expended in drilling on the property of the Pembina Coal Company, Limited, with very favourable results. The coal is of the same geological age as that prospected on Wabamun Lake, and in character very similar. Proceeding westward from the Pembina

River, the country is fairly well wooded, mostly with poplar, until about Mile 109, where there are some large spruce timber limits and a sawmill in operation.

The next sign of coal to be seen is at Wolf Creek, Mile 120, where a few small coal seams have been located, but nothing has yet been proved economically workable. The Grand Trunk Pacific Railway at this point crosses the mouth of Wolf Creek at a great height and also the McLeod River at a very high level.

Following the McLeod River westward, large beds of sandstone of the lower Laramie series are passed to Mile 142. In this vicinity it is intended that a branch railway will strike southward to tap the coal fields, following the high lands between the Embarras River and the McLeod River. At the head waters of the Embarras River a large amount of prospecting was done last summer by the Yellowhead Pass Coal & Coke Company. At least four workable seams have been prospected and several tunnels drifted in for about 100 feet. The lower seam is approximately 40 feet in thickness, but inter-stratified occasionally by beds of carbonaceous shale. The other coal seams are cleaner and should make a good steam coal. On the same line of strike southeast of this property is the coal property of the Pacific Coal Company, who own a large area, approximately 35,000 acres. This property has been thoroughly prospected and several tunnels driven in the lower seam. The southeast end of this property is on a different watershed, viz.: the Pembina River.

Crossing the Pembina River southward to the forks of the Brazeau River, which is one of the main branches of the North Saskatchewan River, a coal property has been located by the Canadian Northern Railway, on which there has been a fair amount of prospecting work completed and the coal field proved. This point is much nearer the mountains than any of the other coal properties. Directly due south of the main fork of the Brazeau lie the coal areas of the German Development Company, who have consolidated with the Canadian Northern Railway and are now termed the Rocky Mountain Collieries, Limited. These large coal areas have been thoroughly prospected by Mr. McEvoy, late geologist for the Crow's Nest Pass Coal Company, and according to his report in the CANADIAN MINING JOURNAL, the coke produced from these coals is at least equal to that produced from the coking coals of the Crow's Nest field. In this vicinity, which is townships 39, 40 and 41, ranges 17, 18 and 19, west of the 5th meridian, other coal areas have been located, but very little work has been done on them. Following the same strike of these coal measures in the vicinity of townships 43, 44 and 45, ranges 20, 21 and 22, other large areas of coal lands have been located and some prospecting work done on them.

Farther to the northwest, on the head waters of the McLeod River, which is the next watershed, coal areas have been located by the Canadian Northern Railway and other parties. These coal lands show an analysis similar to that of the Crow's Nest field. On the head waters of the west fork of the McLeod River a large area of coal lands has been located and fairly well prospected. The outcrops at this point are not so prominent as the strata is at a less angle.

Following the pack trail from the west fork of the McLeod River we reach the head waters of Gold Creek, which is on the watershed of the Athabasca River. About the mouth of Gold Creek and its junction with Prairie Creek, a coal seam about four feet in thickness has been located, of a high bituminous character. At

the mouth of Prairie Creek we again reach the line of the Grand Trunk Pacific Railway.

Following the railway westward, passing through the Gap or Folding Mountain, another coal area has been located on Fiddle Creek, on which a fair amount of prospecting has been done. The folding at this point, however, is greater than that to the south, but the coal of a higher quality.

Farther west, towards the summit of the Rocky Mountains, small outliers of cretaceous measures have been located north of the railway, but no work has yet been done on any of them. The summit of the Rocky Mountains and the western boundary of Alberta is reached at Dominion Prairie, where the last outliers of the coal bearing cretaceous measures are found.

Work of Inspection.

The work of inspectors has materially increased during the year. The large number of new settlers who have been locating throughout the province has considerably increased the demand for domestic coal in the outlying districts, and has resulted in a number of small mines being opened in the lignite field. Some of these mines are located a long distance from the railways and it requires as much time to reach one of them and make an inspection as it does a large mine which is conveniently located. At the older mines the underground workings are expanding and becoming more difficult to ventilate, the haulage roads are increasing in length and the transportation of the output is being accelerated, requiring the installation of additional machinery, and as a result more time is required to make a thorough examination.

The new legislation commonly known as the "Eight Hour Law," which came into force on April 1st, has created a new condition at the mines respecting the hours of work, and the inspectors have had to devote a considerable amount of their time to the adjustment of the various difficulties met with in connection with the changes in the methods of operating the mines necessary to conform with the new regulations.

The inspectors have made their regular rounds of inspection of all the mines and investigated all fatal and serious accidents, in each case removing as far as practicable the dangers contributory to such accidents.

The installation of safety lamps and the use of permitted explosives in all the bituminous mines has received careful attention during the year and I am pleased to report that the opposition previously raised by some of the operators to the adoption of these safeguards is gradually decreasing. I might explain that while Alberta has no list of permitted explosives, we have up to the present been guided by the British permitted list.

Accidents.

From the list of accidents for the past year, it will be seen that there have been nine fatal accidents, seven of which occurred below ground and two on the surface. Of the fatal accidents below ground, three were caused by falls of roof, two by mine cars, one by suffocation by noxious gases and smoke from mine fire and one by a miner falling down chute. Both fatal accidents above ground were caused by parties being caught between the drawheads while in the act of coupling railway cars. The three fatalities caused by falls of roof occurred at the working face while the parties were engaged at their regular work. The fatal accident due to falling down chute occurred while the miner was returning from his working place.

All of the above fatalities were fully investigated by the inspectors, and from evidence given at the inquests they appear to have been purely accidental.

The fatal accident due to suffocation was the result of a fire on December 12th, which started from some unknown cause in the main intake airway of the Alberta Railway & Irrigation Company's No. 3 mine. In this case the stable boss, Fred Berresford, while endeavouring to reach the stables and save the horses, which were located some 2,000 feet away from the seat of the fire, was overcome by noxious gases and smoke.

The two fatal accidents caused by mine cars occurred in the mine of the Canadian Coal Consolidated Company, Limited, by parties being caught against chutes while riding on mine cars, in contravention of the special rules and a notice which was then posted at the mine. Had the special rules and notice been observed by the persons for whose guidance they were posted, these accidents would not have occurred, but the most explicit instructions are ineffective at times, and in view of this the inspectors have taken steps to remove this danger as far as possible by requiring such changes in the construction of chutes as local conditions will permit.

Compared with 1908, the number of fatal accidents shows a decrease of two, and the number of non-fatal accidents an increase of seven. However, the production of coal has increased proportionately, so that the average number of tons of coal mined per non-fatal accident remains approximately the same.

Tabulated List of Accidents Above and Below Ground.

Cause.	Fatal.		Serious.		Slight.		Total
	Above	Below	Above	Below	Above	Below	
Fall of roof and sides..	3	..	14	..	4	..	21
Gas explosions .....	..	..	1	..	6	..	7
Explosives .....	..	..	1	..	3	..	4
Mine cars	2	6	10	2	2	..	22
Railway cars in mine yards	2	..	..	..	..	..	2
Falling down chutes...	1	..	1	..	..	..	2
Cages and shafts .....	..	..	1	..	1	..	2
Other causes	1	5	3	..	..	..	9
	2	7	11	31	2	16	69

The following list indicates the average number of tons of coal mined each year per fatal accident for 10 years ending December 31st, 1908, and includes all fatal accidents in connection with the operation of mines above and below ground. It might be explained that the comparison from 1899 to 1905, inclusive, is taken from the reports of the Government of the Northwest Territories, which included the present provinces of Alberta and Saskatchewan, and the comparison for the years 1906 to 1908, inclusive, are for the Province of Alberta only:

Number of Tons of Coal Mined per Fatal Accident.

Year.	Tons.
1899	86,556
1900	22,948
1901	115,549
1902	63,836
1903	103,823
1904	130,488
1905	67,756
1906	138,500
1907	96,566
1908	167,727

From the above list it will be seen that conditions with regard to fatal accidents are gradually improving, as the figures show the average number of tons of coal

mined per fatal accident for the period of ten years ending December 31st, 1908, is 99,375, while the period of five years, 1899 to 1903, inclusive, shows an average of 78,542 tons mined per fatal accident, and the period of five years, 1904 to 1908, inclusive, shows an average of 120,207 tons, which is an increase over the five years 1899 to 1903, of 41,665 tons. The records for the years 1908 and 1909 were much more satisfactory, there being an average of 167,727 tons mined per fatal accident for the year 1908, or an increase of 29,227 tons over the highest previous year, and an average of 241,592 tons for the year 1909, or an increase of 73,865 tons over that of 1908.

Schedule of Accidents in Coal Mines During 1909.

(Above and Below Ground.)

Mine and location.	Resulting Fatally	Serious Injury	Slight Injury	Total of Accidents.
International Coal & Coke Co., Ltd., Coleman	1	9	3	13
Alberta Railway & Irrigation Co., Ltd., Lethbridge.....	1	5	3	9
Canada West Coal Co., Ltd., Taber	1	4	2	7
Bankhead Mines, Ltd., Bankhead	1	4	1	6
Canadian Coal Consolidated, Ltd., Frank	3	1	1	5
Royal Collieries, Ltd., Royal View .....	..	4	1	5
West Canadian Collieries, Ltd., Bellevue Mine	1	2	1	4
West Canadian Collieries, Ltd., Lille Mine .....	..	2	..	2
Twin City Coal Co., Ltd., Stratheona .....	..	..	3	3
H. W. McNeill Co., Ltd., Canmore .....	..	3	..	3
Ansley-Pruitt Coal Mining & Mfg. Co., Medicine Hat....	..	1	1	2
Leitch Collieries, Ltd., Passburg	1	1	..	2
Stratheona Coal Co., Stratheona ..	2	..	..	2
Pincher Creek Coal Mining Co., Ltd., Pincher Creek .....	..	..	1	1
Cardiff Coal Co., Ltd., Cardiff..	1	..	..	1
Great Western Coal Co., Ltd., Taber .....	..	1	..	1
Clover Bar Coal Co., Ltd. Edmonton .....	..	..	1	1
Diamond Coal Co., Ltd., Diamond City	1	..	..	1
McGillivray Creek Coal & Coke Co., Ltd., Coleman .....	..	1	..	1
Total	9	42	18	69

During the year 1907 there were 24 accidents, including fatal, serious and slight, due to explosions of gas and powder and in 1908 there were 14 accidents due to the above causes, while the year 1909 shows but 10 accidents due to these causes. The decrease in the number of fatal accidents for the past two years is largely due to the installation of safety lamps and the use of permitted explosives. From our records on file it is quite evident that all our most serious accidents which have each resulted in a number of deaths in previous years have had their origin in the flame of an open light or by the improper use of explosives, and it would appear that in order to avoid serious accidents the most effective remedies are the installation of modern and securely

locked safety lamps, permitted explosives, and the careful supervision of shot-firing, in all mines where gas is given off or where dust is present in dangerous quantities.

Wages.

The scale of wages paid in the province during 1909 was practically the same as that paid during the two previous years.

The general wage schedule for day labour is as follows:

INSIDE MEN.

Fire bosses	.....	\$85.00 to \$110.00	per month.
Shotlighters	.....	\$3.00 to \$3.50	8 hours
Bratticemen	.....	3.00	8 "
Bratticemen helpers	.....	2.50	8 "
Timbermen	.....	3.00	8 "
Timbermen helpers	.....	2.75	8 "
Drivers	.....	2.75	8 "
Drivers, wet places	.....	3.00	8 "
Team drivers	.....	3.00	8 "
Tracklayers	.....	3.00	8 "
Tracklayers' helpers	.....	2.75	8 "
Rock miners	.....	3.50	8 "
Miners	.....	3.00	8 "
Miners, wet places	.....	3.50	8 "
Locomotive engineers	.....	3.00	8 "
Switchmen	.....	2.75	8 "
Chute loaders	.....	2.75	8 "
Labourers	.....	2.50	8 "
Timber handlers	.....	2.75	8 "
Machine men	.....	3.50	8 "
Machine men helpers	.....	3.00	8 "
Switch boys	.....	1.50	8 "
Door boys	.....	1.50	8 "
Hoistmen	.....	3.00	8 "
Rope riders	.....	2.75	8 "
Couplers, boys	.....	1.50	8 "
Couplers, men	.....	2.50	8 "
Pushers	.....	\$2.75 to 3.00	8 "

OUTSIDE MEN.

Pithead men	.....	\$2.50	10 hours
Dumpers	.....	2.50	10 "
Slate pickers, men	.....	2.00	10 "
Slate pickers, boys	.....	1.25	10 "
Car oilers, boys	.....	1.25	10 "
Car oilers, men	.....	2.00	10 "
Tally boys	.....	1.25	10 "
Teamsters	.....	2.50	10 "
Blacksmiths	.....	3.50	10 "
Blacksmiths' helpers	.....	2.50	10 "
Mine carpenter	.....	3.50	10 "
Mine carpenter helper	.....	2.50	10 "
Car repairers	.....	3.00	10 "
Power house engineers	.....	3.50	12 "
Tipple engineers	.....	3.25	10 "
Locomotive engineers	.....	3.25	10 "
Locomotive engineers' helpers	.....	2.80	10 "
Firemen	.....	2.50	8 "
Car handlers	.....	2.40	10 "
Fanmen	.....	2.50	12 "
Outside labourers	.....	2.25	10 "
Fan firemen	.....	3.00	12 "
Lampmen	.....	2.50	12 "
Machinists	.....	3.20	10 "
Machinists' Helpers	.....	2.50	10 "
Couplers	.....	2.25	10 "
Sawyer	.....	3.00	10 "

Prospect Work.

The number of new railways which have recently been projected throughout the province has had a tendency to renew the activity in prospecting and locating new coal areas. This is especially the case as regards the bituminous fields.

The coal field in the district lying west of Edmonton has only been partially explored, but several large coal areas have been located, on which a number of seams of good bituminous coal have been prospected and proven.

In the Cascade Basin, or in that part of it known as the Kananaskis Valley, the prospect work which was previously well advanced has continued during the year, and according to the report of Mr. D. B. Dowling, of the Dominion Geological Survey, this field contains a large number of easily accessible coal seams which crop out in various places along the sides of the mountains, and when a railway is built into the field a considerable output can be got in a short time.

The large amount of prospecting work which has been carried on south of the Crow's Nest line of railway, in the district known as the South Fork of the Old Man River, has demonstrated that this coal area is equally as large and will eventually be as important as that which is now being worked in the Frank-Coleman field.

West of Lethbridge, along the Macleod-Lethbridge cut-off, a number of bore-holes have been put down by the Lethbridge Collieries, Limited, which have proven that the coal area known as the Lethbridge coal field extends a considerable distance north and west of the present collieries.

During the past year a number of new mines have been opened throughout the province which are being developed very rapidly and present indications point to a substantial increase in the total output of coal for the year 1910.

Portland Canal Mining Company, Limited

Manager's Report.

Stewart, B.C., October 1st, 1910.

C. H. Dickie, President,
Portland Canal Mining Company,
Duncan, B.C.

Dear Sir,—On September 24th both water-wheels at the concentrating mill were run as a trial. Everything moved off in a satisfactory manner. From that date until yesterday one machine after another was connected, the crusher being started on September 27th. Yesterday the first ore was fed into the jigs and tables and our next work will be the adjusting and gauging of their capacity, bedding the jigs and gradually tuning up the plant for the serious work it has in store.

The mill is a substantial and complete one of which no engineer need be ashamed. It is built primarily with regard to economy of operation and with a future increase of capacity in view. A mill which apparently might answer the purpose could have been built for less money, but it would not have lasted so long, done the work so well, nor operated at as low a cost as this. All the work of construction has been well done and the mill with its magnificent water-power is worth many times what it has cost.

It gives me pleasure to report that the separation of the galena from the pyrite and of both from the gangue is easily effected. The ore concentrates more perfectly

than I expected, and I have not seen any from which the gangue was more easily removed. There has never been any reason to doubt that the ore would concentrate successfully, on the contrary, the tests of two years ago were quite conclusive, but the accomplishment of an undertaking of this sort, even if fully expected, is most satisfactory.

The grade of the feed to the mill is for manifest reasons, low for the present. It would be folly to put high or even average, grade ore through until all the machines were adjusted to make a proper saving. As it is needed a better grade of ore will be supplied until the average ore which the mine can continuously produce is reached. Just what this grade will be no one can possibly tell, but it will not be far from that given by me in my report of August 28th, 1908, as the average from No. 1 and No. 2 ore dumps. Such ore will be more profitable than the tests made at that time would indicate because a much cleaner concentration can be made than was then effected.

Development work at the mine has been uniformly satisfactory. The ore body now being opened by the No. 2 and 3 tunnels is proving larger than any other in the mine. Both are in good ore from which high-grade specimens may be obtained and which will average at least as well as the rest of the ore. At one point nearly five feet in width of almost solid ore is exposed and is notable for the increase of lead which it shows. The next one hundred feet on the No. 3 level is most important ground and will develop splendidly judging from the surface and levels above.

From the A raise a new stope has been started which will supply ore when needed. The assays from this point show a higher gold content than the average and this should make good feed for the mill. The ore is about four feet wide.

The B raise is now up more than half way to the No. 1 level and has about thirty feet more to go. There is three feet of ore in the face of this working to-day. With its completion an underground connection down through the mine will be provided and the ore above No. 1 can be economically extracted.

The tunnel on the Eclipse claim, which develops the vein in place about one thousand feet north from and four hundred feet below the No. 3 tunnel, shows a strong seam of ore, mixed in character and about a foot wide, although it probably is not in an ore shoot. Work here has been discontinued for the present, but should be resumed next summer as this is a most important point from which to prosecute development.

I have so often expressed my confidence in the future of the mine that to repeat it now seems superfluous. Its development is fully justifying my expectations and the ore opened is worth many times the company's expenditures for purchase, development and improvement and at no time in the past has it looked so well or promised so much as it does to-day.

All the new buildings, which were badly needed both at the mill and mine, are completed and occupied. These are commodious and furnish many comforts which should insure obtaining the best of labour for the company's requirements.

I remain,

Yours truly,

W. J. ELMENDORF,

Manager.

Le Roi Mining Company in Liquidation

Acting on the advice of the company's consulting engineer, Mr. W. A. Carlyle, of London, the shareholders will not spend more money in exploring in the Le Roi mine, at Rossland, B.C., for other shoots of ore of good grade, but have decided the company shall go into voluntary liquidation. Mr. Carlyle reports that during the last ten years a large amount of exploration work has been consistently done, including much diamond-drilling, of which 27,000 feet have been bored since June, 1906, and of this 15,000 feet within the last twelve months. He says, further, the last of the known pay ore is being stoped out and realized upon. To effectively explore for more ore at least \$500,000 would have to be provided, but with the knowledge of the mine now possessed after the extensive exploratory work done during the last twelve months, he cannot hold out any hope that there is a prospect of success, even if the large expenditure of money it would require were made.

The company has valuable assets, free and unencumbered by mortgage, and has no debenture issue. Its debts, outside of current expenses, total about \$55,000, against which there is cash on hand and money due for ore and smelter products shipped, together approximately \$40,000.

A statement published two years ago showed that from February, 1894, to September, 1908, there had been taken from the Le Roi mine 1,445,246 tons of ore, containing 689,057 ounces of gold, 1,038,906 ounces of silver, and 41,600,740 pounds of copper, together of a value of \$20,406,627, or an average of \$14.12 per ton. Production since then (the mine continues to make a small output) has been between 40,000 and 50,000 tons, worth, say, \$500,000, so that the aggregate production to date has been in gross value, approximately \$21,000,000.

The Le Roi Mining Company, Limited, was organized in London, June 17, 1898, under the laws of Great Britain, with capitalization £1,000,000, shares £5 par, fully issued and fully paid. Only £50,000 working capital was provided, but as on November 7, 1899, a dividend of five shillings per share was paid, it has had actually no cash capital from the shareholders for development or equipment purposes. Two dividends were paid in 1906, after Mr. A. J. McMillan took charge of its affairs, one shilling and sixpence in March, and two shillings in November. Prior to sale by its Spokane, Washington, owners to the British America Corporation, London, in January, 1898, the Le Roi had paid its American shareholders \$995,000 in dividends. Under British ownership much money has been spent in expensive machinery, equipment, sinking the main five-compartment shaft 1,700 feet, and other important underground development, and purchase of the smelting works at Northport, Washington.

It may be interesting at this time to quote from an address of welcome made by Mr. Campbell Sweeny, manager of the Bank of Montreal, Vancouver, to the members of the Western Branch of the Canadian Mining Institute when they met in Vancouver last January. He said, in part: "We have what I think to be one of the most extraordinary mines in the world, namely, the Le Roi mine at Rossland. It is a fact, gentlemen, that to-day there is not one dollar—not a penny piece—of anybody's money in that mine. There was once put into it a few thousands pounds, but within a short period the money was drawn out again, and since then the whole

The Dominion Government is building a telegraph line between Stewart and Portland Canal.

of the large amount of development work and the extensive equipment of the property have been paid for out of the products of the mine. Yet people in England will say, 'We don't want to hear anything about your British Columbia mines. We have your damned Le Roi, and we never got a penny out of it.' But they must be prepared to take similar risks in British Columbia mines to what they have done in those of the South African Rand if they would make the mines in this country become profit-producing. Old Country people put hundreds of thousands of pounds into Rand mines before they made any profit out of them. They knew well they had to put it in if those mines were to be properly developed, and having put it in, a return came to them in due time, and ever since then they have been receiving dividends from some of those mines. Money must first be put into mines if extensive and effective development is to be secured, and after we get sufficient money put into our mines we shall have them properly developed, and many of them will yield profits and reflect credit on those operating them." It may be added that, as the senior officer of the Bank of Montreal in British Columbia, which for some years financed the Le Roi mining and smelting enterprise, Mr. Sweeny had been in an exceptionally favourable position for knowing the conditions under which the company had been operating, so spoke with knowledge of the subject.

White Pass and Yukon Railway Rates

Among other matters before the Dominion Railway Commission at its sessions held in Vancouver on September 7 and 8, was a complaint by Col. J. H. Conrad (whose name several years ago was prominently before the public in connection with the development of several mineral claims in Windy Arm district, Southern Yukon) alleging against the White Pass & Yukon Railway excessive freight charges on ores from Carcross (Caribou Crossing, as it was at one time known) to Skagway, and on mining machinery and supplies from Skagway to Carcross.

There is no doubt that in the case of copper mines in Southern Yukon, the railway charges have been considered altogether too high to admit of the mines being worked without loss since the fall in the price of copper, and that consequently they have been idle. But the mines Colonel Conrad represents are not copper mines, it being understood that silver is their chief valuable metal.

According to the newspaper reports, the proceedings before the Commission showed evidence of much bitter feeling existing between Colonel Conrad and Mr. S. H. Graves, the president and general manager of the railway company. The complainant claimed that he went ahead with mining development on the assurance that he would be charged an average freight rate of \$2.50 per ton on incoming shipments, and \$2 per ton on ore shipments to tidewater at Skagway. The mining companies in which he is interested, the Colonel says, employ several hundred men, while a concentrator in operation at Windy Arm is stated to have a capacity of 200 tons a day. No ore is being shipped from the mines pending a decision by the Railway Commission as to freight rates. The question of excessive passenger rates was not included in the complaint for the alleged reason that sooner than pay a charge of 18 cents per mile, the

miners when they got out in the fall walk to Skagway. Great stress was placed by Colonel Conrad on his assertion that the mines he represented had had \$800,000 spent on them.

It transpired that the rate charged the Conrad mines was \$3.75 per ton, whereas the Atlas Company's Pueblo mine, in Whitehorse copper camp, had been granted, under a secret agreement, a special rate of \$2.50 a ton, of which agreement no copy had been filed with the Railway Commission, which default Mr. Graves was informed by Judge Mabee, chairman of the Commission, constituted a violation of the Railways Act. Continuing, he said: "You want to do what you please, but the law says you shall not. It is against these secret bargains and contracts that the law has struck. A man who ships a ton of hay for his cow is entitled to the same rate as a man who ships a thousand tons for the upkeep of a thousand cows. That principle has limitations, but a secret contract in the teeth of a printed tariff certainly does not come within those limitations. If it were left to the railway companies to decide, it would allow them to discriminate to the enrichment of one locality and the impoverishment of another. Surely you, as president and manager of a railroad, are acquainted with the Railways Act. If not, I would advise you to buy a copy of the Act and study it."

The decision of the Commission was, in effect, that the freight charge on ore and concentrates from Carcross to Skagway shall be \$1.75 per ton; that the complaining companies shall be granted similar facilities for shipment of their ore as the Atlas Mining Company, in Whitehorse camp, and that a copy of the tariff shall be published and the rates adhered to.

Personal and General

Mr. Absolom Beaton, manager of the Dominion Coal Company's No. 2 Colliery, died suddenly from heart failure while on his way to the colliery on the morning of the 12th of October. Mr. Beaton has been manager of No. 2 Colliery since the beginning of 1908, having previous to that been the manager of No. 9 Colliery. This is the first death that has taken place among the mine managers during the time the Coal Company has been incorporated.

Mr. O. B. Smith, Jr., superintendent of the Granby Consolidated M. S. & P. Company's copper mines at Phoenix, B.C., recently visited Spokane, Wash.

Mr. Wm. Rowe, for years a mine superintendent in the Boundary district of British Columbia, is now superintending development work on the coal lands near Burmis, Southwest Alberta, of the Head Syndicate, Limited, of London. Mr. Leslie Hill, of Nelson, B.C., is consulting engineer and manager in Canada for the syndicate.

Mr. R. W. Brock, Director of the Geological Survey Branch of the Canada Department of Mines, has returned to Ottawa from Los Angeles, California, whence he went to attend the thirteenth annual session of the American Mining Congress, held September 26th to October 1st, inclusive. Among other men formerly engaged in mining in Canada, Mr. Brock met at the congress were Mr. S. F. Parrish, at one time general manager of the Le Roi Mining Company, and Mr. J. Cosgrove, who was at the Centre Star mine, also at Rossland, B.C.

Mr. Robert R. Hedley, for some time in charge of the development of Long Lake mine near Sudbury, is now mining engineer and technical adviser to the Canadian

Mining Operators, Limited, a company recently organized at Vancouver, B.C.

Mr. W. M. Brewer, of Victoria, B.C., recently returned to that city after having spent the summer in the North, in the interests of the Pacific Metals Company, Limited, of which he is president.

Mr. G. G. S. Lindsey has returned to Toronto from a trip to British Columbia. While in the West Mr. Lindsey visited Portland Canal and Sheep Creek mining camps, in both of which numbers of new mining properties are being developed.

Mr. W. H. Aldridge, managing director of the Consolidated Mining and Smelting Company of Canada, Limited, has been paying a business visit to Toronto and Montreal.

Mr. E. J. Conway, who graduated in metallurgy at McGill University in 1909, and afterward was assayer at the Whitewater mines, Slocan district, B.C., is now with the Tye Copper Company, a mining and smelting company of excellent standing, operating on the Pacific coast.

Mr. John Hopp, one of the largest operators in hydraulic gold mining in British Columbia, has returned to Cariboo from the coast, where he has been recuperating following ptomaine poisoning, from which he suffered during several weeks.

Dr. A. E. Barlow has changed his place of abode from 51 Trafalgar Avenue, Montreal, to 328 Roslyn Avenue, Montreal.

Mr. Alex. H. Smith has returned from Mexico and is at present in Porcupine. Mr. Smith's Toronto address is 19 Wellington Street West.

Mr. R. B. Lamb, of 15 Broad Street, New York, has opened an office in Room 703, Traders Bank Building, Toronto. Mr. Lamb has had long experience in both Australian and American mining and metallurgical practice. For some time henceforward his residence will be in Toronto.

Correspondence

To the Editor CANADIAN MINING JOURNAL:

Sir,—In the summary report of the Mines Branch of the Geological Survey of Canada for the year 1909, page 20, I notice the following, "Mr. Theo C. Denis was intrusted with the examination of the manganese ore deposits which formerly were actively worked in the Maritime Provinces, with a view to investigating the causes which led to their abandonment. It was thought that some of these mines might be re-opened as a source of manganese for the steel industry in Canada and the United States." At pages 58-63 Mr. Denis tells us, he visited four abandoned properties in Nova Scotia and three in New Brunswick. From the examination of these he concludes, "that the manganese deposits of the Maritime Provinces are irregular and pockety" and that "the nature of such deposits does not permit of the installation of plants for economic mining and handling cheaply large quantities of material." There is one redeeming feature, however, "the ores are very high, pure and applicable to the uses which require the greatest purity."

If we are to infer that the report of Mr. Denis is a report on the manganese deposits of the Maritime Provinces or of the "Canadian ores of manganese" then we can only conclude that the total area of these deposits is included in a district in each of the two provinces each having a radius of not more than eight or ten miles. This would be very misleading. If the

only information the Department of Mines required was, to know whether these abandoned mines might be re-opened as a "source of manganese for the steel works" it is regrettable that the valuable services of Mr. Denis should have been wasted, when a letter addressed to either of the steel works in Nova Scotia or to their mining engineer would have furnished much more reliable and valuable information than it was possible for Mr. Denis to obtain from local farmers or lumbermen.

I do not for a moment attempt to criticize the ability of Mr. Denis to make an intelligent examination and report on these deposits, if he were allowed the time and had an opportunity to make the necessary examinations, but such a report as that published by the Mines Branch on these deposits is not only misleading but useless and detrimental to the industry.

The geological horizon carrying manganese deposits in Nova Scotia, extends irregularly from Kings County on the west, eastwardly through Hants and into Colchester County. Deposits also occur in the Counties of Pictou, Cumberland, Lunenburg, and the four counties of Cape Breton Island. Within this territory some of the deposits are very promising; as the Loch Lomond deposit in Cape Breton County formerly operated by the late Hon. E. T. Mosley; the East River deposits of Pictou County, where the ore is only suitable for steel manufacturing. Small lots have been mined for that purpose. The deposits at Manganese Mines, Colchester County, Pembroke and Cheverie, Hants County, have all been operated in the past for high grade ore, and some of these show better indications of producing ore suitable for steel purposes than any of the deposits of Nova Scotia visited by Mr. Denis. In Lunenburg County the reported developments during the past few years have shown that the manganese deposits there have greater magnitude and more regularity than any other deposits yet discovered in the Maritime Provinces.

No mention of the above named properties nor of many other prospects has been made in this report; nor has any notice been taken of that large manganese bearing area of the Magdalen Islands, which geologically resembles very closely the deposits in the Batesville region of Arkansas.

It may be true, but very questionable, that the Maritime Provinces cannot produce any valuable deposits of manganese suitable for steel purposes. It certainly is not fair to the country to make public such an assertion on the evidence gathered from Mr. Denis' casual glance at a few abandoned mines which are full of water and offer no opportunity for examination. To one who has made a study of these deposits it is simply ludicrous to speak of these few abandoned properties visited as "The Canadian ores of manganese."

We are told that the ores are "irregular and pockety." This is the same old cudgel that has been beating the life out of Nova Scotian mines for many years. I should like to ask from what source this information that the ores are "irregular and pockety" was gained? It certainly was not gained from underground examination. Will the Department of Mines kindly tell what difference it makes if the ore is pockety provided the pockets are large enough for profitable mining, or if irregular in formation if the irregularities are understood?

Again, from the same source we gather the information that these deposits will not permit the installation of plants for the economic handling of large quantities of material. On this point Mr. Denis' informant was in

error. When the formation of manganese ores is thoroughly understood, then the mining of it is not so uncertain, particularly in Nova Scotia. The principal reason for closing Tennycape mines (one of the abandoned mines visited) was the lack of machinery for handling cheaply large quantities of material. In this mine there are thousands of tons of material carrying from 15 to 25 per cent. of high grade pyrolusite that was wasted for want of machinery to handle it cheaply. This is also true of the 50,000 tons of dump material at this mine which has been estimated to contain 10 per cent. or more of manganese lost for lack of modern concentrating machinery.

There can be no question that the information given by the Department of Mines from time to time has been of great value, but this value does not consist in such reports as the one published on the manganese deposits. It is submitted that not only should it be the aim of the Department of Mines to tell us of what grade our ores are but also to tell us what value they have in the market and what market they are suitable for. This report tells us the manganese ores are of exceptional purity and would probably bring better prices for some other purposes than the steel industry. The advice that the operator should proceed cautiously and look carefully into the markets, etc., is rather obsolete. It would be much better to advise how to proceed economically and intelligently in mining and give the necessary information regarding the uses and demand of these ores of "exceptional purity." How to prepare them for the market so as to get the greatest possible value, and how to avoid the conditions of the past when the miner had to deal with the middleman and thus lose a great part of his profits.

Above all it should be the duty of the Department of Mines to be very cautious in making reports on ore properties without a thorough knowledge of them. A mining engineer depending on his reputation for a living would live but a short time after making such a report as this on the manganese deposits of the Maritime Provinces.

W. F. JENNISON.

Truro, N.S., Sept. 16th, 1910.

The Editor CANADIAN MINING JOURNAL:

Sir,—Your interpretation of the term "intellectual proletariat" in No. 16 of the CANADIAN MINING JOURNAL, though in general correct, is not quite exact. The growing tendency towards university education in Germany in recent years has had the effect of overcrowding the professions to such an extent that the average yearly earning of a medical man in Berlin does not exceed \$750, and the most highly-trained chemists and engineers eagerly seek situations which bring them in \$600 annually.

This overproduction of "trained intellect" has resulted in the swelling of the ranks of the dissatisfied political party, "the Social Democrats," and later the forming of unions, among medical men for instance, similar to those of the working men over here.

The term "intellectual proletariat" was first used in Parliament by a member who was commenting on the extraordinary increase of the Social Democratic party by men whose university education should have taught them better than to allow themselves to be identified with this party.

Yours truly,

MARTIN NORDEGG.

SPECIAL CORRESPONDENCE

NOVA SCOTIA.

Glace Bay: Dominion Coal Output.—The aggregate output for the nine months ending 30th September was 2,608,000, comparing with 2,097,000 tons for the same period of last year. The output for the first nine months of 1908 was 2,867,179 tons. The output for the whole year will be about three and a half million tons, which will be a return to the figures reached in the years 1906, 1907 and 1908. For some years past the Dominion Coal Company's mines have had an output capacity of four million tons per annum, but the Hub mine fire in 1906, the trade depression in 1907 and the U.M.W.A. strike in 1909-10 have in their turn prevented the passing of the three and a half million mark.

The output of the mines for the four months June to September has never been exceeded, and if October outputs reach 350,000, as they probably will, an average of over 352,000 tons per month will have been maintained over the major portion of the shipping season. The actual figures are as follows:

	Tons.
June	358,069
July	354,022
August	350,090
September	348,234
October	(Estimated) 350,000

1,760,415

This is a very good and consistent average, and never before in the history of the company has so much coal been extracted in so limited a time.

The Coal Company is considering the erection of a modern washery to replace the one destroyed by fire several years ago.

Quotations have been asked for. The site has not yet been selected. This is a further indication of the company's intention to keep pace with its American competitors in the preparation of coal for the market.

The exhaust-steam turbine and condensing plant at No. 2 colliery are nearing completion. The company has also under consideration the erection of a brick smoke-stack at this colliery to replace some of the steel stacks now in use, and the installation of an automatic coal-handling plant. All these additions will add to the efficiency and economy of the power-producing plant at this colliery.

ONTARIO.

Cobalt, October 19.—Between bad transportation and lack of power the South Lorrain camp has been little more than marking time this year. Now the Mines Power Company, which is producing power at the Matabitchouan five miles away, has received new transformers for the Brady Lake station at Cobalt and is shipping the old transformers to Beaver Lake where the substation to serve the South Lorrain camp is only waiting for the machinery. The company promises to deliver power by the end of this month and it is most probable that compressors in South Lorrain will be running with the juice before the freeze-up.

Before ice on Lake Temiskaming prevents the transportation of ore across to South Temiskaming and Mattawa the Keeley will ship two cars of ore, one high and one low grade. This company, controlled in England, late this summer struck a rich streak of ore in their vein and are raising it regularly from their 100 foot level. The station has been cut at the 170-foot level and the vein which has been dipped slightly will be cut

in a few days. As at the 100-foot level it showed much richer in the bottom of the drift than in the roof, the management has hopes of striking into good ore.

In the third quarterly report of the Crown Reserve for this year the balance shown is \$610,595.50. The surplus at the end of 1909 was \$549,275.42, and the surplus for the year so far is shown as \$61,320.08. At the present rate each dividend means a disbursement of \$265,322.10 and this year the Crown Reserve has paid to shareholders \$795,966.30. Out of 77 cars shipped 23 cars were of high grade and the remainder low for the year to date.

It is reported that a syndicate of Cobalt and Toronto men is attempting to obtain control of the Silver Bar in order to work it. The amount to be raised, it is stated, is \$50,000, and with it the \$35,000 owed by the company will be paid and the remainder devoted to development. The Silver Bar continued to develop rather languidly till a year ago, when the shaft house was burned down. It was never rebuilt.

The Buffalo mine shipped seven bars of bullion on Oct. 15. Eight mines have now contributed to the bullion output of the camp. The record reads: O'Brien, Buffalo, Nova Scotia, Temiskaming, Crown Reserve, Cobalt Gem, La Rose, Beaver. Altogether, a value of \$274,171 has been shipped in bullion from the camp. Four-fifths of this goes to London, England, to the Bank of England brokers.

At the annual meeting of the City of Cobalt Mining Company it was decided not to declare a dividend this year but to devote the surplus showing to the development of the property and the search for further ore bodies. The balance profit and loss for 1909 was \$179,900.51; cash received from smelters, \$103,335.16, making total assets of \$283,235.67. The royalty T. & N. O. Commission, \$5,111.11; concentrator charges, \$18,493.11; freight and smelter charges, \$7,046.24; balance, \$252,585.21. The superintendent's report shows that 253,000 feet of stoping have been done in the mine and 7,750 feet of drifting and cross cutting. In 1910 the City has shipped 361 tons, six cars of screening and low grade and six cars of high grade and concentrates. As reserves, it is estimated that there are 7,000 tons containing 175,000 ounces left in the mine. On the dump there is estimated to be 250,000 ounces, making a total of 425,000 ounces.

In the west drift of the Bailey Cobalt at the 252 foot level a well defined vein carrying high grade silver values has been cut. On the same level four stringers, all carrying good silver values, are being followed. Arrangements have been made with the liquidator of the Cobalt Central to treat some of the Bailey ore.

A Quebec syndicate named La Compagnie Miniere de la Vallee du St. Maurice is going to do some work on an island in Sasaginaga Lake just to the west of Cobalt. A shaft will be sunk a hundred feet and camp buildings erected. Mr. Sydney Smith is the consulting engineer for the property.

The Kerr Lake Mining Company has again declared ten per cent., five per cent. regular and five per cent. extra, for the fourth quarter of the year. The company's record for 1910 now reads 40 per cent., or \$1,200,000.

The two veins in the west drift of the Cobalt Provincial mine at Cobalt at the 175-foot level have merged and now show about five inches of ore, considerably richer than when the two ore bodies appeared to be separate.

The whole of the assets of the Standard Cobalt Mines will be sold by public auction on December 28. The assets of the company in a bill of sale are estimated to be worth \$1,925,756.03. It is stipulated by the terms of sale that the ore in the bins belongs to the liquidator and the purchaser has to mill it at a fixed rate of not more than \$2.75 a ton.

Last month the Savage mine of the McKinley-Darragh group produced 48,700 ounces. In the cross-cut from the No. 4 shaft at the 80-foot level a strong calcite vein carrying cobalt and

silver values has been cut. From its location and appearance it is expected to make ore soon.

Taking with them a Cobalt engineer, a number of Montreal business men have gone up to Guibord Township to examine the claims of the Gold Pyramid Company, with a view to purchase if the report is satisfactory. The men interested are directors in the Thelma Gold Mining Company in Bryce Township.

Considerable work is being done at the Maiden Silver Mining Company of South Lorrain. From the 85-foot level a cross-cut has been pushed 75 feet to catch the No. 1 vein which, on the surface, showed smaltite with good silver values.

The Temiskaming Mining Company decided at a late meeting at the mine to pay a dividend of 3 per cent., which will mean a disbursement of \$75,000. With this dividend to be paid on Nov. 1st the Temiskaming will have paid 24 per cent., or \$584,156.25. The last dividend was paid on April 11, 1909. The vein at the 500-foot level of the mine has been cut but no ore shoot of any high grade value has been encountered yet.

The Right of Way is conducting operations on the south end of the property by means of three shafts. The three principal veins are furnishing good high grade ore and shipments of one car of high and two of low grade are being maintained month by month. Prospecting work is being conducted from the Little Nipissing shaft where a cross-cut is being driven northward to open up unexplored ground.

Gowganda.—The Three claims belonging to the O'Gorman-Sweete syndicate, eight miles south of Gowganda in the Hanging Stone District, have definitely been taken over by the Temiskaming & Hudson Bay Company, who have just made the first payment. Some remarkable surface finds were made and the New Liskeard syndicate did not make first payment until a considerable amount of work had revealed good prospects.

Elk Lake.—At the annual meeting of the Mount Royal Cobalt Silver Mining Company it was decided not to work the property until next season. Stock will be offered in the London market. The Mount Royal owns property on Elk Lake near Elk Lake City.

It is stated that the Beacon Consolidated, working the Cleaves claims at Elk Lake, are determined to put machinery on the property this winter and carry out a considerable amount of underground development.

Porcupine.—It is stated that on the claims owned by Mr. R. T. Shillington and A. Richardson, of Haileybury, a 20-foot vein of quartz showing free gold has been uncovered. They adjoin the Connell veteran claims which have been sold to the Consolidated Goldfields of South Africa.

On the claims under option to Mr. Clem Foster, of Haileybury, work is going to recommence at once. These claims lie near the Dome, and the vein there was first discovered soon after the more famous discovery was made. It has been traced for 2,500 feet, stripped for 500 feet, and is one of the most remarkable ore bodies in the Porcupine camp. It is remarkable for its free gold showings. Two shafts of 50 feet are going to be sunk on the vein to prove it up.

The Government has now cut its road through to Porcupine and a considerable amount of traffic is being taken in on jumpers or stone boats. The heavy rains and the heavy traffic have, however, combined to make the clay trail very bad indeed.

The two Homer veteran claims purchased by Mr. Connell have been sold by him and Mr. Rea, of Chicago, to agents of the Consolidated Goldfields of South Africa. The showing is one of the most remarkable in the whole of the Porcupine camp. Little work has been accomplished on the property to date, but the purchasers are determined to discover the worth of their optioned claim at once.

There has been a brisk sale in Porcupine mining claims during the past few weeks, though the prices obtained are not

nearly as high as currently reported. Good options can be obtained if the seller is willing to take small initial payments.

The Peacock interests in the Silver Cliff Mining Company have purchased five gold properties in the western part of Nova Scotia. The properties sold are the Park and Douglas, Ballou, Nelson, Fisk and Caledonia. The properties are situated in the Molega District of Queen's County, Nova Scotia.

Kenora.—The copper property on Alley Island, Lake of the Woods, located by prospector Moore, the managing of which is in the hands of Dr. S. S. Scovil, is showing very good results up to date. The main shaft is now down over 50 feet and the ore is becoming richer. This property is one of exceptional interest, since in spite of predictions that the native copper which outcropped on the surface would give place below to copper pyrites, the ore is still showing large amounts of free copper in horns, wires, and granules in increasing quantities. The work is still being pushed forward on this property by the original holders, although there is a rumour that American interests, which already control the largest of the copper producers, are about to acquire this property.

The Mikado mine, which is under the management of R. B. Nickerson, is showing up as well or even better than was expected even from the favourable reports made by the engineer before the Kenora Mines Company began to operate. Two new drills have been put in operation on the seventh level. All the stamps are being worked to their capacity. There is a large amount of ore in sight and within a short period now the cyanide plant will be in full swing. It is clear that the confidence displayed in this mine by those citizens of this town who inaugurated the Kenora Mines, Limited, has been justified, for there is no doubt that the property is a good one and with proper management will soon take its place among the gold producers of to-day.

Work is now proceeding on Location K47 on Ziz Zag Point in Clear Water Bay, Lake of the Woods. The shaft is down about 40 feet and the showing is so good that the owners are delighted and are pushing development work as fast as possible. A contract has been let to sink 200 feet on the claim.

There have been several iron claims taken up in the neighbourhood of Dryden and the syndicate interested has been negotiating for the purchase of the 30,000 horse-power falls from the Lake of the Woods into Winnipeg River here at Kenora. The deal, however, has not yet been completed, but if it should go through, there is every possibility of the establishment here of an electrical furnace for the reduction of iron, similar to those successfully employed for such work in Sweden.

The engineer for the Lac Seul Railroad which will connect Kenora with the Grand Trunk Crossing, is on the ground getting together his party to run trial lines for this road. The operation of this road will be of considerable importance to the prospector in this district, as it opens communication between here and the Grand Trunk Pacific and by means of that railroad that district lying north of the Canadian Pacific Railway, which has only been very slightly visited by the prospector.

A new combination has taken hold of West Hawk Lake and Star Lake properties with the intention of finding the necessary capital to proceed with the development of these very promising prospects.

BRITISH COLUMBIA.

Among the topics of particular interest connected with the mining and smelting industries of the province that attracted notice during the first half of October were the annual reports of the Consolidated Mining & Smelting Company of Canada, Limited, and the Granby Consolidated Mining, Smelting & Power Company, Limited, respectively, each of which companies held its annual general meeting of shareholders—the former at the end of September, and the latter early in October. Some comment on these reports is made separately.

In Nelson mining division, much interest was taken in an investigation by the Provincial Water Commissioners into the

position of a number of holders of water rights and applicants for records of water from Sheep Creek and its tributaries. The evidence adduced made plain the necessity for system and due consideration for the rights of others in dealing with applications for the right to use water, and that the Provincial Government did well, though its action in this direction was long delayed, in appointing commissioners to straighten out the water tangles and see that only bona fide users of water shall retain the right to same. The particular concern about water in Sheep Creek district has arisen in connection with the water requirements, present and prospective, of mineral claim and mine owners for use in stamp mills, of which there are several in this gold camp, and the erection of others is intended.

In the Boundary district, the recently completed enlargement of two blast furnaces at the British Columbia Copper Company's copper smeltery at Greenwood, the resumption of ore shipping from the New Dominion Copper Company's Rawhide mine, in Phoenix camp; the ore going now to the Greenwood works instead of to Boundary Falls; and the resumption of production at the No. 7 mine, which, after having been inoperative for about eight years, has been acquired and is being worked by the Consolidated Mining & Smelting Company; are noteworthy developments.

In the Coast district, the chief incident in connection with mining, was the starting of concentration operations at the Portland Canal Mining Company's newly erected concentrator, situated within a couple of miles of the mine, and near the short line of railway in course of construction by the Mackenzie & Mann interests, Toronto. A few tons of ore—less than half-a-dozen—were lately sent from other claims to the Tye Copper Company's smeltery, Vancouver Island, for test purposes, but with this exception the Portland Canal Mining Company is the first in the Portland Canal district to turn its ore to commercial account.

Cariboo.—The secretary of the West Canadian Deep Leads, Limited, in a communication to the London Mining Journal, under date September 20, wrote: "At present we are sinking what we believe is the biggest shaft ever sunk in Cariboo in deep ground, the lead lying at a depth of 253 feet. The dimensions of the shaft are 18 feet by 6 feet, internal measurement, with three compartments, and the present depth is 120 feet." Some time since Mr. L. A. Bonner, resident manager of this company, gave the gold commissioner for Cariboo district the following information concerning this company: "The West Canadian Deep Leads Company was formed to exercise the option held by the original syndicate upon leases of claims situated on Little Valley Creek. Two cross sections were made in 1908 by means of a Keystone drill to establish the depth, gradient, and position of an assumed channel. The results of the borings made, in the opinion of the company's consulting engineer, Professor S. Herbert Cox, A.R.S.M., London, Eng., warrants the outlay necessary to sink a shaft 260 feet to bed rock, to cross-cut the channel and test for gold. Much preliminary work was necessary, particularly in the construction of a wagon road, over which to haul the somewhat heavy machinery purchased for the property. The shaft now started has two winding compartments, each 4 feet 4 inches by 6 feet in the clear, and one pumping compartment 7 feet 6 inches by 6 feet. Two 80 h.p. and one 36 h.p. boilers have been provided. Cameron sinking pumps are to be used as far as their capacity will allow, and two 18-inch Cornish pumps, driven by a cross compound Corliss engine, are to be the station pumps. Should payable dirt be encountered, a hydro-electric plant will be put in for power supply purposes. It is expected about 30 men will be employed while the work of sinking is in progress."

East Kootenay.—Fire at the Crow's Nest Pass Coal Company's slack bins, Fernie, did damage to an extent estimated at between \$10,000 and \$15,000. It is stated that it will be practicable to continue making coke in the adjacent ovens with little

interruption, there being alternative provision for supplying the ovens with the slack coal required for this purpose.

It is announced that work will again be done on the Estella group, situated on a mountain near Tracy and distant from Fort Steele about 15 miles, on which a considerable amount of development was done in the early nineties. Two lodes have been worked on, one showing gray copper, with copper carbonates and some galena, and the other galena. The property was examined in 1898 by the Provincial Mineralogist, who in his report mentioned having traced the galena outcropping over the hill for from 500 to 800 feet, and finding the width, as exposed on the surface, from 6 to 24 inches of almost solid galena. In his report for 1902 the District Gold Commissioner mentioned that the long tunnel was in 1,250 feet and showed in one cross-cut 3 feet of clean galena with some 15 feet of concentrating ore. Lack of transportation facilities has been the cause of this property having been so long idle. Now that the construction of the Kootenay Central Railway up the valley of the Kootenay River is in progress, the prospect of transportation being thus made available has led to the Estella again receiving attention.

Ainsworth.—The long tunnel of the Highlander mine, owned by the Highlander Mill & Mining Company, of Philadelphia, Pennsylvania, is to be lengthened. The mine was examined lately by Mr. F. M. Kurie, of Philadelphia. For the report of the Canada Zinc Commission, Mr. Philip Argall, of Denver, Colorado, stated that this mine had been developed, up to the latter part of 1905, by 2,766 feet of tunnel work, 1,227 feet of drifts, and 430 feet of winzes and raises; total footage of development, 4,423 feet. The vein varies in width from about 2 to 25 feet, and may be said to average 3 feet of concentrating ore in the shoots opened on the main Highlander tunnel-horizon south drift. About 700 tons of lead concentrate and 100 tons of hand-sorted lead ore have been shipped from this mine, average metal contents having been stated at 67 per cent. lead, 4 per cent. zinc, and 22 ounces of silver per ton. The Highlander group of mineral claims aggregates in area 380 acres. In the course of his report Mr. Argall said: "The Highlander property has the appearance of having had far too much money squandered on the main tunnel, in search of elusive veins at great depth, to the neglect of the large vein, which is really a first-class prospect and deserving of thorough development." Little, if any, work has been done on this property during recent years.

Slocan.—Shipments of silver-lead concentrates from the Van Roi mine during the year have now reached a total in excess of 1,000 tons; the Richmond-Eureka group output has totalled 3,400 tons of silver-lead ore; that of the Standard about 1,300 tons; the Ellis Silver Mining Company's Eastmont mine has shipped nearly 600 tons; the Rambler-Cariboo and Ruth-Hope group each about 500 tons, and the Mollie Hughes 300 tons; while smaller shipments have been made from the Slocan Star, Idaho, Bluebird, Hewitt and several other district mines.

Nelson.—The Granite-Poorman 20-stamp mill is being kept steadily at work crushing ore from the mines of that name. Last year's tonnage was between 10,000 and 11,000 tons, so this year's, to date, may be placed at about 8,000 tons, for usually the mill is kept running with little interruption in its work. The price of copper continues too low for profitable operations at the Queen Victoria, so no ore is being sent from this mine to the smeltery just now. Mr. F. W. Guernsey is superintending work at the Molly Gibson mine, recently acquired by the Consolidated Company, and ore will be sent to Trail as soon as it can be shipped with advantage.

Ymir.—An air compressor has been received at the Ymir railway station for the Yankee Girl mine, the output of which for the year is more than 4,200 tons of gold-silver ore, shipped to Trail. The manager, Mr. H. L. Rodgers, has gone to New York to discuss with his directors a contemplated enlargement of operations and the putting in of a concentration plant, which is contemplated.

Salmo and Erie.—The tonnage of lead ore shipped from the Emerald mine, near Salmo, this year now totals more than 1,600 tons, which is 500 tons in excess of its total for the whole of 1909. Both the Arlington and Second Relief, at Erie, have been worked this year; now it is announced that the Big Bump is to have much development done and a stamp mill erected, by a Spokane syndicate.

Sheep Creek.—The Queen, Nugget, and Mother Lode mines continue to be the most active in this camp. Production figures published at Nelson show that some 16,400 tons of ore have been milled at the Queen 20-stamp mill, and 4,300 at the Nugget during nine months to October 1. Important underground development has been in progress in the Mother Lode mine all the year and it is claimed that \$1,000,000 worth of ore is blocked out. Several other properties are also being prospected.

Rossland.—Outside of the important work and large production being maintained by the Consolidated Company at its Centre Star group of mines, and the steady progress of Le Roi No. 2, some activity exists. There is a probability of several of the smaller properties in this camp adding a little to the total of production. Both the I.X.L. and Bluebird are being worked, and now the Derby claim of the Spitzee Mining Company will probably be prospected. The Granby Company is developing the Cliff, with good prospects of making a regular producer of it.

Boundary.—Total output of ore from this camp for the year is now nearly 1,300,000 tons, more than two-thirds of which have come from the Granby mines. The B. C. Copper Company is gradually enlarging its operations; the output of ore from its Mother Lode mine is being increased, it is now receiving ore from the Rawhide mine, development and production at its Wellington group are in progress, the construction of a 5-mile aerial tramway from its Lone Star and Washington mines has been commenced, and the enlargement of two blast furnaces at its smeltery completed, this last improvement bringing the treatment capacity of the works up to between 2,500 and 3,000 tons of ore per diem. The Consolidated Company is sending more than 2,000 tons of ore weekly from the Snowshoe mine to Trail, and is preparing its No. 7 mine for making a regular output of ore.

Similkameen.—The Hedley Gold Mining Company has closed another quarter's operations with gratifying profit—more than twice as much as will pay the customary quarterly dividend at the rate of 12 per cent. per annum. The new plant at the 40-stamp mill will add to the gold-saving facilities, so that even better results may be expected from this forward. Efforts are being made to sell stock in the Pollock Gold Mines, Limited, a company projected to acquire and operate a group of half-a-dozen claims near Hedley, assay returns of ore from which are stated to average \$17 per ton. The Osoyoos Coal Company, of Nelson, is prospecting its coal lands, in the Princeton district, and the Columbia Coal & Coke Company, of Winnipeg, is putting in a compressor and other plant, to facilitate the opening of the coal seams on its property at Granite Creek.

Yale.—Other parts of the big Yale district, beside the Boundary and Similkameen, in which more or less mining work is in progress are the Nicola Valley, Kamloops, Revelstoke, and Yale divisions. Coal mining in Nicola Valley is becoming quite an important industry, while a collection of metalliferous minerals from here was awarded first prize for a district exhibit at the Nelson annual exhibition. About Kamloops both metal claims and coal lands are being prospected, while in several instances important development work—notably at the Iron Mask mine—has been arranged for. In Revelstoke division there is little mining other than placering in the Big Bend of the Columbia country. Farther northward the mica deposits have been worked throughout the summer and 1,000 pounds of mica sheets sent out, these ranging from 6 by 8 inches upwards. Beside this, half a carload of special mica, 3 by 4 and 4 by 5 inches, was, according to the local newspaper, shipped to England. Be-

tween Hope and the International boundary line, numerous claims have been staked and recorded, and reports of finds of ore giving good assay returns have been received.

Coast.—The Britannia mine, near Howe Sound, has been shipping ore and concentrate to the smeltery at Tacoma, Washington. The further prospecting of the big occurrence of ore near Green Lake has been in progress. Mining on Vancouver Island has been restricted chiefly to coal, of which a large output is being made by the Canadian Collieries (Dunsmuir), Limited, Western Fuel Company, and Pacific Coast Coal Mines, Limited. On Lasqueti, Texada, and Valdes Islands gold-copper ores are being mined, but as yet commercial production is from mines on Texada Island only. Mining on the Queen Charlotte

Islands continues to be the development of several copper properties on Moresby Island and the prospecting of coal lands on Graham Island.

In the Portland Canal district, the chief activity is on the respective properties of the Portland Canal Mining Company, Stewart, and Red Cliff. The first-named expects to shortly make its first shipment of concentrates to the smeltery; the Red Cliff is now pushing on its deep-level tunnel, now in about 1,000 feet and with 200 to 300 feet to be driven to reach the ore-shoot it is calculated is that distance ahead. The Pacific Metals Company, Limited, of Victoria, is developing the Red Wing and Red Jacket claims, on Goose Bay, Observatory Inlet, with promising results.

GENERAL MINING NEWS.

NOVA SCOTIA.

Springhill Mines, October 16.—To-day witnessed the first blood shed since the beginning of the long strike. Daniel McKay, aged 20, while on his way home, was stabbed in the back by an Italian. While McKay was receiving medical treatment at the Crescent Club rooms, another young man, George Crummie, was brought in suffering from a pistol shot in the face. The assailant of these men has not as yet been captured.

Halifax.—Cobalt interests are preparing to invest a considerable amount of money in Molega gold district. This is the third or fourth recent instance of the kind.

QUEBEC.

Quebec, October 14.—An action for \$250,000 is being heard in the Superior Court before Mr. Justice Lemieux. This is a claim taken by the Bell Asbestos Mines against the King Asbestos Mines, and is based on an alleged encroachment of property.

ONTARIO.

Queensboro.—Manager S. N. Graham, of the Canadian Sulphur Ore Company, Queensboro, is making excellent progress. The main shaft is being sunk rapidly and levels are being run in good ore. Shipments will be maintained throughout the winter. The ore is remarkably high grade. As massive pyrite ore this occurrence is phenomenally pure and is in strong demand.

Madoc.—The G. H. Gillespie tale mill is running steadily. Large shipments are made weekly to Germany, Great Britain and the United States, in addition to various Canadian points.

Toronto.—An order directing the sale of the Cobalt Central property has been entered in the High Court of Justice at Toronto. The sale will be held on December 28th next at the office of the liquidator, E. R. C. Clarkson. The property comprises 240 acres. The total book value of the property is \$1,926,753, of which \$1,627,238 represents the value of the property and \$166,053 of the prospecting and developing work done. The company is capitalized at \$5,000,000 and has paid \$192,485 in dividends. The stock has a par value of \$1 and is now selling around 7 cents.

Toronto, October 20.—The Federal Government, it is learned, will take no action regarding the question of bounties or duties on iron and steel.

Iron and steel bounties—that is, the bounties that are paid on pig iron, puddled bars and steel ingots—will expire on the 31st of December next. The bounty paid on the manufacture of steel rods, however, will not cease until July 1st next. Payment may be made after the 30th of June on rods actually made and sold prior to that date.

The legislation regarding steel rods was passed last session at the instance of Hon. W. S. Fielding. During the discussion

in committee on the bill, the question was asked of the Minister of Finance whether a duty would be imposed to take the place of the bounties.

Mr. Fielding replied: "We certainly have no such intention at present. What may come in the future, I cannot say."

Porcupine, October 20.—The Porcupine Mine Owners' Association has received details of the transaction whereby the Consolidated Goldfields Company, of South Africa, has taken over the controlling interests in the Rea Mines, Limited, of Porcupine. This company has been organized to purchase the Connell Veteran claims, a total of 320 acres, situated in the heart of the richest area of the Porcupine district.

Mr. John T. Milliken, of St. Louis, president of the Golden Cycle Company, of Cripple Creek district, of Colorado, is largely interested in this new company. Mr. Louis Webb, of Webb Bros., consulting engineers for the Consolidated Goldfields Company, reported on the Connell properties for his clients. Mr. Webb's examination was so entirely satisfactory that the deal was consummated within ten days after his return from Porcupine.

Mr. T. H. Rea stated to a representative of the Porcupine Mine Owners' Association that the necessary machinery and equipment had been ordered, that camps were being built to accommodate a large force of men and that three shafts will be sunk at once.

The most important vein on this property so far found is from fifteen to sixteen feet in width and for 200 feet carries spectacular gold values on the surface. Two shafts have already been sunk on this vein to a depth of twenty-two feet each and at this depth the values are as high as on the surface.

This is the first Canadian venture of the Consolidated Goldfields Company of South Africa.

The Milliken interests last year took over the Provincial mine at Cobalt, Ontario.

BRITISH COLUMBIA.

Nelson, October 14.—R. F. Tolmie, deputy minister of mines, with Mr. F. H. Shepherd, the chief inspector, has left for the Crow's Nest mining field to establish at Fernie the first of three government rescue-stations in connection with the operating collieries of British Columbia.

Upon the return of officials to the coast arrangements will be made for the installation of the Nanaimo and Cumberland stations. All the apparatus for three stations is now en route.

It is the intention of the mines department also to install a central station at Middlesboro in the Nicola country, to support colliery installations as required by the Coal Mines Regulation Act.

Nelson, October 25.—Le Roi mine, once banner producer of Rossland, with its smelter at Northport, is for sale. At a recent meeting in England, Mr. A. J. McMullen was appointed sale

liquidator, and is now on his way to Rossland to dispose of property. Recent diamond drilling failed to disclose any rich ore bodies, and it is considered cost of extraction and treatment of ore reserves on lower levels is too high to be profitable. Company has balance in bank and one of most complete mining plants in the country.

Victoria, B.C., October 25.—It was disclosed to-day that the action brought by Hon. James Dunsmuir against Mr. William Mackenzie for one million dollars is the second chapter in the litigation arising out of the purchase by the Canadian Collieries, Limited, of the immense coal mine interests of the Dunsmuirs on Vancouver Island. The initial step to bring the dispute into the courts was taken some time ago by W. J. Taylor, K.C., act-

ing for the Canadian Collieries. The latter, in their statement of claim, alleged that Mr. Dunsmuir failed to keep the properties intact during the continuance of the option given to Mr. Mackenzie, but disposed of a large quantity of coal, also that the sum of \$400,000, which was in the treasury of the Dunsmuir company at the time the option was taken, was later declared as dividend, and passed into the hands of Mr. Dunsmuir and his associates.

Mr. Taylor will to-morrow apply to the Judge of the Supreme Court for an order to stop the action brought by Mr. Dunsmuir against Mr. Mackenzie, on the grounds of abuse of the process of the courts, and its being vexatious to have two actions for the same cause between the same parties.

COMPANY REPORTS.

MARITIME COAL, RAILWAY AND POWER COMPANY, LIMITED.

At the regular meeting, October 20th, of the Maritime Coal, Railway and Power Company, Limited, which was held at the head offices of the company it was decided by the directors to equip the slopes at Joggins with electric coal cutters and also to install an electric plant of suitable size, not only for the present output, but for future requirements of the mine.

THIRD LA ROSE ANNUAL.

La Rose Consolidated Mines Company and controlled companies report for the fiscal year ended May 31st last, is as follows:

	1910	Changes Inc.
Gross earnings	\$1,691,099	\$126,031
Expenses	748,003	237,505
Net earnings	\$943,096	*\$111,474
Dividends paid	910,000	276,910
Surplus	\$33,096	*\$388,384

* Decrease.

The combined surplus of the company on May 31st last was \$469,959, as against \$436,863 at the beginning of the last fiscal period.

The income account of La Rose Consolidated follows: Dividends received, \$909,993; dividends paid, \$898,924; balance, \$11,069; administration expenses, \$28,995; deficit, \$17,926; previous surplus, \$21,707; profit and loss surplus, \$3,781.

Following is a summary of shipments for the twelve months: Dry tons shipped, 6,313,905; gross ounces silver contained, 3,100,444; gross silver value, \$1,620,341; average price received, per ounce, 52.261 cents; received from sales of cobalt, \$29,698; gross value silver plus cobalt paid for, \$1,650,039; smelter deduction, freight and treatment, \$208,065; net value received from ore sales, \$1,441,974.

The report shows that the total cost of producing silver during the year was \$737,842, and the total marketing expense was \$216,936. Mill rock treated during the year was 18,423 dry tons, and the profit on mill rock was \$138,218.

The report calls attention to the fact that the company continued during the year to be one of the largest producers of silver in the Cobalt district. During the twelve months the total dividends paid were equivalent to 12 per cent. on the company's capital stock, while the combined surplus at the close of the year of the holding and operating companies was \$473,741.

Attention is also called to the fact that the new management which assumed control in October a year ago, deemed it wise to

reduce the dividend in order to carry on an extensive programme of development work, with a view to increasing the company's ore reserves and surplus. Ore reserves on May 31st were 5,544,449 ounces.

President D. Lorne McGibbon says that since the close of the fiscal period, ore reserves have been maintained, the available cash assets have been increased almost \$200,000, and several discoveries have been made, notably the one in the Princess mine, which is very important. This vein averages about three inches in width, and assays on the average nearly 4,000 ounces per ton.

TRETHEWEY'S POSITION.

In a statement issued by the Trethewey Company on October 15th, when the dividend cheques for the 10 per cent. dividend recently declared were sent out, it is shown that on October 1st the company had cash in bank and due from smelters \$207,740.74, ore sacked at mine \$12,847, leaving \$220,587.74. After providing for dividends and outstanding indebtedness there is a surplus of \$102,759.45.

NIPISSING.

The financial condition of the Nipissing Mines Company (operating company), October 1st, 1910, was as follows:

Cash in bank	\$572,038
Ore in transit and at smelters.....	315,141
Ore sacked at mine ready for shipment.....	457,422

Total\$1,344,601

BUFFALO DIVIDEND.

Buffalo Mines Company, Limited, has declared an extra dividend of 3 per cent. on the capital stock, payable November 15th. In September the regular quarterly dividend of 5 per cent. and 3 per cent. extra was declared.

AMALGAMATED COPPER.

The Amalgamated Copper Company has declared the usual quarterly dividend of 50 cents per share. The company has now distributed \$48.50 per share since organization, or a total of \$66,376,364.

BRITISH COLUMBIA COPPER COMPANY EARNINGS.

The British Columbia Copper Company reports net earnings for September of \$27,600, and cost of producing copper at 8.3 cents per pound.

CITY OF COBALT DIVIDEND.

At the annual meeting of the City of Cobalt Mining Company on October 15th the following statement of affairs was presented:

Detail Profit and Loss Account.

Balance profit and loss, 1909.....	\$179,900.51
Cash from smelters	103,335.16
	\$283,235.67
Royalty, T. & N. O.	\$ 5,111.11
Concentrating charges	18,493.11
Freight, smelter	7,046.24
Balance	252,585.21
	\$283,235.67

The cash on hand on October 1st was \$36.39, while the bank showed merely \$12,002.66. The other points of interest at the meeting were that it was not considered opportune at the present time to declare a dividend and the number of directors was reduced.

GRANBY CONSOLIDATED.

At the recent annual stockholders' meeting, of Granby Consolidated, Jacob Langeloth, then president and a director of the corporation, but no longer connected with the corporation in an official capacity, replied to a stockholder's question that there would be no dividend forthcoming in the near future, even though the treasury was in strong position.

Granby is now declared by an official to be in the best position in its history, physically and financially. The company never made any pretence of putting in sight an enormous ore tonnage, but since commencement of operations it has blocked out more ahead each month than was extracted in the same period. The much-talked-of Sussman report on the property did not by any means cover the entire territory. For instance, between the main working property and the Gold Drop mine there is an expanse of fully a mile, somewhat wooded, and known by the management to be mineralized. Dr. Sussman did not take this into account.

When Mr. Langeloth and his associates entered Granby they did it on the recommendation of the same Dr. Sussman, who made the recent report. Their interest, conceded to be the largest individual one, averaged to cost \$40 a share on the basis of the present par value of \$100.

It will not be long before the entire Granby battery of eight furnaces will be in operation; the capacity of the smelter is 4,500 tons daily. Last year there was treated but little over 1,000,000 tons, whereas 1,800,000 tons could have been put through the plant after completion of all enlargements. This excess capacity will be used for whatever custom business can be secured. There is a great custom field in the Boundary district. It is a vast mineralized territory containing low-grade ores and with a little encouragement small owners and leasers could be induced to mine and ship to a friendly smelter, where there was probability of a profit.

Granby does not owe a dollar, and aside from its mine and plant, has a valuable asset in its large block of Crow's Nest Pass Coal Company, which not only pays a dividend return on the investment, but also insures an ample fuel supply. The water power property, yet in an undeveloped stage, will probably during the next year or two be given attention and put on an operating basis. Transportation facilities with both the Canadian Pacific and Great Northern railroads running up to the ore bins, could not be better. Rates have been scaled during the past few years very heavily.

As to whether the average contents of the ore treated can be improved over the figures indicated from last year's operations—between 18 and 19 pounds of copper per ton—is a question for the future to decide.

CROWN RESERVE.

The general manager of Crown Reserve Mining Company reports to his directors for nine months ending September 30th, 1910, as follows:

The most important development during this period has been the discovery of Vein No. 28 at the 200-foot level, 890 feet east of No. 1 cross-cut; this is probably one of the veins that we cut with the diamond drill. When cut this vein showed from six to eight inches of heavy smaltite ore carrying some silver, also two calcite veins rich in silver, running almost parallel to it, and about two feet away. We have drifted on this vein for about 150 feet in continuous ore, but of erratic values. We have had assays from the six inches of smaltite that have gone over four thousand ounces, but the average assay is probably about one thousand ounces. This vein, however, is just at the contact between the Keewatin and the conglomerate, and we hope to find richer values in the finer conglomerates above as was our experience with veins Nos. 17 and 24.

Victoria Vein.—We have proved up this vein for a distance of 120 feet, the ore being from two to five inches in width and will average about four thousand ounces. We have a winze down twenty feet below the 100-foot level in continuous rich ore.

Carson Vein.—We have during the past nine months only extracted ten tons of ore from the big stope at the 100-foot level, having done most of our work in the stope at the 200-foot level all in rich ore. We are now getting into the conglomerates in this stope, the vein running 10 to 12 inches wide and assaying four thousand ounces.

Veins Nos. 17 and 24.—We have continued stoping on both these veins each being two inches in width and running about 4,000 ounces.

Vein No. 2.—The important development on this vein was the discovery of a bonanza shoot of ore running six inches in width and averaging over six thousand ounces for a length of forty-five feet. This ore was discovered in stoping about fifteen feet above the 100-foot level.

Veins Nos. 3, 4 and 12.—We have drifted on these veins, all of which have shown continuous ore, about two inches in width and averaging five hundred ounces.

Total Development.

	Quarter	Half	This	To
	Year	Year	Year	Date
	Feet	Feet	Feet	Feet
Sinking and raising.....	175	249	424	1129
Drifting	419	610	1029	2854
Cross-cutting	102	1058	1160	3562
	696	1917	2613	7545

During the last three months we have installed in our ore house Richard's jigs to handle a finer product than the old Hartz jig and are concentrating the screenings on a Wilfley table. This means a saving to the company of one hundred dollars net a day in freight and treatment charges.

Our main shaft is now through to the 300-foot level, after putting in the required timbers we will start sinking winzes from the 300-foot level with the object of proving up the Keewatin formation for at least 300 feet and which will give us a depth of 600 feet.

It is also our intention during the next quarter to raise No. 28 vein, so as to continue our No. 22 cross-cut to our eastern boundary line and to drift on some of our smaller veins.

The financial report is as follows:

We shipped during that period 77 cars of ore, 23 cars being high grade and 54 being low grade, of a total net value of.....	\$1,146,203.96
Bank interest	4,100.00
	\$1,150,303.96

Our operating expenses for the same period, including a large amount of development work, were	184,128.21	No. 8, paid 15th April, 1910.....	\$265,322.10
		No. 9, paid 15th July, 1910.....	265,322.10
		No. 10, payable 15th October, 1910....	265,322.10
	\$966,175.75		795,966.30
Less royalty to the Ontario Government for the same period	108,889.37	Leaving a balance which will further strengthen our substantial surplus of	\$61,320.08
Showing a net profit on our operations for the nine months of	857,286.38	Surplus, December 31st, 1909.....	\$549,275.42
Out of this amount dividends have been paid as follows:		Surplus as above	61,320.08
		Surplus at 30th September, 1910	\$610,595.50

STATISTICS AND RETURNS

BUFFALO'S SEPTEMBER RUN.

The mill report for the Buffalo mines for September reads: Mill run, 556 hours; ore milled, 3,718 tons; average assay per ton before milling, 28.35 ounces; ounces of silver recovered, 82,639. Milling expenses—Labour, \$3,450.23; power, \$1,414.43. Ounces of silver paid for during month (shipped previously), \$120,695. No estimates are made of high-grade ore, but returns are included under "ounces of silver paid for," as smelters make settlement. Silver quotation of October 1st, 1910, per ounce, 54 1/8 cents.

GOLD OUTPUT OF THE RAND.

The output of gold at the Rand for September was 646,899 fine ounces, valued at £2,747,853.

BRITISH COLUMBIA LEAD RETURNS.

The report made by the Trail smelter to G. O. Buchanan, Dominion lead bounty commissioner, on the amount of lead ores and lead contents received during the month of September contains the names of a number of properties which have not previously shipped for some months and several which have not been on the list for over a year. Among these are the Enterprise, the Fidelity, the Hewitt and the Standard.

The report shows a considerable increase over the former months of the present year and is an indication of the changes which have taken place in the mining situation in this part of British Columbia during the past summer months. It will be seen that the percentage of lead in the ores varies from as low as an eighth of one per cent. to as high as 70 per cent. An interesting feature of the past month's report is that for the first time in many years the St. Eugene takes second place in the totals of lead ore sent to Trail. The Sullivan heads the list with approximately 3,600 short tons. The figures in the following report represent pounds:

Mine	Weight.	Lead.
Bluebird (Rossland)	48,667	2,095
Bismark	34,623	1,731
Emerald	344,484	122,326
Enterprise	46,165	15,142
Eastmount	135,668	18,092
Ferguson	56,769	11,524
Fidelity	663	263
Hewitt	42,985	3,095
Highland	132,061	79,498
Idaho Alamo	142,234	39,056
Molly Hughes	63,556	572
Noonday	29,497	9,999
Mayflower	38,081	990
Ruth	140,893	80,393
Standard	399,072	283,460
Slocan Star	172,890	56,114

Yankee Girl	744,825	19,839
Van Roi	211,395	125,995
E. W. Widdowson (assay office)	2,348	89
Richmond-Eureka	626,147	96,991
Sullivan	7,251,890	1,352,586
St. Eugene	1,183,394	716,034
Total	11,848,307	3,035,884

BRITISH COLUMBIA ORE SHIPMENTS.

The Rossland ore shipments for the year to date, including the estimated amount milled by LeRoi No. 2, pass the 200,000 mark in tonnage this week.

The following are the returns of the ore production and movement for the week ended October 15th, and also for the year to date:

Boundary Shipments.

Granby	13,646	896,534
Mother Lode	9,503	276,163
Snowshoe	2,131	119,192
Jack Pot	329	10,470
Rawhide	2,800	6,700
Other mines .....	.....	9,523
Total	28,409	1,318,582

Rossland Shipments.

Centre Star	3,730	150,681
LeRoi, No. 2	557	24,990
LeRoi No. 2, milled	300	12,300
Nickle Plate	67	609
Other mines .....	.....	12,172
Total	4,654	200,752

Slocan-Kootenay Shipments.

Greenwood, B.C.		
St. Eugene, milled	2,775	113,775
Van Roi, milled	800	32,800
Queen, milled	420	17,220
Granite-Poorman, milled	250	10,250
Nugget, milled	110	4,510
Highland, milled	450	7,600
Wilcox, milled	75	600
Richmond-Eureka	59	3,371
Yankee Girl	85	4,252
Molly Hughes	34	326
Sullivan	838	15,912
No. Seven	31	104
Other mines .....	.....	36,400
Total	5,927	247,120

The total shipments for the week, including the estimated amount milled, were 38,990 tons, and for the year to date, 1,766,454 tons.

British Columbia Copper Company's Receipts.

Greenwood, B.C.		
Mother Lode	9,503	276,163
Jack Pot	329	10,470
Rawhide	2,800	6,700
Total	12,632	302,672

Granby Smelter Receipts.

Grand Forks, B.C.		
Granby	13,646	896,534
Other mines .....	.....	120
Total	13,646	896,654

Consolidated Company's Receipts.

Trail, B.C.		
St. Eugene, concentrates	150	11,843
LeRoi No. 2, part concentrates..	557	24,990
Highland, concentrates	71	241
Centre Star	3,730	150,681
Snowshoe	2,131	119,192
Richmond-Eureka	59	3,371
Yankee Girl	85	4,252
Molly Hughes	34	326
Sullivan	838	15,912
Nickle Plate	67	609
No. Seven	31	104
Other mines .....	.....	34,803
Total	7,753	366,324

The total receipts at the smelters for the week, including concentrates, were 34,031 tons, and for the year to date, 1,565,650 tons.

COBALT ORE SHIPMENTS.

Following are the shipments from the Cobalt camp for the week ending October 22nd, and those from January 1st, 1910, to date:

	Oct. 22.	Since Jan. 1.
	Ore in lbs.	Ore in lbs.
Beaver .....	.....	226,217
Buffalo	52,430	1,949,428
City of Cobalt .....	.....	348,875
Chambers-Ferland .....	.....	1,463,900
Cobalt Central .....	.....	293,286
Cobalt Lake .....	.....	300,900
Cobalt Townsite	64,000	518,840
Colonial .....	.....	245,580
Con'agas	62,540	1,623,976
Crown Reserve .....	.....	5,117,900
Drummond .....	.....	664,200
Hargraves	42,300	443,470
Hudson Bay .....	.....	417,925
Kerr Lake	387,700	8,598,324
King Edward .....	.....	263,406
La Rose	184,740	9,085,271
McKinley-Darragh	174,510	3,345,599
Nipissing	309,310	10,288,937
O'Brien .....	.....	987,216
Peterson Lake .....	.....	432,420
Provincial .....	.....	65,000
Right of Way	62,270	1,470,327
Rochester .....	.....	60,750
Silver Cliff .....	.....	268,720

Standard Cobalt	258,951
Temiskaming	141,870 1,913,350
Trethewey	808,580
Waldman	63,992
Wyandoh	48,300

Ore shipments for the week ending October 22nd were 1,481,670 pounds, or 740 tons.

Total shipments from January 1st to October 22nd were 51,773,650 pounds, or 25,886 tons.

Shipments of ore from Cobalt camp for week ended October 15th were 10,229,000 pounds, or 511½ tons, divided among nine mines. Shipments for the year to date now total 50,291,980 pounds, or 25,145 tons. Shipments for the week and year (in pounds of ore) are:

	Week ended	Year.
	Oct. 15.	
Beaver .....	.....	276,217
Buffalo	57,270	1,896,998
City of Cobalt .....	.....	548,875
Chambers-Ferland	64,000	1,463,900
Cobalt Central .....	.....	552,237
Cobalt Lake	40,000	300,900
Cobalt Townsite .....	.....	454,840
Colonial	52,100	245,500
Coniagas	59,170	1,761,400
Crown Reserve .....	.....	5,117,900
Drummond .....	.....	664,200
Hargraves .....	.....	401,170
Hudson Bay .....	.....	417,925
Kerr Lake	360,620	8,210,264
La Rose .....	.....	8,900,234
McKinley-Darragh	117,300	3,371,089
Nipissing	195,900	9,979,627
O'Brien .....	.....	987,296
Peterson Lake .....	.....	432,420
Provincial .....	.....	65,000
Right of Way	76,500	1,408,867
Rochester .....	.....	60,700
Silver Cliff .....	.....	268,720
Temiskaming .....	.....	1,711,430
Trethewey .....	.....	808,580
Waldman .....	.....	63,997
Wyandoh .....	.....	48,300

TORONTO MARKETS.

Oct. 25.—(Quotations from Canada Metal Co., Toronto).

- Spelter, 6 cents per lb.
- Lead, 3.65 cents per lb.
- Antimony, 8 to 8½ cents per lb.
- Tin, 38½ cents per lb.
- Copper, casting, 13.25 cents per lb.
- Electrolytic, 13.25 cents per lb.
- Ingot brass, 8½ to 12½ cents per lb.

Oct. 25.—Pig Iron (Quotations from Drummond McCall Co., Toronto).

- Summerlee No. 1, \$23.00 (f.o.b. Toronto).
- Summerlee No. 2, \$22.50 (f.o.b. Toronto).
- Midland No. 1, \$20.50 (f.o.b. Toronto).
- Hamilton No. 1, \$20.00 (f.o.b. Hamilton).
- Hamilton No. 2, \$19.50 (f.o.b. Hamilton).
- Clarence, \$20.00 (f.o.b. Toronto).
- Cleveland, \$20.50 (f.o.b. Toronto).
- Coal, anthracite, \$5.50 to \$6.75.
- Coal, bituminous, \$3.50 to \$4.50 for 1¼-inch lump.

Coke.

Oct. 21.—Connellsville Coke (f.o.b. ovens).
 Furnace coke, prompt, \$1.55 to \$1.60 per ton.
 Foundry coke, prompt, \$2.00 to \$2.15 per ton.
 Oct. 21.—Tin (Straits), 37.25 to 37.37½ cents.
 Copper, Prime Lake, 13.00 cents.
 Electrolytic copper, 12.87½ cents.
 Copper wire, 14.00 cents.
 Lead, 4.47½ cents.
 Spelter, 5.70 cents.
 Sheet zinc (f.o.b. smelter), 7.50 cents.
 Antimony, Cookson's, 8.15 cents.
 Aluminium, 22.00 to 22.50 cents.
 Nickel, 40.00 to 47.00 cents.
 Platinum, ordinary, \$38.00 per ounce.
 Platinum, hard, \$41.00 per ounce.
 Bismuth, \$1.95 per lb.
 Quicksilver, \$46.00 per 75-lb. flask.

Hargraves .....	.347½	.35½
Hudson Bay	89.00	100.00
John Black .....	.05	.06
Kerr Lake	6.60	6.70
La Rose	4.85	4.90
Little Nipissing .....	.26¾	.267½
McKinley	1.17¼	1.20
Nancy Helen .....	.02	.05
Nipissing	11.35	11.45
Nova Scotia .....	.26½	.27½
Ophir .....	.27½	.28½
Otisse .....	.02¾	.025½
Peterson Lake .....	.23	.237½
Right of Way .....	.34¼	.35
Rochester .....	.15	.15¾
Silver Leaf .....	.07¼	.08
Silver Bar .....	.05	.05¾
Silver Queen .....	.03	.10
Temiskaming (Ex. Div.) .....	.87	.87½
Trethewey	1.19	1.20
Watts .....	.01	.05
Wettlaufer .....	.71	.75

SILVER PRICES.

		New York	London
		cents.	pence.
October 7.....	54¾	25 1/8	
" 8.....	54¾	25 1/8	
" 10.....	54¾	25 1/8	
" 11.....	547/8	25 1/8	
" 12.....	Holiday	25 1/4	
" 13.....	55¾	25 1/8	
" 14.....	55½	25 5/8	
" 15.....	56	25 7/8	
" 17.....	56¾	26	
" 18.....	56¾	25 7/8	
" 19.....	56¾	26 1/8	
" 20.....	567/8	26 1/4	
" 21.....	567/8	26 1/8	
" 22.....	567/8	26 1/8	
" 24.....	56¾	25 15/16	

New York Curb—October 25, 1910.

Boston Copper	14¼	14½
British Columbia Copper	67/8	7 1/8
Butte Coalition	19	20
Canadian Mines	6¼	6½
Chino Copper	20¾	207/8
Davis-Daly Copper	2	2 1/8
Ely-Consolidated .....	.25	.30
Gila Copper .....	..	..
Giroux Mining	7¾	77/8
Goldfield Consol.	8 1/8	8 1/4
Greene-Canadian	7	7 1/2
Harcuvar Copper	10	15
Inspiration Copper	9	9 1/8
Miami Copper	19 5/8	20
New Baltic Copper	4	8
Nevada Con. Copper .....	..	..
Ohio Copper	1¾	1 3/8
Rawhide Coalition .....	.05	.05½
Ray Central	1¾	1 7/8
Ray Consolidated	20¼	20½
Union Mines	7/8	1
Yukon Gold	37/8	3 15/16

SHARE MARKET.

(Courtesy of Warren, Gzowski & Co.)

Miscellaneous—October 25, 1910.

	Bid.	Ask.
Amalgamated Asbestos .....	..	15
Black Lake	16	17
Dominion Coal	63	..
Dominion Steel	63	..
Dominion Steel Corporation	59¼	61
Granby .....	..	33½
Consolidated Mining	60	65
Nova Scotia Steel .....	..	117

Cobalt Stocks—October 25, 1910.

	Bid.	Ask.
Amalgamated .....	.02½	.04
Bailey .....	.08¾	.08½
Beaver Consolidated .....	.31	.31½
Buffalo	2.00	2.10
Chambers-Ferland .....	.18½	.19
City of Cobalt .....	.24½	.26
Cobalt Central .....	.06	.06¾
Cobalt Lake .....	.15¼	.16
Coniagas	4.10	4.20
Crown Reserve	2.80	2.90
Foster .....	.09	.10
Gifford .....	.07¾	.07½
Great Northern .....	.08¼	.08¾
Green Meehan .....	.02½	.03

MONTHLY AVERAGE PRICES OF SILVER, 1910.

	New York	London
	cents.	pence.
January	52.375	24.154
February	51.534	23.794
March	51.454	23.690
April	53.221	24.483
May	53.870	24.797
June	53.462	24.651
July	54.150	25.034
August	52.912	24.428
September	53.295	24.567

INTERNATIONAL COAL DIVIDEND.

The regular quarterly dividend of 1½ per cent. has been declared on International Coal & Coke, payable November 1st.