

# THE CANADIAN MINING JOURNAL

VOL. XXXIX

TORONTO, June 1st, 1918.

No. 11

## The Canadian Mining Journal

With which is incorporated the  
"CANADIAN MINING REVIEW"

Devoted to Mining, Metallurgy and Allied Industries in Canada.

Published 1st and 15th of each month by the  
**MINES PUBLISHING CO., LIMITED**

Head Office . . . . . 263-5 Adelaide Street, West, Toronto  
Branch Office . . . . . 600 Read Bldg., Montreal

Editor: REGINALD E. HORE, B.A. (Toronto).

### SUBSCRIPTIONS.

Payable in advance, \$2.00 a year of 24 numbers, including postage in Canada. In all other countries, including postage, \$3.00 a year.

Single copies of current issue, 15 cents. Single copies of other than current issue, 25 cents.

The Mines Publishing Co. aims to serve the mining industry of Canada by publication of reliable news and technical articles. This company publishes the Canadian Mining Journal twice a month and the Canadian Mining Manual once a year.

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"Entered as second-class matter April 23rd, 1908, at the post office at Buffalo N.Y., under the Act of Congress of March 3rd, 1879."

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As Mr. Lindsey pointed out at the annual meeting of the Canadian Mining Institute, the fuel problem of the Canadian West is largely one of transportation. In this the West is not peculiar, for shortage of locomotives and cars is obviously one of the chief causes for fuel shortage in Central Canada and the United States. Unfortunately the shortage of cars in the West and the high freight rates on coal coming east are not due to temporary causes.

The Granby Company evidently intends to make itself as independent as possible of others so far as fuel is concerned. By opening a coal mine on Vancouver Island and installing a by-product coke oven plant at Anyox, the company has taken steps which should insure a satisfactory fuel supply.

## REPORT OF MUNITION RESOURCES COMMISSION

The Munition Resources Commission, appointed by Order-in-Council in November, 1915, "for the purpose of instituting an enquiry respecting the supply and sufficiency of raw materials in Canada required for the production of munitions of war, and the best means of conserving the same," has issued its first report.

One of the matters taken up by the Commission was that of assisting Canadian firms to obtain supplies of tool steel from the United Kingdom. It was arranged that all orders for such steel for munition work should be subject to certification by the Commission. Later the Commission was called upon to certify to the requirements of other Canadian users. This procedure was followed for a year; but in Feb., 1917, the Department of Trade and Commerce was asked by the Imperial Government to act as a local Priority Authority for Canada and the Commission's certification was no longer required.

Acting on the advice of the Commission, the Department of Customs placed an embargo on export of scrap steel in January, 1916, in order to assure the necessary supply for munition plants. In the latter part of the year export under license was permitted; but the Commission recommended that such export be prohibited after Jan. 1, 1917. Export of turnings and borings was, however, continued in 1917. In February, 1918, the Shell Scrap Department of the Imperial Munitions was organized to purchase from munitions contractors all their heavy scrap at \$24 and steel turnings at \$12 per ton. The steel companies are required to pay this price plus freight charges. On July 12th, 1917, authority to issue licenses for export for scrap steel turnings and borings was withdrawn.

The Commission interested itself in the agitation for refining of copper and nickel in Canada, and recommended that the Government offer inducements that would lead to the erection of a copper refinery here. The Commission urged the Government to insist upon a nickel refinery being established at once, the International Nickel Company having announced that it proposed to establish one. The Commission recommended the guaranteeing of certain securities of the British America Nickel Co., which had announced its intention of erecting refineries for nickel and copper. The Commission has carried on a number of investigations concerning mineral resources; Professor J. C. Gwillim, Dr. W. F. Ferrier and Dr. W. L. Uglow being engaged for this work. Certain special investigations were undertaken for the Commission by members of the staff of the Department of Mines. The report includes some account of the results of these investigations. Special study was made of chromite, magnesite, manganese ores, molybdenite, tungsten and zinc.

The Commission recommended that development of our mineral resources could be assisted by educating the general mining public in all matters directly concerning the mining of minerals and their preparation for the market. It advised the establishment of additional technical laboratories.

The Commission has undertaken the preparation of an inventory of Canadian minerals required for war purposes. Dr. W. F. Ferrier is in charge of the work of indexing the information obtainable.

As appendices to the report, are published the reports on Steel Scrap Investigations by J. Dix Fraser, Construction and Operation of an Electrolytic Copper Refinery by J. E. McAllister, and Summary of Field Work in British Columbia, Alberta and Saskatchewan by W. F. Ferrier.

The U.S. War Industries Board has announced the commandeering of platinum, palladium and iridium and the fixing of prices of \$105, \$135 and \$175 per oz. respectively. Considering that the United States is depending almost altogether on imports of platinum from countries that might dispose of their product to German agents, it is not surprising that our New York contemporary objects to the price fixing mania. We may be permitted, however, to call attention to the fact that it will be necessary for America to depend upon Russia and Columbia for platinum only so long as the present practice of wasting Ontario's platinum and palladium is continued. Much of the wasting has been done in the United States; where mattes from the Sudbury district are refined.

The decision of the Court of Appeals in San Francisco in the case of Minerals Separation vs. Butte & Superior appears to be that the Minerals Separation patents will not apply when over one-half of one per cent. oil is used. Such a decision will be greatly to the advantage of those using the flotation process.

Hopes for the establishment of an iron and steel industry in British Columbia have been brought nearer to realization by recent action on the part of the Provincial and Dominion Governments. British Columbia has offered a bounty of \$3 a ton on pig-iron manufactured in that Province from local ore and \$1.50 a ton for iron from imported ore. The Dominion Government now offers to purchase all pig-iron produced by blast furnaces erected during the next two years.

#### U.S. Government Sale of Nickel.

Washington, May 21.—President Wilson has issued a proclamation pursuant to the terms of the trading with the enemy act directing the alien property custodian to sell at private sale, with or without public or other advertisement, 279,232 lb. of nickel, the property of Hammar & Co., of Hamburg, Germany, and Stockholm, Sweden, and other enemies unknown. This nickel is now in possession of the American Dock Co., Tompkinsville, Staten Island, N. Y., where it was warehoused some time ago by the owners. Persons interested in the purchase of this nickel can learn further

details concerning the time, place and terms of sale by addressing the alien property custodian, Washington.

#### GOVERNMENT ENCOURAGES IRON INDUSTRY.

The Government of the Dominion of Canada has decided upon a policy of encouraging new Iron and Steel Industries in Canada by offering to purchase all pig iron produced in the country by all new blast furnaces erected during the next two years. It is understood that it will undertake to accept three years' output and that prices paid will be governed by the market conditions at the time.

As to the effect of this decision on the development of an iron industry in British Columbia, Hon. Wm. Sloan, Minister of Mines, in an interview said that the action undoubtedly was very encouraging. He pointed out, however, that the knowledge of what was to be done was not detailed enough to permit extended comment. For instance it was not stated whether the prices to be offered for British Columbia pig iron would be Western prices or Montreal quotations. If the latter the advantage to the producer would be negligible because of the cost of transportation. He was sure, however, that it was not the intention of the Federal Administration to place the manufacturers of this section under such a disadvantage. The Minister pointed out that the object of the Province in offering the bounties indicated was to encourage the Iron and Steel Industry in its initial stages and, because of this, he felt that, possibly, the Dominion Government might have seen its way clear to render assistance to those undertaking to carry the industry further by the refinement of pig-iron which could be done by the subsidizing of the output of rolling mills. This had been the course adopted by the Dominion in its policy of bounties of some years back, which was largely responsible for the laying of the foundation of the very large Iron and Steel Industry of Nova Scotia.

Mr. Sloan concluded:

"As I have stated, the action taken by the Federal Administration is encouraging. It is a recognition of the resources of British Columbia that is very welcome at present when we are trying to make a start in the building up of this very important basic industry. It undoubtedly will have the effect of lending confidence to those contemplating the investment of capital in the exploitation of the iron deposits of the West; assuring them, as it does, of the practical as well as the sympathetic support of both the Provincial and Dominion Governments."

Two news paragraphs published lately in the Daily Alaskan, of Skagway, Alaska, relating to Atlin, which in recent years has been the most productive placer-gold field in British Columbia, are as follows: "On account of the extremely deep snow this year, it is feared that a number of mines in Atlin camp will be unable to operate this coming season, owing to inability of the mine-owners to get in timber. The depth of snow in the woods is so great that it is utterly impossible to use teams." The second paragraph reads: "On account of the high freight rates and the advanced prices on all kinds of provisions and supplies, also on timber, and the increase in wages incident to the shortage of labor, it is believed that a number of Atlin mines will not be operated this season, nor until the war is over and conditions resume a normal status. Many protests are being made, but it is believed that nothing can be done to alleviate the situation."

# Some of the Coal Producer's Problems\*

By D. H. McDougall.

On the occasion of our last meeting of the Mining Society of Nova Scotia, I made reference to the part played in this war by coal, and the subsequent course of events has given the general public and ourselves a very lively appreciation of the value of our domestic fuel supplies. We have realized through actual trial and experience the bearing of fuel supply upon our national independence. A combination of labor shortage, inadequate transportation facilities and unprecedentedly severe weather conditions during the past winter caused a fuel crisis in the United States which, but for swift and drastic action on the part of the United States Government, would have brought about a national catastrophe, in which we also should have been involved.

We have realized that no nation can stand alone unless it possesses an adequate fuel supply within its own borders. Fortunately for Canada, the Republic to the south of us is our ally and companion in arms, and Canada has received most generous consideration from the United States in this matter of fuel supply.

## Canada Will Have Same Treatment as United States.

Recently in Ottawa a representative of the Fuel Administrator of the United States told the assembled coal miners, operators, and transportation men of Canada, that Canada would receive the same treatment from Dr. Garfield as though it were part of the United States itself. We were told that in the distribution of the available coal supply of the United States the boundary line between the two nations would be absolutely ignored, and that so far as the distribution of this most vital munition of war was concerned, North America would be looked upon as being one nation with one common aim.

## Fuel Supply and Transportation.

We have learned the intimate connection between fuel supply and transportation facilities. In this country of vast distances they are in fact practically indistinguishable one from the other. The problem of the utilization of the great bituminous and lignite fields of the Canadian West—as was abundantly demonstrated during the recent Fuel Conference at Ottawa—is altogether one of transportation.

I may remind you that the coalfields of Nova Scotia remained undeveloped, and the industry, which we so largely represent, did not emerge from its small beginnings until the transportation problem was solved, and the St. Lawrence market was opened to Nova Scotian coal by the provision of modern coal freighting vessels and of modern loading and discharging plants.

At the present time the enormous increase in the percentage of coal consumed within the Province of Nova Scotia itself, accompanied by declining outputs, has obscured the present importance of transportation in our own particular case; but this problem will revive and will face us in greater intensity whenever we seek to regain the St. Lawrence market as an outlet for Nova Scotian coal.

We have further learned that the value of fuel, and all questions of comparative excellence of fuels become considerations of a secondary character during times of fuel scarcity. We are learning to make the best of our own natural resources, and when fuel such as anthracite, possessing the desirable features of smoke-

lessness and high calorific value, cannot be obtained, we must perforce turn our attention to the utilization of such fuels as peat, lignite, and even wood.

The Fuel Controller of Canada has announced that it is extremely unlikely that United States anthracite will be available next winter in the prairie territory west of Winnipeg, which means that bituminous coal and lignites will have to be used as substitutes.

It is not an unmixed evil for a people so virile and enterprising as our own people to be thrown back on their own resources, because it naturally leads to development and progress and probably the discovery of unsuspected excellences both in our natural resources and in our ability to make the best of them.

I may, in passing, point out that the shortage of anthracite is not a mere phase originating in present conditions. No country in the world, unless perhaps it is China, has been so favored in the possession of anthracite resources as the United States, but that the anthracite fields there are approaching a period of comparative exhaustion is evidenced by the fact that very thin seams of anthracite are to-day being worked, seams which in the past it would not have been deemed worth while to operate.

## The Intrinsic Value of Coal.

Another thing that we are learning is the intrinsic value of coal itself. Probably in regard to no basic raw material has there existed so widespread a misconception as in the case of coal. This misconception has not been confined to the general public, but it has extended to those whose daily business is the production and sale of coal.

## The Selling Price Has Been Too Low.

The ultimate factors entering into the cost of coal have not been fully understood, and, without entering into detail, it may be briefly stated that coal has, in the past—both in Canada and in the United States—been sold at prices below the actual cost of production, when such cost is considered over the whole life of any given coalfield. Further, it may be stated that the material value of coal itself has been underestimated, and perhaps no raw material has been so wastefully and unscientifically consumed in the past.

We are learning that the price of coal is not a deciding factor in days of fuel scarcity. The important thing, the paramount necessity is to produce the coal; to produce it as cheaply as possible, but above and beyond all other conditions, to produce.

The United States has experienced the sharpest lesson in this connection. No small part of the barely averted catastrophe of last winter was due to the arbitrary fixing of coal prices in the summer of 1917. Any action in the fixing of prices which ignores the essential factor of production and does not simultaneously with the restriction of prices, provide for the stimulation of production, is a mistake and defeats its own object. In the case of a raw material of such fundamental and vital importance as coal, all government action should have as its first and guiding motive the increase of production.

## Efficient Use of Men.

Increase of coal production does not necessarily mean the opening of new mines, but rather the reverse. There has been, throughout North America, a general reduction in the working force at the collieries. In

Nova Scotia this reduction of workmen has largely concentrated upon the actual miners and producers of coal, as would naturally happen, because the producing class at a colliery—by a process of natural selection—includes the men most fitted by physique and mentality for military service. This withdrawal of the most efficient members of the working forces has not been peculiar to Nova Scotia, but is a noticeable feature throughout all the coalfields of North America.

Under these circumstances of labor shortage, of a selected character, the obvious remedy for the unbalanced conditions which it has brought about is the concentration of the remaining workmen in the collieries best equipped to give the greatest production of coal. The most noteworthy feature of the existing labor situation at the collieries is the inefficiency of operation brought about by the unbalancing of the forces referred to, and concentration is the remedy.

Not only is concentration desirable from the point of view of productive efficiency at the collieries, but it is also necessary to conserve the transportation factor. The fewer the points from which transportation is required and the greater the tonnage which can be moved from these points, the less will be the call upon the motive power of the railways and upon shipping.

In view of the insistent calls of the Army for more and still more men, it appears quite hopeless to look for any large increase of coal production arising from the provision of additional employees, and, as in the case of the fuel itself, we must make the best of the man power we have.

#### Production of Coal is of Vital Importance.

The coal operators are fully alive to the necessity of increasing production where it can be achieved by the use of mechanical devices, and the labor shortage has already brought forth mechanical devices which will play an increasingly important part in the future development of the coal industry. Unfortunately, this avenue of possible increase of coal production is restricted by the difficulty of obtaining delivery of machinery, so for the present the only way by which coal production can be stimulated is that every man employed in the industry—no matter what his position—shall work to the full extent of his ability.

Our chief incentive to hard work should be the knowledge—and here you will pardon me if I repeat my statement of last year—that, “no single department of the machinery of modern warfare can move or act without coal.” Those of us who help in one way or another in the production of coal are privileged in that we are able by our personal endeavors to help or hinder in the prosecution of the War. In view of the critical condition of military affairs at a time when we are approaching the end of the fourth year of the struggle, I believe I voice the feelings of us all when I say that we need no further spur.

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The metalliferous mining of the Nicola District, British Columbia, is improving. A railway is being built to the Canada Copper Company's property on Copper Mountain, near Princeton, B.C., and a concentrator is being installed.

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The Voigt's Group of Copper Claims, Copper Mountain, have been bonded by the Canadian Mining, Smelting and Power Co., and soon will become one of British Columbia's producers.

## CORRESPONDENCE.

### Bore Hole Drilling.

Editor Canadian Mining Journal:

Sir,—In reading over the articles by Mr. Hitchcock, Mr. Harrington and Mr. Stone, on the merits of the various diamond drill core-barrels, it is rather surprising to note that the return water principle is discussed as if it were something new and better than the standard barrels. Mr. Harrington, who is well known to most of us in the diamond drilling business, is thoroughly qualified to give an opinion on the subject, as he has had a world of experience in drilling under widely varying conditions. He seems to have voiced the opinion generally held by drillmen; in saying that when conditions are such that it is desirable to use a double tube barrel, the ball bearing barrel without the return water feature is unquestionably the best. This barrel fulfills all the requirements of an efficient double tube barrel and the same cannot be said of any other type.

The double tube barrel was designed primarily to protect core from the washing effect of moving water. This is by far the most important consideration in double tube barrel design. The next most important improvement is the provision for preventing the rotation of the inner tube, thus eliminating the vibration and friction against the core and preserving it in the best possible shape. This, as has been explained, is accomplished by suspending the inner tube on ball bearings. In formations that are difficult to core, and where the maximum core recovery is of utmost importance, no other type can compare with it. It is true this is the most expensive barrel on the market; but Mr. Stone's statement that it is short lived is contrary to the writer's experience. Due to the almost entire absence of friction on the inside, there is little wear except on the outer barrel. The outside wear is probably less than on the other types, because of less grinding of core with the consequent wear from cuttings. In soft formation the regular practice for the past few years has been to dispense entirely with the single tube barrel and run only the double tube, because of the increased progress that can be made. A double tube barrel under such conditions will run a year or more, which is as much as any barrel will do.

The rigid type return water barrel, which Mr. Stone states is as good or almost as good as the barrel described above, fails to fulfill the two important functions of a double tube barrel in that it does not protect the core from moving water and does not protect it from friction or vibration. It probably would be better described as a modification of the single tube rather than a double tube, as the only difference in the action on the core is that the water flows upward around the core instead of downward. The friction remains the same as in the single tube.

While this barrel does not give the results that a regular double tube barrel does, it has some advantages when used in broken formation. When the single tube barrel is used, while the upward flow of water will wash away soft core, it will tend to loosen broken particles of core that become bound in the barrel and better progress can be made. It would seem that a barrel possessing this advantage would be used extensively in the Lake Superior district, where the rock is hard and more drills are used than in any other section of the world. The reason why it is not more extensively used, is because the return water feature is considered dangerous by contractors and drillmen in that section. Drillmen must be constantly on their guard against getting

the rods stuck. Invariably, sticking is caused by failure to wash away the cuttings from the outside of the bit and barrel. When this occurs on an ordinary barrel the pump stops and the water ceases to return at the top of the hole, an instant warning to the drillmen. With the water returning through the inner tube, it is difficult to determine how much, if any, water is passing up around the outside of the barrel, so that a bit may be stuck while the water is returning. This frequently results in not only the loss of rods, core-barrel and diamonds; but of the hole as well. It is rather common practice amongst runners, when this barrel is furnished, to plug the upper hole in the barrel: thus preventing the water returning through the inner tube and eliminating the danger of sticking. With the hole plugged, the barrel is the same as the simple rigid type. The fact that this is often done and that runners claim better results is not a very strong recommendation for the return water barrel.

From a drillman's standpoint, all drilling is either hard rock drilling or soft rock drilling and there is rather a distinct line between the two. Hard rock comprises the metal producing formations while soft rock means such formations, as fire-clay, salt, sulphur, asphalt, coal, gypsum, etc. The standard barrel for the former is the small single tube and for the latter the large double tube ball bearing barrel. If conditions are such in the so-called hard formations that it is desirable to use a double tube barrel, better results can be obtained by employing the soft rock practice of large hole and proper double tube barrel rather than by using small fittings not adapted to such conditions.

The foregoing opinion is based on twenty years experience in many parts of the world and is substantially the same as the views held by Mr. Harrington and most other experienced drillmen. Furthermore I believe it is in line with the practice of the Sullivan Company, who make all the barrels under discussion. As they are considered the leading authority on the subject it would be interesting to have their ideas.

Yours etc.,

J. G. GRATTAN.

Flower, Ont., May 22, 1918.

#### BLASTING COAL IN NOVA SCOTIA MINES.

Up to within very recent years the blasting of coal in Nova Scotia mines was accomplished by loose black powder, fired by squibs, but this practice has very properly been abandoned. In the damp mines compressed powder, or "pellets" are used. The charge is fired by an ordinary squib, sometimes ignited by a wire heated by contact with the safety lamp flame, and inserted through a small hole specially bored in the lamp glass. The use of squibs is with good reason coming to be regarded with disfavor, and powder fuses fired by electric batteries are being introduced. In the dry and dusty mines, or in mines where gas occurs, so-called "safety" or "permitted" explosives are used, as "Excellite" or "Monobel." These explosives are, of course, fired by a fulminate of mercury detonator, and electric battery. The quantity of explosive used varies with the nature of the seam, but from 4 to 7 tons of coal produced per pound of powder used, may be taken as usual practice.—F. W. G.

Mr. Maurice M. Summerhayes, formerly manager of the Ppreupine Crown Mining company has been made manager of the Blueston Copper Mining company, Nevada, and has already left for Nevada.

#### PRINTED COPIES OF PATENTS.

By H. A. Budden.

Sir Robert Hadfield, head of the firm of Hadfield, Limited, Sheffield, in a recent address on Patent Law Reform, made the following statement:

"As an example of the antediluvian policy of our Empire on this question an Englishman in this country cannot get a copy of a Canadian Patent without sending to Canada, and even then he gets only a typewritten copy, as patent specifications are not printed there."

This condition of affairs in the Patent Office, Ottawa, is one that demands immediate attention.

The Canadian Patent Office have issued over 180,000 patents and Canada ranks seventh among the countries of the world issuing Patents for Inventions.

A copy of a British Patent costs 8 pence, while the U. S. Patent Office sell copies at 5 cents apiece.

A copy of a Canadian Patent costs on an average over two dollars and can only be obtained after considerable delay.

In the U. S. Commissioner of Patents' report to Congress for the year ending December 31st, 1917, the following figures are given relating to this subject.

Printed copies of specifications and drawings of Patents to the number of 2,511,082 were sold at five cents each, bringing to this Office on this account, \$125,554. For 1,277,184 copies sold to libraries the Office received \$1,612. The total received from the sale of copies of Patents was \$127,166.

Copies to the number of 1,097,550 were shipped to foreign governments and 142,640 copies were drawn for office use. The total number of printed copies of Patents distributed during the year was 5,354,136.

These figures show that there is a great demand for printed copies.

The public is interested in the publication of Patents because it has the right to know the terms of the grant of a monopoly in order to avoid infringement while the monopoly exists, and it has also the right to know what has become public property when that monopoly ceases.

The patentee is interested in the publication of patents as he would readily purchase a number of copies of his patent, to assist him in exploiting his invention.

The Patent Office is urgently in need of printed copies not only to supply the examiners' files, but also to fulfill an agreement with the U. S. Patent Office to exchange copies.

In Great Britain and the United States the libraries in all the great centres contain copies of patents for reference. In Canada it is necessary to go to Ottawa to make a search and even then the cumbrous typewritten copies, which are not properly classified, make a search difficult and tedious.

The Canadian Patent Act as it now stands provided for the printing of specifications and drawings in Section 63, subject to the approval of the Governor in Council.

Undoubtedly it will take a long time to print the 180,000 patents which have been already issued, but that is a matter for special consideration.

There is no doubt, however, that the system of printing specifications and drawings should be adopted at once and thus prevent the increase of arrears.

Canada has reached such a stage in her development that she should endeavor to be among the progressive nations, particularly in matters that concern her intercourse with other nations. Her present time of rapid industrial and technical advance demands a change from old methods which may have been suitable for a young country.

# Tungsten Ore Deposits Near Falcon Lake, Man.\*

By Justin S. DeLury.

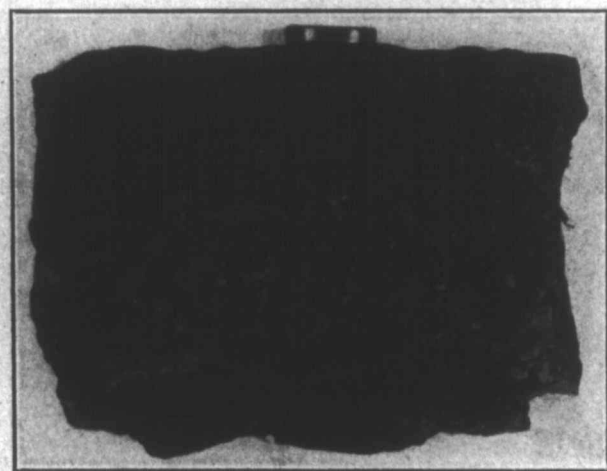
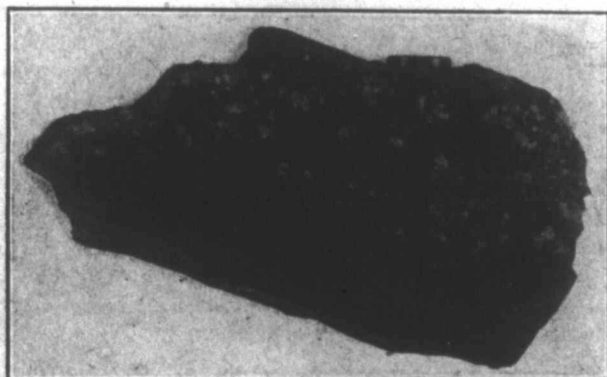
The Falcon Lake District is part of an area which lies to the northwest of Shoal Lake and near the Ontario Boundary and which was prospected for gold several years ago. Throughout this area are signs of prospecting in the form of old prospect holes, stakes and claim lines. A few of the old claims are still held, but most of them have lapsed. A part of the District adjacent to Falcon Lake and that part which is of interest at the present time in connection with the tungsten finds was prospected last year for molybdenite and a brief report\* appeared describing the occurrences of that mineral.

When the molybdenite deposits were examined, no signs of the presence of tungsten minerals were seen, though they were looked for in the pegmatites and associated quartz veins. Last winter some prospectors

midway between the main line of the Canadian Pacific Railroad and the Greater Winnipeg Water District Railroad. By good canoe routes and trails the prospects can be easily reached in a half-day from either railroad. Should the district go ahead as a shipping camp, means of transportation could be easily arranged. The accompanying map shows the location of the field and the means of access.

The principal geological features of the area were brought out in the above-mentioned report on molybdenite, so that it will not be necessary here to give more than a brief outline. The map shows the prominent geological outcrops with their approximate boundaries.

The principal rocks of the area fall structurally into two groups: a series of ancient schists and a later in-



Falcon Lake tungsten ore.  
(White crystals are scheelite.)

went into the District to stake more claims, and one of them brought out some fragments of rock, the weight of which attracted his attention. In March of this year these were recognized as pieces of high-grade tungsten ore; consisting of scheelite, a calcium tungstate, embedded in a mass of epidote crystals.

Two short visits were paid the District to examine the tungsten occurrences, and though little work has been done to show-up the properties, sufficient information was gathered to furnish the following brief paper giving a description of the ores and their manner of occurrence.

Compared with the positions of most Manitoba prospects, these are very favorably located, lying about



J. MacMillan.  
Discoverer of the scheelite deposit near Falcon Lake.

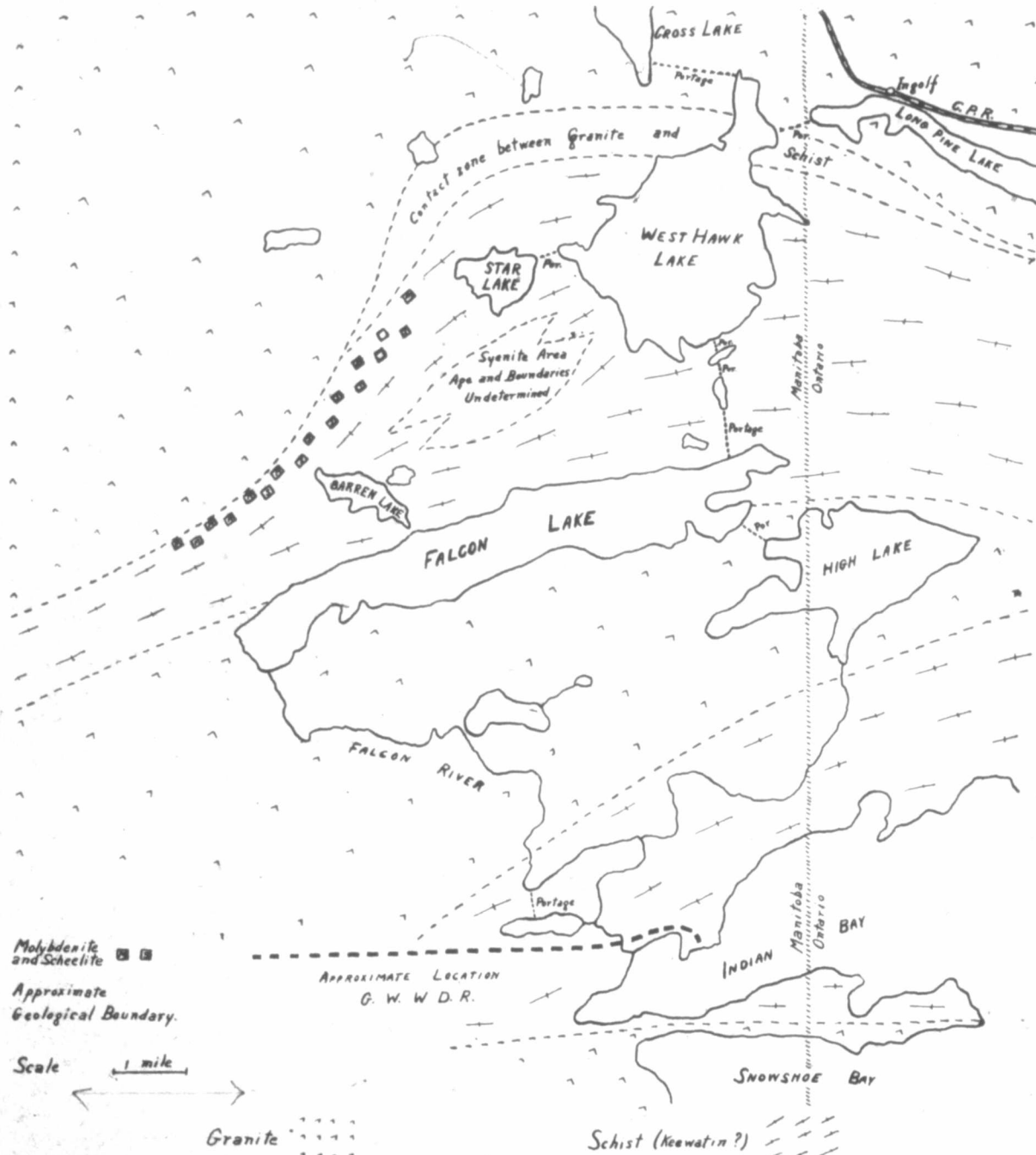
trusive granite series. The schists have evidently been derived by processes of compression, shearing and granite-intrusion from basic lavas and intrusives together with some sediments and small amounts of acid igneous rocks. The schists appear as belts between areas of intrusive granite and the schistose layers are vertical, or nearly so, and parallel to the granite walls on the boundaries. The belt of schist containing the molybdenite and scheelite deposits appears to be an old synclinal trough, a residual part of formations which probably covered the granite throughout the area in former times.

It is difficult at the present time to form any con-

\*J. S. DeLury, Can. Min. Journal, Dec. 1, 1917.

ception as to the depth of the schist in this trough; but from their extent and position it is reasonable to assume a considerable depth in most places. The granite in most cases shows an almost vertical wall against the schists. In parts the contact shows a wide zone of alternating wide bands of schist and granite;

and stringers in the schist. The more prominent of these minerals in connection with the scheelite deposits are epidote and garnet. Molybdenite was seen in several places in stringers in the schist near to, but not directly associated with, the scheelite. Several other contact minerals were noticed, but there has



Sketch Map of Falcon Lake District, Manitoba, showing molybdenum-tungsten areas, April, 1918. Compiled from various maps and private notes

this type grades to another in which a rather sharp contact appears.

The typical granite is coarse-grained with large, reddish-weathering feldspars embedded in a finer-grained matrix of quartz with a small amount of mica. In places are signs of a finer-grained contact granite, and near the contact generally appears a rough, gneissoid banding, which is probably due to flowing, but may be partly due to shearing after solidification.

In the later stages of granite intrusion a magmatic extract from the cooling mass of granite furnished materials for the molybdenite-bearing pegmatite dikes and for high-temperature vein deposits which carry the scheelite. Many minerals which are characteristic of high-temperature deposits were developed in veins

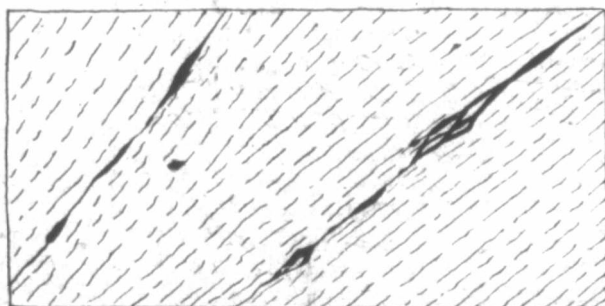
been insufficient time to determine them exactly; some of them suggest feldspar, zoisite and scapolite. There is little evidence so far of the mineralizers commonly associated with granitic intrusions, such as boron and fluorine. Sulphur is present in close but not intimate relation with the scheelite; appearing in small quantities of pyrrhotite.

Other types of ore are found in the District, usually farther from the contact than are the scheelite and molybdenite. Their connection with the same intrusion of granite has not been established, and is not suggested. Free gold has been found in several quartz stringers and silicified rock bands which usually contain some of the common sulphides. Some of the sulphides commonly noted in the area are: pyrite,

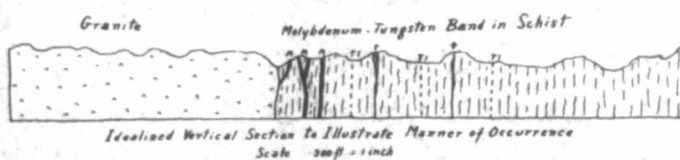
pyrrhotite, chalcopyrite, arsenopyrite, sphalerite and galena. Some veins of magnetite two to four feet in width and carrying varying quantities of pyrite and chalcopyrite were also seen.

#### Mode of Occurrence of the Tungsten Ore.

The manner of occurrence of the scheelite orebodies is best brought out by the accompanying sketches. Very little work has been done; there has been no stripping and only one deposit has been opened at the surface. Indications are that the zones which carry the scheelite will be fairly continuous, some of them probably for several hundreds of feet, though tungsten values may not be persistent throughout the length of the zone. Good ore was seen on some of the more persistent zones at several points. To get an accurate idea of continuity of values, blasting of the rock is necessary, since the scheelite has undoubtedly weathered from the immediate surface and from those places which are loose enough to be attacked by a prospector's pick.



Surface plan illustrating nature of outcrops.



Vertical section illustrating manner of occurrence of ore.

The one deposit which was opened gave very encouraging indications for the others. Ore occurs in a zone of from three to five feet in width. The epidote-scheelite ore occupies in places roughly a quarter and in others a half of the zone mass; the ore would have values commonly corresponding to from five to fifteen per cent. scheelite. This body is lenticular in shape and is made up of a reticulated mass of stringers which have resulted from replacement of the country rock or of some previously deposited vein-material along fractures and fissures. This lens, about twenty-five feet long, passes into stringers at each end and under heavy overburden so that unfortunately in this one case where the vein has been opened, the vein cannot be traced until stripping has been done. However, as most of the other outcrops are in readily traceable zones, chances are good that this excellent showing will be traced and will show values elsewhere. If the depth of this lens is commensurate with its length, at least one carload of shipping ore should be obtained.

In most of the deposits so far found, epidote is the characteristic gangue mineral. It shows various shades of green color and occurs as granular masses and as aggregates of large crystals. The interspaces between the crystals are occupied by irregular masses of scheel-

ite which vary in size from quite small grains to masses up to an inch in length; some plates are also found apparently filling cracks, many of them showing rough faces with an area of several square inches. The scheelite is typically pure white in color, but is occasionally found with other tints, most commonly a pale pink or red. In the more northerly of the prospects, garnet appears to be a more important gangue mineral than epidote, though even here some epidote was noticed in most cases. The ore in these prospects is typically a mass of fine-grained deep red or brown garnets with small grains of scheelite interspersed between them. None of these garnet-bearing deposits have been opened, so that an idea of values cannot be given. Some rich samples were chipped off close to the surface. In all cases the scheelite was in small grains.

#### Ore in Band in Schist Parallel Granite Contact.

The finds of tungsten so far made are confined to a band in the schist running parallel to the granite contact. The band is about three miles in length and about a half-mile in width. While practically all of this belt has been staked, there is no apparent reason why the tungsten-bearing area should not have greater limits and further prospecting is apt to prove a wider field. It might be recalled here that very little prospecting has been done in this district and up to a late date new finds were being made. Five or six distinct discoveries have been made and tungsten tests have been obtained from several other points within the belt.

#### Bright Prospects as a Tungsten Field.

Prospects are bright that a small production will result from the development of known bodies; in fact, with proper care, production should pay for prospecting. The district is fortunately situated and considering the extensive showings which have resulted from a very small amount of work, indications are promising for a new Canadian tungsten field.

#### Development of Molybdenite Properties is Also Promising.

This paper would be incomplete without some mention of the molybdenite deposits near Falcon Lake and belonging to the same belt. Recent development has been very encouraging. Two men working for three days under adverse conditions and breaking in from the surface bagged at least seventy-five pounds of pure molybdenite. One solid mass of the mineral was estimated from measurements to weigh at least twenty pounds. From the showings in this area there appears to be no reason why Manitoba should not soon take its place as an important producer of molybdenite.

The Whitehorse Weekly Star recently printed the following information concerning one of the mines in Whitehorse copper camp, in Southern Yukon: The body of rich ore struck recently in the Copper King mine continues to grow in importance. With depth the ore body has steadily widened until now there is a 5-foot lead of copper glance and bornite which assays from 40 to 60 per cent. copper and 13 oz. silver to the ton. Manager Whitney is having hauled to Whitehorse and loaded on railway cars a quantity of this high grade ore and this will shortly be shipped to an outside smelting works.

Mr. T. Regnall, formerly manager of the Dome Lake Mining Company is now on the staff of the Hollinger Consolidated. Mr. Regnall was succeeded by Mr. Douglas Mutch.



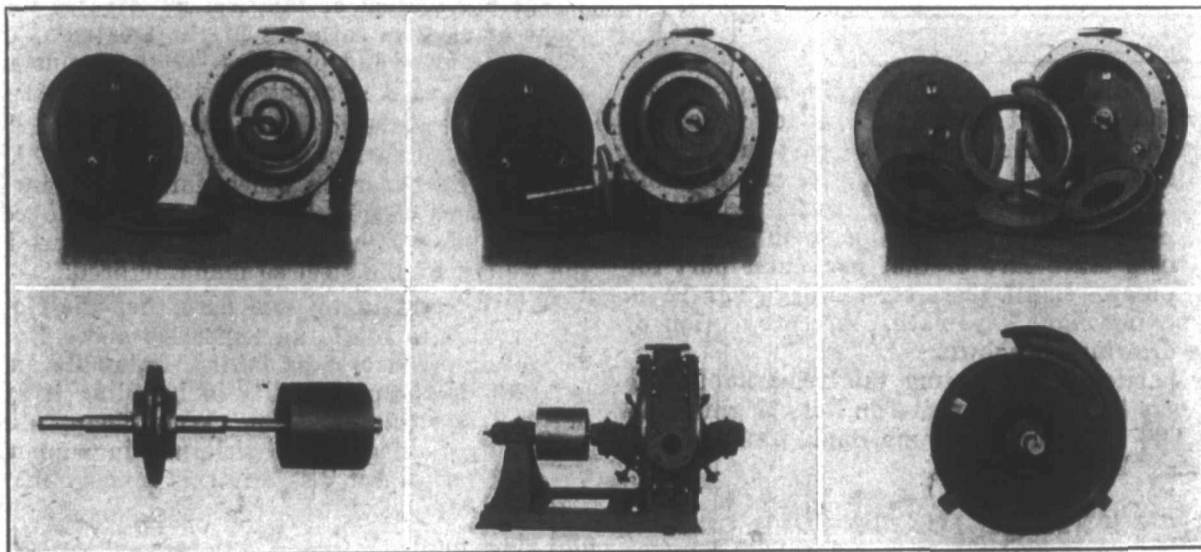
## THE ROSS BOX PUMP

The Ross Box Pump, for which patents have been granted, is an entirely new departure in centrifugal pump construction, and will be welcomed by the engineering profession. By the courtesy of the makers we are enabled to show our readers some interesting photographs and illustrations of this pump.

In this pump all cored suction passages and intricate castings disappear. The inventor has reduced the centrifugal pump to its simplest elements.

There are three principal elements in a centrifugal pump—the impeller, the pressure case round the impeller, and the suction box—and when these three elements are made in their simple form and placed in

The centrifugal pump is now the most widely used type of machine for dealing with mixtures of solids and liquids, and it has almost entirely supplanted the tailings wheel, bucket elevator, etc., for this work. For the hard service involved, the ordinary centrifugal pump, lined inside with wear-resisting metal, was developed; the main casing of the pump being sectionalized to provide more or less easy access to the lining. On account of the difficulty of fitting liners into a well-designed volute casing, only the crudest form of single suction centrifugal pump has been found practicable up to the present. The efficiencies attained are very low and there is present the inherent disadvantages of end-thrust. Attempts to develop the balanced double suction type for this service have hitherto been unsuccessful on account of the complexity of the



The Ross Box Pump.

a certain relation to each other, we have the new pump. The impeller and pressure case occupy a position in the centre of the suction box and are entirely submerged or surrounded by the liquid being pumped.

A glance at Plate 1 will show the simplicity of the machine thus achieved and a little reflection will show the pump designer the great possibilities opened up to him by the new construction. He will see that he can go ahead to maximum efficiency of impeller and pressure volute without worrying about what will happen to suction passages, main case, and glands. If he encounters special conditions of service, he can proceed to alter his impeller and volute patterns to suit. If the pump is required to handle clear water he instructs his founder to make these two elements of the usual cast iron with close clearances. If the pump is required to handle gritty water, slimes or sands, he instructs his founder to make these parts of chilled iron or steel, and tells his machinist to grind the necessary clearances. The pulp or fluid in the suction box moves at a very slow speed and experience has shown that practically no wear takes place inside it, even when very thick granular material is being dealt with.

When handling pulp it is necessary to run clean water into the glands. Pipe connections are provided for this purpose, leading to the water seal rings in the stuffing boxes. Special care has been taken in the design to prevent these water seal rings from being pushed beyond the water supply apertures. A special test pipe and valve are also provided to show that water is actually flowing to the water seal.

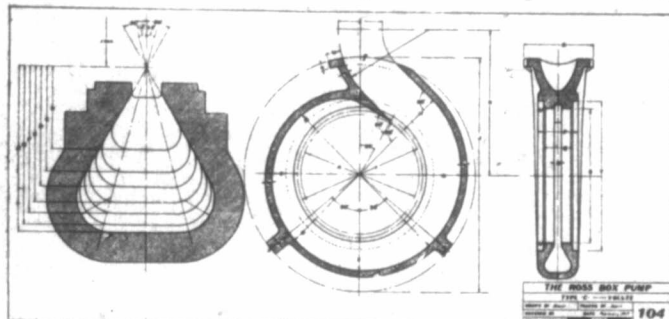
liners involved. In the Ross Box Pump these difficulties have been overcome, and by means which may be summarized as follows:

(1) Complexity of parts has been overcome by placing the impeller and wearing parts in the centre of a suction box, instead of the usual practice of making a complete pump casing and then lining it. The suction box thus takes the place of the main pump casing in the usual centrifugal pump. (2) End thrust is obviated in the Ross Box Pump since the impeller is of the balanced double suction type. With this type of pump it is equally easy to make the impeller single or double suction. (3) The arrangement of the Ross Box Pump allows the designer complete freedom to secure maximum efficiency at all points. Efficiencies equal to the best type of water pump are attainable without sacrificing simplicity of parts. (4) The interior parts are simpler and more accessible than any single suction lined pump yet developed. It is necessary to open one door only, when every wearing part is immediately and easily available, and all this is done without disturbing the suction and delivery piping. There is no other pump for which this can be claimed.

A consideration of the foregoing will show the engineer that this new type of pump combines simple and strong construction with minimum weight and simple machine work. He will also appreciate the final degree of excellence in the disposition of the shaft bearings a feature directly attributable to the new construction. As a pump which will deal equally well with water as well as sand and slime pulp, its

application as a standard all-service pump will make a strong appeal to pump users.

In these days of standardization, it is interesting to note how far this has been done in the case of the Ross Box Pump. In view of the fact that manufacturing should be done at various centres and the necessity of making parts interchangeable, each detail drawing was made the subject of a special study.



All duplicated and non-essential dimensions were rigorously excluded and letters A B C, etc., were then substituted for the dimensions. The part in question was then drawn out full size for all sizes of pump and key dimension lists corresponding with the letters were obtained. Thus one drawing with the key dimension lists takes care of that particular part for all sizes of pump. In all, there are ten drawings 12 in. by 24 in. having eight keys each. A reproduction of one of the drawings is shown.

Further particulars regarding this remarkable line of Pumps may be obtained from The Ross Engineering Company, 908 Eastern Townships Bank Building, St. James Street, Montreal.

#### WILL DISCONTINUE MINING GOLD ORE.

A very significant notice was issued recently by the Canadian Consolidated Mining & Smelting Co. to its employees. It follows:

"Large increases in the various items entering into the mining and smelting of the Rossland (B.C.) ores, such as wages, cost of explosives, coke, steel, general mine and smelter supplies, without adequate compensation in values by way of increased metal prices, coupled with increased taxation, has made it necessary for the company to suspend shipments from the Rossland (B.C.) mines indefinitely.

"An endeavor will be made to keep a small force on development work, and to place the remainder of our Rossland employees at the smelter, the Sullivan mine, Kimberley, and other lead-silver properties of the company."

The explanation of the above is found in the fact that Rossland ores contain but a few pounds of copper to the ton, its values being mostly in gold. It is the intention, therefore, to make shipments just sufficient, with the augmentation of customs ore, to keep one copper furnace at the company's smelter in Trail B.C. in operation. One of the company's officials put it very succinctly when he said:

"As a gold dollar will hardly buy half as much as before the war, there appears to be no great advantage in mining gold ores at this time—especially when almost every variety of mining cost has doubled and more."

#### POTASH.

During 1917 there was produced and marketed in the United States 126,577 potash products containing 32,366 tons or 26.4% of potash. The average selling price as \$4.26 a unit or \$4.26 a ton for each one per cent. K<sub>2</sub>O in the material.

#### British Columbia Offers Bounty for Iron

"The Iron Bounties Act," which binds the Province of British Columbia to give a bounty of \$3 per ton on all pig-iron manufactured from British Columbia ore in British Columbia and \$1.50 per ton on all pig-iron manufactured in British Columbia from foreign ore, is easily the most important mining legislation passed at the recent session of the Provincial Legislature. It went through the House without difficulty, the consensus of opinion being that it was good policy and a very opportune move on the part of the Government to encourage the development of the latent and admittedly large deposits of iron of the Province.

Another section of this Act anticipates the employment of electric furnaces in the treatment of British Columbia ores, and provides for the bonusing, on the same basis, of the output of such plants. It reads:

"Bounty, as on pig-iron under this Act, may be paid upon the molten iron from ore which, in the electric furnace, Bessemer or other furnace enters into the manufacture of steel by the process employed in such furnace; the weight of such iron to be ascertained from the weight of the steel so manufactured."

It is interesting to note here that the Government has decided to retain an expert to make an examination of the iron ores of British Columbia and submit a report on the practicality of handling it by the use of electric furnaces. Hon. Wm. Sloan, Minister of Mines, addressing the Legislature in support of the "Iron Bounties Act," said in this connection:

"I may say that, with the development of the iron and steel industry throughout the world, development which has been more marked in recent years because of the pressure brought to bear by the war, new processes have been discovered and proved through experiments, which make it practical and a commercial proposition to handle the magnetites of British Columbia without the admixture of hematite. I may add that the Government is fully alive to the importance of this from the standpoint of the industry in this Province, and has engaged an Eastern Canadian expert to visit British Columbia at an early date for the purpose of making inquiry and submitting a report on the practicability of treating our ores by means of the processes to which I have referred. I am confident that his investigations will be of the utmost value to all British Columbians interested in the establishment of this important basic industry in Western Canada."

The Minister, referring to the tonnage of iron ore available, said:

"I may say that in considering this question I have had prepared for my information a number of reports by various experts on our iron resources and now I think is the proper time to refer to them. One engineer opens his statement thus: 'In attempting to give any description or idea of the iron ore deposits of the Coast of British Columbia one is immediately confronted with the fact that, almost without question, none of the known deposits has been worked other than superficially and few have received any further development than very shallow open-cuts, tunnels or shafts.'

"He then goes on to point out that it is estimated for Vancouver and Texada Islands alone, the actual and probable ore totals over 5,000,000 tons, which would be sufficient, if we take the requirements of a blast furnace as being 200,000 tons of ore a year (equivalent

to about 100,000 tons of pig iron) to supply the requirements necessary for twenty-five years.

"Another engineer gives a rough estimate of the tonnage of magnetite iron ore on the southern British Columbia coast as far as he has examined as follows:

	Tons.
Actual Ore .....	630,000
Probable ore .....	6,050,000
Possible ore .....	10,500,000

"To these figures he adds the following statement: 'This would undoubtedly be largely increased by further prospecting.'"

Of the quality of the British Columbia iron ore Hon. Mr. Sloan spoke very optimistically, saying in part:

"The ores referred to as on the Coast Islands are exclusively magnetite iron ore. Those magnetite deposits are always replacements of limestone and are found in or near limestone deposits and the ores are apt to carry some lime as gangue matter, rather an advantage from an iron smelter's point of view. The iron content of these ores will run from 50 to 65 per cent. iron on commercial samples; the sample of a 600 ton lot of ore from Texada Island is given in the tenth census of the United States as having run 65.7 per cent. iron. Of course many of the deposits are not as free from gangue as the Texada Island deposits and parts of these deposits might require magnetic concentrating—a cheap process. It would be safe to count on two tons of average ore producing one ton of pig iron."

After dealing with the hematite and limonite deposits of the Province rather exhaustively, Hon. Mr. Sloan touched on the question of fuel, pointing out the remarkable resources of the Vancouver Island, Nicola Valley, and Crowsnest Pass Fields in respect of coal. He said that the coking qualities of the Crowsnest Pass coal had been thoroughly demonstrated and that while the product of Vancouver Island was not looked on as being as good as the former for that purpose the fact that the Granby Consolidated Mining & Smelting Co., after extensive experiment, was opening a mine on the Island, the output of which was to be treated in by-product ovens for the production of coke for use in its smelting centres at Anyox and Grand Forks, B.C., was ample proof that the Coast coal is capable of making first-class coke.

The problem of markets formed the concluding theme of the address, the Minister taking the position that, while it was not claimed that there is at the present time a market in British Columbia sufficient in size to absorb the whole product of a commercial unit of an iron blast furnace, it would be provided by the stimulation of such industries as are based on the use of iron and steel and which are essential to the economic development of the country.

The customs smelter at Ladysmith, B.C., is to be blown in on or about the 20th of June next, according to Mr. W. J. Rattle, general manager of the Ladysmith Smelter Company, who returned to the Pacific Northwest recently from New York where satisfactory financial arrangements were made for the resumption of operations. This smelter was active for a time last year, but closed down in order to permit a business re-organization and to provide for a continuous supply of ore. Both of these objects, Mr. Rattle, whose headquarters are in Seattle, says have been accomplished.

## PERSONAL

Dr. H. M. Auri, for some thirty years on the Geological Survey Staff at Ottawa, has been doing war work at the British Embassy, Washington, D.C., since January, 1917. He is now "in charge of war metals and minerals" at the Embassy.

Mr. George L. Fraser, for some time an employee of the Granby Consolidated Mining and Smelting Co., has been transferred from the Company's smelting centre at Anyox, B.C., and has taken over the duties of general manager of the company's new collieries on Vancouver Island. He will have associated with him as Mine Manager, J. W. Powell, late of the Canadian Consolidated Coal Co., of Kentucky.

Mr. J. W. Montgomery, formerly mine manager of No. 7, Canadian Collieries (D) Ltd., has assumed the duties of mine manager of Nos. 5 and 6, while Mr. J. G. Quinn, formerly in charge of the two latter mines, has gone to No. 7.

Mr. Alex. Sharp has been appointed mine manager of the Colman Collieries, Princeton, B.C., which have been re-opened. It is understood that considerable development work is to be undertaken.

The Canadian Collieries (D) Ltd., has opened its No. 5 Mine, and Mr. D. Morton has been appointed Overman. He was Head Overman at No. 4 Mine, Extension, which has been closed down.

In the re-organization of the Fleming-Merritt Collieries, under the firm name of The Fleming Coal Company, Mr. Joseph Graham has been appointed general manager; Mr. A. E. Smith, mine manager; and Mr. John Brown, Overman. These mines, under the Inland Coal and Coke Co., have produced as high as 15,000 tons a month. The new company is taking hold vigorously, as is shown by the fact that last month, although the work may be said to have just started, 4,000 tons was produced.

Mr. A. R. Webster, formerly of the Northern Ontario Light & Power Company, has been appointed an Inspector of Mines for the Ontario Government. Mr. Webster will devote his time principally to inspection of electrical equipment at the mines throughout the whole province. His headquarters will be in Toronto.

Lieut. H. Smeddle of the 15th battalion tank corps has been promoted to Captain.

Dr. W. G. Miller, Provincial Geologist of Ontario, who is to represent Canada on the advisory board of the Imperial Mineral Resources Bureau sailed for England on May 17.

Mr. E. R. Bush of New York was in Toronto last week on his way north.

The Ontario Bureau of Mines will geologically map an area of several townships near Lake Abitibi this summer. C. W. Knight, A. G. Burrows and P. E. Hopkins of the staff of the Bureau and A. L. Parsons of the University of Toronto, mineralogy department, will all work in this area.

At the Annual Convention of National Association of Manufacturers, New York, May 20-22, H. E. T. Haultain will speak on "Restoring disabled soldiers and sailors to industry." Prof. Haultain is vocational officer for Ontario.

The Dominion Forgings & Steel Co., Hamilton, Ont., has received a contract from the United States Government for shells amounting to \$2,500,000. It is expected that other large orders will be placed in Canada in the near future.

## SPECIAL CORRESPONDENCE

### BRITISH COLUMBIA.

#### **Vancouver Island Coal Mining Industry is Active.**

The coal industry of Vancouver Island, British Columbia, was never in a more flourishing condition than at the present time. From the East to the West of Canada has gone forth the order "more and yet more coal" and the companies of this section are speeding up to an extent only limited by their ability to obtain equipment and men. The Canadian Government has intimated that the Western Provinces this year would be expected to produce two and one half million tons more coal than in 1917, the object being to meet the local demands for fuel for industrial and domestic purposes as far as possible, if not entirely, from local supplies. Thus, it is hoped, Canada's present dependence on the United States, a condition which was very apparent last year at a time when the United States could least spare the coal, will be to some extent relieved.

With the situation as thus sketched before them the coal mine operators of Vancouver Island, no doubt in common with those of all the Western Section of the Dominion, look upon themselves as in duty bound, from the viewpoint of the best interests of the British Empire and her Allies, apart from the question of whether it is or is not good business, to do their utmost to swell the monthly output. Last year there was an exceptional demand and the Island collieries, rising to the occasion, marketed 1,698,235 tons in comparison with a total for 1916 of 1,492,761. But then there was not the special application of the spur that recently has been brought to bear upon them, with the result that the first three months of 1918 finds practically every mine with returns considerably in excess of the corresponding periods of the previous year. It may be said now with assurance that, at the pace set, 1918 will find the Vancouver Island output of coal much ahead of the past twelve months, while the same may be said with confidence, although the writer has not the figures before him to substantiate it, with regard to the combined totals of the collieries of the Province of British Columbia.

#### **Western Fuel Co. is Making Record Output.**

The Western Fuel Company, one of the largest producing companies of the Island, established a record for the month of March of 70,000 tons, which is larger than that of any previous month in its fifty-year history of operation. One of its recent enterprises was the re-opening of an abandoned mine known as the Harewood. It had been standing for several years, a former management having decided that it could not be expected to pay expenses. In March the Harewood's output ran up to the useful total of 19,000 tons. This, however, is not all. The company has possession of a considerable area of coal lands in what is known as the Nanaimo Coal Field which is yet undeveloped. Coal being a national necessity under existing conditions, it has been decided to open up some of these areas and diamond drilling now is in progress with that end in view. The definite intention is to open two new mines and these, it is believed, will be producing coal before the end of 1918.

#### **Canadian Collieries Ltd., is Extending Operations.**

The Canadian Collieries (Dunsmuir) Ltd., is another company which is busily engaged in the extension of its operations. It is opening a new mine on the Douglas seam at South Wellington, a well-known coal mining centre of the Island. Three parallel slopes are being

driven to tap this area. A good substantial tippie is being built and a modern screening and cleaning plant is being installed. A large power house has been erected which contains three return tubular boilers of good steaming capacity. Compressors and dynamos for furnishing power for the mine have been installed. There are being laid out extensive sidings and yard room which will be connected with the Esquimalt & Nanaimo Railway by a short spur. This will enable the coal to be shipped over the E. & N. to the company's wharves at Ladysmith, B.C., where it may be distributed overseas to the local or foreign markets. Before the end of the year this mine should be one of the Island's large producers.

#### **The New Granby Coal Mine and Coking Plant.**

About three miles south of the above mine, between Ladysmith and Nanaimo, B.C., is the centre of another new and important development of the coal mining industry of Vancouver Island. Here the Granby Consolidated Mining, Smelting and Power Co., Ltd., has secured, at an outlay of approximately \$750,000, a considerable block of coal lands. The opening of a new mine, the installation of the necessary plant for the handling of the coal, the erection of buildings for the accommodation of employees, and the construction of wharves, etc., at a seaboard point known as Cassidy's Landing will involve a further expenditure of at least \$500,000. This work is in progress, in fact has made considerable headway. The company's plans, however, do not stop at this, it being proposed to install at Anyox, B.C., the company's mining and smelting centre on the coast of the mainland of British Columbia, a by-product coke-making plant at a estimated cost of \$1,500,000. This will make it possible for the company to mine its own coal, transport it to Anyox for treatment, and thus secure the coke needed for the smelting of its large copper deposits.

In the opening of its new coal mine the company is driving three slopes; one of which is to be used as a main haulage way, another for ventilation, and the third for a mainway. A large acreage has been cleared, graded and surveyed into lots for building houses while a spur has been constructed from the E. & N. Railway into the mine site, while sidings and yards are being laid out and a sawmill is being installed to cut timber for the company's use.

It may be said, with respect to this enterprise, one of the most notable in connection with the coal industry in Western Canada for years, that it has been brought about largely because of the determination of the company to be as independent and as self sustaining in its operations as possible. It is easily the greatest producer of copper in British Columbia, the total production for the Province in 1917 being, roughly, 59,000,000 lbs., to which the Granby Company's contribution was, also in rough figures, 34,500,000 lbs. In 1916, however, its output was 45,631,600 lbs. The decrease is accounted for by the fact that last year, owing to the explosion at the Fernie Coal Mines, Coal Creek, and the ensuing strike, there was a period during which the usual source of coke was unavailable. With these facts in mind the chief object which the management of the company has in mind in its present programme is apparent.

Incidentally at present, but a factor which may enter very largely into the Granby Company's activities in the future, are the possibilities of the by-product ovens and the recovery of those elements of the coal the importance of which have been so strongly emphasized as a result of the disorganization of the old

commercial order by the war. Into this branch of industry the company proposes entering very thoroughly and it is confidently believed that the outcome will be the development in Western Canada of a number of profitable subsidiary industries.

The Granby's Company's coal mine, at the present rate of development, should be prominently on the list of producers before the end of the year.

Supplementing my recent account of the marked activity of the Vancouver Island Collieries, of Vancouver Island, B.C., it is gratifying to be able to report that much the same condition prevails in other coal mining districts of the Province.

In the Nicola-Princeton District the output up to the end of February, in comparison with the same period last year, showed an improvement of 20,000 tons. Two collieries have been opened up again which had been closed for a considerable period. The Island Coal and Coke Company has been re-organized under the name of the Fleming Coal Co., and its mines, at Merritt, B.C., have resumed operations after a suspension which dates back to the middle of the month of March, 1917. The Coalmont Colliery has been re-opened after a period of idleness extending from the early part of 1915. The Middlesboro Collieries are the largest producers in this district, being engaged in the operation of three mines. The Princeton Collieries rank second in production, but will have a keen rival for second place during the coming months in The Fleming Coal Co.

Since the taking over of control by the Dominion Government of the collieries of what is known as District 18 by the United Mine Workers of America, the mines of the Crow's Nest Field, B.C., which come within that section, have been making a very good showing. The production thus far this year is considerably greater than that for the first two months of 1917, the tonnage produced by these mines for January and February, 1917, being 94,295 tons, while for the same period this year it reached 135,986 tons, an increase of 41,691 tons. It is reported that satisfactory progress had been made in cleaning up the mines, which were wrecked by "bumps" and explosion last April, and these mines soon will be active producers again.

#### Amendments to B. C. Mining Acts.

Three amending Acts, directly in the interests of men working in and around mines or smelters, were passed at the recent session of the British Columbia Legislature. These are entitled, "An Act to Amend the Labor Regulation Act," "An Act to Amend the Metalliferous Mines Inspection Act," and "An Act to Amend the Coal Mines Regulation Act." The former provides for an eight hour working day for all men employed "in, or about any coke-oven, smelter, concentrator, or mineral separation plant." The chief amendment to the Metalliferous Mines Inspection Act is that providing for an eight-hour working day to those employed underground, whose working day will start when they leave the surface and end when they reach it again, as well as those employed on the surface. These two Acts will become effective on the 31st of March, 1919. The amendment to the Coal Mines Regulation Act gives the surface workers at coal mines the eight-hour working day from the 31st of March of next year. New legislation also stipulates that inspectors of metal mines, after making their inspection, shall post the result thereof in some prominent place outside the workings in order that the miners may be kept in touch with the conditions under which they

are working. Another provision is that "every drill used in stoping in any mine where the character of the ground is such that dust is caused" by the work shall be equipped with a water spray.

#### ONTARIO.

##### Assessment Work.

Definite assurance has been given by the Ontario mines department that prospectors will not be compelled to perform two periods of assessment work on their claims in one year. Where two periods of work accrue due in one year, the second period will be extended one year. It should be thoroughly understood, however, that there will be no general extension similar to that of last year. An Order-in-Council will be passed in the near future making it compulsory for all claim holders to do one period of assessment work this year. This will insure activity in the prospective mining field without the imposition of an unusual burden.

##### Adanac.

Further shearing has been encountered in the north crosscut at the 130-ft. level of the Adanac, and the face of the crosscut has reached a point where it is daily expected the downward continuation of the large vein encountered on the surface is expected to be picked up. The shearing just encountered is about three inches in thickness and assays show low silver values. The presence of silver and cobalt stain in the shearing just encountered is taken as good indication.

##### Peterson Lake.

The twelfth annual report of the Peterson Lake Silver Cobalt Mining Company, Limited, covering the year ended April 30th, shows an expenditure of \$36,124, as compared with an income of \$1,330, thereby showing an operating loss of \$34,794. Cash on hand amounts to \$11,658. During the current year it is expected the assets of the company will be largely added to by the treatment of the dumps and slimes which have gathered on the property from previous operations. It is expected to have the oil flotation mill, which is now nearing completion, in operation in June on the treatment of the slimes in the Seneca-Superior section of the property. The company also claims ownership of a large quantity of slimes now in dispute with the Dominion Reduction Company. The Dominion Reduction is understood to have appealed from the ruling of the court. The slimes in dispute are those deposited up to July 2nd, 1915, and according to government returns the amount is estimated at about 226,640 tons. The company estimate the silver content at 6½ ounces per ton.

##### Temiskaming—Hohenour.

Litigation is likely to follow any attempt on the part of the Temiskaming Mining Company to remove the mining plant from the Hohenour claims in the Kirkland Lake district, on which they have been carrying on development work, under an option agreement for the property. Recently an extension of time was granted on the option, at which time the owners of the claims contend the original agreement respecting the removal of the plant underwent a change to the effect that the plant should be left on the property. The original agreement permitted of the removal of this equipment, which was formerly used by the Temiskaming Mining company in the development of the North Thompson property at Porcupine.

### Croesus.

According to recent rumors the rich Croesus mine in Munro township is soon to figure in the organization of a stock company, for the further operation of the property. Last year a 50-ton mill was installed on the Croesus, and it was intimated on every hand that a large tonnage of \$50 and \$60 ore was available for treatment. The property is privately owned and the suspension of operations a few months ago was a considerable surprise to mining men throughout the north country. The Croesus during the early days of its development yielded some of the richest gold ore ever found in the world, and in sinking the first 100 ft. of shaft something like \$100,000 in gold was taken out. While no official statement has been given out, it is understood the rich ore does not continue consistently to depth. The rich vein is also said to have faulted and its continuation has so far not been re-located. These facts tend to strengthen the report that a joint stock company is being formed.

### Patricia Mill Nearly Complete.

It is expected the new 50 ton mill of the Patricia Syndicate at Boston Creek will be in operation by the first of June. The record of this property during the past seven months has been a wonderful one. The first ground was broken on the Patricia late last fall. In the meantime a mining plant has been installed, a large set of camp buildings erected, and the underground workings carried to a depth of 200 ft. While the vein is not wide compared with those of Porcupine and Kirkland Lake, the grade of the ore is such as to permit of selective mining, from which it is expected a substantial profit will be derived. Mr. Charles O'Connell, formerly manager of the Tough-Oakes Mine at Kirkland Lake, is in charge of the property. The results of the first mill run will be awaited with a good deal of interest by those holding claims in the Boston Creek district.

### Rich Ore at Burnside Mine.

Some of the richest ore ever encountered in the North Country is in evidence at the Burnside property at the point where the vein was encountered in the crosscut at a depth of 125 feet. A pay streak carrying visible gold about seven inches in width occurs in a five foot vein, the whole of which is of a commercial grade. The dip of the vein at the present point is to the north, but like those on its neighbor, the Tough-Oakes, it is expected to change to the south when depth is reached. It has been reported recently that there is a move on foot for the amalgamation of the Burnside and the Sylvanite properties. The Burnside is controlled by the Aladdin-Cobalt Mining Company, and is at present using the electric plant of the Sylvanite company in its development operations.

### Kerr Lake.

During the month of April production at the Kerr Lake Mine was maintained at two hundred and one thousand ounces. This compares with 207,000 produced during the month of March. Only once during the past sixteen months has the production of the mine fallen below 200,000 when in July of last year 189,392 ounces were produced. This is at the rate of about 7,000 ounces every twenty-four hours. This output at the present price of silver works out at a profit of about \$150,000 monthly or approximately \$1,800,000 per annum.

### Ontario-Kirkland.

The Ontario-Kirkland Mining company plans to resume operations about the middle of June. The development work previously done on the property has shown up several veins which are large and contain very encouraging gold assays. The company controls what were formerly known as the Hurd claims. A shaft has been driven to a depth of about 100 feet and considerable prospecting work has been done.

### Installing Plant at Molybdenite Property.

About forty tons of equipment has been shipped to the Indian Peninsula Mining company property near Amos on the Transcontinental railway. The company propose installing a 100-ton oil flotation mill for the treatment of molybdenite ore and it is expected that within the next few weeks a portion of the equipment will be in operation. Tests, made in the laboratory of the Groch Centrifugal Flotation Limited at Cobalt, have demonstrated that a high recovery can be made, by the oil process in the treatment of molybdenite ore.

According to recent reports it is understood the Three Nations Mining Company's property in the Township of Whitney, Porcupine District, may be reopened at an early date. It was at one time rumored that this property and the old La Palme, both of which were considered to be excellent prospects in the early days of the camp, would be amalgamated. However, until the present time both properties have remained separate.

### Shipping Ore From Keeley Mine.

Shipments of ore are being made regularly from the Keeley Mine in the South Lorraine section of the Cobalt district. It is estimated that there are perhaps a quarter of a million ounces of ore in sight. A limited amount of this ore is high grade and is being shipped by the wagon road to Silver Centre, from which point it is taken to the railway at Haileybury, from where it is shipped to the smelter for treatment. The balance of the ore is low grade and is not available at the present time owing to the fact that underground work has not yet been started. It is expected, however, that the pumping out of the mine will be commenced in the immediate future. The property has been connected up with the Matabichewan power line of the Northern Ontario Light and Power Co.

### New Plant at McKinley.

The new flotation equipment at the McKinley-Darragh was tried out last week and is being gradually brought up to capacity. Within a short time it is expected the plant will be brought up to a capacity of 200-tons per day. According to recent reports the costs at the McKinley-Darragh are being kept considerably below that of last year. This is partly due to the erection of the new oil flotation plant. A big item in last year's expense account was the connecting up of the main shaft with the lower workings of the mine.

### Treating West Dome Ore at Dome Lake Mill.

The treating of ore from the West Dome property has commenced in the Dome Lake mill. According to the present arrangement a test run of 1,000 tons will be put through. Whether the company intends to continue the use of the Dome Lake Mill or not, has not been made known. It is understood the capacity of the

Dome Lake mill is more than sufficient for that company's ore, and such a scheme would appear to be feasible.

#### Doherty Prospectors Want Recording Office Changed.

Prospectors and mining men interested in the Doherty district at Doherty Siding on the T. & N. O. south of Temagami, are petitioning the Mines Department for the location of a more convenient place of recording than at present. Under the arrangement now ruling recording and other official business is transacted in Toronto. It is thought this could be more conveniently done at Haileybury.

#### Temiskaming.

Operations in the mill at the Temiskaming Mine have been suspended for the time being. However, underground development work will be continued more aggressively than ever. The amount of ore at present available was not sufficient to keep the mill running to capacity and the hoisting of ore was interfering to a certain extent with the efficiency of underground work, thus the management believe that with the extra speeding up of underground work sufficient ore will soon be developed to keep the mill running at capacity. In the meantime, advantage will be taken of the shutdown in this department to make much needed repairs to the plant.

Encouraging results are being met with in underground work at a number of points and it is possible much new ore will be developed. The main underground work is being prosecuted at the 700 ft. and 1,600 ft. level and results are said to be very encouraging.

#### Tough-Oakes.

Work at the Tough-Oakes Mines is understood to be resulting favorably. Interests closely identified with the directorate of the company have intimated that a substantial profit is now being made. In addition to wiping out the deficit of last year, it is expected a substantial profit will be shown on this year's operations.

#### Teck-Hughes.

During the month of April the tonnage treated at the Tech-Hughes mill at Kirkland Lake was in the neighborhood of 1,969 tons. The gross gold content for the month averaged about \$5.86 per ton, which is lower than usual. It is the policy of the Tech-Hughes management to draw all the mill rock from development work. Later on when selective mining is undertaken it is expected a substantial profit will be shown over operating costs.

#### Nipissing.

For the month of April the Nipissing Mining Company's production was at the rate of not far under \$11,000 per day. The company mined ore of an estimated value of \$329,617 and shipped bullion and residue of an estimated net value of \$308,736. Several small veins of promise were encountered in shaft 73. The high grade mill treated 210 tons and shipped 296,453 fine ounces of silver. The low grade mill treated 7,623 tons. This is the highest month's production of Nipissing during the current year and was only exceeded once during the year 1917, when in September last 349,258 ounces of silver were produced.

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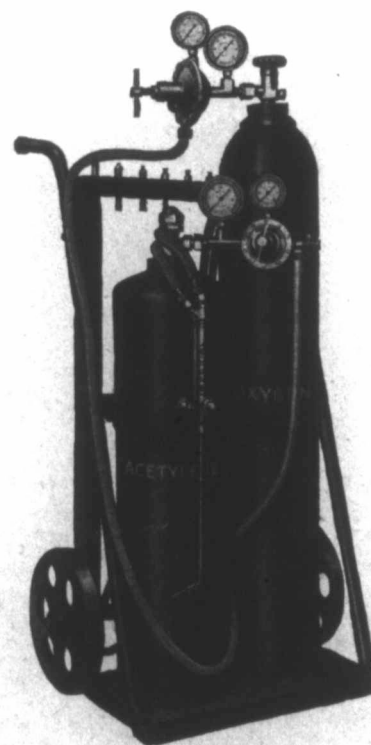
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**TORONTO MARKETS.**

Cobalt oxide, black, \$1.50 per lb.  
 Cobalt oxide, grey, \$1.65 per lb.  
 Cobalt metal, \$2.25 per lb.  
 Nickel metal, 45 to 50 cents per lb.  
 White arsenic, 17 cents per lb.

May 27, 1918—(Quotations from Canada Metal Co., Toronto).

Spelter, 10 cents per lb.  
 Lead, 9 cents per lb.  
 Antimony, 16 cents per lb.  
 Copper, casting, 28 cents per lb.  
 Electrolytic, 28½ cents per lb.  
 Ingot brass, yellow, 21 cents; red, 26 cents per lb.

May 27, 1918—(Quotations from Elias Rogers Co., Toronto).

Coal, anthracite, \$10.00 per ton.  
 Coal, bituminous, nominal, \$9.50 per ton.

**SILVER PRICES.**

	New York cents.	London pence.
May 6	99½	49½
May 7	99½	49½
May 8	99½	49½
May 9	99½	49½
May 10	99½	49½
May 11	99½	49½
May 13	99½	48¾
May 14	99½	48¾
May 15	99½	48¾
May 16	99½	48¾
May 17	99½	48¾
May 20	99½	Holiday
May 21	99½	48¾
May 22	99½	48¾
May 23	99½	48¾
May 24	99½	48¾

**STANDARD MINING EXCHANGE.**

Messrs. J. P. Bickell & Co. report the following closing quotations on the Standard Stock & Mining Exchange at the close of business, May 23, 1918.

Gold.	Bid.	Asked.
Apex	.04	.04½
Dome Extension	.11½	.11½
Dome Lake	..	.20
Dome Mines	8.00	..
Hollinger	4.87	4.95
Imperial	.01	.01½
McIntyre	1.29	1.30
New Ray	.20½	.22
Porcupine Crown	.10	.12
Vipond	.11	.12

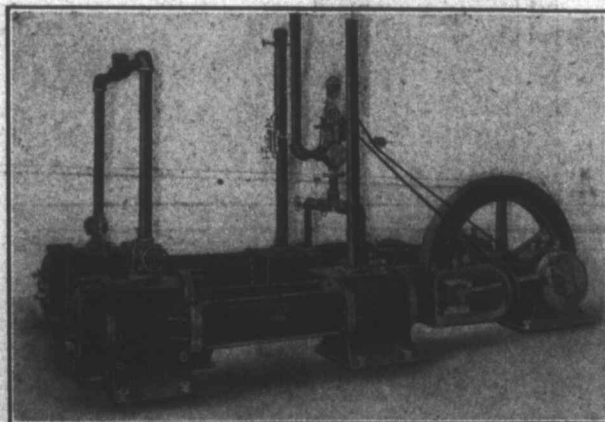
	Bid.	Asked.
Preston East Dome	.02¾	.03
Teck-Hughes	.45	..
West Dome	.11	.11½

**Silver.**

Adanac	.09¾	.10
Bailey	.03½	..
Buffalo	..	1.05
Beaver	.26½	.27
Chambers Ferland	.11½	.12
Contiagas	2.90	..
Crown Reserve	.16½	.17½
Gifford	.02½	.03
Great Northern	.02¾	.04
Hargraves	.07¾	.08
Hudson Bay	..	34.00
Kerr Lake	5.75	5.90
Larose	.40	.44
McKinley	.39½	.41
Nipissing	8.80	8.90
Peterson Lake	.09½	.10
Right of Way	.03¾	.04
Seneca Superior	..	..
Silver Leaf	.7%	.01¼
Temiskaming	.28	.28½
Wettlaufer	.04	.06½
Mining Corporation	3.50	3.65
Provincial	.51	.52

**NEW YORK MARKETS.**

Connellsville Coke—  
 Furnace, †6.00.  
 Foundry, †7.00.  
 Crushed, over 1-inch:  
 Beehive, †7.30.  
 † Fixed under Lever Act.  
 Straits Tin, spot, f.o.b. none offering.  
 Copper—  
 Prime Lake, \*23.50.  
 Electrolytic, \*23.50.  
 Casting, \*23.50.  
 Lead, Trust price, 7.00.  
 Lead, outside, nom., 7.00 to 7.25.  
 Spelter, prompt western shipment, 7.40 to 7.50.  
 Antimony—  
 Chinese & Jap. nom., 12.12½ to 12.37½.  
 Aluminum—Government price, carload lots, f.o.b. plant:  
 98-99% Virgin, 32.10.  
 98-99% remelt, 32.10.  
 No. 12 Aluminum Co., 32.30.  
 No. 12 remelt, 32.30.  
 Scrap aluminum, 32.10.



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