

THE CANADIAN MINING JOURNAL

VOL. XXXIX

TORONTO, June 15th, 1918.

No. 12

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.

ADVERTISING COPY.

Advertising copy should reach the Toronto Office by the 8th for issues of the 15th of each month, and by the 23rd for the issues of the first of the following month. If proof is required, the copy should be sent so that the accepted proof will reach the Toronto Office by the above dates.

ADVERTISING.

The Canadian Mining Journal covers the Canadian mining field. Ask for advertising rates.

CIRCULATION.

"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."

CONTENTS JUNE 15.

Editorial—	Page.
Mining in Eastern Ontario	197
The Metachewan Gold Area, By A. G. Burrows	199
Western Branch C. M. I. meeting	202
Electric Smelting of B. C. Iron Ores	202
Ontario's Metalliferous Production	203
Fluorite Mining in Ontario (with colored reproduction of ore)	206
The "Ingersoll-Rogler" Air Compressor Valve, by A. W. Swan	210
Personal and General	211
Special Correspondence	212
Markets	216

We publish in this issue a few extracts from the report of Mr. A. G. Burrows, of the staff of the Ontario Bureau of Mines, on the Metachewan gold area. At least one property in this area is to receive careful examination this summer, the Colorado-Ontario Development Company having undertaken development of the Otisse claims in Powell township. The report and map just published by the Bureau of Mines should prove very useful to those who work in the area. Mr. Burrows is an acknowledged authority on the geology of Northern Ontario gold areas.

The Munitions Resources Commission is undoubtedly doing some useful work. It may yet live down that foolish circular.

MINING IN EASTERN ONTARIO.

Ontario is a producer of many minerals. The Sudbury nickel-copper mines, Cobalt silver mines and Porcupine gold mines include some of the world's most notable metal mines. In this number we draw attention to a part of the Province that receives less notice from mining men, but which includes many important mineral deposits.

The most recently developed industry is that of fluorspar mining at Madoc, in Hastings County. The growing consumption in the United States some time ago created a scarcity of fluorspar in Canada. In the expectation that supplies from the United States would perhaps be entirely cut off, it was thought very advisable to develop domestic deposits. The price rose so rapidly that there was reason to expect that some of the Madoc properties might be profitably developed. Exploration during 1917 met with satisfactory results and some good deposits are being opened up.

Madoc is the centre of a prosperous farming community. It has for some time been noted also as a tale producing centre. The Henderson mine at Madoc has been a steady producer for years. The deposit is an exceptionally good one.

Eastern Ontario is to-day an important producer of tale, graphite, feldspar, pyrite, mica, lead, fluorspar, and molybdenite. The Black Donald graphite mine near Calabogie, in Renfrew County, is a large producer. The feldspar mine near Verona in Frontenac County, operated by Feldspars, Ltd., is reputed the best in America. The Lacey mine, near Sydenham, is said to be the largest mica mine on the continent. Excellent pyrite is produced near Quensboro and at Sulphide, in Hastings County.

While overshadowed by that of Northern Ontario, the mineral production of Eastern Ontario is considerable. Many of the minerals are very necessary in the manufacture of munitions and it may be expected that activity during 1918 will be marked. Shortage of labor will, of course, prevent the obtaining of desired production, but a good record will doubtless be made.

The question of smelter rates for lead-silver-zinc ores has been much discussed in British Columbia recently. In response to requests from many sources, the government has appointed a committee to investigate the matter. It is to be hoped that elucidation of the facts will result in more satisfactory relations between mine owners and smelter interests.

The bounty of two cents a pound on zinc produced in Canada should materially help the development of the electrolytic process now used in British Columbia. Zinc of very high quality is being produced; but competition with American smelters is impossible under present conditions.

ONTARIO'S NEW OIL FIELD.

During the past year there has been a notable revival of interest in oil and gas production in Ontario. The results of recent drilling in Dover township should give a great impetus to oil prospecting. It is probable that there will be more activity in Ontario oilfields this summer than has been evident for many years.

Canada's chief oil producing district is part of south-western Ontario, between Lake Huron and Lake Erie. For over half a century Lambton county has been a steady producer. The Tilbury district in Kent county, and the Onondaga district in Brant county have been prominent in recent years. Most of the oil has been obtained from the Onondaga formation, but the recent discovery in Dover township is in the Trenton limestone.

Not only is the new well a good producer; but it is an indication of what may be expected when the Trenton formation in Ontario is explored. In the Ohio-Indiana field, extending from north-western Ohio down in a south-westerly direction into Indiana, most of the oil comes from the upper part of the Trenton limestone. This horizon is geologically considerably below the horizon which has been Ontario's chief source of oil up to the present. To develop the Trenton deposits extensively it will be necessary to drill many deep wells.

Mr. Eugene Coste, one of Canada's most experienced and successful oil and gas authorities, after recently visiting the Dover fields, said in an interview to "The Globe": "We would deprecate the creation of any excitement regarding the Dover fields; but the indications are that they are permanent."

Leading economists have told us, what every producer of gold knows, that the production of gold during the war is not so profitable as the production of metals used in the manufacture of munitions. But can we afford to neglect production of the metal which the world has accepted as the standard of value? So long as the world recognizes gold as the standard, it will be desirable that the allied countries should have as large a percentage of it as possible. It would be foolish to divert energy from the production of materials necessary to carry on the war, in order to produce gold which a victorious enemy would be able to take from us; but on the other hand it seems unwise to discourage production of the metal which can be used so advantageously both during and after the war.

Canada is a country of great natural resources; but it is well to remember that these resources become valuable only when utilized. Every day that gold lies in the ground the country is losing money. It may be true that the mine-owner might profit as much or even more by delaying development until after the war, when supplies and labor may be cheaper; but that only means that the workman gets less for his labor and the manufacturer gets less for his goods, and we have denied ourselves the use of the gold. Is it not in the

best interests of the country to get our gold into circulation, as soon as possible?

DOMINION POWER BOARD.

The question of an adequate supply of fuel and power for all of Canada is one which has been brought sharply into view as a result of the acute fuel shortages during the past two winters. Certain phases of the situation demand and are receiving immediate action through the Fuel and Power Controllers and the Honorary Advisory Council for Scientific and Industrial research. The general problem of the fuel-power requirements of Canada is one that the end of the war will not solve. It is not merely a question of looking ahead for a year or two years or for whatever time the present conflict may last, but rather a matter of providing for all time to come.

Canada is recognized as one of the greatest water power and coal countries in the world. No people enjoy to a greater degree the benefit of cheap dependable hydro-electric power and none have had this benefit more universally adapted for municipal, industrial and domestic use. Canada's resources of coal are of tremendous extent, but are so located and of such a nature that special problems must be solved before they are made available to their maximum possible extent for domestic and manufacturing purposes. The future progress of the country depends very largely on the development and use of all the available fuel-power resources. To realize this, the Government has formed a Dominion Power Board comprising nine permanent officials of the various Departments who have become as a result of their regular departmental work, recognized authorities on various aspects of the fuel-power problems of the country. This Board has also been charged with the responsibility of co-ordinating all the investigation activities of the Government with regard to fuel power resources.

The Board has two main functions, (1) the collection of information, (i.e., Intelligence Service); and (2) to advise upon the development and use of fuel power resources of the country (i.e., an advisory body).

The Honorable Arthur Meighen, Minister of the Interior, is Chairman of the Board. The members are: Arthur St. Laurent, Assistant Deputy Minister, Department of Public Works. C. N. Monsarrat, Consulting Engineer of the Department of Railways and Canals. W. J. Stewart, Consulting Engineer to the Department of External Affairs regarding International waters. John Murphy, Electrical Engineer to the Dominion Railway Commission. H. G. Acres, Chief Hydraulic Engineer, Hydro-Electric Power Commission of Ontario. O. Higman, Chief Electrical Engineer, Department of Inland Revenue. D. B. Dowling, Geologist, Department of Mines. B. F. Haanel, Chief Engineer, Fuel Testing Division, Department of Mines. J. B. Challies, Chief Engineer and Superintendent, Dominion Water Power Branch, Department of the Interior.

The Bennett-Martin Asbestos and Chrome Mines Company has begun construction of a mill. The mine in Ireland township was opened a year ago and good results have been obtained on development.

At the Jacobs asbestos mine, the milling method of mining is to be used. Underground haulage will be by electric locomotives. The old method of mining, still used, is open pit. Instead of cable derricks for hoisting, a shaft will be used in the new workings.

The Matachewan Gold Area*

By A. G. Burrows.

In the fall of 1916 a discovery of gold was made on the Davidson claims in Powell township, which is on the Montreal river, in the District of Timiskaming. Powell township is near Fort Matachewan, a Hudson's Bay Company post, consequently the area has become known as the "Matachewan Gold Area." Prospecting had been carried on from time to time since the discovery, in 1906, of silver in James township, at Elk Lake. Gold was found at several places in the southeast part of Alma township and in the north central part of Cairo township, in an area of syenite, a few years previous to the discovery in Powell.

At the Davidson claims in Powell township the original discovery was native gold in an irregular mass of quartz and rusty weathered schist. In 1917 gold was found in a reddish porphyry by Sam Otisse on his own claims to the northeast of the Davidson. This prospector also discovered gold in a band of grey pyritic schist which lies to the south of the porphyry. Further work on the Davidson claims resulted in gold being found in the red porphyry which outcrops on these claims.

Since there was no detailed geological map of this area, the writer was instructed by Dr. W. G. Miller, Provincial Geologist, to make an examination of the country in the vicinity of the "finds." It was found that while a number of claims had been staked the previous winter, work was being done on only a few of these, consequently only a very small part of the new staking has been well prospected.

A geological knowledge of the area was obtained by travelling the township boundaries, traversing most of the water routes, and making sections away from the water routes. Only a few of the claim lines in the vicinity of the Davidson find were travelled, since most of the claims were very irregularly staked in the winter and difficult to follow in the thick bush in summer. However, a general examination was made of Powell, Cairo, Baden and Alma and the Matachewan Indian Reserve, while portions of the north parts of Yarrow and Kimberley also received attention.

During the season of 1917, Dr. H. C. Cooke, of the Dominion Geological Survey, examined an extensive area to the west of the Matachewan area, and his map of this country, showing the geology and canoe routes, will be of great assistance to the prospectors working westerly from the Montreal river.

The nearest railway station is Elk Lake, the terminus of a branch line of the Timiskaming and Northern Ontario railway that leaves the main line at Earlton station.

From Elk Lake there is a canoe route up the Montreal river a distance of about 30 miles to the Davidson landing. In high water in spring a gasoline boat has been utilized as far as the foot of the Long portage, with a short portage around Indian Chute. The trip by canoe alone is very arduous owing to the swift current in the Montreal river above Indian Chute. In this trip three portages are necessary. In low water during the summer all the stiff rapids above Indian Chute are usually poled or tracked. A route from Elk Lake, by way of Long Point lake, was used by various parties in 1917. This requires transportation of supplies and canoes over the Gowganda wagon road to Long Point lake, from which there is a water route down stream

by way of the East Branch of the Montreal river to the Matachewan area. Supplies for operations in 1918 were taken in (from Elk Lake railway station) over a winter road that roughly follows the Montreal river.

Rocks of the Area.

The oldest rocks of the area are of Keewatin age and consist mostly of basic to intermediate volcanics, accompanied by chert (iron formation) and schistose sedimentary rocks like quartzite and conglomerate. These have been intruded by numerous diabase and porphyritic dikes, whose age, beyond that they are younger than the Keewatin schists, is difficult to determine.

The older rocks have also been intruded by acid rocks like granite, syenite, gneiss and porphyry, which are probably of Laurentian or Algoman age. These acid rocks have also been intruded by numerous dikes of diabase, some quite fresh-looking.

A series of flat-lying sediments of the Cobalt series has been deposited on the eroded surface of the older greenstones, granites, syenite, porphyry, and some of the diabase dikes.

At only one place was a diabase dike observed intruding the Cobalt series, but a few others have been reported. This is in marked contrast to the older rocks, which are everywhere intruded by numerous dikes of diabase, consequently most of these dikes would appear to be older than the Cobalt series. In addition, at several points unconformities between the Cobalt series of sediments and diabase dikes have been noted. It would therefore seem that the conglomerate in the area would not be worth prospecting for silver, owing to the scarcity of sills and dikes of diabase of Keweenaw age.

The chief interest in the area is in its possibilities as a gold producer. For some years gold has been known to occur in Cairo and Alma townships, but it was not until the discovery on the Davidson claim in Powell in 1916 that the area attracted much attention.

Since only a small part of the area has been closely examined by the prospectors, it is possible that other promising finds will be made in the Keewatin areas in Powell and adjoining townships. The Keewatin rocks near the contact with the intrusive syenite in Cairo and Alma townships should be worthy of close examination and it is possible that other small masses of orthoclase porphyry, similar to the occurrences on the Davidson and Otisse, will be found. Prospecting is, however, rendered difficult by deposits of sand and gravel over much of the area.

Gold in Cairo and Alma Townships.

Gold was found by Jake Davidson, a prospector, in the sand-gravel stretches to the north of the Montreal river, near Fox rapids; the writer is informed by him that he frequently obtained colors in the pan, but found no place where there was any placer workable under present conditions.

Gold occurs in quartz veins in some parts of Cairo and Alma townships.

Craig Claims.—The Craig claims are situated about three miles north of Fox rapids. Here a wide quartz vein was discovered with a north and south strike. At one place trenching has shown a width of 150 feet of quartz, and silicified and brecciated syenite which is the wall rock of the vein. Part of the vein material is somewhat felsitic in appearance, suggesting some fine-grained igneous rock related to the syenite.

* Extracts from a report just published by the Ontario Bureau of Mines.

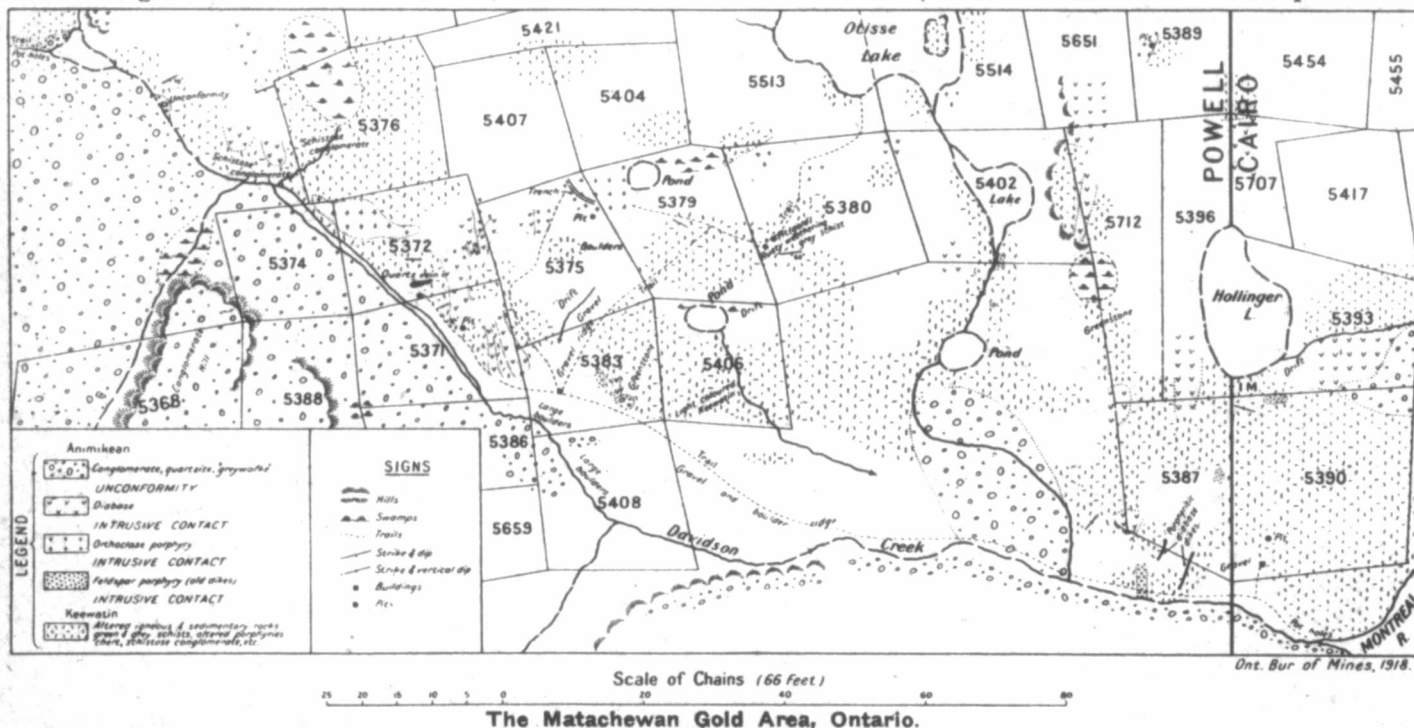
At one point a shaft has been sunk about 60 feet, with short drifts on the vein, and fine visible gold has been reported in the shaft and drifts, and in samples on the dump. No gold, however, was seen by the writer, but samples of material from the dump showed low values in gold. A little iron pyrites was observed in pieces of quartz and syenite, but generally the sulphide is in very minor quantity. The property is equipped with a small steam hoisting plant and has a good set of mine buildings.

Chief Claim.—The Chief claim (17310) is situated about 20 chains west of the two-mile post on the east boundary of Alma. A discovery of gold in a small hummock of syenite, which outcrops in a beaver meadow, was made some years ago. The vein strikes E. and W. and is quite narrow, varying in width from a mere crack to about 6 inches where exposed for 30 feet. A few shallow pits were sunk on the vein, and some samples rich in gold are reported to have been taken from the westerly pit, which was filled with water at the time of the visit. A sample of vein material from the dump, consisting of quartz, chalcopyrite, and a little galena, gave an assay of \$4.40 in gold. Attempts were made by trenching to pick up the vein on the hill to the east, but only mere stringers were found, a sample of which showed no gold.

the summer of 1917, and there were only a few prospectors in Cairo and none in Alma.

Gold in Powell Township.

Davidson Claims.—These claims are situated in Powell township about two miles west of the Montreal river. Gold was found by Jake Davidson in 1916, on the south part of claim 5372, in a mass of quartz and schist. This deposit strikes nearly east and west, and has been traced by trenching for 225 feet. It dips 60° S., is 40 feet wide at the west end and narrows toward the east. The quartz is very irregularly distributed in the schist, and for the most part the veinlets or quartz masses are transverse to the strike. The deposit very probably is lenticular in form. To the southeast there are a number of huge boulders of material from this deposit. The surface of the schist is weathered to a brown rust, largely due to the oxidation of the iron in the ankerite which forms a part of the altered rock. There is also a proportion of bright green serpentinous mineral. Gold in a state of very fine division was noted at a few places in this deposit. The only sulphide observed is a little iron pyrites, but for the most part the deposit is deficient in mineralization. A few chains southeast there is a quartz vein on which a pit had been sunk some years previously by Steve Lafricain, of Fort Matachewan. This quartz vein



The Matachewan Gold Area, Ontario.

Brookbank Claim.—This claim (17801) lies in the southeast corner of Alma township where the rock is a red syenite. Some work has been done about four chains west of the east boundary of the township and just northeast of the cabin which is on the boundary. Here there is a N.-S. vein on which two pits had been sunk. The vein is about 2 inches in width between the pits, showing for 30 feet. The vein filling is chiefly quartz, but contains also some galena, copper pyrites, pyrite, and some barite and fluorite. No gold was observed, but one assay of 2 inches of vein contained \$5.20 in gold and 8 oz. in silver, while another of 5 inches in width from the north pit gave \$7.60 in gold and 8 oz. in silver.

Cooper Claim.—Gold is also reported on the Cooper claim (MR 5645), which lies nearly a mile northwest of the Brookbank.

The above properties were not being worked during

contains small quantities of cobalt bloom, iron and copper pyrites, which first attracted attention, but promising values in gold or silver were not obtained on assay.

The Keewatin rocks accompanying these veins are quite schistose, igneous and sedimentary. To the north of the first mentioned deposit there is a whitish altered porphyry which shows phenocrysts of orthoclase and plagioclase in a groundmass of feldspar and quartz, with much sericite and calcite. Near this altered porphyry there is ashy weathering chert, or iron formation. Part of the south wall of the deposit is schistose quartz-porphry with conspicuous phenocrysts of quartz.

Intruding the schist in the north parts of these claims there is a red orthoclase porphyry that has been referred to previously as gold-bearing. Iron pyrites occurs abundantly in portions of this rock, and there has been considerable oxidation, resulting in the break-

ing down to a red earthy material or loose fragments on the surface, that has involved a certain amount of surface concentration. This condition varies greatly in different parts of the property; on some of the knolls there are only a few inches or less of oxidized rock, but one trench shows over six feet of loose oxidized material. Consequently, for a proper examination of the deposit, it would be necessary to prospect below this shallow rusty surface by means of open cuts through the weathered rock, by drilling, or by shafts.

The porphyry is cut by numerous veinlets of quartz which in places carry visible gold, that frequently occurs near the contact with the porphyry and also in the wall rock, near the veinlets. In one deep trench there are several flat-lying quartz veins from a fraction of an inch to two inches in width. In other places the quartz veins may be irregular in their distribution, the whole mass occurring like a stockwork. It is quite likely the quartz veins are genetically connected with the porphyry, being the filling of tension cracks that have developed on the cooling of the rocks, while the gold has accompanied the quartz in the formation of these veins. Sometimes gold can be observed deposited on grains of iron pyrites in the quartz or along the wall rock. A few samples were taken from the Davidson by the writer. One of these, from the surface of the porphyry in a trench on claim 5372, gave on assay \$10.00 per ton over a length of 15 feet. The porphyry here was not so altered as is frequently seen, but visible gold was observed in minute quartz veinlets near the place from which the sample was taken.

Another surface sample from a long trench at the northeast corner of the claim gave on assay a value of \$15.20 over a length of ten feet in the trench. Several specimen samples of quartz and porphyry carrying iron pyrites gave values of 80 cents to \$2.00 per ton. None of these assays are quoted as representative of the actual value of the whole mass of the porphyry, but indicate its gold-bearing character. It may be found on extended examination that there are isolated parts of the porphyry which are sufficiently enriched with gold to be of economic value.

The following is a description of a microscopic examination of gold-bearing porphyry and quartz from Davidson claim 5372:

Orthoclase crystals are set in a groundmass of smaller feldspar crystals with a little chlorite in flakes and scattered crystals of apatite. Calcite is abundant as a secondary mineral. Quartz occurs in small secondary masses and in veinlets. Cubes and irregular grains of pyrite with an oxidized surface of limonite are frequent in the porphyry and also in the quartz veinlets. The quartz veinlets contain clear secondary feldspar, plagioclase and microcline moulded on the older feldspars of the porphyry. Vein calcite also accompanies the quartz in the veinlets, while native gold occurs near the wall rock in the quartz. A small amount of copper pyrites is occasionally seen. None of the rarer minerals, like the tellurides, have been recognized in any of the samples examined.

Otisse Claims (5379-5380).—These claims lie directly east of the Davidson group, and, owing to a somewhat deeper covering of drift and a smaller amount of trenching, the distribution of the rocks is not as well known.

In the northwest part of claim 5379 the orthoclase porphyry is well exposed. There is also a surface oxidation similar to the Davidson, with an amount of loose brown earthy material in which trenches were made. Gold has been found in a number of pits in the same association as in the porphyry on the Davidson.

To the east of this outcrop other occurrences of porphyry have been located by Sam Otisse in heavily timbered country; it is probable that a band of porphyry extends through the northerly part of the claims.

Near the centre line of the claims, a few chains north of the south line, there are outcrops of rusty weathered schist in which native gold has also been discovered. This band of rock lies to the south of the porphyry band. Below the oxidized surface the rock is light grey in color and spotted with pyrite. Examined under the microscope it contains much secondary silica, calcite, sericite, and iron pyrites, indicating that the rock has been entirely altered by replacement from its original composition. Mr. Otisse discovered gold at several other places on his claims in rocks which are of different character from those described above.

An examination of these properties in January last resulted in options being taken on these and adjoining claims, and it is expected that during the summer of 1918 a thorough examination will be made to prove their possibilities as gold producers.

Otisse Claim (5376).—This claim lies north of the Davidson claim, 5372. The rocks are largely schistose sedimentary rocks intruded by narrow porphyritic dikes. Six chains north of the Davidson claim there is a quartz vein striking nearly east and west and three to four feet wide in places. It contains, in parts, copper pyrites, iron pyrites, and galena. Fragments of grey porphyry in the quartz suggest that the vein was formed along an old porphyry dike. Gold values are reported from this vein. A selected sample of quartz, galena, and copper pyrites contained \$1.20 in gold per ton.

In the southwest part of the claim there is a narrow red porphyry dike that strikes northwesterly to the Robb claim. It contains quite large crystals of orthoclase, and is probably a narrow dike representative of the stock-like mass of red porphyry on the Davidson. Gold is reported to occur in this dike.

O'Connell Claims (5389-5390).—On claim 5389, adjoining the boundary line between Powell and Cairo, there is a reddish feldspar porphyry dike that intrudes a slate-like rock of Keewatin age. This porphyry is much harder than that on the Davidson and Otisse claims, and does not show so heavy a mineralization with iron pyrites. It is cut by quartz veinlets, and has been partly prospected by stripping and a shallow open cut. Low values in gold from this material are reported by the owners.

On claim 5390, one mile south, work was done on a band of blackish chertlike rock cut by quartz veinlets with pyrite, from which low gold values were also obtained.

Fluorite and Barite.

Fluorite (fluorspar) has been found in small quantity in a number of quartz veins in Cairo and Alma townships, but none of the deposits examined are of commercial value. Owing to the widespread occurrence of the mineral, it is possible that prospecting might result in the finding of economic deposits. The mineral is of a deep purple color, occurring in small masses in the quartz or in the wall rock adjacent to the veins. It is also present in the Biederman barite vein. One occurrence where the fluorite is in the quartz is on the Harvey claim, No. 18285, west of the road from Fox rapids north to the Craig claims. This vein is about seven inches wide, strikes N. 75° E., and has been traced several hundred feet. Some pieces of fluorite, two inches across, were taken from the vein. All the showings of fluorite are in the syenite.

Veins containing barite occur in several parts of the area. These are generally small, but two deposits have been found which would be of commercial value were they nearer railway transportation. These are the Biederman deposit in Cairo township, and a deposit near Yarrow lake in Yarrow township.

Western Branch C. M. I. Annual Meeting

The annual meeting of the Western Branch of the Canadian Mining Institute was held at Vancouver, B.C., on May 27th, when there were present representatives of the mining industry of all sections of the Province.

It was agreed that steps would have to be taken to shake up the organization, it being the opinion that it had not been taking its proper part in the development of the industry in the West during the past year or more. In the selection of officers, therefore, care was taken to appoint men who can be depended upon to interest themselves as members of the C.M.I. in all problems, small or large, affecting Provincial mining.

The following committee was appointed: Mr. J. D. Galloway, Provincial Resident Engineer of Mineral Survey, District No. 2, with headquarters at Hazelton, B.C.; Mr. George Winkler, of Victoria, B.C.; Mr. John Hunt, General Superintendent of the Canadian Western Fuel Co., Nanaimo, B.C.; Mr. Thomas Graham, General Superintendent of the Canadian Collieries, Cumberland, B.C.; Prof. N. Turnbull, Professor of Mining at the University of British Columbia; Prof. J. G. Davidson, Professor of Physics at the University of British Columbia; Mr. A. B. Clabon, President of the Vancouver Chamber of Mines; Mr. E. A. Haggen, Editor of the Mining and Engineering Journal of Vancouver, B.C.; Mr. Robert R. Bruce, manager of the Paradise Mine, East Kootenay, B.C.; Mr. S. S. Fowler, manager of the New Canadian Metal Co., B.C.; Mr. Oscar Lachmund, General Manager of the Canada Copper Corporation; and Mr. E. E. Campbell, Superintendent of Mines of the Granby Consolidated Mining and Smelting Corporation; Mr. R. H. Stewart, manager of the Sunloch Mines, was made Chairman, and Mr. W. Fleet Robertson, Provincial Mineralogist, Vice-Chairman.

For the purpose of keeping informed on problems affecting every branch of mining it was decided that the Committee should be given power to appoint sub-committees whose duty it would be to keep in touch with matters affecting the classes of mining work to which they were assigned and in the selection of which the special qualifications of the respective members would be the only consideration. These sub-committees will be as follows: Coal, Copper-Gold, Silver, Lead and Zinc, Legislation, Membership. These smaller bodies, composed of competent men, will keep the Association posted and make recommendations as to its policy in respect of all questions of interest to mining men. It is the hope that in this way the C.M.I. may make its voice heard with effect in the development and the administration of the mining activities of British Columbia.

The meeting was marked by three interesting papers. One by Mr. Frederick Keffer, read by Mr. W. M. Brewer, was entitled "Flotation Practices at Highland Valley Mines." Another on "Petroleum in British Columbia" was by Mr. E. A. Haggen, and a third by Mr. E. E. Campbell, of the Granby Consolidated, was on "Mining Operations at Anyox, B.C."

ELECTRIC SMELTING OF IRON ORES OF B.C.

Dr. Alfred Stansfield, of Montreal, has accepted a commission at the hands of Hon. Wm. Sloan, Minister of Mines, acting on behalf of the British Columbia Government, to make a full investigation into the commercial possibilities of the application of electrical smelting methods to the development of the iron ore resources of the Province. Dr. Stansfield is expected to reach Victoria, B.C., about the middle of the month of June. All the information available to the Department of Mines, as well as the services of one or more of the Provincial Resident Engineers, will be placed at his disposal, so that he can count on having every facility for the immediate commencement and the uninterrupted pursuit of the undertaking.

It was Mr. Sloan's opinion that, in view of the recent advances made in electric-metallurgy, it was essential that the views of an expert be secured as to the adaptability of British Columbia's iron ores to electric smelting, particularly at a time when there are such opportunities and so strong a general demand for the economic development of the long dormant iron deposits of this section of Canada. This would be Dr. Stansfield's first duty and he would, therefore, have to make a close study of the character of the contents of the magnetites and hematites of the Province. He then would go into the various problems in connection with the installation of an electrical smelting plant, its cost, construction and so forth and would follow this up with an estimate of the cost of production of iron by this method from the ores with which the plant would be supplied. He also would be able to give valuable information as to the quality of the iron so produced. All this was information which would be of the utmost assistance in the guidance of those contemplating investment in the manufacture of pig iron from British Columbia ores and in the building up of kindred industries in the Province.

Dr. Stansfield is Professor of Metallurgy at McGill University and a consulting metallurgist of the highest standing in Canada. Before coming to Canada, about 10 or 12 years ago, he had established a reputation in England. For years he has been consulted by the Dominion Government on all electro-metallurgical questions, besides being the advisor of most of the steel manufacturing concerns of the East with reference to the production of electro-smelted high-grade steels. In 1914 he was engaged by the Dominion Government to investigate the electro-smelting of iron in Sweden, on which he prepared a very instructive report. He has held the position of secretary of the Iron and Steel Institute of Canada and is secretary of the Iron and Steel Section of the Canadian Mining Institute.

NEW DOME DIRECTOR.

Toronto, June 12.—The annual meeting of the Dome Mines Company was held yesterday afternoon at the office of Mr. Alex. Fasken. It was announced that the main shaft had just reached the 1,250-foot level, where a station would be cut and a drift started to the Dome Extension line. No definite promise was made for the re-opening of the mill closed some months ago owing to labor conditions.

Mr. W. B. Royce, President of the National Surety Company, New York, was elected to the directorate in place of Mr. J. S. Wilson, Massey, Ont. The chair, in the absence of President De Lamar, was occupied by Mr. J. S. Edwards, the First Vice-President.

Ontario's Metalliferous Production

First Quarter, 1918.

Returns received by the Ontario Bureau of Mines for the three months ending March 31st, 1918, are tabulated below. For purposes of comparison the quantities and values are given for the corresponding period in 1917.

Summary of Metalliferous Production—First Quarter of 1918.

Product.	Quantity.		Value \$.	
	1917	1918	1917	1918
Goldozs.	127,692	113,387	2,601,760	2,265,521
Silver"	3,945,957	4,114,856	2,831,873	3,740,843
Cobalt (metallic) . . .lbs.	84,710	37,545	78,668	75,625
Cobalt oxide"	93,014	81,760	66,798	130,486
Nickel oxide"	5,495		550	
Nickel (metallic) . . ."		44,154		17,662
Other Cobalt and Nickel Compounds "	118,292	143,381	13,695	18,386
*Nickel in matte . . .tons	10,141	9,677	5,070,410	5,806,200
*Copper in matte . . ."	5,063	4,727	2,025,227	1,748,990
Copper Ore"	1,507		44,097	
Iron Ore"	23,035	32,530	58,205	127,916
Pig Iron"	163,020	148,752	2,743,441	3,948,209
Molybdenite, concentrates . . .lbs.	25,073	17,410	32,202	24,548
Lead, pig"	263,046	60,283	27,290	5,066

*Copper in matte was valued at 20 cents and nickel at 25 cents per pound in 1917. For 1918 the values have been placed at 18½ and 30 cents per pound respectively.

Gold.

Production for the quarter shows only a small decrease which is a creditable showing considering the various handicaps under which gold miners are laboring. The Hollinger Consolidated had an increase in production. This was offset, however, by the closing down of the Dome mill. The Croesus mine in Munro township has closed down temporarily. At Kirkland Lake a new producer, the Lake Shore, has been added to the list. During the quarter 262,577 tons of ore were milled with a recovery of 113,387 ounces of gold and 20,221 ounces of silver as compared with 350,916 tons milled during the corresponding period in 1917. Hollinger produced 68,804 ounces of gold and McIntyre 21,461 ounces, the next largest producer being the Porcupine V.N.T. The Patricia Syndicate at Boston Creek expect to have their new mill in operation about June 1st.

Silver.

Shipments of silver for the first quarter of 1918 show a small increase in quantity and a considerable increase in value. The average New York price for the period was 87.5 cents per fine ounce or nearly 12 cents increase as compared with the corresponding period in 1917. The passing of the Pittman bill in the United States recently has established virtually a price of \$1.00 per ounce. Companies shipping one quarter million ounces or over are named in order: Nipissing, Kerr Lake, Mining Corporation of Canada, Buffalo, O'Brien and Coniagas. The Mining Corporation of Canada has been remodeling its mill in order to re-treat a large tonnage of tailings from the Cobalt Reduction mill. At the McKinley-Darragh a new 200-ton oil flotation plant has been put in operation. Of a total of 4,114,856 ounces shipped, 20,221 ounces is credited to silver recovered from gold ores.

Refineries: There were treated at Southern Ontario refineries during the quarter 1,242 tons of ore and concentrates and 1,483 tons of residues from Cobalt and out-lying silver camps. Silver bullion recovered was 1,610,989 ounces, worth \$1,394,599. In addition, arsenic, cobalt and nickel oxides and sulphates, nickel carbonate, metallic nickel and metallic cobalt were produced. Of the latter, 22,752 lb. was used in the manufacture of "stellite," which is a cobalt alloy used as a high speed cutting tool. One feature of note is the

great increase, 100 per cent., in value of cobalt metal and oxide due to the increasing uses and demand for these products.

Nickel-Copper.

Production from Copper Cliff and Coniston smelters for the quarter shows a small decrease as compared with the same period in 1917. Ore was raised from the Creighton and Crean Hill mines of the Canadian Copper Co., the Alexo; and the following mines of the Mond Nickel Co.—Garson, Victoria No. 1, Worthington, Levaek and Bruce. Of a total of 354,689 tons raised, about 70 per cent. came from the large and rich Creighton ore-body. There was 325,386 tons of ore smelted in the period, with a resulting product of 17,992 tons of nickel-copper matte.

The British America Nickel Corporation has acquired a site to erect its \$1,000,000 refinery on the Quebec side of the Ottawa river, between Aylmer and Hull. The new refinery of the International Nickel Company of Canada at Port Colborne is nearing completion.

Iron Ore and Pig Iron.

Shipments of iron ore were made from the Helen and Magpie mines of the Algoma Steel Corporation. Hematite ore from the Helen is shipped to the Magpie, where it is mixed with siderite ore and roasted. The entire shipments from the Magpie went to the Sault blast furnaces. From Moose Mountain, Limited, Sellwood, shipments were made of magnetic concentrates, briquetted and converted to hematite in a kiln. Only 447 long tons were exported to the United States during the quarter.

At Sault Ste. Marie, Port Colborne, Hamilton and Deseronto, eight blast furnaces were in operation. The tonnage smelted was 34,552 tons of Ontario ore and 260,476 tons from the United States. As shown by the table, the output of pig iron was considerably less than for the corresponding period last year.

Molybdenite.

Molybdenite ore, to the extent of 1,295 tons, was treated by the Mines Branch, Ottawa, and by the Renfrew Molybdenum Mines, Ltd., at Mount St. Patrick. The output of the last mentioned company is shipped direct to France. There are works at both Orillia and Belleville for the production of ferro-molybdenum.

Lead.

The entire output of pig lead resulted from the operations of the Galetta lead mine and smelter owned by the Jas. Robertson Estate, Montreal. During the quarter 3,347 tons of ore was mined. The smelter operated during the last few days of March only. Operations by the Kingston Smelting Company ceased in December of last year.

The Order-in-Council dated May 31st, 1918, with reference to assessment work is as follows:

"Upon the recommendation of the Honorable the Minister of Lands, Forests and Mines, the Committee of Council advise that on any mining claim where in consequence of the provisions of The Mining Act of Ontario and a certain Order-in-Council dated 26th May, 1917, two instalments of work are required to be performed, wholly or in part, within the space of twelve months, the time for performing the second of such instalments be extended twelve months, and the time for performing each and every subsequent instalment of work, if any, on such claim, be likewise extended twelve months; and that in computing the time within which any such work is required to be performed, the period of time necessary for such extension be excluded."

THE MADOC AREA.

The development of the fluorspar mining industry has again directed attention to the Madoc area. At Madoc 80 years ago there was located one of our first iron furnaces, iron ore being obtained from the Seymour mine. Thirty years later a rich gold deposit was discovered a few miles from Madoc and consequently the area received considerable attention from prospectors. Many mineral deposits were found and some of them worked. During the past few years a talc mine and a pyrite mine in the area have been regularly and profitably operated.

The Madoc area was geologically re-surveyed by W. G. Miller and C. W. Knight in 1912 and their report and map were published in the annual report of the Ontario Bureau of Mines, 1913. The rocks are described in detail and their relationships discussed. Most of the rocks are pre-Cambrian, but a considerable portion of the area is covered by Palaeozoic sediments. The Henderson talc deposit at Madoc occurs in a crystalline dolomitic limestone. The iron pyrites deposits near Queensboro occur as lenses in contact with rusty schists and quartzite near an intrusive mass of felsite.

Most of the fluorspar produced is used as a flux in basic open-hearth steel furnaces. Probably four-fifths of the output is consumed in this way, fluorspar being much prized for its property of increasing the fluidity of the molten mass in the furnace and also for its assistance in the removal of phosphorous and sulphur. It improves both the physical character and chemical composition of furnace products.

Fluorspar is used in the manufacture of opalescent glass and enamel ware. For this purpose a very good grade of ore is required.

The term "gravel spar" is often used to designate a comparatively impure grade of spar that is not suitable for such purposes as glass and acid manufacture, though suitable for use in steel furnaces and iron and brass foundries. The term "gravel" is also used for disintegrated fluorspar, as distinct from "ground" spar. The natural coarse product is commonly called "lump."

In Kentucky, fluorspar occurs in veins in fault fissures cutting limestones, sandstones and shales of Carboniferous age. The associated minerals are barite, calcite galena and sphalerite.

In Illinois, the fluorspar deposits fill fault fissures in Lower Carboniferous limestones and sandstones. The associated minerals are calcite, galena, sphalerite and occasionally pyrite or chalcopyrite.

SMITH & TRAVERS COMPANY, LIMITED.

The Smith & Travers Diamond Drill Co., Ltd., and the Smith & Durkee Diamond Drilling Co., Ltd., both of Sudbury, Ont., have disposed of all their assets to a new company to be known as the Smith & Travers Co., Ltd.

Dominion Letters Patent incorporating the company have been granted, giving very wide powers. The capital stock is \$500,000, divided into 5,000 shares of \$100 each. The management will be made up from the active members of both companies. The scope of the company is very great. Each department will be in charge of the man who appears best suited for the work. It happens that every man on the staff has had several years of active experience in the special work he is chosen to superintend. The organization consists not only of men of long practical experience, but also technical men as well, so that every phase of the work of exploring mineral lands can be done intelligently.

Scientific exploration is done for three reasons, namely, to determine tonnage and grade for financing, structure of ore-bodies for the mining man and the quality of ore-bodies for the metallurgist. To do this requires not only a knowledge of boring holes, but also a knowledge of engineering and structural geology. Therefore, with such an organization, it is hoped that a greater and broader service can be given the mining industry of Canada.

The Board of Directors have elected T. E. Smith, President, Thomas Travers, Vice-President, and T. H. Hale, Sec.-Treas. Mr. Smith has had over thirty years' experience in diamond drill exploration in the United States and Canada. The new company is most fortunate in retaining his services because of his long experience, broad acquaintance and business ability. Mr. Travers and O. R. Smith, who have had charge of field work for several years, will continue in the same capacity. The shop, maintenance of outfits and transportation will be in the hands of Wallace N. Smith. C. H. Hitchcock, for the past seven years Exploration Engineer for the Dominion Nickel Copper Company, now the British America Nickel Corporation, Ltd., and the Canadian Copper Company, will act as geologist and have charge of the company's land interests.

The company owns thirty-four diamond drilling outfits. These vary in capacity from the smallest types, suitable for portaging over the lakes and rivers of the North country, to large capacity outfits capable of drilling to a depth of 3,000 feet. The company is now drilling at the Creighton Mine at a depth of 2,700 feet vertically. This is deeper than any shaft or bore hole ever before sunk in the Sudbury nickel district.

In order that these many outfits may be kept in first-class condition, the company maintains its own shop for repairs and maintenance. This is an important feature and insures complete and first-class equipment on the contracts, hence better service to those who may employ the company.

A geological department with all facilities for examination work, geological mapping and laying out of schemes for exploring mineral lands, is maintained. The long experience of the management in boring holes, proper schemes of exploration to be applied to different types of ore bodies, proper handling of core, analysis and computation of tonnage, makes it possible for the company to give the mining industry the best assistance obtainable.

Hereafter it is prepared to assist in the development of mineral lands by doing exploratory work on meritorious properties in return for an interest. On account of the company's facilities for scientific exploration and sale of properties, it is hoped that the owners of mineral lands and the company may be mutually benefited. It is felt that in time this may become the most important part of the company's business.

It happens, almost without exception, that some member of the present staff of Smith & Travers Co., Ltd., has assisted in some capacity in every exploration that has ever been done in the Sudbury Nickel District. The information that the company has regarding land ownership, extension ore-bodies, and areas favorable for future exploration, is enormous. The facilities offered mining companies and individuals who are interested in nickel lands either as buyers or sellers, are very great.

Probably no mining district in Canada offers scientific explorers of mineral lands quicker or greater rewards than the Sudbury Nickel District, Canada's richest mining camp.

Ontario's Mineral Wealth

ONTARIO IS CANADA'S PREMIER MINERAL PROVINCE, the 1917 output being 46 per cent. of the total production from Canada.

The rapid growth of Ontario's Mineral industry may be gleaned from the following figures:

Year.	Value.	Year.	Value.
1893.....	\$6,120,753	1914.....	\$46,295,959
1903.....	12,870,593	1915.....	54,245,679
1913.....	53,232,311	1916.....	65,303,822

Preliminary returns show a production for 1917 exceeding \$71,000,000 in value.

NICKEL: The Sudbury area produces 85 per cent. of the nickel of the world. In 1917 the nickel-copper matte output contained 41,887 tons of nickel valued at \$20,943,500 and 21,197 tons of copper worth \$7,842,890.

SILVER: Chiefly from Cobalt and outlying camps, 19,479,807 ounces of silver, worth \$16,183,208, were produced in 1917. The total silver production from these camps up to the end of 1917 was 274,723,972 ounces, valued at \$151,950,561.

GOLD: For 1917 the gold output was 420,893 ounces, worth \$8,698,735. From the Porcupine camp the total production to the end of 1917 was \$36,430,066. At the Kirkland Lake camp the following mines are producing gold: Tough - Oakes, Teek - Hughes and Lake Shore.

Dividends and bonuses paid to the end of 1917 were \$71,177,116 from the Cobalt Silver Camp, and \$11,486,167 from Porcupine and Kirkland Lake Gold Camps.

The total valuation of the chief metals produced in Ontario to 31st December, 1917, is as follows:

Silver	\$167,611,708	Nickel	\$110,170,120
Pig Iron	77,561,181	Gold	42,362,383
Copper	41,414,290	Cobalt	4,303,769

Ontario's mineral resources cover practically the entire list of metallics and non-metallics with the exception of tin and coal.

The producing camps are readily accessible by railway, the climate is invigorating and healthful, water power is abundant, and other conditions are favorable for mining.

FOR GEOLOGICAL MAPS, ILLUSTRATED REPORTS, MINING LAWS, AND LIST OF PUBLICATIONS, APPLY TO THE

ONTARIO BUREAU OF MINES
 PARLIAMENT BUILDINGS
 TORONTO, CAN.

Fluorspar Mining in Ontario

The manufacture of munitions and the shortage of shipping has resulted in a more intensive investigation of the mineral resources of North America. Minerals used in the iron and steel industry have naturally been in great demand and the difficulties in connection with importing from the usual sources have given added value to domestic deposits. The unusually large production of special steels has made it necessary to utilize more extensively Canadian ores of such metals as chromium, nickel, molybdenum, cobalt, etc., and also all minerals needed in metallurgical works. Among the latter minerals is fluorite, which is used as a flux. The production of fluorite in Ontario has never been large; but has recently become important and is expected to increase considerably in the near future.

and in foundries. Fluorspar is also used in comparatively small quantities, however, in the manufacture of hydrofluoric acid and various fluorides and fluosilicates.

Fluorspar Properties near Madoc, Ontario.

Canadian steel furnaces use annually from 10,000 to 15,000 tons of fluorspar; but until recently almost all of this was imported. During 1916 shipments from the Madoc district became notable, amounting to 1,284 tons valued at \$10,238. During 1917 there was produced 4,326 tons valued at \$66,474. It is expected that in both tonnage and in value per ton the production during 1918 will far exceed that of the previous year. A number of properties are being developed and the prospects for a busy summer are excellent.

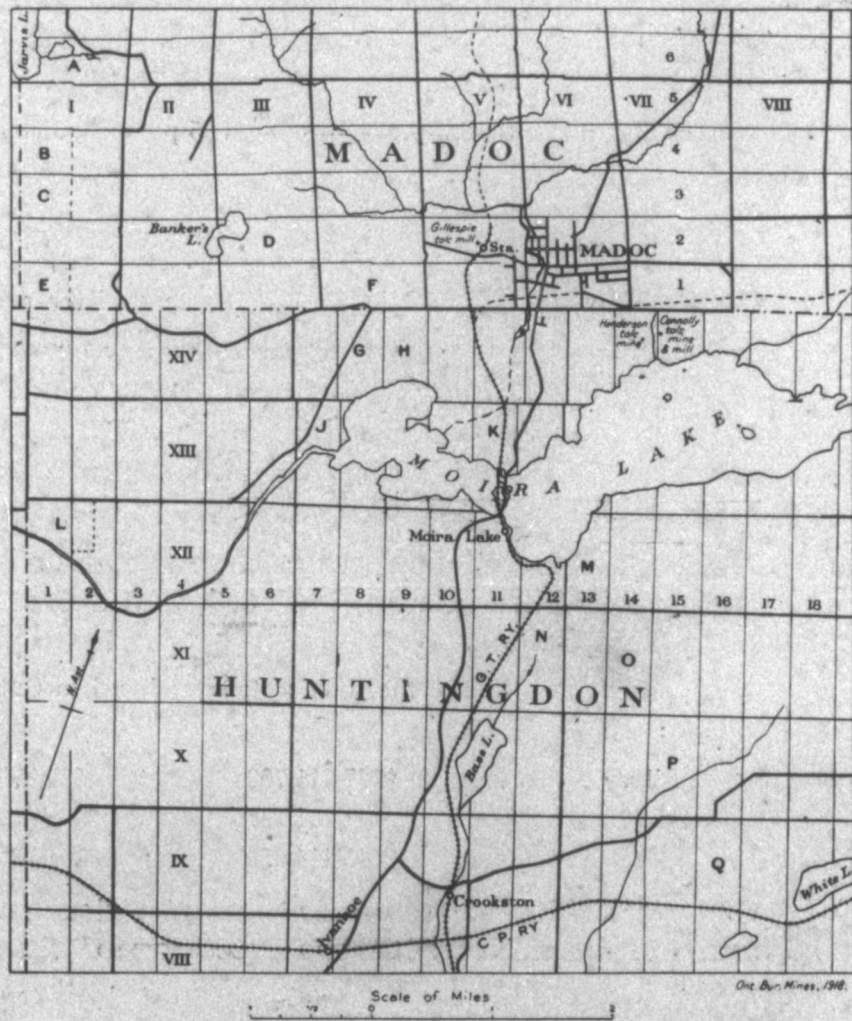
FLUORSPAR PROPERTIES NEAR MADOC.

Madoc Tp.

- A.—Lot 6, Con. 1—O'Reilly.
- B.—Lot 4, Con. 1—Wallbridge.
- C.—Lot 3, Con. 1—Ponton.
- D.—Lot 2, Con. 3—McIlroy.
- E.—Lot 1, Con. 1—Lee.
- F.—Lot 1, Con. 4—Bailey.

Huntingdon Tp.

- G.—Lot 8, Con. 14—North Reynolds.
- H.—Lot 9, Con. 14—Canadian Fluorite Ltd.
- I.—Lot 7, Con. 13—South Reynolds.
- J.—Lot 11, Con. 13—Perry.
- K.—Lot 1-2, Con. 12—Herrington.
- L.—Lot 13, Con. 12—Canadian Industrial Minerals, Ltd.
- M.—Lot 12, Con. 11—Canadian Industrial Minerals, Ltd.
- N.—Lot 14, Con. 11—Canadian Industrial Minerals, Ltd.
- O.—Lot 15, Con. 10—Canadian Industrial Minerals, Ltd.
- P.—Lot 16, Con. 9—Canadian Industrial Minerals, Ltd.



Map showing location of fluorite properties in Madoc area.

When heat is applied to the charge in an iron or steel making furnace, there commonly results the formation of a lighter fluid mass, containing most of the impurities, which rises to the top of the molten mass. It is the function of the furnace process to thus separate the useless and harmful substances from the metal. It was long ago found that a small quantity of fluorspar added to the charge very greatly increased the fluidity of many slags and thus allowed the separation to be more rapidly and completely made. Fluorspar is, therefore, regularly used in iron and steel works

Canadian Fluorite, Ltd., through J. W. Bradley, is operating the Kane property, Lot 9, Con. 14, Huntingdon, from which shipments are being made to the new steel plants of British Forgings, Ltd., at Toronto. The shaft is 25 ft. deep on a vein about 9 ft. wide. The vein matter is largely calcite. At 25 ft. depth there is considerable fluorite in the vein. The plant consists of a 325 cu. ft. compressor, 35 h.p. upright boiler and an 8 x 12 hoist. E. D. Hall is superintendent. Ten men are employed.

Canadian Industrial Minerals, Ltd., has about 800 acres, including Lot 13, Con. 12; Lot 14, Con. 11; Lot 15, Con. 10; Lot 16, Con. 9, and part of the north half of Lot 12, Con. 11, Huntingdon township. The first mentioned, Noyes lot, was operated formerly by Wellington & Munro.

A shaft has been sunk 100 ft., and at the bottom of the shaft there is 9 to 12 ft. of clear fluor spar. At 50 ft. a level is established and 140 ft. of drifting done. The company is installing a 784 cu. ft. Ingersoll-Rand compressor electrically driven by 125 h.p. motor. Plant on the property consists of 2 boilers, 35 and 60 h.p., and a 6 x 8 hoist.

C. E. Watson is general manager of Canadian Industrial Minerals, Ltd. A. W. Grierson is resident manager.

The Wallbridge property, west half Lot 1, Con. 4, Madoc, has produced 380 tons of spar. The vein has been stripped 500 ft. It varies from one to three feet

The Bailey property, Lot 1, Con. 4, Madoc township, is being unwatered by J. W. Bradley, the property being held under option for Canadian Fluorite, Ltd. The shaft is 40 ft. deep and 35 ft. of drifting has been done at the 40 ft level.

This deposit was opened late in 1916 by the Hungerford Syndicate. (Harry Hungerford and Robert Gilchrist.) Robert Phillips was in charge of operations.

The vein matter is well crystallized and some splendid spar was taken out during development.

The south Reynolds property, Lot 7, Con. 13, Huntingdon township, is under option to Chas. Henrotin. Two carloads of fluorite have been shipped from an open cut on the vein, the vein is narrow, being under 18 in. wide. About 150 ft. has been exposed in the open cut.

The Herrington property, Lots 1 and 2, Con. 12, Huntingdon, has been leased to Chas. Henrotin. Thirteen tons have been shipped. The vein has been stripped for 250 ft. It is about 18-in. wide.



Fluorite from Madoc, Hastings Co., Ont.

wide. A second vein, 700 ft. west of the first, has been uncovered for 100 ft. In a pit 15 ft. deep on this second vein at the boundary with the Ponton property, the vein is 6 inches wide. On the Ponton property, west half Lot 3, Con. 1, Madoc, a vein stripped for 300 ft. is up to 3 ft. wide.

From the Perry property, Lot 11, Con. 13, Huntingdon township, operated by Cross & Wellington, about 3,000 tons of fluor spar has been shipped, the property is shut down at present owing to water trouble. It is the intention of its operators to install a double action, motor driven Cornish pump to overcome this difficulty. There are three shafts which are respectively 35 ft., 80 ft., and 95 ft. deep. Plant consists of a 50 h.p. boiler, 470 cu. ft. compressor driven by 75 h.p. motor and an 8 x 12 hoist.

The Lee property, west half Lot 1, Con. 1, Madoc township, is held under lease by Chas. Henrotin. Five cars have been shipped from an open cut. The vein is 3 ft. wide at its widest parts. The open cut is 500 ft. long and is in places 8 ft. deep.

On the North Reynolds property, Lot 8, Con. 14, Huntingdon township, there is a pit 10 ft. deep.

The McIlroy property, Lot 2, Con. 4, Madoc, is operated by Mineral Products, Ltd. The vein is one to three feet wide. It is developed by a shaft and an open pit.

Fluorspar has recently been found in a number of quartz veins in Cairo and Alma townships in the Metachewan gold area, Northern Ontario. According to Mr. A. G. Burrows, the mineral in these deposits is of a deep purple color.



Mining in Eastern Ontario

Eastern Ontario is noted for the number and variety of its minerals, which are found chiefly in the pre-Cambrian rocks. These minerals include lead, molybdenite, gold and iron among the metallics. In the non-metallic list the following were mined in 1917, the arrangement being in order of the value of output: Graphite, Talc, Iron Pyrites, Mica, Feldspar, Fluorspar, Corundum and Quartz.

THE TOTAL VALUE OF THE MINERAL OUTPUT FROM EASTERN ONTARIO IN 1917 WAS APPROXIMATELY \$1,186,000.

This does not include materials of construction, such as stone, sand and gravel, cement, lime, or clay products. Other Eastern Ontario minerals include marble, sodalite, arsenic, and apatite or phosphate of lime.

As to the importance of these resources, it may be pointed out that there is at Madoc the largest deposit in North America of high-grade talc, the greatest body of high percentage potash feldspar (Richardson mine) at Desert lake in Frontenac county, the most important amber mica mine (Lacey) at Sydenham, and the greatest graphite mine (Black Donald) at Calabogie.

Incidental to the war many minerals have come into prominence, among which may be mentioned iron pyrites, molybdenite and fluorspar. The first-mentioned is mined at Queensboro, Sulphide and near Flower station in Renfrew county. The highest grade iron pyrites deposit in Canada is located at Queensboro, in Hastings county. Molybdenite is very widely distributed in Eastern Ontario, and fluorspar is mined near Madoc, in Hastings county.

The Ontario Bureau of Mines issued a geological Report in 1913 with accompanying maps of parts of Eastern Ontario. This and other reports dealing with the minerals of this part of the Province are available on application to

Ontario Bureau of Mines,
Parliament Buildings,
Toronto.

G. H. Ferguson,
or
Minister of Lands, Forests and Mines,
Toronto.

THE MADOC TALC INDUSTRY.

The Madoc district, Hastings County, which is receiving much attention at present from companies developing fluorspar deposits is the chief source of Ontario's tale. The production of this mineral was seriously interfered with by the war as increased ocean freights made it impossible to continue exports to Great Britain. Exports to the United States have, however, greatly increased and the production in 1917 was 16,076 tons valued at \$179,554, as compared with 11,810 tons valued at \$111,489 for the previous year. The greater part of the talc comes from the Henderson mine near Madoc. It is ground in the mill of G. H. Gillespie & Co. at Madoc. The Anglo-American Talc Corporation has erected a mill on their property adjoining the Henderson mine.

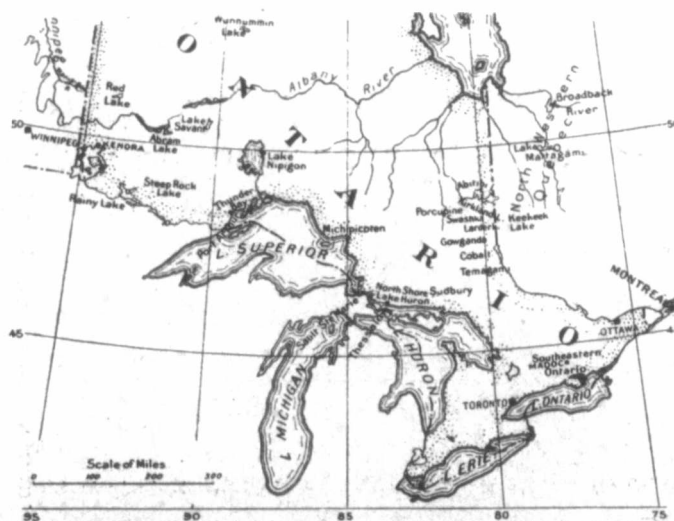
Ground talc is used as a filler in the manufacture of paper, cotton, rubber, etc., and a considerable quantity is used in the form of talcum powder.

The Mundie mine, Lot 25, Con. 6, Madoc township, Hastings Co., Ontario, is being re-opened by the Bannockburn Pyrite Mining Co. An open pit 50 by 100 ft., and 60 ft. deep has been unwatered. J. A. Anderson, of Bannockburn is manager.

The International Pulp Co. of Gouverneur, N.Y., is prospecting the Pitts farm property, Lot 14, Con. 14, Huntingdon township, Hastings Co. An incline shaft has been sunk 50 ft. E. Brownson is manager.

For some years Mr. George Gillespie has been largely responsible for keeping Madoc, Ontario, on the mining map. Mr. Gillespie is the moving spirit of the talc mining industry of Ontario and his mill is located at Madoc, where it is close to Canada's greatest talc mine.

During the past year a number of mining men have been visiting Madoc and vicinity in an endeavor to obtain fluorite to supply the needs of Canadian iron and steel manufacturers. Their activity has resulted in the establishment of practically a new industry at Madoc—the mining of fluorspar.



Map of Ontario, showing location of Madoc area.

LEAD AND ZINC IN EASTERN ONTARIO.

Lead and zinc are not produced in large quantities in Ontario; most of Canada's production of these metals being made by British Columbia. There was produced in Ontario in 1917 ore yielding 1,772,512 pounds of lead, valued at \$172,601. During the first quarter of 1918 there was mined 3,347 tons of ore. The only producer is the Galetta lead mine and smelter owned by the Jas. Robertson Estate. The Kingston Smelting Company's smelter ceased operation in December, 1917.

A report by W. L. Uglow on the lead and zinc deposits in Ontario was published by the Ontario Bureau of Mines in 1916. He says of the Galetta deposit:

"The Galetta lead mine is located on Chats island in the Ottawa river, about five miles directly east of the town of Arnprior. The island is separated from the mainland by a narrow channel of the Ottawa river.

"The vein is a fissure-filling of the same type as the Frontenac lead mine vein. Its strike varies from N. 45° W. to due north (magnetic), and consequently it cuts nearly at right angles across the strike of the pre-Cambrian series. It usually has a steep dip towards the southwest. The vein occupies a well-marked fault fissure. Near the northwest end, a small open cut shows on the northeast wall of the vein the steeply-dipping north-easterly striking gneisses of the pre-Cambrian and on the other the flat-lying Paleozoics, indicating a downthrow to the southwest. Horses of country rock occur throughout the vein, suggesting a fault breccia, while drag-folding is very evident at some places along the fracture.

"The gangue is very largely calcite showing the banded character of a crustified vein, similar in all respects to that of the Frontenac lead mine. In some places in the vein, barite seems to be rather abundant. The chief ore mineral is galena, which occurs in grains, clusters of crystals, and thin sheets, usually parallel to the banding of the gangue."

The statement of Dome Mines, Ltd., for the year ending March 31, shows a profit of \$355,023 during the first eight months and loss of \$118,564 during the last four months.

Added to the loss of \$118,564 for the last four months is \$282,328 for depreciation of plant, thus making a total of 400,893, as against the profits of \$355,023 during the first eight months, and thereby showing a net deficit of \$45,869. In addition to the deficit of \$45,869 are deducted from the surplus as of one year ago war taxes on profits amounting to \$26,384 and dividends of \$100,000, thereby reducing by \$172,253 the surplus of the preceding year. The surplus as of March 31, 1917, was \$697,051, as compared with \$524,797 as of March 31, 1918.

Goudreau, Ontario, 177 miles north of Sault Ste. Marie, on the Algoma Central railway is attracting attention as a possible gold district. The Goudreau pyrite mine, operated by the Nichols Chemical Company, is a big producer and considerable mining activity has been carried on in the past few years. It is not surprising that prospecting has resulted in the discovery of gold.

According to the "Sudbury Star," engineers Alderson and Reid have investigated the recent discoveries. The properties of D. J. McCarthy and J. B. Miller will probably be explored under option by the interests these engineers represent.

The "Ingersoll-Rogler" Air Compressor Valve

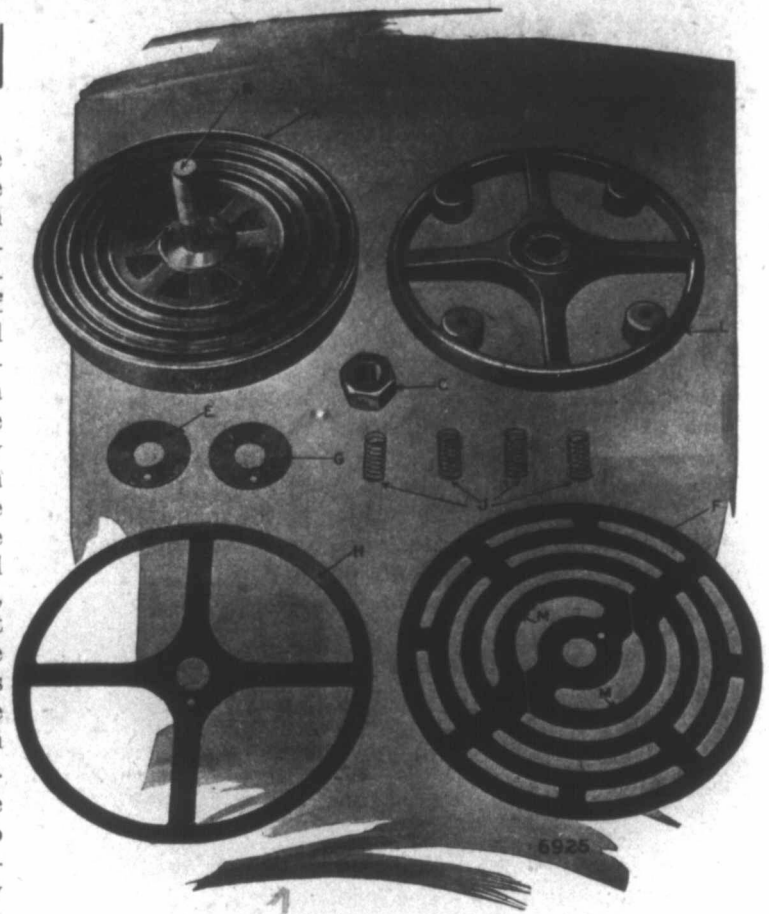
By A. W. SWAN.

The air compressor is in some respects similar to the steam engine, but the indicator card is traced in the reverse direction, and the cut-off point on the steam card becomes the release point on the air card. It follows that the valve requirements for engine and compressor are not entirely the same, and as a matter of fact the development of the two types have followed different lines. In the steam engine the point of cut-off is important, and in order to vary the cut-off, both for economical running and regulation of speed, the steam discharge valve in all forms is mechanically operated. The air compressor is regulated either from the driving end or by some form of unloader, and the shape of the compression line is looked after by the water jacketing. Both inlet and discharge valve should open at the proper pressure, open quickly and fully, and close quickly at the right time. It follows that pressure is the only important factor, and that while for the steam engine mechanical valve operation is necessary to control the release and compression, there is no such need for the compressor, hence the friction and complication of mechanical control is unnecessary.

The alternative to the mechanically operated valve is found in the spring-controlled valve. In addition to the desirable features mentioned above, the spring-controlled valve should be such that the spring is not heavy enough to absorb useful power in opening and holding open. It was this feature of the heavy spring that created a prejudice against the spring type of valve. Recent developments in the spring-controlled valve have reduced this wasted power to a minimum.

The tendency in design of spring-controlled valves has been in two directions, towards the finger type, and towards the annular plate type. In the finger type a number of thin strips of steel are held in position over the valve seat. In operation, the valve strips are lifted by the air pressure, and are returned to their seats by their own spring action. This type of valve is simple and has certain advantages, particularly for small compressors, but for the larger machines the annular plate valve is gaining ground. The pioneers in this field were Rogler and Hoerbiger in Austria, who after a long period of investigation and invention developed the Rogler valve. The patents on this continent are held by the American and Canadian Ingersoll-Rand Companies, and the valve is known as the "Ingersoll-Rogler" valve.

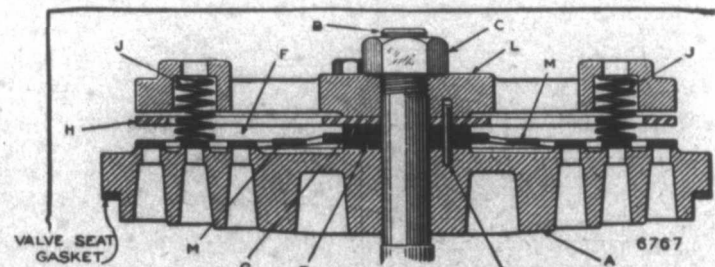
The valve itself consists of a ring shaped plate, "F" in the illustrations, held down on the valve seat and ports by the four coiled springs "J" and the slight tension of the thin flat spring "M." It should be mentioned here that the spring "M" is made in one piece with the valve, and as "M" is forced to rise and fall in the same position by the dowel pin "D," the valve must also reseat itself every time in exactly the same position. In this little feature lies one of the main points of superiority of the "Ingersoll-Rogler" valve, one which makes it so admirably fitted for high-speed work, for the main difficulty with plate valves has been to have them reseat every time in the same position. It can easily be seen that if the valve rotates ever so slightly each time wear is soon set up and the valve cannot remain tight and leakage results. This would happen with a plate type of valve where the flat spring



Parts of Ingersoll-Rogler Valve and Seat.

was not rigidly connected to the valve ring, for instance, if it were clipped or even rivetted to the valve. In the "Ingersoll-Rogler" valve the spring and valve are one piece and cannot rotate.

In operation, as soon as the required pressure is reached the valve rises at once against the coiled springs "J" to nearly its full opening, completing the last 1-32nd to 1-16th against the slight pressure of the buffer plate "H," which brings the valve gently to rest even at high speeds. Owing to the lightness of the valve, its action is very rapid, which gives the double advantage that the opening is prompt, and there is a minimum of inertia to overcome. This inertia factor becomes very important with a valve of the heavy spring type, where the spring not only requires a pressure in excess of the discharge pressure to open, but to keep it open. By experiment it has been found that an "Ingersoll-Rogler" valve requires, for opening, one-third of the pressure required by a valve of equal capacity of the heavy spring type, and two-thirds of the pressure to keep open during the stroke. This means that not only does the "Ingersoll-Rogler" valve reduce the "hump" to be found in the discharge line on the indicator card—and the larger the "hump" the greater the lost work—but it requires one-third less pressure to keep open,



Cross Section of Ingersoll-Rogler Valve.

the saving from this item amounting to 2.9% of the total power. Adding this gain in efficiency to the gain due to less pressure being needed to open the valve—at least 1% of the total power—it is seen that the "Ingersoll-Rogler" valve gives a gain in efficiency measured by actual test of 3.9%, not counting the other advantages of the valve. The design is so simple that there is absolutely nothing to go wrong. The only part that can wear out is the valve itself, which can be easily and cheaply replaced. The integral spring insures tightness, and after a few days the valve is absolutely tight on its seat. The design lends itself to convenience, the valves being placed where they are most accessible at the ends of the air cylinders. There they are best placed for short and straight air passages. The lift is remarkably small, varying from .08 in. to .14 in., hence the valve is silent and well adapted to the high speeds for which it is designed. The lift area equals the port area, and ample port area is provided.

To summarize, the advantages of the "Ingersoll-Rogler" air compressor valve are: The valve is light and requires little power to open and keep open; the lift being low, and the operation of the valve being cushioned, the valve is silent and has very little shock or wear; the valve opens quickly to its full extent, hence is particularly suited to high speed operation; there are no mechanical intricacies to add friction, and the valve does not need adjustment; finally the valve is easily accessible, and can be placed to the best advantage.

LOOKING FOR PLATINUM AND MERCURY IN BRITISH COLUMBIA.

The Dominion Government is turning its attention to the mineral resources of British Columbia for supplies urgently needed for war munitions. Within the last two weeks two members of the staff of the Canadian Mines Department have reached the Western Province on special missions. Dr. Victor Dalmage, assistant Geological Surveyor, is here to report upon two deposits containing mercury on the West Coast of Vancouver Island. Dr. E. Psitevin, Dominion Mineralogist, has come West to learn something more than existing reports give regarding the platinum occurrences of the placer districts of the Provincial interior. The former is in quest of claims located years ago and abandoned either because at that time mercury was not sufficiently valuable to make them worth while or owing to lack of capital. Conditions now, however, are very different and Dr. Dalmage and party will spend the summer thoroughly prospecting the coast of Vancouver Island from Quatsino Sound south. Incidentally he will examine and report on certain copper properties. Besides making a search for platinum in commercial quantities, Dr. Psitevin will go into the matter of British Columbia's resources in chromite.

The announcement of an advance in the selling price of coal in British Columbia is momentarily looked for. That an application to the Fuel Controller for sanction for such a course was expected following the latest increase of 50 cents a day granted the coal miners. It is predicted that the increase will be between 50 and 65 cents per ton.

The Gowganda area has, from the time of the first discovery of silver there, suffered from lack of transportation facilities. It is not surprising that considerable dissatisfaction has been expressed by those who have attempted to develop properties there.

PERSONAL

Mr. D. A. Dunlap, of Toronto, succeeds the late John McMartin as vice-president of Hollinger Consolidated. Dr. W. L. McDougald of Montreal, has been elected a member of the board of directors.

Major W. A. Mensch, E.M., president of the Telluride Chief Extension Mining Company, of San Diego, Cal., is visiting the Kirkland Lake Camp.

Mr. F. C. Worth, of the Three Star Mining Company, now operating the former Calumet and Montana property at Cobalt, is in Chicago. He will return in about two weeks.

Mr. S. Harry Worth, of Philadelphia, president of the Elliot-Kirkland and the Seneca-Superior mine at Cobalt, visited the Elliot-Kirkland and a number of other properties in the Kirkland Lake camp recently.

Sergt. R. Douglas Gregory, who was recently discharged from the Overseas Forces, is now on the engineering staff of the British American Nickel Co.

Mr. J. B. Tyrrell is in British Columbia.

Mr. H. M. Lamb, secretary of the Canadian Mining Institute is in British Columbia.

Mr. W. A. Carlyle is now residing in Ottawa.

Dr. W. F. Ferrier was in Toronto last week. He will undertake further work for the Munitions Resources Commission.

The Vocational Branch of the Invalided Soldiers' Commission gave a dinner at the Engineers' Club, Toronto, on June 4th, under the auspices of the Engineers of Toronto, to thirty American visitors sent by the United States Government to study the Canadian methods of re-educating the returned soldier. The work being done by the Commission was explained by Mr. W. E. Segsworth, who is in charge of the Vocational Branch. Mr. H. E. T. Haultain, Vocational Officer for Ontario, presided.

Mr. T. R. Deaville, Fuel Controller in Manitoba, is quoted as accusing the coal mine operators of British Columbia, Alberta and Saskatchewan as being strangely lacking in business sense and a spirit of co-operation in not starting a campaign with a view to explaining to the people of the Province of Manitoba the quality of the coal of the Western Provinces and giving directions as to the best methods of handling and burning it. He added: "If Winnipeg people get the proper kind of Western coal, and if it turns out that they can get no other, I'm convinced that there will be no serious hardship as a result."

The Granby Consolidated Mining & Smelting Corporation in the course of developing its newly acquired coal bearing areas near Nanaimo, B.C., has driven three slopes. On one, at a depth of 150 ft., a seam, fourteen feet at that point, has been opened up. The management express themselves as satisfied with the results up to date.

Mr. A. H. Curtis, of New York, and Mr. G. C. Miller, of Buffalo, have been chosen directors to succeed Mr. J. S. Wilson and Mr. A. S. Wigmore. The other directors of Dome Extension are W. S. Edwards, Alex. Fasken and J. S. Tomesson.

Mr. W. B. Royce, President of the National Surety Co., of New York, has been elected director of Dome Mines company, succeeding Mr. J. S. Wilson.

SPECIAL CORRESPONDENCE

**NORTHERN ONTARIO.
Pittsburg-Lorraine.**

The ball mill for the Pittsburg-Lorraine Mining Company in South Lorraine, which was manufactured at the Wabi Iron Works, New Liskeard, was shipped to the property about a week ago. An improvement in the tonnage treated at the mill and also in the percentage of extraction is expected to result from the finer grinding made possible by this installation. The advent of successful manufacture of mining machinery at New Liskeard is of great importance to the mining industry of Northern Ontario, owing to the fact that delays in shipment of equipment of all kinds from the south have been very inconvenient of late.

Dividends Declared.

The Mining Corporation of Canada has declared a dividend of 12½ cents together with a bonus of 6¼ cents per share, payable on June 15th to shareholders of record June 1st.

McKinley-Darragh directors have declared the regular dividend of three per cent. payable on the first day of July to shareholders on record at the close of business on June 8th.

Hollinger directors have declared a dividend of one per cent. payable June 17th.

Shortage of Labor.

So keenly is the labor shortage being felt in the prospecting field this season, that claim holders are finding it difficult to secure enough men to even perform their assessment work. A number of contractors for this class of work are refusing orders on this account. The passing of an order-in-council by the Ontario Bureau of Mines recently that where two periods of work fall due in one year, the second period would be extended one year, met with the unanimous approval of the entire prospecting fraternity of the north.

Installing Groch Machines.

Changes now being effected in the mill of the Mining Corporation of Canada will provide for the treatment of about 300 tons of tailings per day, by the oil flotation process, and the plant will gradually be brought up to a capacity of 600 tons per day. Two Groch flotation machines, with a capacity of about 100-tons per day are to be installed at once in addition to the present equipment. It has been decided that the slimes of previous milling operations can be treated by cyanide better than by flotation. The method to be employed will be to pump the slimes from the bed of Cobalt Lake (where it is estimated about half a million tons of slimes and tailings have been deposited from the operations of the mill) to classifiers. Thence the slimes will go to the cyanide portion of the mill, while the sands, after being run through the tube mills, will go over the concentrating tables and then be treated by the Groch Centrifugal Flotation system. The pump being installed will have a capacity of 1,000 tons per day, the excess supply of material will be piled near the mill for convenience of handling in the winter months.

Work Resumed at Genesee.

After slight delay in operations at the lower levels of the Genesee property, owing to water troubles, work is again under way. Added pumping equipment to meet all emergencies has been installed. Work of exploring the fault zone in which ruby silver was discovered a short time ago is now under way. The operation is attracting more than ordinary interest.

Casey Cobalt is Again a Steady Producer.

The production of silver from the Casey Cobalt Mine is going ahead steadily since the rebuilding of the new mill, which replaced the one destroyed in the disastrous bush fires of 1916. The present plant has a battery of 20 stamps, whereas the old mill contained 30 stamps. During the period which the property was without milling facilities, underground work was not carried on very aggressively. Now, however, with the new mill completed and running to capacity, a resumption of the remarkable record established prior to the fire is looked for. The price of silver having advanced greatly since the suspension of operations at the property two years ago, the value of the mine has been enhanced thereby.

Ore Shipments.

During the month of April the ore shipments over the T. & N. O. Ry. were as follows:

Silver Ore.		Tons.
Cobalt.		
Beaver		36.23
Buffalo		296.69
Coniagas		162.05
Dominion Reduction Co.		141.50
Kerr Lake		59.84
Larose		64.36
McKinley-Darragh		149.22
Nipissing		230.19
O'Brien		32.32
Right of Way		41.98
Trethewey		82.32
Total		1,296.70

The Alexo Mining Company shipped 544.60 tons of Nickel ore from Porquois Junction.

The lowest price of silver during the month of April was on the 8th of the month, 91.38 being quoted; while the high for the month was the 25th at 99.75 cents per ounce. Average price for month was 95.345.

Rapid Development of Elliott-Kirkland.

The crosscut at the 500-foot level of the Elliott-Kirkland property at Kirkland Lake has cut the vein. The development of the Elliott-Kirkland is one of the outstanding achievements of the Kirkland Lake Camp. At the time the property was taken under option by the present owners, the latter part of 1916, nothing but surface trenching had been done. The following January sinking was commenced by hand steel and by April of the same year the mining plant had been installed and work was under way on an aggressive scale. Since that time the shaft has been carried to a depth of 500 ft. and upwards of 600 ft. of lateral work has been done. A new hoist, 9 x 12, has just been completed which will be sufficiently powerful to see the mine through its development stage. It is anticipated that a central shaft will be sunk on the property about 700 ft. west south-west from the present working shaft. At this point there is an elevation of land which will probably be chosen as the site for a mill when this becomes necessary. The Elliott-Kirkland is controlled by the interests formerly connected with the rich Seneca Superior Mine at Cobalt, and is under the management of Mr. Robert Lyman, who was also manager of the latter property. A number of the directors visited the property last week and were highly pleased with developments to date.

Good Results at Lake Shore Gold Mine.

In his report to the president and directors of the Lake Shore mine at Kirkland Lake, Mr. R. C. Coffee, manager, stated that the mine produced gold bullion estimated at \$66,696, of which \$24,606 was the March output. The mill treated 1,050 tons in March, and 1,520 tons in April. Since starting on March 8th, the mill has run 97.21 per cent. of the possible running time. Underground developments consisted of drifting and raising on the No. 1 vein and drifting on the 200 and 400 foot levels of the No. 2 vein. A special feature of the report is the fact that from the day the mill was started there has been no loss of time, the mill having run 97.21 per cent. of the possible running time, and a number of the interruptions to operation were caused by failure of the electric transmission line which supplies the camp. A little over 50 tons per day was treated during April, which shows the mill heads to have averaged approximately \$27.70 per ton. The Lake Shore is now the third largest producing gold mine in the Dominion of Canada. In their order of production at present these mines are; Hollinger Consolidated, McIntyre-Porcupine, Lake Shore and Tough-Oakes. In addition to the present record, the property is developing in such a way as to make it necessary to add to the grinding equipment before long, which will thus add from 50 to 100 per cent. to the tonnage treated. The cyanide end of the mill now has a capacity of from 100 to 125 tons per day.

A Second Strike Made at Burnside Mine.

A second important strike of rich ore has been made on the Burnside property at Kirkland Lake within the past two weeks. The first strike was a five-foot vein in a new shaft several hundred feet west of the number two shaft, in which the most recent strike was made. The vein encountered in the first strike is five feet wide and several inches of the vein matter is very rich while the whole five feet is of a good commercial grade. The last strike was made at a depth of 160 feet in a crosscut at the Number two shaft and in the last round of shots some two feet of ore was broken into with the face of the crosscut still in good ore. The Burnside is controlled by the Aladdin-Cobalt Mining Company of Cobalt and the Sylvanite plant is being used for the development of the property.

Kirkland Porphyry.

The downward continuation of the orebody at the Orr Gold Mines at Kirkland Lake, now under option to the Kirkland Porphyry, has been encountered at a depth of 400 feet, and contains ten feet of \$20 ore, with 15 to 20 feet of low grade, the vein being about 30 to 35 feet in width. The ore is said to bear the same characteristics as that encountered on the upper levels. The finding of the vein at this depth on the Orr was almost a foregone conclusion, owing to the fact that it had been developed on the Teck-Hughes to the north-east to a depth of 600 feet and on the Kirkland Lake Gold mines on the west to a depth of 700 feet. It is nevertheless gratifying to prove its existence at another point. The dip of the vein is to the south and for this reason each succeeding level opened upon the Orr is steadily increasing the possible tonnage available. There is also excellent possibilities of the Orr picking up the extension of the south vein system of the neighboring Lake Shore mine, which has a trend in the direction of the Orr.

Mining Molybdenite Near Amos, Que.

Three local mining engineers, Messrs. Balmer Neilly, Lewis Ledyard, and W. E. Simpson, have just returned

from a trip to Lake Keewagama, near Amos, Que., where they visited the molybdenum mines controlled by the Indian Peninsula Mining Company, Limited. Mr. Ledyard has accepted the position of mining engineer at the Indian Peninsula and will have charge of the mining development work, while Mr. W. E. Simpson, one of the directors of the company, will have charge of the metallurgical work. The first car load of supplies for the property is being assembled at Cobalt and will soon be shipped to the property. A 100-ton oil flotation plant of the Groch Centrifugal System is being installed.

Resuming Work at Kirkland Lake Gold Mine.

The work of pumping out the shaft at the Kirkland Lake Gold property, owned by the Beaver Mining Company of Cobalt, is now under way. It is understood mining operations will be commenced in the near future. The mine was shut down a few months ago presumably due to lack of money in the Beaver treasury to meet the expenditure necessary for the successful operation of the property. The Beaver paid \$300,000 for this property and also financed the development of same to a depth of 700 ft., in the course of which \$750,000 in ore was put in sight. Since the suspension of operations at the property the machinery for the new 150-ton mill has been taken in and the work of construction on this plant is proceeding. It is expected the production of gold will commence by the end of the present summer. The new central shaft commenced last fall will be continued to the lower levels of the mine and connected up with the drifts run from the original working shaft.

Alexo Nickel Output.

The production of nickel ore from the Alexo Mine for the month of April exceeded one million pounds. This is the second month during the current year that the output has passed the million pound mark. For the year ended April 30th, 1918, the mine shipped 151 cars containing approximately 12,669,400 pounds, which is at the rate of over one million pounds per month. The ore is shipped to the Mond Nickel Company at Sudbury.

Producing \$75,000 Silver and Gold Per Day.

The silver and gold production of Cobalt, Porcupine and Kirkland Lake at the present time approximate \$75,000 every twenty-four hours. This output is made up of approximately \$50,000 from the mines of Cobalt and \$25,000 from the gold mines of Porcupine and Kirkland Lake.

Oil at Wahnapiatae Crossing.

A discovery of oil has been made on the Canadian Northern Railway about seventy miles northwest of North Bay, near the boundary between the townships of Street and Scadding and within a stone's throw of the crossing of the railway over the Wahnapiatae river. The first claims were recorded the last Wednesday in May. The new find has caused considerable excitement in the district and already a number from here are on their way to the scene of the discovery. A settler first discovered the presence of oil near the railway crossing over a year ago, soon after the occurrence of a seismic disturbance which was plainly felt throughout the north country, including the Cobalt and Sudbury districts. Attracted by the odor of oil the settler investigated and found oil oozing up through the sand. It was recently brought to the attention of men who recognized its possibilities. The geology is not favorable and caution seems advisable.

Schumacher.

Recent operations at the Schumacher mine have been of a sufficiently encouraging nature to lead to the belief

that the operations at this property may be continued despite the trying times. Due to better ore and efficient management profits from the mill have been increased to such an extent that the mine manager, Mr. Harwood, will confer with the directors in Toronto shortly as to the advisability of keeping the mill running. Costs due to suspended development are considerably lower.

Crown Reserve Develops Gowganda Property.

High grade silver ore has been discovered at the 100 ft. level of the Walsh property in the Gowganda district, under option to and being worked by the Crown Reserve Mining Company of Cobalt. As to whether or not the discovery is of special importance cannot be decided until further work has been done. A number of veins have been cut in the crosscut at the 100-ft. level and the one in which the values have been found is said to be from five to eight inches in width. The shaft will be continued to a depth of 200 ft. and further lateral work carried on from this point. The Walsh property is in close proximity to the rich Miller Lake-O'Brien.

Hill Gold Mines.

The new mill at the Hill Gold Mines property in the Painkiller Lake district of the Munro mining field is in the final stages of installation, and would even now be in operation were it not for the fact that delays have occurred in the delivery of certain parts. However, it is expected the mill will be completed and in operation within the next two weeks. The mill is designed for the treatment of about 70 tons per day, but it is the intention of the management to treat only about forty tons for the time being. Several hundred feet of lateral work has been done at the property and the shaft is now being sunk to a depth of 200 ft.

Adanac.

Work in the north crosscut at the 310 ft. level of the Adanac mine was driven a distance of 101 ft. during the month of May. A number of small veins were cut, the last vein being from one to two inches in width and contained considerable cobalt. The veins are dipping a little to the north and it is evident some little distance remains to go yet before encountering the zone of enrichment, which it was expected would have been entered by the first of the current month. The conditions met with underground are highly favorable and the trend of the work is more than ever the centre of interest in the camp. The operating costs during the month were less than \$1,800 and amount to \$17.65 per foot of work done.

Prospecting in Ogden Township.

Considerable activity is apparent in the district four miles south of the Hayden Gold Mines in the township of Ogden. Two gangs of men are working, one on a property north of Gold Lake, and the other south of Gold Lake, where the Moffat claims are being opened up. The work consists chiefly of surface exploration.

SMITH & TRAVERS COMPANY, LIMITED.

The Smith & Travers Diamond Drill Co., Ltd., and the Smith & Durkee Diamond Drilling Co., Ltd., both of Sudbury, have disposed of all their assets to a new company to be known as the Smith & Travers Co., Ltd.

During the month of May 13, Cobalt mining companies shipped an aggregate of 53 car-loads of ore, containing approximately 4,084,150 pounds of ore. Compared with April the May output shows a very marked increase, the figures for the former month being 2,320,661 pounds.

BRITISH COLUMBIA.

The Belmont Gold Mine, Surf Inlet.

One of the most noteworthy mining developments in British Columbia during the past year is that of the Belmont-Surf Inlet Mines, which consist of about nine claims situated about six miles from the head of Surf Inlet in the Skeena Mining Division. This property came into the shipping class last year and, with the installation of a complete plant, is expected to make a very fine showing in 1918. The ore is a pyritized quartz carrying chiefly gold values, with a little silver and copper. The ore is concentrated about 10 to 1 and in the \$125 and \$135 concentrate the gold values run about \$120; silver, 6 oz.; and copper, 2.5 per cent.

The Belmont Canadian Mines, Ltd., developed and bought the property and re-organized into the present company. During the period that the property has been in possession of the new company, Sept. 1, 1917, the net income has been \$86,154. Some unforeseen interruptions for a time kept down the output, which since has been maintained at about 300 tons a day.

In discussing this property Mr. George Clothier, Government Engineer, after describing the plant being installed, says, in part:

"The quartz lies in two well-defined shear-zones in gneissoid granite; the main fracture, in which the main tunnel was driven, splitting into the two about 300 ft. south of the quartz bodies. They occur in lenticular bodies varying in width up to 40 ft., averaging about 10 ft. On the main working level, the 550-ft., the quartz is practically continuous for 800 ft., in which there are developed about 400 ft. of milling ore. This is in the west or hanging-wall zone. From this level a winze has been sunk about the centre of the ore shoot to a depth of 265 ft. on the dip of the vein and 700 ft. of drifting done from the bottom both ways. This was full of water at the time of my visit, but I was informed by the general superintendent that they opened up an exceptionally fine shoot of ore, over 500 ft. in length and averaging about 16 ft. in width."

Mr. Clyde A. Hallett, Philadelphia, is president of the company, and Mr. W. M. Potts, of the same city, vice-president. Mr. J. K. Kitto, Philadelphia, is secretary and treasurer and Mr. B. G. Hawkins, of Vancouver, the assistant secretary.

Standard Silver-Lead.

Reports from Silverton, B.C., indicate that the strike made on the property of the Standard Silver-Lead Mining Company is growing in importance as the development proceeds. The shoot had been followed by drift for 150 ft. some time ago. It since has been proved for an additional length of 200 ft., making the total length 350 ft. The report states that the width of the body varies from 5 to 12 ft. The ore is of a good mining grade. The initial disclosure was on the No. 5 level at a depth of several hundred feet. Ore was followed by winze for 45 ft. It is from the bottom of the winze that development is in progress. In order to permit an ascent by raise from the No. 6 level, development was suspended for a month. The raise is 185 ft. long and has provided ventilation and an economical outlet for ore and waste. There is indecision as to whether the ore undergoing development is a new lens or part of that from which the company removed \$7,000,000 or more in lead-silver-zinc ore. It will add generously to the reserves in any event, but if its independence of the main body is established expectations may be built on resources above and below the horizon of current development. The possibilities overhead are about 700 ft.

Ore-bodies in the Standard have always been erratic in spite of their enormous yields, a fine stope being succeeded often by a short barren section and it in turn by a zone of solid lead. These characteristics have not occurred in any marked degree at the scene of current development. There have been few extremities of impoverishment and riches. Values have been distributed on a basis that approached evenness.

Silversmith Mines, Ltd.

The Silversmith Mines, Ltd., is now the name of the property situated at Sandon, B.C., and previously known as the Slocan Star. A certificate of incorporation has been issued to the Silversmith Mines, Ltd. (non-personal liability) for \$750,000. Some time ago the shareholders decided upon a re-organization and Mr. R. H. Stewart, formerly general manager of the Canadian Consolidated Mining & Smelting Co., has been appointed manager of the new company. It is announced that the mine will commence operations at an early date.

Cork-Province.

The Cork-Province near Kaslo B.C., has added a ball mill and a flotation unit to its concentrator at a cost of \$15,000. The flotation unit will be used for dressing the silver zinc tailings that have been thrown away in the past. The zinc concentrates are shipped to Kansas U.S.A., and the lead goes to the Trail smelter.

St. Keverne.

The St. Keverne group on Payne Mountain in the Slocan will be worked this summer. Oscar White, formerly of the Slocan Star, will be manager.

Cariboo.

Mining men and the public generally in some sections of the British Columbia interior are agitating for some celebration of the 60th anniversary of the discovery of gold in the Cariboo district and the building of the famous Cariboo Road. The movement started at Clinton, B.C., and is being met with favor, it being felt that something should be done to mark and commemorate an event of so much importance and interest as to merit a few pages in Canadian history, particularly in the mining history of Western Canada.

Platinum in B.C.

Owing to the importance of platinum for war purposes and its consequent augmentation in value, the former point being emphasized by the fact that both the United States and Canada have prohibited its export, general interest in the mineral has been roused among British Columbia prospectors. In this connection it has been recalled that platinum occurs, associated with placer gold, in the vicinity of Quesnel Forks, B.C., in the Cariboo district. Mr. John Hobson, when operating the Bullion Hydraulic Gold Mining Co. in that section, recovering a small quantity each year. The discovery of its sources is one of the matters which, it is believed, will be investigated by a party consisting of Messrs. J. B. Tyrrell, the well-known Canadian mineralogist and geologist, representing the Anglo-French Corporation of London; Robert A. Bryce, M.E., representing Porcupine and Cobalt mining interests, and Mr. Gordon Taylor, representing Toronto, Ont., mining interests.

With regard to the matter of platinum in Cariboo, it is interesting to quote Mr. Fleet Robertson, Provincial Mineralogist, in his annual report of the year 1902, when he said: "I found that there were very small quantities of platinum in the Fraser River bars. I traced this up to Quesnel, where the Quesnel river enters the Fraser, above which point I could find but

little in the Fraser river, as it chiefly seemed to be brought in by the Quesnel, which was traced up to Horsefly." He adds that he knows of no platinum occurring in a place in Cariboo, but that British Columbia has platinum also occurring with placer gold in Dease Lake, Cassiar, in considerable quantities and also in the Tulameen District, in which latter district it also has been found in place.

This, however, is not the only object of the visit of the party referred to, it being understood that they will inspect several propositions in the Cariboo District with a view to their development.

Convention at Revelstoke.

The international mining convention of the Pacific Northwest will be held in July of this year at Revelstoke, B.C. The convention is to be held in the open air, the scene being a beautiful park situated a short distance outside the town. If weather permits, the banquet, which is a feature of the assembly, will take place on the same grounds, the menu being wholesome, but strictly within the limits of the Canadian Food Board and cooked over open fires in typical prospector fashion. It will be attended by representatives of the mining Provinces and States of the Northwest.

Will Develop Fiddler Claims.

At least \$150,000 will be spent on the development of the Fiddler group of mineral claims situated near Dorreen, B.C., in the Skeena Mining Division, Northern British Columbia, a considerable proportion of which will be expended this year. It is understood that the Oppenheimer interests of Butte, Mont., are advancing the capital for this purpose and it is confidently expected that the property will be placed on the shipping list soon. It is situated in the neighborhood of the Rocher de Boule. The ore contents are chiefly gold.

Exhibits of Rare Minerals.

For the further encouragement and instruction of the prospectors of British Columbia, and also in order to induce the location and development of the rarer minerals in the Province, Hon. Wm. Sloan, Minister of Mines, has authorized the Mining Engineers of the Department of Mines to secure complete exhibits of these rarer metals and arrange for their display in the centres of the six mineral survey districts into which British Columbia has been divided. It is the Minister's opinion that one of the reasons that comparatively little is known of the resources of Western Canada in respect of the rare minerals, the usefulness and value of which have been emphasized by the demands of the war, is that the prospectors are not fully conversant with their characteristics. Therefore he believes that with specimens on public exhibit, and engineers competent to give visitors the knowledge which, perhaps, they lack, it will be found that the Province possesses mineral riches which, up to the present, have not been brought to light. The first of these exhibitions has been opened by Mr. R. W. Thomson, M.E., at Kamloops, B.C., There will be others at Nanaimo, Prince Rupert, Hazelton, Revelstoke, and Grand Forks.

Will Use Powdered Coal.

The use of powdered coal to replace fuel oil is the subject of experiment in British Columbia at the present time. In Vancouver City the B.C. Sugar Refining Co., one of the largest of the Provincial industries, has installed a plant to provide for the change and, it is understood, is getting satisfactory results. The Canadian Collieries (Dunsmuir) Ltd., anticipating a demand for the new fuel, is making tests of waste from its washery which has been accumulating for years in the harbor

at Ladysmith, B.C. If the results prove what is expected the Company will install special equipment for pulverizing and will proceed with the reclaiming of this coal refuse, of which there must be four or five million tons and some of which has been lying under water for seventeen years. It is considered probable that, should the experiments now under way turn out right, and providing the United States withdraws the "tankers" at present in service between California and British Columbia, the Canadian Pacific Railway Co. will arrange for the use of coal dust in locomotives now burning oil.

An interesting side-light on the increased value of coal in the Canadian Northwest is obtained from an experience of the Pacific Coast Coal Mines Co. In pre-war days the company discharged its waste into a lagoon, across which a rough cofferdam had been constructed. Mr. George Wilkinson, then manager of the company's operations and now Inspector of Mines for British Columbia, was responsible for this and his idea was that this coal, for which there then was no market, might prove useful in an emergency. Last year some 50,000 tons of it were recovered and placed on the market at \$3 a ton.

Canadian Western Fuel Co.

A new company, known as the Canadian Western Fuel Company, has been incorporated in British Columbia for the purpose of purchasing, taking over and operating all the assets in British Columbia of the old Western Fuel Company, of San Francisco, Cal. The incorporators of the new company are Messrs. G. W. B. Owen, J. B. Owen and John Hunt, and the capital is \$5,000,000. There will be no change in the management of the company as at present constituted and its headquarters will be at Nanaimo, B.C. Mr. G. W. B. Owen is the general manager and Mr. John Hunt remains the general superintendent. Mr. J. B. Owen is the manager of the Western Mercantile Company, the trading establishment opened by the Western Fuel Company when it was reorganized a year ago.

The purchase of the Vancouver Island properties of the Nanoose Collieries, Ltd., by the Nanoose Wellington Coal Company, has been announced. Mr. Lewis Williams, president of the purchasing company, has given a statement to the effect that it is the intention to push the development of the coal bearing areas controlled by the new concern to the end that the present output may be trebled.

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.

June 11, 1918—(Quotations from Canada Metal Co., Toronto).
Spelter, 10 cents per lb.
Lead, 9½ 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.

June 11, 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—		
25	99½	48¾
27	99½	48¾
28	99½	48¾
29	99½	48¾
31	99½	48¾
June—		
1	99½	48¾
3	99½	48¾
4	99½	48¾
5	99½	48¾
6	99½	48¾
7	99½	48¾

STANDARD MINING EXCHANGE.

Messrs. J. P. Bickell & Co. report the following closing quotations on the Standard Stock and Mining Exchange at the close of business, June 9, 1918.)

	Gold.	
	Bid	Ask
Apex .....	.03	.04
Dome Extension .....	.10½	.11½
Dome Lake .....	..	.15
Dome Mines	7.50	..
Hollinger	4.87	4.90
Imperial .....	.01	.01½
McIntyre	1.25	1.26
New Ray .....	.20¼	.20½
Porcupine Crown .....	.13½	.15
Vipond .....	.10	..
Preston East Dome .....	.02¾	.03
Teck-Hughes .....	.40	.45
West Dome .....	.08½	.08¾

Silver.

	Bid	Ask
Adanac .....	.08	.09½
Bailey .....	.03½	.04
Buffalo .....	..	1.05
Beaver .....	.23¾	.25
Chambers Ferland .....	.11½	.12¼
Coniagas	2.75	..
Crown Reserve .....	.18	..
Gifford .....	.02¾	.02¾
Great Northern .....	.03	.03¾
Hargraves .....	.07¼	.07½
Hudson Bay .....	..	34.00
Kerr Lake	5.65	5.90
Larose .....	.40	.41
McKinley .....	.39	.42
Nipissing	8.90	9.00
Peterson Lake .....	.09½	.10
Right of Way .....	..	.03¾
Seneca Superior .....	..	.02
Silver Leaf .....	..	.01¼
Temiskaming .....	.28	.28¼
Wettlaufer .....	.04	..
Mining Corporation .....	..	3.40

NEW YORK MARKETS.

June 7, 1918.

Aluminum—Government price, carload lots, f.o.b. plant, effective June 1st:
98-99% Virgin, 33.10.
98-99% remelt, 33.10.
No. 12 Aluminum Co., 33.30.