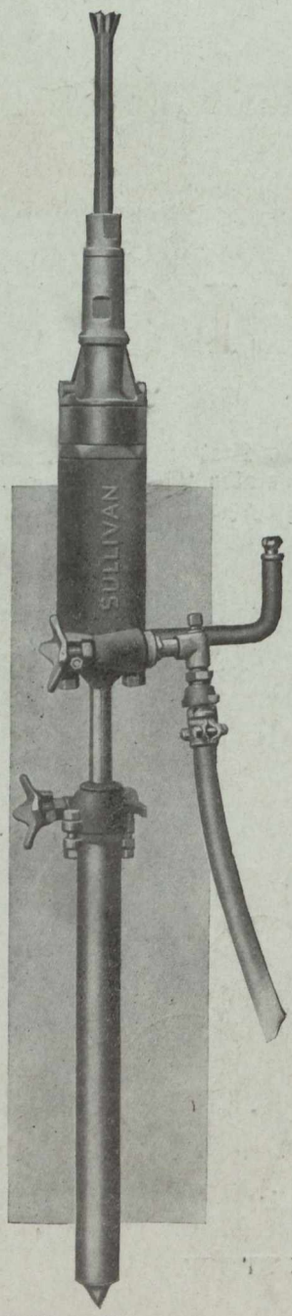
CANADIAN MINING JOURNAL

VOL. XL. July 2, 1919. No. 26

Sullivan New Rotating Stopers



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J. J. Harpell, Managing Director.

A. S. Christie, Eastern Manager,
Room B-30, Board of Trade Building, Montreal.
'Phone Main 2662.

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Changes in advertisements should be in the Publishers' hands ten days before the date of issue.

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The editor cordially invites readers to submit articles of practical interest which, on publication, will be paid for.

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VOL. XL. GARDEN CITY PRESS Ste. Anne de Bellevue, Que. No. 26

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:-: EDITORIAL :-:

NEW LABORATORIES OF THE UNITED STATES BUREAU OF MINES.

The announcement that the new laboratories, and testing station for mine explosives, mine gases and coal dust, of the United States Bureau of Mines is to be formally opened and dedicated in September is of general interest, and, as representative of the mining industry of Canada, the JOURNAL congratulates the sister industry in the United States on having such facilities for research in matters relating to the operation of mines. While magnificent equipment is at the disposal of many universities, both in America and in Europe, we do not remember to have heard of provision of such excellence and magnitude at the expense of any other government as is available at Pittsburgh. Quite properly complaint was made before the Sankey Coal Commission in England by Dr. John Haldane of the miserably inadequate attempts that have been made to investigate the properties of mine air, the incidence of mine explosions, and matters relating to the safety of coal mines, such as stone-dusting and the testing of safety lamps, so far as these have been undertaken at Government expenses in Britain. In that country, the investigation of such matters has been left largely to private enterprise, and it is a matter for justifiable pride therefore in British circles that the investigation of the explosive properties of coal dust, the relation between mine air and the physiology of breathing, and other important achievements, owed so much to private investigators like Sir W. E. Garforth and Dr. Haldane, and that so much should have been done in the erection of laboratories and testing stations by personal and corporate benevolence.

One achievement upon which the United States Bureau of Mines is to be congratulated is the evolution of a practical type of breathing apparatus. It has always been apparent to those who were interested in breathing apparatus that each advertised type had its own peculiar excellences and its own peculiar defects, and that if some government controlled authority could by a process of combination of good points and elimination of defects experiment in the devising of a composite apparatus, a new and practical type of apparatus would be the result.

The coal wealth of the United States exceeds that of any other civilized nation, and it is eminently proper and fitting that its research equipment should be on a scale commensurate therewith. As Canadians are not envious, but we are ambitious, and trust that as our coal industry expands our research equipment may also keep pace. So far it has not done so.

"DECENTRALIZATION" IN THE COAL MINING INDUSTRY.

From an article in "Coal Industry" of Pittsburgh by George H. Cushing, we extract some conclusions of this competent authority on the coal trade in the United States as to tendencies in the mining industry. Mr. Cushing says:

> "The purchasing power of the coal users is going to be concentrated into a few hands which, when not offset by an equally centralized selling power, has a tendency to beat down the price of coal.
>
> "The essential force in production, labor, is being concentrated into a few hands. The power to negotiate the wage of labor is opposed by no equally centralized organization among the producers. This tends to advance the cost of production.
>
> "Also we have a proposal on the part of the government to control coal in order, thereby, to control the business which grows out of coal.
>
> "Every way the industry turns it faces solid opposition expressed in unit form. **Within the ranks of the mining industry we have remaining the same old decentralization.** One operator is pitted against another operator even in one district.
>
> "With the industry divided and sub-diivded into warring factions, we stand at every point confronting consolidated opposition. This, if continued, must end in nothing but the embarrassment, if not the destruction, of the industry itself."

Every sentence of Mr. Cushing's conclusions is as applicable to conditions in Canada as it is to those in the United States, and particularly applicable to Nova Scotia and the Crow's Nest and Fernie districts.

The Canadian National Railway Board has shown some scepticism as to the great increases which have taken place in the cost of coal production in Nova Scotia, and is inclined to use its centralized purchasing power to beat down the price of coal supplied from the Maritime Provinces.

The entry of the United Mine Workers of the America into control of the Nova Scotian coalfields centralizes the power of wage negotiation in no uncertain manner, and on the side of the coal-owners there exists no corresponding centralization.

The coal production in the month of June in Nova Scotia was, we have good reason to believe, the smallest since 1901. This is a matter of the gravest importance. June, of all months, is the one in which

the collieries should be producing large outputs, and production lost in June cannot be regained during the whole summer. With the smallest coal output for nigh on twenty years, with American coal coming into Montreal free of any competition from Nova Scotian coal, with a number of coal mines closed down, and others threatened with stoppage of work and foreclosure of mortgage, the miners' leaders are urging discussion of a six-hour working-day and a five days week. "Decentralization" is a mild term to apply to the internal conditions of the coal industry in Nova Scotia, and if continued, it must there, as in the United States, lead to "the embarrassment, if not the destruction, of the industry itself."

THE REPORT OF THE FUEL CONTROLLER.

The Final Report of the Fuel Controller of Canada is an interesting and thought provoking document. Mr. Magrath observes in his preface that the Report is divided into two parts, the first dealing with the fuel situation in Canada during the War, the second attempting to forecast fuel conditions of the future. Mr. Magrath further remarks that the first part is "merely of historical interest" except in the lessons it may convey and the light it may throw upon the fuel problems of the future.

In the dog days the discomforts of the "heatless Mondays" and the anxieties of the unusually severe winter of 1917-1918 may seem merely of historical interest, but we have a good deal to thank Mr. Magrath for. The unassuming and matter-of-fact recital of the activities of his Department, if carefully perused, will reveal many instances of the capable manner in which the Fuel Controller carried out the difficult task which was set him, and stands to the credit of Mr. Magrath and those who were responsible for his selection.

We reproduce in this issue the Fuel Controller's summary of the results achieved during the war period, which are sufficiently remarkable and explicit.

The section of the Report dealing with the future of the fuel problem in Canada is in reality an exhaustive monograph, dealing more intelligently and exhaustively with the fuel question than any previous attempt we recollect having come across. The geographical position of Canadian fuel resources in relation to the large centres of population is one of the peculiar problems of the Dominion. Appended to the Report is a diagrammatic map of the United States and Canada showing graphically the coal resources of each State of the Union and each Province of Canada. In studying this map one is immediately struck by the equable and generous distribution of coal in the United States, and by the tremendous disproportion between the coal resources of the Province of Alberta and the remainder of Canada. This map is worth more than reams of written explanation, and we would suggest that it be produced on thick paper or board suitable for wall reference.

If there is to-day any conflict between the industrial East and the agricultural West, we believe that a study of this map and a realization of its implications will show that before many generations are gone, the West will outrank the East in all that coal production means and carries with it. The opening sentence in the Fuel Controller's Report is: "Modern civilization has, in a large measure, been built on a foundation of coal."

The Report is reinforced by two papers by experts in the economic utilization of fuels, one by Warren S. Blauvelt, of Detroit, and the other by F. E. Lucas of Sydney, comment on which we will reserve for future issues.

Mr. Magrath, in relinquishing his office makes a number of suggestions for perpetuating and enlarging the work he has commenced, and it is to be hoped that his detailed recommendations, which have most evidently been given mature consideration, will be followed.

Whatever may be undertaken in this way, we believe that a perusal of the Report will show that Mr. Magrath has himself contributed material data towards the meeting of the fuel problem of the future.

The net cost of the Fuel Controller's organization from its inception in June, 1917, to its disbandment in March, 1919, is estimated at $114,000, and we think the people of Canada for once obtained full value for the expenditure.

STANDARDIZATION OF MINING PLANT AT FRENCH COLLIERIES.

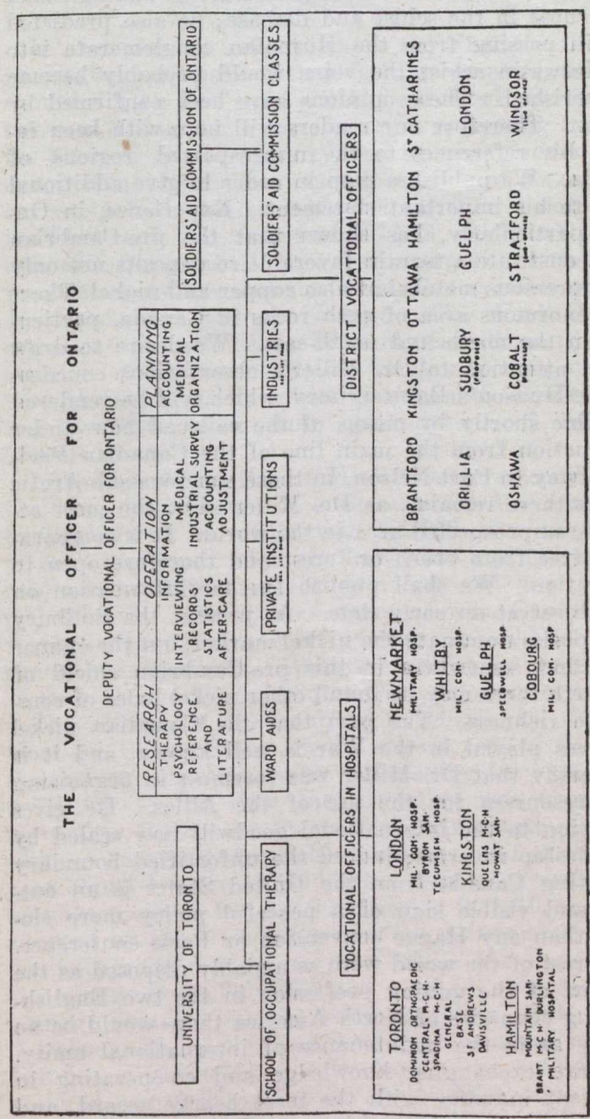
In France an effort is being made to profit by the opportunity afforded by the reconstruction of destroyed works to standardize all machinery, and especially mining plant. To this end a permanent commission has been appointed by the Ministry of Commerce.

The question of standardization has become a pressing one in all branches of industry, but in none more than in mining. There more than anywhere else the confusion due to want of uniformity is a hindrance to progress. The Central Committee of the Collieries of France has issued a circular calling attention to the need of uniformity, and gives a list of the things that should be standardized. This list includes nearly everything which goes to constitute a mining plant. The list has been submitted both to the users and to the makers of plant, with the request that they should consider the question and give their opinion thereon, so that an agreement may be speedily arrived at, and the work of standardizing taken in hand without unnecessary delay. The author of this paper is of opinion that it will be extremely difficult to arrive at an agreement which will meet the needs of all localities, and proposes a division into groups, with a standardization for each group, as a solution of the difficulty.—(Bulletin de la Societe de l'Industrie Minerale, First Issue, 1919.)

AUTO PRESENTED TO PROF. HAULTAIN.

Retiring Head of Vocational Work Honored by His Staff.

Toronto, June 19.—Five hundred members of Professor H. E. T. Haultain's vocational staff assembled at the Armories yesterday afternoon to present him with a touring car on the occasion of his retirement from the position of Vocational Officer for Ontario. The presentation was made the occasion of a striking tribute from those who had worked under the Professor and who expressed their keen regret that his active connection with the Ontario Vocational Branch of the Department of Soldiers' Civil Re-establishment had terminated. It was pointed out that over 92 per cent. of the male vocational staff in Ontario were returned officers and men, who had learned to look on the retiring chief as a personal friend.



Extent of the Organization Directed by Prof. Haultain.

In presenting the car on behalf of the members of the Ontario Vocational Branch, Mr. D. D. Eppes, head of the After-Care Department for Ontario, emphasized that Professor Haultain had earned the confidence of the disabled soldier and the respect and affection of his own subordinates. The speaker recalled that the retiring vocational officer had entered the re-training movement in its early days, and had seen it grow to its present day tremendous proportions. He paid tribute to the part the Professor had played in the development of the retraining movement, and lauded his sympathetic handling of the returned men. Professor Haultain, who was taken completely by surprise, accepted the presentation with a few suitable words.

The car is a very fine one—a McLaughlin Master 6, 45 h.p., Special, Special.

DEDICATION OF THE U. S. BUREAU OF MINES LABORATORIES.

The Bureau of Mines announces that during the week of Sept. 29 the new million dollar laboratories and workshops in Pittsburgh, Pa., will be formally dedicated. High officials of the Government, together with the Governors of the principal mining States and the leaders in the mining industries and miners' organizations, will be present to take part in the dedicatory ceremonies. A fetaure of the dedication will be a great national Safety-First meet, teams of miners from all over the country competing for cups and medals. There will be contests in rescue and in first aid to the injured, and as there is immense rivalry between the teams of the different mining companies, it is expected that these contests will take at least two days for decision. On Sept. 30 the elimination contests will begin at Forbes Field in Pittsburgh, and will continue until only the winning teams are left for the final championship contests, which will take place on Oct. 1 immediately after the elimination trials are completed.

The different laboratories of the bureau have been completely equipped for the investigation of the various problems relating not only to greater safety, but also to greater efficiency in the mining and metallurgical industries. Visitors will be invited to the electrical and mechanical workshops, and laboratories of the bureau and also to the petroleum, gas and coal laboratories, the testing gallery of the mine safety section, and the industrial gas-mask division. Another point of interest will be the experimental mine of the bureau at Bruceton, Pa., twelve miles from Pittsburgh, where an actual explosion of coal dust in the mine will be staged for the benefit of those attending. At the experiment station there is also to be shown a complete exhibit representing the mining and metallurgical industries of the country.

TRAIL SMELTING CHARGES — RECOMMENDATIONS OF COMMITTEE.

The Committee appointed to investigate the smelting charges of the Consolidated Mining & Smelting Co. at Trail, B.C., has reported to the Minister of Mines at Ottawa

The committee find that the application of schedule "B" has proved its general justification. It has brought about an improvement in the value and supply of ore, and a decrease in the cost of operation to such an extent that "the committee has felt warranted in asking the company now to act upon its undertaking to revise the existing schedule in favor of the producers of ore."

The committee suggests the appointment of a permanent committee, with functions similar to its own, to adjust future schedules.

Willet G. Miller and Canada's Mineral Resources

A United States Appreciation of Dr. Miller.

In "The Mining and Scientific Press," June 7th, there is published an interview granted by Dr. W. G. Miller, Provincial Geologist of Ontario. Mr. T. A. Rickard, who interviewed Dr. Miller, says editorially in the same journal:

"A short time ago we published an interview with Mr. Horace V. Winchell, a representative of the best type of American mining geologist; in this issue we give a similar interview with an equally worthy exponent of Canadian economic geology. Mr. Willet G. Miller is a stalwart Anglo-Celt, a big man physically and in character, a scion of the Viking breed, which has explored the far corners of the earth and carried the miner's pick in the vanguard of civilization. He is usually called Dr. Miller by reason of a double scholastic accolade, for he is a Doctor of Laws of Queen's University, where he taught, and also of Toronto University, his alma mater. He is one of those fortunate men whose services to the commonwealth have been recognized while they are still in the vigor of their manhood. Born in Canada of native-born parents, he typifies the traditions of a nation whose spirit was expressed with immortal eloquence during the War for Civilization. The interview tells the story of his life in a modest way. He would have said little if the interviewer had not cross-examined him with friendly persistence. His father had the tastes of a naturalist and from him he inherited the powers of observation which by academic training were developed into scientific research. While a student at college he early became a teacher also, the learning and the teaching being complementary and thereby fulfilling the true meaning of the word education—the drawing out of the mental faculties. His has been a fortunate career; early appreciated by his countrymen, he received an appointment, that of Provincial Geologist, for which he was well equipped, and then, by good luck, he had the chance of taking part in a mineral development of historic significance and industrial importance. Cobalt and Miller are names forever linked in honorable association. He appreciated the value of the discovery made in the course of cutting the grade for a railroad near Haileybury, in Ontario, and published a description of it almost immediately. The present writer, while editor of the 'Engineering & Mining Journal,' had the pleasure of printing that first account of the discovery at Cobalt in the issue of December 10, 1903. Although a cautious man—a trait inherited from his Scottish ancestors—Dr. Miller did not allow his scientific judgment to be stiffled; on the contrary, he came out boldly with the statement that "the ore is very rich, containing values in nickel, cobalt, silver, and arsenic; and a comparatively small vein could be worked at a handsome profit." In the 15 years since then Cobalt has produced 300 million ounces of silver. Dr. Miller has been amply justified in his forecast. He did more than that; he gave the miners in the Cobalt district a large measure of timely and practical geologic information; he did not wait until the mines were nearly worked out and then prepare a beautifully worded obituary notice or a highly scientific autopsy; he distributed technical data while he was collecting them in his official capacity and thereby gave to the exploration of the ore deposits an intelligent direction that ensured success. During the Cobalt boom, with its orgy of mine promotion and stock speculation, he did not lose his head nor endanger his integrity. While others became millionaires by following the advice he gave officially, he remained true to his duty. He might have enriched himself greatly, for he received many tempting offers to resign his appointment and accept both handsome retainers and profitable participation in attractive enterprises. It was all to no purpose; he loved his work and stuck to his post. His classification of the Cobalt rocks still holds good. From the start he expressed a preference for the silver veins in the conglomerate as distinguished from those in the schist and diabase; he also predicted that in passing from the Huronian conglomerate into the Keewatin schist the veins would probably become impoverished. These opinions have been confirmed by mining. Therefore our readers will note with keen interest his references to the unprospected regions of Canada. We publish a map in order to give additional point to his important statement. Experience, in Ontario particularly, has shown that the pre-Cambrian rocks constitute a terrain favorable to deposits not only of the precious metals but also copper and nickel. There is an enormous area of such rocks in Canada, particularly in the north and north-east. We desire to draw special attention to Dr. Miller's observations concerning the Hudson's Bay territory, which will be rendered accessible shortly by means of the railroad now under construction from the main line of the Canadian Pacific railway to Port Nelson. In these spacious sub-Arctic regions there remains, as Dr. Miller says, the most attractive unprospected area in the world. It is comparatively free from brush or forest and therefore open to exploration. We shall publish further information on the subject at an early date. At present the Sudbury ore deposits dominate the nickel market, but the chance exists that somewhere in this pre-Cambrian shield of the North there may be found other nickel lodes of comparable richness. The part that the Canadian nickel resources played in the War is well known, and it is noteworthy that Dr. Miller was foremost in organizing those resources for the use of the Allies. He gives expression to the international goodwill now sealed by comradeship in arms; indeed the unfortified boundary separating Canada from the United States is an outward and visible sign of a peaceful policy more eloquent than any Hague convention or Paris conference. If the rest of the world were as amiably disposed as the members of the mining profession in the two English-speaking countries of North America there would be no anxiety as to the maintenance of international amity. They are exchanging knowledge and co-operating in beneficent industry with the most hearty accord, and in this respect such engineers as Dr. Miller and Mr. Winchell are typical. The joint committee appointed recently by the Canadian and American mining institutes should serve further to promote good feeling, by taking prompt steps to remove any minor points of disagreement arising more particularly from the barbed-wire entanglements of tariffs and custom laws. One thing is sure, any American engineer going to Ontario will find Dr. Miller, Mr. Thomas W. Gibson, Mr. Reg-

inald W. Brock, and other men of their kind, only too glad to welcome them and to express their welcome by giving all the geologic information available. They may find the tall Doctor a bit reserved and non-commital at first, but when the crust of reserve has melted, they will find an inextinguishable warmth coming from a heart as big as his broad chest. Fertile in ideas, capable of wide generalizations, a good judge of human nature, shrewd but kindly, they will find a man neither easily deceived nor ever willing to deceive. His long legs are as much at home in the primeval bush as they are under the thwarts of a canoe; whether in the field or in the council-chamber, he is a born leader of men, and one whose leadership is accepted gladly. Alike as chief of an exploring party in the wilderness and as president of the Canadian Mining Institute in the city, he has won the confidence and affection of his fellows. Sentiment he has and the sense of humor, but most of all a willingness to help others. That characteristic has been evident throughout his life in Ontario, whether as student or teacher, geologist or official. He has trained a number of young men now honorably prominent in Canadian geology; he started them on careers of acknowledged usefulness. Honors have come to him, academic and professional, but no honor counts so greatly as the affectionate regard of the young men to whom he has given a helping hand. By his friends you shall judge him."

Final Report of the Fuel Controller

In viewing any results which the Fuel Control Organization may have been able to accomplish, the fact should not be lost sight of that the work was undertaken at a time when the country was passing through the greatest crisis in history, and financial, commercial and political conditions were in a state of flux. Concurrently with this trying situation, like a bolt from the blue came the winter of 1917-18 which has passed into history as one of the worst in severity with which the coal operators and transportation systems on this continent ever had to contend. The Fuel Control organization having been suddenly called upon to face such an emergency, was also handicapped in dealing with the situation by a lack of adequate data regarding the distribution and consumption of coal in Canada.

Notwithstanding these and other adverse conditions, Canada's importation of anthracite for the coal year ending March 31, 1918, was 600,000 tons in excess of any other year; while the importation of bituminous coal exceeded that of the previous coal year by 4,000,000 tons. After three years of war, Canada had reached its maximum effort: hence the need for these excess tonnages was imperative and fully recognized as such by the United States Fuel Administration.

The efforts of the country to obtain its supplies from the United States, in the second year of the Fuel Control organization, were proceeding very satisfactorily up to the time the armistice was signed in November, 1918. At the end of that month, the imports of anthracite from the commencement of the coal year, April 1, were 177,414 gross tons in excess of the tonnage received for the same period in 1916, the year adopted by the United States Fuel Administration as the anthracite basic coal year, while the imports of bituminous were 3,371,243 net tons in excess of the tonnage received for the same period in 1916. With the conclusion of the war, and the closing of war industries, in the middle of December, the outlook had changed completely, and an abnormally mild winter finally disposed of "the coal situation."

The annual production of coal in net tons within Canada during each calendar year in the period of the war was as follows:

1914	13,637,529
1915	13,267,023
1916	14,483,395
1917	14,046,759
1918	14,979,213

Not only was the tonnage of coal secured from all sources sufficient to meet the needs of the country as a whole, but also, its distribution was effected in such a way as to provide adequately for individual requirements. In fact, although Canada has on the whole an extremely cold winter climate, it is safe to state that in no country with similar fuel requirements was there as little suffering or inconvenience during the war period, as in this country. Taking into consideration the distances separating the consuming areas in Canada from the mine fields, and the cost of production in Canadian mines, the prices of coal compared favorably with those in other countries.

Prices of coal, whether of foreign or domestic origin, under the coal regulations were fixed on a basis of actual cost plus a reasonable net profit. The following table shows the great expansion in Canadian Export trade during the period of the war annually for fiscal years ending March 31, in:—

1913	$ 393,232,057
1914	478,997,928
1915	490,808,877
1916	882,872,502
1917	1,375,758,148
1918	1,589,661,195

A reference to the report on "The coal trade of Canada," just published by the Dominion Bureau of Statistics, will show that Canada's consumption of coal has not kept pace with this industrial expansion, which points to the conclusion that Canadian manufacturers have been obtaining greater efficiency out of their coal, as well as making greater use of the country's water powers.

In conformity with the policy of statistical co-ordination, recently adopted by the Government, the statistical data of the Fuel Control organization, bearing on the production, importation, and distribution of coal, at the termination of Fuel Control on the 31st of March, 1919, is to be turned over to the Fuel Section of the Dominion Bureau of Statistics. These data will form the nucleus for further investigations, and should occasion require, an amplification of the work can be undertaken at short notice. The statistical material covering the coal year ending March 31, 1918, is being published by the Bureau in a report headed, "The Coal Trade of Canada," which it is hoped will be followed by annual reports of a similar nature.

The Oil Concession Correspondence

(Continued from issue of June 25, 1919.)

Memorandum Extending Interview With Hon. Arthur Meighen.

The first question is whether it is in the best interests of a great country having important potential oil deposits to give licenses to a multitude of small enterprises to exploit sections here and there, and to sink wells wherever some indication of the presence of oil is found; or to undertake, under competent management, search for and exploitation of oil-deposits over a very wide area their main sources being traced and the oil being extracted, refined and brought to market under an economical and conservative system.

In searching for a deposit of petroleum under lands which have not already been submitted to the drill it must be borne in mind that as the location of the main deposit may be at a depth below the surface of a quarter of a mile a search for outcrops and other indications is required at very serious distances apart, a process which calls for a number of surveyors and geologists to record and locate various indications, and for an extended time in which to make the search as well as to correlate the facts observed and deduce therefrom the probable location of the deposit.

The object of such an examination is not to find oil in comparatively small quantities, but to locate the main anticlinal or backbone of the deposit and to find out from surface and other indications where the deposit is within reach of a drill hole and where it sinks to an unreachable depth.

The working of a subsidiary anticlinal is wasteful and entails, if due care be not taken, the danger of the swamping with water of a larger area.

Dealing with a liquid which calls for the special creation of the facilities for raising, storing and transporting it, is entirely different from dealing with a solid, the storing and transporting facilities for which are already in existence and are exchangeable as between solids. This detrimental quality of a liquid requires an estimate of quantities to be handled to be made in advance of the creation of the facilities, otherwise the wastage of capital is enormous.

The supply obtained from wells is an irregular, but constantly decreasing quantity, so that even when sufficient oil is obtained to place the venture on a working basis continued research is needed to follow the extension of the field and secure maintenance of the output without which the large expenditure required for transport, treatment and distribution is unwarranted.

Oil ventures may be divided into two classes, namely, those which are conducted on a small scale and those which have higher ambitions with the hope of finding a sufficiency to supply, firstly the local demand, and should there be an excess, to create an export trade for the benefit of the country owning the fields. It is with this larger purpose in view that the "Shell" Group would propose to proceed. It is obvious that the geographical position of the Alberta fields would call for very large expenditure, which should production in their opinion warrant it, would be cared for by the "Shell" Group.

A comparison may here be drawn from actual experience between undertakings aiming at a business on a large scale which must naturally really have sufficient area at its disposal to warrant the necessary disbursement and the wasteful and damaging method of confiding the exploitation of small areas to numerous parties.

A glance at the maps of California, Roumania, Pennsylvania, Texas and elsewhere showing the division of fields, into small lots and the location of the boreholes thereon will forcibly bring home the following conclusions:—

Where this system prevails the number of boreholes put down is grossly excessive, each owner endeavouring by placing his boreholes as near as the law will allow to the boundary line, to draw oil from his neighbour's territory, with the result that from 10|20 times the number of boreholes no more, and possibly considerably less oil, is gathered than would be obtained from a smaller number of holes scientifically placed on previously ascertained geological information.

It can be no part of the policy of the Dominion Government to foster the excessive cost of bringing to the surface a deposit which is a national asset if properly worked.

Apart from the excessive cost of production thus entailed bankruptcy and ruin to thousands of people may result from the gross speculation which arises when a presumptive oilfield is first located. The oil boom in Texas is an example of this trouble, while it has been repeated in Galicia, Roumania, elsewhere in the United States and in other countries.

In 1901, when the Lucas well was struck in the neighbourhood of Spindletop, Texas, speculators acquired rights on plots which were divided up into infinitesimal lots, and some hundreds of companies were formed for the working of single wells or areas only sufficiently large to take a very small number of wells.

Perhaps 80 or 90 per cent. of these companies were pure swindles, entailing ruin to those who invested in them. After a year or two the surviving companies fattened on the losses of those which have gone under, and this procedure has been followed elsewhere. Looked at from the point of view that an oil deposit is a national asset, it is deplorable to consider the waste of petroleum which results from this sub-division and working of the lands. Undoubtedly a large deposit of oil was found in Texas and gigantic quantities were brought to the surface within a few months, quantities which were far in excess of the reasonable demand, resulting in the value of the oil at one time falling to 2 cents or even 1 cent per barrel, while enormous quantities, values being so low, were allowed to run to waste.

Had such a deposit been in the hands of a large and responsible company capable of properly working it the oil would have been brought to the surface so as to emit reasonable requirements, and the production consequently spread over a number of years.

As it happened the wastage of capital cost and the wastage of the product obtained were almost criminal, while by reason of careless or inexperienced drilling the quantity left in the ground and probably

yet unobtainable, is a larger percentage than it should be.

Scientific work means the obtaining of the largest possible percentage of the deposits for human use whereas unscientific work fails to obtain so large a percentage of the actual deposit.

It may be urged that granting the necessity for search over a larger area the area required for eventual exploitation ought to be much smaller.

The area required for search should be the largest possible, but will be reduced by stages.

Geological indications referred to above will be utilized merely as facts from which to deduce the location of a deposit, and the large majority of these indications will be found where the territory would be valueless for drilling purposes.

After arriving at a rough idea of the location of the main deposit certain areas would be marked for more detailed geological investigation, and the balance would be no longer required. This extended geological examination would again lead to the giving up of further portions, and these smaller portions only would be retained for the purpose of exploitation, and would be confined to those grounds where the mineral rights are still retained by Government.

As an instance of this procedure an area of about 200,000 square miles reserved for such search in an undeveloped country resulted in the provisional retention of plots covering only about 2,000 square miles. Further examination resulted in the retention of only about 800 square miles, and a portion of this area may still be returned to the Government concerned as not likely to be petroliferous. The concession for search was granted in the year 1912, the first rejection took place after four years, and the second rejection has been gradual from that date to this.

As a contrast to the instance given of Texas, references may be made to the success of the "Shell" group where considerable tracts have been placed under their control and worked on scientific lines.

Borneo.—An area exceeding 600 square miles has resulted in the valuable portions of it being reclaimed from jungle and a production of something like 800,000 tons per annum, bringing a revenue to the potentate many times greater than he had ever dreamt of.

Sarawak.—The whole of Sarawak, covering 50-60,000 square miles, has been confided to the Group for the purposes of oil production. This British territory is now fast growing into a valuable asset to the Empire, and would have progressed at a greater pace had it not been for the war and the undeveloped nature of the district which called for the creation of a harbour and other necessary facilities.

Mexico.—The area at the control of the Group is large, the production enormous, but expansion has been seriously delayed by reason of the war.

Egypt.—The phenomenal success obtained under the Group's control and arising out of a field discovered by their experts and previously unknown, is a tribute to their attainments and has been freely acknowledged in the recent report of the Financial Advisers Egyptian Budget, 1917.

The proposal put forward by Colonel Shillington was founded on terms and conditions arranged by a subsidiary of the Group, with the Governor of Trinidad and Tobago under the auspices of the Crown Agents for the Colonies in Whitehall varied only by the different conditions which prevail and the different knowledge of the underground conditions which in the case of Canada call for a period of search and exploration which had previously been expended on Trinidad, but after hearing Mr. Meighen's views the Group are prepared to negotiate on the lines set forth in this memorandum.

It may not perhaps be necessary to refer here to the financial powers of the Group, but occasion is taken to send herewith copies of the last Balance Sheet of the "Shell" company, and copies of the speech of the Chairman at the last Annual General Meeting, which may probably be sufficient to cover this point.

The second question now arises:—

If it be admitted that exploration and exploitation of oil deposits may most advisedly be carried out over a wide area, and under special terms, what returns and guarantees do the Government receive in consideration for the concessions granted by them?

It is suggested that the Dominion Government may feel justified in confiding to the "Shell":—

(1) the search for a deposit.

(2) the geological exploration,

and (3) the eventual exploitation on something like the following terms:

(1) The Group will provide the personnel, the technical knowledge and the management of the whole undertaking.

(2) The Group will provide the funds necessary for the above work, receiving as interest for their advances a cumulative preferential interest at the rate of 6 per annum, and as security to the Government for the due working of the property will be content only to receive this interest out of the earnings.

(3) The Group will operate the properties on behalf of the Dominion Government, receiving as renumeration for the provision of funds, and for their care and control, half of the net profits arising from the venture, the other half belonging to the Government, thus affording the Canadian people through the Dominion Government a direct interest in the undertaking.

(4) The venture to be free from import and export duties; from Dominion and Provincial and Municipal taxation; and to receive the existing bonus on oil produced.

(5) The venture to be assured by the Government of all trading rights, way leaves, and generally to receive the reasonable support of the Government in its operation,

(6) Should the Dominion Government so desire a Canadian Company would be formed on which a minority representation by the Government would be cordially invited.

The rough scheme is devised with the object of allowing the production of oil at the lowest possible cost, a condition which is required by reason of the geographical location of the expected field being unfavourable for export purposes, while the production is hoped to be largely in excess of the local demand; moreover, the climatic conditions, especially in the northern part of the territory would seem to call for expenditure largely in excess of the usual. The power to produce oil at a low level of cost is one which should seriously strengthen the position when in due course values fall to a normal level ,and would place the venture in a favorable position as compared with competing producing countries.

The area for search should be that portion of the Province of Alberta lying north of the Athabasca river, and that portion of the North-West Territory between longitude 110° and 125° W., bounded on the north by latitude 630°.

The area for close geological examination to be selected from the above by the Group without injury to already existing rights.

The area for exploitation to be selected by the Group, but confined to ground the mining rights to which are now held by the Province or Dominion Government.

Should the Group find it desirable to acquire rights within the exploration area already granted to other parties they shall be considered as part of the general venture.

A Night Lettergram.

Edmonton, Alta., Nov. 23, 1918.

Hon. Arthur Meighen,

Winnipeg Telegram twenty-first, states shell oil company England has absolute rights for a number of years to all oil properties lying in Canada from the Eastern side of the Rocky Mountains and International Boundary line to the Arctic Ocean, and that order-in-council going through. Is this true? Number of companies now operating have attended me protesting against such measures. Please send draft bill before taking final action. Please wire.

H. A. MACKIE.

"The Winnipeg Story."

"A wild rumor is in circulation here to-day to the effect that Sir Robert Borden, Premier of the Dominion, has delivered to the Shell Oil Company of England, for a consideration, absolute rights for a number of years, to all oil properties lying in Canada, from the eastern side of the Rocky Mountains and from the international boundary line to the Arctic Ocean."

"After this term of years has elapsed, the Shell Oil Company is to choose ten per cent. of the productive oil lands, the rest to be sold to purchasers. All the existing oil rights at this time are to be expropriated the company on a purchase basis for the amount of money already spent on the properties in development."

"The right, it is said, was given by Sir Robert just before he sailed for Canada. An Order-in-Council covering the sale, will soon be put through, it is declared.

"The Shell Oil Company controls oil wells in Persia, Mexico and other countries. It supplies the British Navy with material.

"Rumour has it that the Standard Oil Company, approached the Premier, making a bid for this huge concession, but the Shell Oil Company bid a little higher."

"If the story is true, then the deal will be one of the largest in history, as this vast aggregation of capital will acquire control of something like 75,000 square miles of territory."

Hon. Mr. Meighen Says No Such Step Taken.

Ottawa, 25th November, 1918.

H. A. Mackie, M.P.,
Edmonton, Alta.

Your wire re paragraph in Winnipeg Telegram received. Government has taken no such steps as intimated in your message. A. MEIGHEN.

Calgary, Alta.,
30th November, 1918.

Hon. Arthur Meighen,

Dear Sir,—

Under date of November 21st, 1918, an article appeared in the Winnipeg Telegram stating "Rumor says Canadian Oil Lands taken; story has it that Sir Robert Borden delivered absolute rights to Canada Oil Territory to English Company, etc."

I have received inquiries asking me if there is any truth in this. I would be obliged if you would look at the article, and if there is any information you can give me I shall be glad to receive same.

(Sgd.) T. M. TWEEDIE.

Ottawa, Canada,
7th December, 1918.

Dear Mr. Tweedie,—

I have to acknowledge yours of the 30th regarding a paragraph which appeared in the Winnipeg Telegram under date of the 21st ult. I have received several communications respecting this, and have told my correspondents that no such action has been taken by the Government as that indicated in the paragraph referred to.

(Sgd.) A. MEIGHEN.

G. N. W. Telegraph.

Peace River, Alta., 2-3.

W. A. Cory,
Deputy Minister Interior, Ottawa,

Edmonton Bulletin twenty-fifth and Winnipeg Telegram twenty-first, have articles saying Government passed Order-in-Council disposition of oil rights in Canada covering leases and developed properties Peace River leases. Much excited. Please wire me regarding same, as it has paralyzed oil business here in meantime; cannot credit it.

J. J. RUTLEDGE.

Ottawa, 3rd December, 1918.

J. J. Rutledge, Esq.,
Peace River, Alta.

Wire received. Government has taken no such steps re oil rights as indicated in Winnipeg Telegram.

W. W. CORY.

Peace River, Alta.,
Dec. 3, 1918.

Hon. Minister of the Interior,

Persistent rumor here that all oil leases in Northern Alberta to be cancelled; as this is of vital importance interest here, please wire as full information as possible.

L. W. BROWN,
Sec. Peace River Unionist Ass'n.

Ottawa, Dec. 3, 1918.

L. W. Brown, Esq.,
Secretary, Peace River Unionist Ass'n.
Peace River, Alta.

No such action as suggested in your wire being considered by the Government.

A. MEIGHEN.

December 16, 1918.

Hon. C. W. Mitchell,
Provincial Secretary, Province of Alberta.

Dear Mr. Mitchell,—

Mr. Cory has communicated to me your request to be furnished with a copy of the memorandum of Sir

Reginald MacLeod and Mr. Benjamin, dated 13th July last, making certain proposals regarding oil development in Alberta, and northerly in the N. W. T. I am enclosing a copy of the memorandum herewith. I may say that no action has been taken on these proposals, and there are certain features of them, which in my judgment, could not be accepted.

Under present conditions the responsibility of course for the disposition of this subject is with this Department, but I would be glad to have, in an informal way, any general views you may care to express.

(Sgd.) ARTHUR MEIGHEN.

Dec. 6, 1918.

H. H. Rowatt, Esq.,
Controller of Mines,
Department of the Interior,
Ottawa.

Dear Sir,—

We wish you would inform us what effect, if any, the enclosed statement, which is copied from the Edmonton Bulletin of the 28th day of November, 1918, will have on the leases held by the Athabasca Oils, Ltd.,

(Sgd.) F. JOHNSTON.

Ottawa, Dec. 21, 1918.

Sir,—

I beg to acknowledge the receipt of your letter of the 6th instant, enclosing a copy of what would appear to be an extract from the "Edmonton Bulletin" of the 28th ultimo, in which the statement is made that for a consideration absolute rights to all petroleum properties in Alberta have been granted to a company, together with the right of expropriation.

In reply I beg to inform you that this Department has no knowledge of the grant referred to in this newspaper item. It would appear, however, that in case such a grant were made it could not effect rights which have already been disposed of by the Crown under the provision of the regulations, and which rights are still in good standing.

(Sgd.) H. H. ROWATT,
Controller.

Edmonton, Dec. 26, 1918.

Dear Mr. Meighen,—

I have had forwarded to me, by the Hon. Mr. Mitchell, a copy of a proposal b ythe Shell people for concessions in Northern Alberta.

While I should be very glad to induce capital to come in and develop our North Country, I am unalterably opposed to the granting of a large concession to any private individual or corporation in order to get them to do so.

(Sgd.) CHAS. STEWART.

Toronto Branch Canadian Mining Institute, Asks Questions.

The Canadian Mining Institute,
Toronto Branch,
January 14, 1919.

The Honourable, The Minister of the Interior,

Dear Sir,—A statement has recently been appearing in the Canadian newspapers and periodicals to the effect that the Shell Trading and Transportation Company, Limited, has applied for an exclusive concession of a large block of land in Alberta, on which to search for oil and possibly for other minerals, and that the Government of Canada is considering the application, and that a decision is expected soon.

Members of the Canadian Mining Institute, at a meeting held in Toronto on Saturday, January 11th, appointed us a committee to ask you whether such an application has been made to you or to the Government, of which you form a part, and if so what are the terms and conditions of the application.

Trusting that you will favour us with an early reply containing the information asked for, so that we may submit it to a meeting to be held on Friday the 17th instant.

(Signed) J. B. TYRRELL,
REGINALD E. HORE,
H. L. KERR.

Ottawa, January 16, 1919.

Dear Mr. Tyrrell,—I am in receipt of your favour of January 14th, with reference to certain statements that have been appearing in Canadian publications to the effect that the Shell Trading and Transportation Company, Limited, have applied, and are securing, an exclusive concession of a large block of land in Alberta. It is true that this company has submitted certain proposals to me, but they were refused. Another one of an entire different character has been submitted, but I cannot, in its present form, recommend its acceptance. The question has never been considered by council, largely because the question of the Natural Resources for the Western Provinces was up for consideration. I might add that it is not the policy, nor would it be reasonable, to expect this Department to submit the nature and terms of any application addressed to the Department before it had even been brought to the attention of the Ministers of the Government. I am sure you will agree with me in this.

A. MEIGHEN.

January 21, 1919.

The Honourable, The Minister of the Interior,

Dear Sir,—We beg to acknowledge receipt of your letter of the 16th of January, and to thank you for the information that the Shell Trading and Transportation Company, Limited, submitted certain proposals to you, which were refused, and that another proposal from the same company is now before you.

We would strongly urge you to submit the proposals of the company to the members of the Canadian Mining Institute, or at least to a committee appointed by the Institute, for consideration and criticism. The Institute is composed of mining men from all parts of Canada, men who are acquainted with the mineral resources of the country better than others, and who are vitally interested in the success of the mining industries. The great mass of technical knowledge, judgment and executive experience possessed by our members is at your disposal if you care to use it, and we would press upon you the advisability of making full use of it.

The Toronto members of the Institute will meet again on Saturday next, at which our Committee will report, and we should take it as a favour if you would send us a further reply by that date.

(Signed) J. B. TYRRELL,
REGINALD E. HORE,
H. L. KERR.

Ottawa, 23rd January, 1919.

Dear Mr. Tyrrell,—May I in Mr. Meighen's absence acknowledge your letter of January 21st, in which you suggest that the proposals of the Shell Trading and Transportation Company, Limited, should be submitted to the members of the Canadian Mining Institute for consideration and criticism? You are probably aware that a Minister of any Department would hardly be justified in submitting data of this character to the public before the data was even submitted to the members of Council and before the Government as a whole had an opportunity of giving them any consideration whatsoever. Mr. Meighen has not felt disposed to accept favourably any application from this company, and in consequence would not be in a position to place them in your hand. He will be absent from Ottawa for a week or two, but I felt that in his absence I should submit the statements above and as well add that I shall be very pleased to bring your further letter to his attention upon his return as well as a copy of this reply.

Toronto, Ont., January 28th, 1919.

The Honourable, The Minister of the Interior,

Dear Sir,—Re Shell Trading & Transportation Company, Limited.

We beg to acknowledge receipt of the letter of the 23rd inst. from your secretary, Mr. Mitchell.

On Saturday last the 25th inst., a meeting of the Toronto Branch of the Canadian Mining Institute was held here and the communications which have passed between us were submitted to that meeting. After some little discussion the following resolution was proposed and passed unanimously:—"That in communicating with the Minister of the Interior this Committee should accede to his position that the information sought should not be disclosed prior to its submission to Council, but that the Committee make clear to him that the position of the Canadian Mining Institute is that no contract be closed with any person ((except on the terms of the Regulations of the Department, after due publication thereof), except after being furnished with the opinion and analysis of the Institute upon the proposal about to be acted upon, and that the Committee emphasize to the Minister that any communication made by him to the committee shall be held as confidential until the proposal is disposed of by the Government."

This Institute is the natural guardian of the mining interests of the Dominion, and, on account of the knowledge and experience possessed by its members, is the proper judge of what should be done to promote the welfare of the mining industry, and of what should not be done to hinder and disturb it.

We would therefore urge you to accept the good offices of this Institute, and to decline to make a final extraordinary contract with the Shell Trading and Transportation Company, Limited, or with any similar Company, before you have submitted the proposed contract to this Institute for its approval.

(Signed) J. B. TYRRELL,
REGINALD E. HORE,
H. L. KERR.

Ottawa, Ont., January 31st, 1919.

Dear Mr. Tyrrell,—I am in receipt of your favour of January 28th, and have, as well, reviewed the previous correspondence.

There is no information I am at liberty to give in the matter, other than that contained in the letter of my Secretary of the 23rd inst. I fear the acceptance of the principle you advance, that any separate body is the natural guardian of the mining or other interests in the Dominion, in such a way as to involve submission of all matters affecting such interests to that body for approval, would, if generally applied, lead to far-reaching and unnecessary difficulties. The practice stated in my Secretary's letter is, I think, the invariable practice, from which I would not be justified in departing.

This letter is in no way an evidence of failure to appreciate the work of your institute. On the contrary, I would be glad at any time to give the closest attention to any representations submitted to me on behalf of that institute.

A. MEIGHEN.

Toronto, Ont., February 11th, 1919.

The Honourable, The Minister of Interior:

Dear Sir,—We beg to acknowledge receipt of your favour of January 31st, which was laid before a meeting of the Toronto members of the Canadian Mining Institute on Saturday last.

After full discussion, our Committee was asked to point out, in reply to your letter, that we have not asked that "all matters affecting such (mining) interests" should be referred to the Institute, but merely such matters as it is proposed to dispose of by special Order-in-Council, and without regard to the present Mining Regulations. We do ask that before your Government takes any extraordinary action in disposing of mining rights in public lands it should consult those who have made a life study of the mineral resources of Canada, and who are consequently the best men available to advise on the proper action to take in emergency legislation, and we have no hesitation in saying that all such men are included in the membership of this Institute.

The experience of the past few years has emphasized the value of technical knowledge in dealing with technical subjects. Other Governments, such as those of England and the United States, have made free use of technical advisers experienced in managing and financing mining enterprises, and even our own Government, in other lines of industry, has endeavoured to avail itself of technical advice, but in Mining, which is, next to agriculture, the greatest productive industry in the Dominion, the special knowledge and experience possessed by the men of our profession has not been effectively used.

As citizens of Canada we are anxious to promote the welfare of the Dominion along the line in which we have the fullest knowledge and widest experience. We offer you that knowledge and experience freely in order to place you on an equal footing with others with whom you may be called upon to deal, and who have already secured the best technical advice that they are able to employ.

We fear that the Government is likely to make a bad bargain for Canada if it does not use the special knowledge which the members of the Canadian Mining Institute possess, and we feel certain that the country will be in sympathy with us when it understands the position we have taken.

However, we sincerely hope that you will not allow the Government to be drawn into a secret bargain for the disposition of our mining lands, but that, if an offer or proposal should be made to you to take over mining rights on certain conditions that might seem to you to

be beneficial to the country at large, you will consult this Institute, or at least a Committee of its members, for whose knowledge and disinterestedness it can vouch, before you decide on any definite course of action which would bind the country.

J. B. TYRRELL,
REGINALD E. HORE.
H. N. KERR.

February 14th, 1919.

J. B. Tyrrell, Esq.
Toronto, Ontario.

Dear Sir,—Answering your letter of 11th February, I can only say that while departing in no way from the terms of my letter of 31st January, I quite concede the necessity of being advised with regard to technical subjects by those having technical knowledge, and the desirability as well of having the views of an organized body of professional men such as the Mining Institute, on questions relating to mining.

A. MEIGHEN.

(*Continued in Next Issue.*)

THE COAL MINES OF MACEDONIA.

In Macedonia coal in abundance is found in the valleys, appearing above the surface in many places. In the valley of Kossovo, in the neighborhood of Sibovtzi and Hade, along the Sitnitza River to the south-west of the town of Prishtina and around the village of Shashkovitza, in the northern extreme of the valley to the southwest of Prishtina, the coal deposits are extensive and valuable. The layers are usually about 4 3-10 ft. thick, with a northeasterly direction, almost horizontal, and showing above the ground, in some places, the distance of a kilometre. The Serbian railways were formerly supplied with coal from this particular region. In the basin-like valley of Prizrend coal also appears above the ground in layers averaging 2 ft. thick. The same condition is found in the narrow valley of Piscupshtina River in the environs of the villages of Lukovo, Perezi, and Berovo up to Mercybev in the Ochrida district. In these particular localities the surface layers average in thickness from ¾ of a foot to 4.35 ft., but this coal has only a local value, as it is far from the railway.

In the Pelagonian Basin coal is also found in the outskirts of Seletchka mountain towards Prilep, Snhodol, and Jivonia. On the Tcherna River, in the near distance, are layers from 3.25 to 6.75 ft. thick.

While peasants were recently digging a well near the village of Tzaridvor, in the Ressen Valley, coal was found 16 ft. from the surface: the vein, however, was but 2.25 ft. in thickness. Enough coal has already been found in this particular locality to supply the entire neighborhood, and in all probability there are other and greater deposits not yet located.

In the districts around Skopie coal is found in quantity and of very good quality, the veins being from 2 to 3 ft. in thickness. In the vicinity of Bardovtzi to the west of Skopie, the same kind of bituminous coal is found; as also in the neighborhood of Kitchevo.

Macedonia is undoubtedly rich in coal, but proper measures have never been taken to locate the deposits, or to work intelligently the veins. In the opinion of the United States Consul-General at Sofia, Macedonia under friendly rule will present a most promising field for the investment of capital and the development of its natural wealth.—Journal Royal Society of Arts.

Jones & Glassco, Reg'd., announce the appointment, as their Toronto representative, of Mr. P. M. Laing, recently Toronto branch manager of Herbert Morris Crane and Hoist Co. Mr. Laing has had broad experience in the engineering field, particularly as applied to transmission appliances and equipment, having been for a number of years connected with the Positive Clutch and Pulley Works, and also the Elmira Machinery and Transmission Co. This experience, combined with several years' architectural, engineering and industrial study of applications serving a wide clientele, has earned for him a highly respected connection both in Toronto and throughout Ontario. A call at the Toronto Office, located at 1203 Bank of Hamilton Building, will find Mr. Laing ready to respond to all enquiries of the well-known firm of Jones & Glassco, Reg'd., in the power transmission field.

Recently Toronto Branch Manager of Herbert Morris Crane & Hoist Co., now appointed Toronto Representative of Jones & Glassco (Reg'd), Power Transmission Specialists.

The Marquis of Queensberry has returned to London and reports having acquired large oil and other interests in the Peace River district.

Oil Notes

DRILLING FOR OIL IN NEW BRUNSWICK—ENCOURAGING RESULTS.

By courtesy of Mr. Matthew Lodge, of Moncton, the JOURNAL is able to corroborate the reported oil strike in New Brunswick referred to in our issue of the 18th of June (page 424.) Well No. 18 is in oil sand at a depth of 2,662 feet, the drill having penetrated some 40 feet of sand. The well flowed intermittently for some hours until it was shut in, the pressure sending the oil over the top of the derrick. The pressure blew the capping off, and considerable oil was lost.

The D'Arcy Exploration Company, a syndicate organized by the Anglo-Persian Pil Company for exploration purposes is now drilling three holes at different parts of the province, one at Port Elgin, one near Buctouche, and one at Coal Branch on the Canadian Government Railway. These are test wells, and it is the intention of the Exploration Company to explore the whole province in a similar manner.

The Syndicate also controls the large shale deposits in Albert & Westmorland counties, under option, and developments may be shortly anticipated. The work of exploration is under the direction of Dr. J. A. L. Henderson, who is the Technical Adviser of the New Brunswick Gas & Oilfields Co.

Those who are interested in the work of exploration express themselves as being very much encouraged in regard to the future oil situation in New Brunswick.

PROF. GWILLIM TO INVESTIGATE PEACE RIVER OIL PROSPECTS.

Blanket Concessions Objected to.

Vancouver, June 21.

Professor J. C. Gwillim, Professor of Mines at Queen's University, Kingston, has been retained by the Provincial Government for special duties under the provisions of the Coal and Petroleum Appropriation Act, passed at this year's session of the Provincial Legislature. This announcement was made by Hon. T. D. Pattullo, Minister of Lands.

Professor Gwillim will make a detailed investigation of certain lands in the Peace River section, upon which a reserve has been placed by the Department of Lands, for the purpose of testing the presence of oil in commercial quantities. It will be recalled that under the Act above named an appropriation of $50,000 was made to be expended by the Department of Lands to aid in the development of coal, petroleum and natural gas lying under Crown lands.

For some considerable time past Professor Gwillim has been retained at frequent intervals by the Dominion Government in connection with geological survey work, while he is well known as a mineralogist throughout Canada. He has also carried out very important missions for the Department of Natural Resources of the Canadian Pacific Railway Company.

A substantial "strike" in the Peace River country would advance the development of the northern central section of British Columbia very considerably. It will be realized, however, that the Province cannot afford to adopt a policy that creates a monopoly of any of its natural wealth, and no blanket concessions should be given. If oil is found it should be a valuable discovery; if it does not exist in commercial quantities the public will have reliable information as a protection against the wild-catter. So in any case the experimental legislation passed at this year's session has a double value.

THE DISCOVERY OF OIL IN DERBYSHIRE (ENG.)

In the British House of Commons, Mr. Kellaway (Deputy Minister of Munitions), in answer to a question, said he was glad to be able to inform the House that the borers had struck oil at Hardstoft. This was one of the areas being tested by Messrs. Pearson for the Ministry of Munitions, in connection with the Government's oil development scheme. The work was commenced in March, and on Tuesday of last week a depth of 3,075 feet had been reached, and traces of oil were found, and when the work was resumed the next morning the oil rose raidly to a height of 400 feet, and boring had to be stopped to ensure the oil being kept under control. The oil, he was advised, was of light gravity and of good quality, but the oil-bearing rock had been penetrated only a few inches. It would be a mistake to have any sanguine expectations on what had occurred, but the experts in charge of the works expressed themselves as satisfied with the prospects of this first serious effort to explore the oil possibilities of the country. He desired, on behalf of the Government, to congratulate Lord Cowdray and his staff, and Sir John Cadman and the petroleum executive, who had shown great energy and determination in connection with the work, in spite of sceptical criticism. So soon as he could, he would give full information as to the progress made.

At a later date Mr. Kellaway stated in the House that the oil at Hardstoft had reached a height of about 2,400 ft., and was rising at the rate of about 340 feet a day. Sir John Cadman, in the course of an interview, has remarked that the prospects were very good. Great credit is due to Dr. Veatch, the American geologist, Mr. Crandall, and Dr. Hackford, Lord Cowdray's chief chemist, all of whom reasoned from the geological and chemical aspect and advised a trial bore at Hardstoft. Though it was impossible even now to say whether oil was present in commercial quantities, the results showed that they were justified. "If this were in the United States," he continued, "there would be a 'boom,' wells would be sunk all over the place, and the map would be changing hands every day. Fortunately the Government controls drilling, and that cannot happen in this country. Meanwhile we have got to get a definite policy, and that is receiving Cabinet attention. Whose oil is it and how is it going to be worked? Those are questions the Cabinet is deciding. Meanwhile control has passed from the Ministry of Munitions to the Petroleum Executive, and work is proceeding on the lines already started. The oil is a true paraffin base oil of very high quality, with 10 per cent. petrol, 40 per cent. kerosene, and the balance is made up of lubricating oil, gas oil, and fuel oil. This sample has all the characteristics of high-grade crude. On the whole the results justify the investigation, and are a triumph for scientific reasoning."

Nova Scotia Notes

Inverness Coal & Railway Co.

The National Trust Company has given notice in the Supreme Court of Nova Scotia of its intention to foreclose the mortgage of the railway property of the Inverness Coal & Railway Company. Mr. John McGillivary, who was General Manager of the company for some years, and has latterly been acting as Receiver, has resigned, and the Court appointed the Eastern Trust Company as Receiver in his stead. The motion came on for directions as to procedure—whether it would be advisable to close the Inverness Colliery entirely, or to keep it pumped out until it was sold. The Chief Justice suggested that as important interests were involved the motion should be adjourned until July 29th, and that the Commissioner of Works and Mines of Nova Scotia and the Minister of Railways should be advised of the nature of the motion.

This is very serious news for the people of Inverness County, where the production of coal has shown a steady decline for many years past. The output of the Inverness Colliery for the past few years has been as follows:

	Gross Tons.
1915	245,749
1914	264,842
1913	293,447
1916	265,427
1917	202,719
1918 (approx.)	200,000

The mine workings, which are on the seven foot seam only, are entirely submarine. The face of the slope is about 7,000 feet from shore, and the dip off the measures is varyingly steep.

The Mabou Mine and the Port Hood Mine were flooded by inbreak of the sea some years ago, and Inverness is, and has been for some time, the only producing colliery in Inverness County, with the exception of a small output which is being obtained from crop workings above sea-level near Port Hood.

Inverness County coal, while not particularly suitable for metallurgical processes, is a favorite house coal, being free-burning, and when screened a clean bright coal suitable for steam raising and open grates.

It has never been demonstrated that the Port Hood mine is irrecoverably flooded, and that there is good reason to believe that the influx of water which closed the mine did not enter by a direct overhead break from the sea-floor, but was the accumulated result of percolations through the partings of the strata where they emerge from the sea between high and low water mark. In any case, the feasibility of again working the mine could only be tested out by a company well furnished with capital and equipment.

There is an undeveloped land area of coal north of Inverness, known as the Ste. Rose areas, which might be capable of commercial operation if they were connected with the railway, and the purchase of the properties were effected at a reasonable price.

The only prospect for the coal industry in Inverness County as a reasonable success would be if one financially strong company were to control and operate the whole of the coal properties in that county, namely, Mabou, Port Hood, Inverness and Ste. Rose, along with ownership and control of the Inverness Railway, which it is difficult to think of as a paying proposition unless it were used as a combined passenger and coal-freight road.

Acadia Coal Co.

Coal production for the first half of 1919 from this company's collieries is expected to reach 190,000 tons, which compares with 111,063 tons for the first half of 1918.

Dominion Coal Co.

A new shaft is being sunk between Dominion No. 1 Colliery and No. 2 Colliery. It is reported to be down 210 feet, and at 227 feet it is expected will strike the Harbour Seam. The Phalen Seam, to which the shaft will be eventually sunk is expected to be met at about 900 feet. The shaft is intended to be used for the lowering and raising of the workmen. It will also enable economies and improvements in the ventilation system.
and will shorten the walk to work very considerably.

It is also reported that the Dominion Coal Company is putting down test diamond drill holes with a view to re-opening the Gardiner (or Lorway) Seam at the Gardiner Mines, where it was formerly worked quite extensively by coal-cutters on the longwall system previous to 1893. The coal in this seam is known to be of good quality, particularly adapted for steam-raising and steamship bunkers. The area of this seam underlies and extends beyond the land-area of the Harbour and Phalen Seams, which have been worked above it, and it is therefore a virgin seam—or practically so—of greater area than any other of the seams worked by the Dominion Coal Company under the land area of the Glace Bay Basin. The seam is about 4 ft. 6 ins. in thickness.

Nova Scotia Steel Co.

Good results have been obtained in the Jubilee Colliery by the use of an electric locomotive underground operated by storage batteries.

FERNIE STRIKERS ASK FOR COMMISSION:

Fernie, June 20.

After nearly four week of strike in coal mines here and throughout District 18 of the United Mine Workers of America with apparently no outward attempt towards settlement, miners' headquarters have applied to Premier Oliver for appointment of a commission to investigate wages and working conditions within the mines, and have undertaken that upon this request being granted the strike will be declared off within twenty-four hours.

Similar representations have been made to the Dominion Government through Dr. Donnell, the local member, and an extract from a communication received from him yesterday read as follows: "Federal Government has no jurisdiction whatever over working conditions in the mines of the Crow's Nest Pass Coal Company. This jurisdiction is strictly in the hands of the Provincial Government at Victoria."

A telegram was received last night from Premier Oliver stating that the Provincial Government had the local situation in hand and that further information as to a proposed offer for settlement by the Ministers would be forthcoming shortly.

Special Correspondence

NORTHERN ONTARIO.

Porcupine V. N. T.

Arrangements have been made to resume work at the Porcupine V. N. T. just as soon as labor conditions appear to be satisfactory, an official of the company told the "Journal." Reports that work was to resume immediately, it was stated were premature in that there was no intention of starting up until the handicap of endeavoring to operate under the burden of industrial unrest gave reasonable evidence of being eliminated or at least minimized.

The property has been developed to a depth of 600 feet. At the 400-ft. level, a large tonnage of commercial ore was opened up, while at the 600-ft. level a large body of ore was encountered but was not developed extensively prior to closing down.

Although the Porcupine V. N. T. has very little cash in its treasury yet of the $3,000,000 authorized capital, some $750,000 remains in the treasury in the form of unissued shares. This, in due course, will be available for construction purposes, and should suffice to install a new large mill, in addition to the present mill, with a daily capacity of about 100 tons.

Keeley Mine, South Lorrain.

Work is proceeding at the Keeley mine, in South Lorrain, the operators being apparently confident of gradually being able to enlarge the scope of work profitably.

Major J. McIntosh Bell, representing the present control, paid a visit to the property during the closing week of June.

Silver Discovery in N. Manitoba Not Confirmed.

The reported discovery of silver at mile 235 on the Hudson Bay Railroad north from The Pas, in Northern Manitoba, has been found to have been unreliable, the truth of the matter being that a calcite vein was discovered in which no mineralization appeared.

Kirkland Lake Gold Mines.

In an interview with Frank L. Culver, president of the company, it was learned that the physical condition of the Kirkland Lake Gold Mines is exceedingly strong. Although the mine is now closed down on account of the labor strike, yet the bins are full of ore, a dump containing 8,000 tons of ore is available for milling, stopes at the 300-ft. level are full of ore, and new stopes have been opened up in various other places along the 400-ft. and other levels.

Results recently met with at the 600-ft. level have been exceedingly satisfactory, Mr. Culver told the writers. The fact at the point where operations have been temporarily stopped, shows a width of 15 feet of ore containing average gold values of $55 to the ton. Parallelling this ore body in close proximity is another three feet of ore containing average values of $28 in the present face. At the 700-ft. level the heavy mineralization has been found to continue and some very rich ore has recently been opened up at that depth. This is not only the deepest working in the Kirkland Lake Gold Mines, but is the deepest point to which operations have been carried in the Kirkland Lake camp. With the resumption of work in due course it would be reasonable to look for a long period of prosperity for the mine.

In the construction of the macadam road from Swastika to the centre of activity in the Kirkland Lake district the labor strike resulted in a curtailment of work for a day or two, after which the men returned to work. The road is being built by the Ontario government.

Coleman District.

Financial arrangements are being made to resume work at the old Hylands property, situated in Southeast Coleman.

The old Mohawk property in Western Coleman, situated on the west side of Mud Lake has been reopened. The property is controlled by Petrolia interests, with whom was formerly associated the late William Gleason.

A good deal of work was done on the property in the early days of Cobalt, some smaltite and bloom being encountered, but without commercial silver values.

Elk Lake Growing in Importance.

Mining men recently returned from Elk Lake report more than usual activity in that district. The increasing activity in the Gowganda field, the amount of work being done in the Fort Matachewan gold area, and the large force of men engaged in the construction of a macadam road from Elk Lake to Gowganda all combine to make Elk Lake unusually busy.

Now that the government has actually begun the construction of the macadam road to the Gowganda field, Elk Lake appears to be reasonably assured of being the distributing point for the various mining districts, including the Maple Mountain, McKenzie Lake and Gowganda silver areas, as well as the Fort Matachewan gold area.

Purchase of Gold-Mine Shares Recommended.

That the present period of depression affords an excellent opportunity to purchase shares in some of the leading gold mining companies of Northern Ontario, is the opinion expressed by one of the most successful mining men in this district. One authority pointed out to the writer that for upwards of four years the economic conditions throughout the world had been working to the disadvantage of the gold mining industry, and had resulted in the depreciation of the quotations for shares in gold mining companies. War and gold mining, he said, never go hand in hand, whereas peace and gold mining do.

The signing of peace, and the probability of industrial unrest in this country being short lived seems to mark the turning point, and apart from the usual fluctuations the general trend in the quoted value of the gold mines is expected to record a more or less steady upward swing. Such is the expressed opinion of one individual, of course, but it is the voice of a man whose actions in the past appear to have been guided by wise judgment.

Dome Mines—Dividend Possibilities.

With the mill running at about half capacity, the Dome Mine is treating about 650 tons of ore daily and producing about $120,000 monthly, it is understood. This is an indication that mill heads are running in the neighborhood of $6 to the ton. For the time being a profit of about $2 per ton is indicated, or at the rate of about $40,000 a month, which is at the rate of not far under twelve per cent. annually on the company's issued capital.

When the mill is brought up to full capacity later

on in the year, the grade of the ore will probably be reduced to about $5 or $5.10 per ton. Also, accordingly as the tonnage is increased the cost of producing will decrease, and conservative mining men now look forward to a net profit of $2 per ton on all ore treated, and which would indicate $2,700 net profit daily, or at the rate of $985,500 annually, with the mill running at full capacity of 1,350 tons daily.

This would make it possible to resume dividend disbursements at the rate of twenty per cent. annually, and leave about $185,500 to be carried to sulplus each year. It appears to be the consensus that when President Bache stated that dividends would be resumed in January next, the declaration was based on sound calculations.

New Gold Find Reported in Fort Matachewan Area.

Another promising discovery of gold is reported to have been made on a claim situated in the neighborhood of the Big Bend waterfall in the Fort Matachewan gold area. According to reliable information, samples taken from the surface of a large dyke containing heavy iron sulphides show substantial gold values.

Tough-Oakes Merger.

The merging of the Tough-Oakes with the Burnside and the Aladdin-Cobalt companies is now considered accomplished, but for the time being the syndicate is not included in the merger, a hitch having occurred in negotiations.

Mining interests in Buffalo have been quietly accumulating shares in the Sylvanite company, and two factions appear to be making a bid for control. The English interests favor the consummation of the merger along the lines originally proposed while the Buffalo interests appear to favor a change in terms. The situation is one that might be straightened out satisfactorily at more or less short notice, yet at the same time it might reasonably result in prolonged negotiations.

Kerr Lake May Production.

During the month of May the Kerr Lake mine produced 105,582 ounces of silver, as compared with 104,477 ounces during the preceding month. The May output was the highest for any one month since January.

Despite the fact that production has decreased about fifty per cent. as compared with a year ago, the Kerr Lake is still yielding close to one and a quarter million ounces annually. For the first five months of the current year the output amounted to 528,318 ounces as compared with 1,085,793 ounces for the corresponding period of 1918. The quotations for silver have averaged about 10 cents per ounce above the last year period and has to some extent made up for the decline in production.

Silver-Ore Find at Skead Misleading.

The discovery of high grade silver ore on an old dump near the east boundary of the township of Skead has been found to be misleading, after careful investigation has been made. It is evident from the nature of the vein on which a test pit had been sunk that the high grade silver ore lying on the dump did not come from the vein. It is accordingly concluded it must have been carried there many years ago for "salting" purposes.

Promising Gold Find Reported on Line of Algoma Central.

A promising discovery of gold is reported to have been on a claim along the Algoma Central Railway, by Thos. Powell of Haileybury, and G. Craig of Cobalt. The find is stated to have been made near mile 61 of the A. C. R.

Kirkland Lake Properties Likely to Remain Closed Until Autumn by Wages Dispute.

The mines in the Kirkland Lake mining area, kept in operations by shareholders during the war on the expectation that the cessation of fighting would bring almost immediate prosperity to the gold mines, have closed down indefinitely. The reason for the curtailment is the fact that some 500 men, drawing a monthly pay-roll of approximately $75,000, or at the rate of $900,000 a year, have gone out on strike, following the refusal of the companies to accede to the demands of the Miners Union.

For the two years, 1917 and 1918, the mines of Kirkland Lake were able to pay only a total of $100,000 in dividends. This was paid by one concern, the Lake Shore. At the numerous other mines a stream of money was being paid out to the mine workers, each year representing a large aggregate loss to the shareholders of the various companies. The present situation is, therefore, but the inevitable climax. The mines are closed, and with them goes the source of nearly a million dollar annual pay-roll to the mine workers of Northern Ontario.

Thanks to the boundless confidence of those in control of the mines of Kirkland Lake, the camp grew more rapidly during the past two years than did any other mining camp in the Dominion. The results achieved were little short of marvellous, and there can be no question but that the shareholders will in due course reap the reward of their enterprise and optimism.

It would perhaps be folly to attempt to estimate the duration of the strike. However, after accepting the opinion of certain of the mining men that curtailment may continue until Fall, there are numerous factors that should offer encouragement to shareholders. First, is the fact that costs are abnormally high and profits reduced to a minimum under the existing conditions, whereas Fall may reasonably be expected to bring a considerable reduction in costs and a corresponding increase in profits. In the meantime, also, the construction of a macadam road from Swastika to the centre of activity should then be completed, thus reducing the cost of transportation. In one sense of the word, the shareholders will have saved money through the mines being closed, the only drawback being the more or less short delay.

For instance, provided a mine were able to produce $50,000 a month at a cost of say $45,000 a month under present conditions, as compared with a production of $50,000 at a cost of $30,000 a month a few months hence, it would indeed appear to be good business from the shareholders' points of view were the latter course to be followed. At the recent formal opening of the Haileybury Mining School, the Minister of Education for Ontario, Hon. H. J. Cody, made the remark that a large percentage of the mine managers of this country were educated in schools far removed from the mining centres, and that a great many came from abroad.

The statement was correct in every particular. At the present time the majority of the mine managers of this part of Northern Ontario are citizens of the United States. These men have had the advantages of technical education in their native land, and, in coming to Canada have become an asset to this country. The Dominion as a whole should be proud of having possessed the merit to induce such a body of men to devote their lives to the development of the great mineral resources of the Dominion. At the same time Canada should be more self-sustaining in the management of her mines, and every opportunity should be seized to further technical education in this country.

BRITISH COLUMBIA.

Moose Property is Bonded by O. B. Bush.

The Moose property in the Alice Arm district has been bonded by O. B. Bush, of Stewart, from Don Cameron, for $150,000. Work will probably start about July 15th. The Moose group adjoins the Climax up the hill, and is comprised of six claims. The vein is of pyritized quartz, occurring in what is locally termed the "silver belt." Some of the ore, which has been exposed by open cutting in several places, is very high-grade, and can be shipped when the railroad is completed.

Slocan District.

The Gold Cure Mining Company, seven claims, South Fork, Kaslo Creek, Slocan. Will resume 1st July. Company incorporated 1917, and good camp erected. Several veins from which high grade ore shipped in early days. Gold Cure adjoins the Gibson on N. and S. Gibson has been under development for the past two years. Operations are proceeding on Index, which is in the same neighborhood. Silver Bell, from which a car of ore netting $7,000, recently shipped. Cork Province also active. Motor trucks will be used to haul ore from above properties to Trail, a distance of eight miles.

BUY YOUR COAL NOW.

A survey of the coal situation by the Commission of Conservation proves that a coal shortage next winter, and possibly next autumn, is almost a certainty.

During the week ended May 24th, the output of anthracite was only 1,679,000 tons. This production is 65,000 tons LESS than the week preceding, and is 326,000 tons less than the corresponding week in 1918. While the production is falling off, retail dealers in the United States continue to be deluged with orders from customers who are insistent upon prompt deliveries.

The shortage is due to a number of causes, not the least of which is the migration of tens of thousands of Jugo-Slavs, Czecho-Slavs, Hungarians, Poles and other Europeans who are returning to Europe.

In addition, if there is such a serious shortage, we may confidently expect much higher prices for anthracite. Therefore, the Commission of Conservation advises consumers to purchase their winter supply of hard coal at the earliest possible date.

Precious Metal Mining in Northern Ontario

Gold Production Will Shortly Exceed Silver Output.

By J. A. McRAE.

The first half of the current year draws to a close a period of re-adjustment at the gold mines of this country, and marks a slight increase in output as compared with the last six months of 1918. The added financial burden imposed by the war, involving every kind of material used in connection with mining, including labor, has proved something that will not disappear with the declaration of peace. Just as the economic strain increased during the whole of 1917 and a large part of 1918, so will it require the whole of 1919 and a part of 1920 to relax. At least such is the calculation of some of those who have given the matter a good deal of thought, taking into consideration the trend of prices of material and the status of labor.

The output of gold from northern Ontario during the first six months of 1919 may be estimated at approximately $4,000,000. A labor strike at Kirkland Lake, calling the mine workers from their work about the middle of June, has served to eliminate the Kirkland Lake camp from the producing list for the time being. This is expected to be only temporary, and within a reasonably short time the industry in that rapidly growing camp may be expected to again assume large proportions. Meantime, in the Porcupine field the Hollinger Consolidated has recently succeeded in increasing its output, as also has the McIntyre-Porcupine. Also, the Dome Mines has resumed production, the output at the time of writing being at the rate of about $100,000 every thirty days. The present indications are that the last half of 1919 will see the gold output reach upwards of $5,000,000, and this added to the $4,000,000 produced during the six months just ended, will probably exceed any previous year in Ontario's history, with the possible exception of 1916, when $9,397,588 was produced.

At the rate the economic situation is re-adjusting itself to the advantage of the gold mines, the beginning of 1920 will probably see the gold mines producing at the rate of $1,000,000 every thirty days. Indeed, taking into full consideration the large number of mines which are equipped with first class reduction plants and with substantial ore reserves to draw from, it would not be surprising were production to reach $1,250,000 monthly during the year 1920. It is evident, therefore, that the silver mining areas and the gold mining areas of Northern Ontario will be healthy rivals for the distinguished position of being the leading precious-metal producing districts of the Dominion. At the moment, after taking into consideration all the visible evidence, it would be next to impossible to intelligently venture an opinion as to which industry, gold or silver, will head the list in 1920. One thing seems certain, however, and that is that unless new silver-producing mines or areas are opened up within the next year or so, the silver-mining industry will take second place to gold-mining. The reason for this is the great extent of the area in which gold is being discovered, and the enormous gold in proven ore at the mines, amounting to about four times the amount of silver ore in sight.

During the first half of 1919 there were only three important gold producers, namely: the Hollinger, McIntyre, and Lake Shore. Small producers includ-

ed the Teck-Hughes, Dome Lake and the Davidson. Recently, however, the Teck-Hughes has increased its rate of output, the Dome Mines is producing once more, and the new mill of the Kirkland Lake Gold Mines was started up.

From present indications, based on the assumption that the labor strike at Kirkland Lake will soon run its course, there may be about thirteen gold mines producing bullion by the end of the current year.

The following is the position of the mines in the Porcupine field, showing the capactiy of each plant and the extent to which the equipment is being utilized:

Mine.	Daily Capacity in tons.	Present Rate.
Hollinger Consolidated ...	2,800	Three-quarters.
Dome Mines	1,350	Half.
McIntyre-Porcupine	600	Full.
Schumacher #	200	Closed.
Porcupine Crown #	140	Closed.
Porcupine V. N. T. #	120	Closed.
Dome Lake	100	Three-quarters.
Davidson	35	Full.
Newray	30	Closed.

Note.—Those marked thus #, likely to re-open during the last half of this year.

The following mines in the Kirkland Lake and the Boston Creek districts, although handicapped now by the labor strike, may be expected to be producing at full capacity before the end of the current year:—

Mine.	Daily Capacity in tons.
Kirkland Lake	150
Tough-Oakes	140
Teck-Hughes	100
Lake Shore	70
Miller Independence	40

Among the properties where small milling plants are still in idleness with not much probability of reopening for some few months, might be mentioned the following: Newray, Burnside, Patricio, Croesus, Hill Gold Mines, Huronia and Associated Goldfields.

In summarizing the situation, it appears quite reasonable to expect to see thirteen out of a total of twenty mills at the gold mines of Northern Ontario in full operation by the end of 1919. This compares with only five in operation at the beginning of the year.

The unsatisfactory labor supply and the abnormal cost of material has been solely responsible for the majority of the mills being idle. Both of these factors show marked improvement as reflected in the greater number of mills now in operation and the general preparations to resume production at every one of the important mines.

BRITISH COLUMBIA MINE RESCUE STATIONS INSTALL U. S. BUREAU OF MINES TYPE OF BREATHING APPARATUS.

The Minister of Mines of British Columbia has received an enquiry from the State of Virginia as to the performance of the "Gibbs" type of breathing apparatus. In reply Mr. Sloan stated that six sets of the Gibbs apparatus have been added to the equipment of the Government mine rescue station at Fernie and six more have been ordered for the Nanaimo station. The Minister points out that tests of the apparatus have been conducted at Nanaimo which have proved that it is much superior to the older types of apparatus.

IN THE MATTER OF

The German Development Company, Limited

SEALED TENDERS will be received addressed to **G. T. Clarkson, 15 Wellington Street West, Toronto,** and marked "Tenders re German Development Company, Limited," up to Twelve o'clock noon of **Wednesday, July 16th, 1919,** for the purchase of the following assets of the German Development Company, Limited, namely:

Parcel No. 1.—68,000 shares, of a par value of $1.00 each, of the Capital Stock of the Miller Lake and Everett Mines, Limited, the owner of certain mining claims in the Miller Lake District in Northern Ontario.

Parcel No. 2.—Mining Claim being the S.E. ¼ of the N. ½ of Lot 9 in the 5th Concession in the Township of James, Timagami Forest Reserve, containing 39-⅝ acres, more or less, covered by Mining Lease No. 3818, from the Province of Ontario.

Parcel No. 3.—Mining Claims T. C. 453, 454, 455, 456, and 457, and M.E. 723, 522 and 523, and G.G. in the Township of Halton, District of Nipissing, containing 157 2-5 acres, more or less, covered by Mining Lease No. 3875, from the Province of Ontario.

Parcel No. 4.—Mining Claim being the N.E. ¼ of the N. ½ of Lot 12, in the 4th Concession in the Township of James, District of Nipissing, containing 4¾ acres, more or less, covered by Mining Lease No. 3878, from the Province of Ontario.

Tenders for Parcel No. 1 must be at a rate per share for the shares offered, and the tenderers must agree to purchase any lesser number of shares than 68,000, but not less than 25,000, if the undersigned shall so require.

As to Parcels Nos. 2, 3 and 4, the purchasers shall search the title at their own expense, and purchasers shall have ten days in which to make any objection or requisition as to title. In case any purchaser shall within such time make any objection or requisition which the undersigned shall be unable or unwilling to remove or answer the undersigned shall be at liberty to rescind the sale, in which case the purchaser shall be entitled only to a return of the deposit money without interest, costs or compensation.

Terms of Sale:—25 per cent cash and the balance within thirty days.

Each purchaser at the time of sale must sign an agreement for the completion of the purchase.

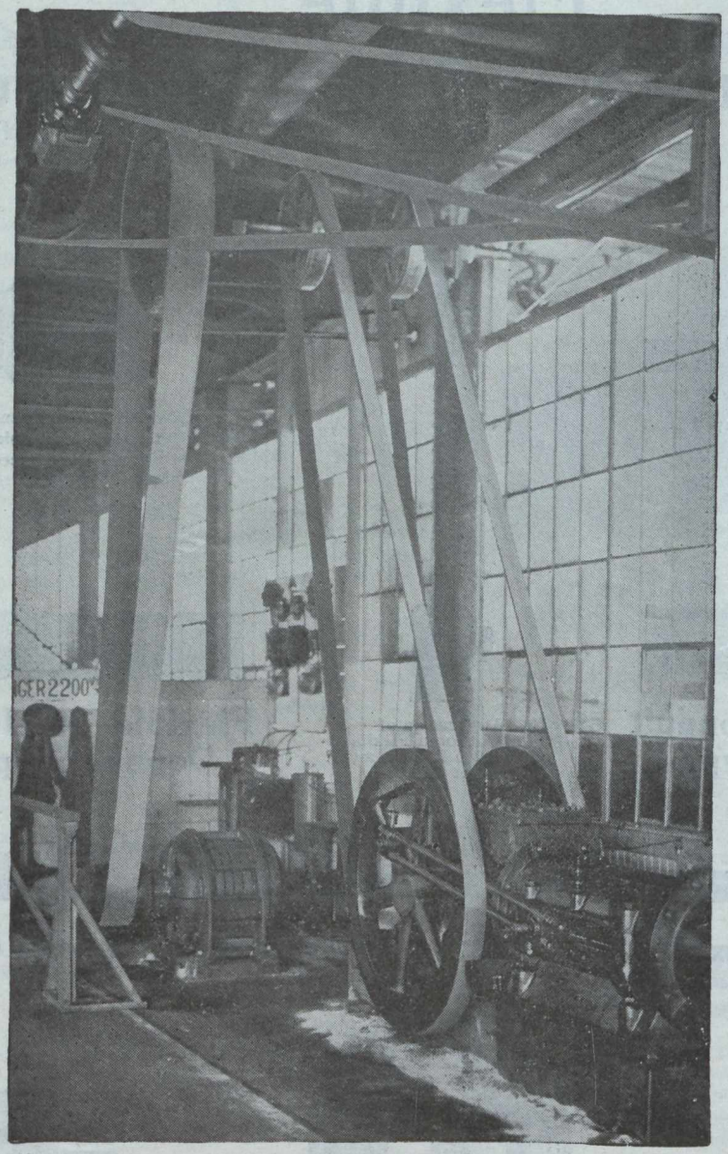
Tenders will be opened at the office of the undersigned, 15 Wellington Street, West, Toronto, at Twelve o'clock noon of Thursday, July 17th, 1919, when all tenderers are requested to be present.

Tenders must be accompanied by a marked cheque payable to the undersigned for 10% of the amount of the tender, which will be returned if the tender be not accepted. The highest or any tender not necessarily accepted.

For further particulars and conditions of sale application may be made to the undersigned.

Dated at Toronto this 9th day of June, 1919.

G. T. CLARKSON,
Controller and Manager of
The German Development
Company, Limited



TRUSSED CONCRETE STEEL CO. Limited
WALKERVILLE, ONTARIO

The Trussed Concrete Steel Co. Limited of Walkerville, Ontario, is one of the foremost reinforced concrete concerns in Canada, as well as the largest Canadian manufactures of steel sash and steel casement windows. Their opinion of Goodyear Extra Power Belting is pithily expressed in this letter from Mr. S. Farrell, purchasing agent.

"We have been users of different types of belts for quite some time, but we have no belt which will stand wear as long as the Goodyear Extra Power Belting which we purchased from you some time ago. The photograph shows your 'Extra Power' belt in use on an air compressor. It has been in use on same for some time and is still as good as new, while other belts previously used lasted only two weeks. We are gradually replacing all our belts with Extra Power."

GOODYEAR
MADE IN CANADA

The Canadian Miners' Buying Directory.

Acetylene Gas:
Canada Carbide Company, Ltd.

Air Hoists:
Canadian Ingersoll-Rand Co. Ltd. Montreal, Que.

Amalgamators:
Northern Canada Supply Co.
Mine and Smelter Supply Co.

Antimony:
Canada Metal Co., Ltd.

Assayers and Chemists:
Milton L. Hersey Co., Ltd.
Campbell & Deyell, Cobalt.
Ledoux & Co., 99 John St,. New York .
Thos. Heys & Son.
C. L. Constant Co.

Assayers' and Chemists' Supplies:
C. L. Berger & Sons, 37 William St., Boston, Mass.
Lymans, Ltd., Montreal, Que.
Stanley W. F. & Co., Ltd.
Mine & Smelter Supply Co.

Brakeshoes:
Can. Brakeshoe Co., Ltd.

Babbit Metals:
Canada Metal Co., Ltd.
Hcyt Metal Co.

Balances—Heusser:
Mine & Smelter Supply Co.

Balls:
Canadian Foundries and Forgings, Ltd.
Canadian Steel Foundries, Ltd.
Hull Iron & Steel Foundries Ltd.

Ball Mills:
Mine & Smelter Supply Co.
Fraser & Chalmers of Canada, Ltd.

Belting—Leather, Rubber and Cotton:
Northern Canada Supply Co
Jones & Glasco.

Blasting Batteries and Supplies:
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
Northern Canada Supply Co.
Canadian Explosives, Ltd.

Blowers:
MacGovern & Co., Inc.
Northern Canada Supply Co.
Fraser & Chalmers of Canada, Ltd.

Boilers:
Northern Canada Supply Co.
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
Marsh Engineering Works.
MacGovern & Co., Inc.
R. T. Gilman & Co.
Fraser & Chalmers of Canada, Ltd.
The John Inglis Company.

Boxes, Cable Junction:
Standard Underground Cable Co. of Canada, Ltd.
Northern Electric Co., Ltd.,

Buckets:
Canadian Ingersoll Rand Co., Sherbrooke, Que.
Hendrick Mfg. Co.
M. Beatty & Sons, Ltd.
Marsh Engineering Works. .....
Northern Canada Supply Co.
Fraser & Chalmers of Canada, Ltd.

Cable—Aerial and Underground:
Northern Canada Supply Co.
Standard Underground Cable Co. of Canada, Ltd.

Cableways:
M. Beatty & Sons, Ltd.
Fraser & Chalmers of Canada, Ltd.

Cages:
Canadian Ingersoll Rand Co., Sherbrooke, Que.
Northern Canada Supply Co.
Fraser & Chalmers of Canada, Ltd.

Cables—Wire:
Standard Underground Cable Co. of Canada, Ltd.
Canada Wire & Cable Co., Ltd.
Northern Electric Co., Ltd.,

Car Dumps:
Sullivan Machinery Co.
R. T. Gilman & Co.

Carbide:
Canada Carbide Company, Ltd.

Cars:
Canadian Foundries & Forgings, Ltd.
Canadian Ingersoll Rand Co., Sherbrooke, Que.
MacKinnon Steel Co., Ltd.
Northern Canada Supply Co.
Marsh Engineering Works.
Mine & Smelter Supply Co.
Fraser & Chalmers of Canada, Ltd.

Car Wheels and Axles:
Canadian Car Foundry Co., Ltd.
Marsh Engineering Works, Ltd.

Castings (Iron & Steel):
Canadian Steel Foundries, Ltd.

Cement Machinery:
Northern Canada Supply Co.
Hadfields Ltd.
Fraser & Chalmers of Canada, Ltd.

Chains:
Jones & Glasco.
Northern Canada Supply Co.

Chemical Apparatus:
Mine & Smelter Supply Co.

Chemists:
Canadian Laboratories.
Campbell & Deyell.
Thos. Heyes & Sons.
Milton Hersey Co.
Ledoux & Co.

Classifiers:
niMe & Smelter Supply Co.

Coal:
Dominion Coal Co.
Nova Scotia Steel & Coal Co.

Coal Cutters:
Sullivan Machinery Co.
Can. Ingersoll-Rand Co., Ltd., Montreal, Que.

Coal Mining Explosives:
Canadian Explosives, Ltd.

Coal Mining Machinery:
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
Sullivan Machinery Co.
Marsh Engineering Works.
Hadfields, Ltd.
Fraser & Chalmers of Canada, Ltd.

Coal Pick Machines:
Sullivan Machinery Co.

Compressors—Air:
Smart-Turner Machine Co.
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
Northern Canada Supply Co.
MacGovern & Co., Inc.
R. T. Gilman & Co.
Fraser & Chalmers of Canada, Ltd.

Concrete Mixers:
Northern Canada Supply Co.
Gould, Shapley & Muir Co., Ltd.
MacGovern & Co., Inc.

Condensers:
Smart -Turner Machine Co.
Northern Canada Supply Co.
MacGovern & Co., Inc.
Fraser & Chalmers of Canada, Ltd.

Concentrating Tables:
Mine & Smelter Co.

Converters:
Northern Canada Supply Co.
MacGovern & Co., Inc.

Conveyor—Trough—Belt:
Hendrick Mfg. Co.

Cranes:
Smart-Turner Machine Co.
M. Beatty & Sons, Ltd.

Crane Ropes:
Allan, Whyte & Co.

Crucibles:
Mine & Smelter Supply Co.

Crushers:
Canadian Steel Foundries, Ltd.
Lymans, Ltd.
Mussens, Limited.
Mine & Smelter Supply Co.
Hadfields Ltd.
Fraser & Chalmers of Canada, Ltd.

Derricks:
Smart-Turner Machine Co.
M. Beatty & Sons, Ltd.
Marsh Engineering Works.
R. T. Gilman & Co.

Diamond Drill Contractors:
Diamond Drill Contracting Co.
E. J. Longyear Company.
Smith & Travers.
Sullivan Machinery Co.

Dredger Pins:
Canadian Steel Foundries, Ltd.
Hadfields Ltd.

Dredging Machinery:
Canadian Steel Foundries, Ltd.
M. Beatty & Sons.
Hadfields Ltd.

Dredging Ropes:
Allan, Whyte & Co.
R. T. Gilman & Co.

Drills, Air and Hammer: ... ...
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
Sullivan Machinery Co.
Northern Canada Supply Co.
Canadian Rock Drill Co.

Drills—Core:
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
E. J. Longyear Company.
Standard Diamond Drill Co.
Sullivan Machinery Co.

Drills—Diamond:
Sullivan Machinery Co.
Northern Canada Supply Co.
E. J. Longyear Company.

Drill Steel—Mining:
Hadfields Ltd.

Drill Steel Sharpeners:
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
Northern Canada Supply Co.
Sullivan Machinery Co.
Canadian Rock Drill Co.

Drills—Electric:
Northern Electric Co., Ltd.,

Drills—High Speed and Carbon:
Hadfields Ltd.

Dynamite:
Canadian Explosives.
Northern Canada Supply Co.

Ejectors:
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
Northern Canada Supply Co.

Elevators:
M. Beatty & Sons.
Northern Canada Supply Co.
Hadfields Ltd.
Fraser & Chalmers of Canada, Ltd.

Engineering Instruments:
C. L. Berger & Sons.

Engines—Automatic:
Smart-Turner Machine Co.
Fraser & Chalmers of Canada, Ltd.

Engines—Gas and Gasoline:
Alex. Fleck.
Smart-Turner Machine Co.
Gould, Shapley & Muir Co., Ltd.
MacGovern & Co., Inc.

Engines—Haulage:
Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
Marsh Engineering Works.
Fraser & Chalmers of Canada, Ltd.

Engines—Marine:
Smart-Turner Machine Co.
MacGovern & Co., Inc.

Engines—Steam:
Smart-Turner Machine Co.
M. Beatty & Sons.
R. T. Gilman & Co.
MacGovern & Co., Inc.
Fraser & Chalmers of Canada, Ltd.

Flood Lamps:
Northern Electric Co., Ltd.,

Forges:
Northern Canada Supply Co., Ltd.

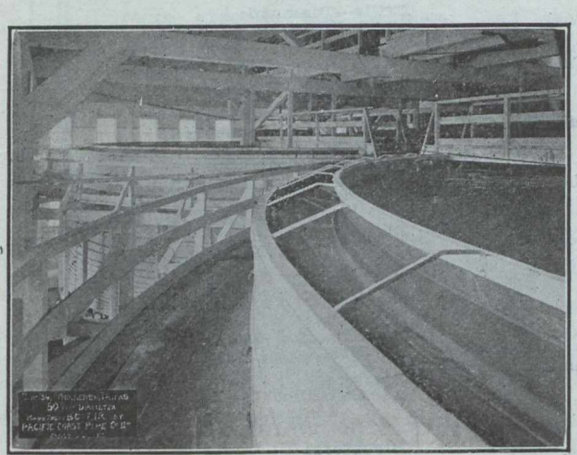
Forging:
M. Beatty & Sons.
Canadian Foundries and Forgings, Ltd.
Smart-Turner Machine Co.
Hadfields Ltd.
Fraser & Chalmers of Canada, Ltd.

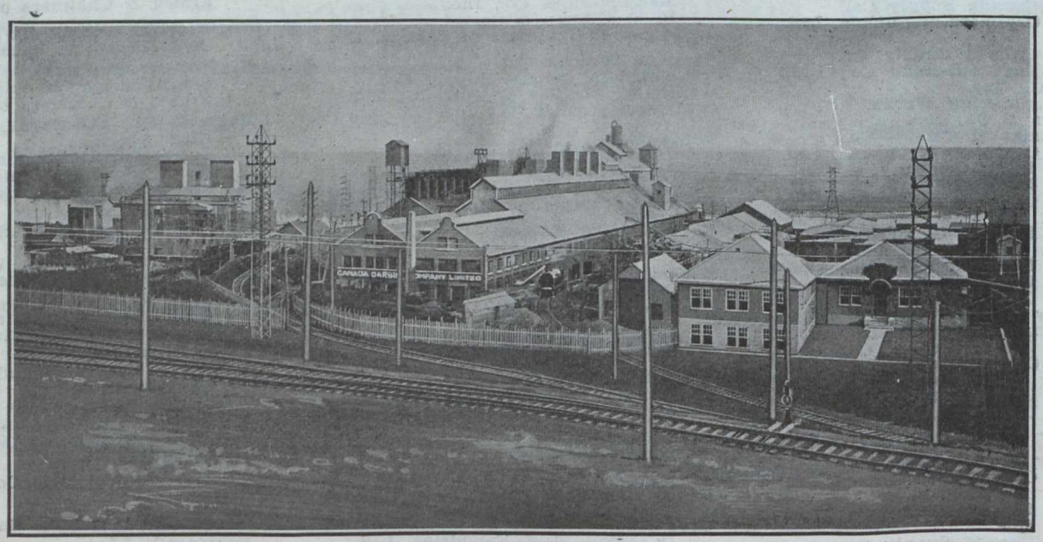
Frogs:
Canadian Steel Foundries, Ltd.

Furnaces—Assay:
Lymans, Ltd.
Mine & Smelter Supply Co.

Fuse:
Canadian Explosives.
Northern Canada Supply Co.

Gears, Machine Cut:
Canadian Steel Foundries, Ltd.
The Hamilton Gear & Machine Co.
Fraser & Chalmers of Canada, Ltd.





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Gears:
Canadian Steel Foundries, Ltd.
Smart-Turner Machine Co.
Northern Canada Supply Co.
The Hamilton Gear & Machine Co.
Fraser & Chalmers of Canada, Ltd.

Hammer Rock Drills:
Mussens, Limited.

Hangers&Cable:
Standard Undeground Cable Co. of Canada, Ltd.

High Speed Steel:
Hadfields Ltd.

High Speed Steel Twist Drills:
Northern Canada Supply Co.

Hoists—Air, Electric and Steam:
Can. Ingersoll-Rand Co., Ltd., Montreal, Que.
Jones & Glassco.
M. Beatty & Sons.
Marsh Engineering Works.
Northern Canada Supply Co.
Mine and Smelter Supply Co.
Fraser & Chalmers of Canada, Ltd.

Hoisting Engines:
Mussens, Limited.
Can. Ingersoll-Rand Co., Ltd.
M. Beatty & Sons.
Marsh Engineering Works.
Fraser & Chalmers Engineering Works.
Fraser & Chalmers of Canada, Ltd.

Hose:
Northern Canada Supply Co.

Hydraulic Machinery:
Hadfields Ltd.
MacGovern & Co., Inc.
Fraser & Chalmers of Canada, Ltd.

Ingot Copper:
Canada Metal Co., Ltd.
Hoyt Metal Co.

Insulating Compounds:
Standard Underground Cable Co. of Canada, Ltd.

Jacks:
Can. Brakeshoe Co., Ltd.
Northern Canada Supply Co.

Laboratory Machinery:
Mine & Smelter Supply Co.

Lamps, Miners:
Canada Carbide Company, Ltd.
Dewar Mfg. Co., Inc.
Northern Electric Co., Ltd.,

Locomotives (Steam, Compressed Air and Storage Steam:
H. K. Porter Company.
R. T. Gilman & Co.
Fraser & Chalmers of Canada, Ltd.

Link Belt:
Northern Canada Supply Co.
Jones & Glassco.

Manganese Steel:
Canadian Steel Foundries, Ltd.
Hadfields Ltd.
Fraser & Chalmers of Canada, Ltd.

Metal Merchants:
Henry Bath & Son.
Geo. G. Blackwell, Sons, & Co.
Consolidated Mining and Smelting Co. of Canada.
Canada Metal Co.
C. L. Constant Co.
Everitt & Co.

Mining Requisites:
Canadian Steel Foundries, Ltd.
Hadfields Ltd.
Fraser & Chalmers of Canada, Ltd.

Monel Metal:
International Nickel Co.

Motors:
R. T. Gilman & Co.

Nickel:
International Nickel Co.

Ore Sacks:
Northern Canada Supply Co.

Ore Testing Works:
Ledoux & Co.
Can. Laboratories.
Milton Hersey Co., Ltd.
Campbell & Deyell.
Hoyt Metal Co.

Ores and Metals—Buyers and Sellers of:
C. L. Constant Co.
Geo. G. Blackwell.
Consolidated Mining and Smelting Co. of Canada.
Orford Copper Co.
Canada Metal Co.
Hoyt Metal Co.
Everitt & Co.

Perforated Metals:
Northern Canada Supply Co.
Hendrick Mfg. Co.

Pig Tin:
Canada Metal Co., Ltd.
Hoyt Metal Co.

Pig Lead:
Canada Metal Co., Ltd.
Hoyt Metal Co.

Pipes:
Canada Metal Co., Ltd.
Consolidated M. & S. Co.
Northern Canada Supply Co.
Smart-Turner Machine Co.

Pipe—Wood Stave:
Pacific Coast Pipe Co., Ltd.
Mine and Smelter Supply Co.

Piston Rock Drills:
Mussens, Limited.

Plate Work:
John Inglis Co., Ltd.

Pneumatic Tools:
Can. Ingersoll-Rand Co., Ltd.
Jones & Glassco.

Prospecting Mills and Machinery:
E. J. Longyear Company.
Standard Diamond Drill Co.
Mine & Smelter Supply Co.
Fraser & Chalmers of Canada, Ltd.

Pulleys, Shafting and Hangings:
Northern Canada Supply Co.

Pulverizers—Laboratory:
Mine & Smelter Supply Co.

Pumps—Boiler Feed:
Smart-Turner Machine Co.
Northern Canada Supply Co.
Canadian Ingersoll-Rand Co., Ltd.
Fraser & Chalmers of Canada, Ltd.

Pumps—Centrifugal:
Mussens, Limited.
Smart-Turner Machine Co.
M. Beatty & Sons.
Canadian Ingersoll-Rand Co., Ltd.
Mine & Smelter Supply Co.
Fraser & Chalmers of Canada, Ltd.

Pumps—Electric:

Pumps—Sand and Slime:
Mine & Smelter Supply Co.

Pumps—Pneumatic:
Smart-Turner Machine Co.
Sullivan Machinery Co.

Pumps—Steam:
Canadian Ingersoll-Rand Co., Ltd.
Mussens, Limited.
Northern Canada Supply Co.
Smart-Turner Machine Co.
R. T. Gilman & Co.
Fraser & Chalmers of Canada, Ltd.

Pumps—Turbine:
Smart-Turner Machine Co.
Canadian Ingersoll-Rand Co., Ltd.
Fraser & Chalmers Engineering Works.
Fraser & Chalmers of Canada, Ltd.

Pumps—Vacuum:
Smart-Turner Machine Co.

Quarrying Machinery:
Sullivan Machinery Co.
Canadian Ingersoll-Rand Co., Ltd.
Hadfields Ltd.

Rails:
Hadfields, Ltd.
R. T. Gilman & Co.

Roofing:
Northern Canada Supply Co.

Rope—Manilla and Jute:
Jones & Glassco.
Northern Canada Supply Co.
Allan, Whyte & Co.

Rope—Wire:
Allan, Whyte & Co.
Northern Canada Supply Co.

Rolls—Crushing:
Canadian Steel Foundries, Ltd.
Hadfields Ltd.

Samplers:
Fraser & Chalmers of Canada, Ltd.
C. L. Constant Co.
Ledoux & Co.
Milton Hersey Co.
Thos. Heyes & Son.
Mine & Smelter Supply Co.
Fraser & Chalmers of Canada, Ltd.

Screens:
Northern Canada Supply Co.
Hendrick Mfg. Co.
Hadfields Ltd.

Screens—Cross Pateent Flanged Lip:
Hendrick Mfg. Co.

Separators:
Smart-Turner Machine Co.

Sheet Lead:
Canada Metal Co., Ltd.

Sheets—Genuine Manganese Bronze:
Hendrick Mfg. Co.

Shoes and Dies:
Canadian Foundries and Forgings, Ltd.

Shovels—Steam:
Canadian Steel Foundries, Ltd.
M. Beatty & Sons.
R. T. Gilman & Co.

Smoke Stacks:
Hendrick Mfg. Co.
MacKinnon Steel Co., Ltd.
Marsh Engineering Works.

Special Machinery:
John Inglis Co., Ltd.

Spring Coil & Clips Electrico:
Canadian Steel Foundries, Ltd.

Steel Barrels:
Smart-Turner Machine Co.
Fraser & Chalmers of Canada, Ltd.

Steel Castings:
Canadian Brakeshoe Co., Ltd.
Canadian Steel Foundries, Ltd.
Hadfields Ltd.

Steel Drills:
Northern Canada Supply Co.
Can. Ingersoll-Rand Co., Ltd.

Steel Drums:
Smart-Turner Machine Co.

Steel—Tool:
N. S. Steel & Coal Co.
Hadfields Ltd.

Stone Breakers:
Hadfields Ltd.
Fraser & Chalmers of Canada, Ltd.

Surveying Instruments:
C. L. Berger.

Switches & Switch Stand:
Canadian Steel Foundries, Ltd.

Tables—Concentrating:
Mine & Smelter Supply Co.
Fraser & Chalmers of Canada, Ltd.

Tanks (Wooden):
Gould, Shapley & Muir Co., Ltd.
Pacific Coast Pipe Co., Ltd.

Tanks—Steel:
Canadian Ingersoll Rand Co., Sherbrooke, Que.
Marsh Engineering Works.
MacKinnon Steel Co.
Fraser & Chalmers of Canada, Ltd.

Tanks—Cyanide, Etc.:
Hendrick Mfg. Co.
Pacific Coast Pipe Co., Ltd.
MacKinnon Steel Co.
Fraser & Chalmers of Canada, Ltd.

Tanks (water) and Steel Towers:
Gould, Shapley & Muir Co., Ltd.
MacKinnon Steel Co.

Tramway Points and Crossings:
Canadian Steel Foundries, Ltd.
Hadfields Ltd.

Transits:
C. L. Berger & Sons.

Transformers:
R. T. Gilman & Co.
Northern Electric Co., Ltd.,

Tubs:
Hadfields Ltd.

Welding Rod and Flux:
Prest-O-Lite Co. of Canada, Ltd.
Imperial Brass Mfg. Co.

Welding and Cutting, Oxy-Aceetylene:
Prest-O-Lite Co. of Canada, Ltd.
Imperial Brass Mfg. Co.

Wheels and Axles:
Canadian Steel Foundries, Ltd.
Hadfields Ltd.

Winding Engines—Steam and Electric:
Can. Ingersoll-Rand Co., Ltd.
Marsh Engineering Works.
Fraser & Chalmers of Canada, Ltd.

Wire:
Canada Wire & Cable Co., Ltd.

Wire Cloth:
Northern Canada Supply Co.
Greening, B., Wire Co.

Wire (Bare and Insulated):
Standard Underground Cable Co., of Canada, Ltd.
Northern Electric Co., Ltd.,

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Canada Metal Co., Ltd.
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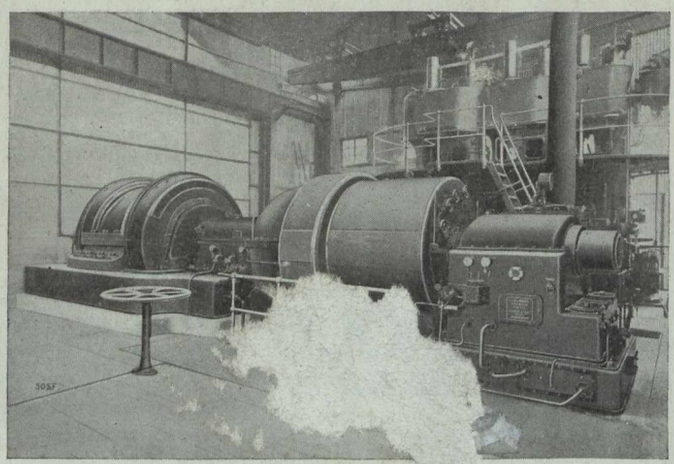
BELLISS & MORCOM

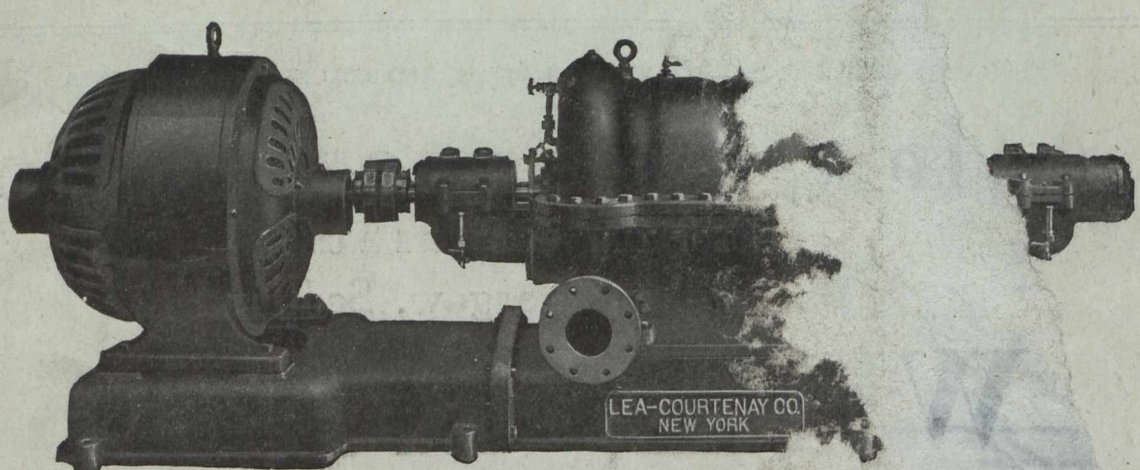
Air Compressors
Diesel Engines
Steam Turbines
Condensers
Steam Engines



BELLISS & MORCOM STEAM TURBINE.

LAURIE & LAMB

211 BOARD OF TRADE BUILDI[N] AL



Lea-Courtenay 3-Stage Turbine Pump.

LEA-COURTENAY TURBIN[E] [P]S

These Pumps are built in both Vertical and Horizo[n]

Write for Bulletin Illustrating our Various Pumps.

FRASER & CHALMERS OF CA[N]

Guarantee Building *LIMITED* MO[N]