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The Federal Trade Commission, United States, has issued formal complaint against Minerals Separation, Ltd., Minerals Separation American Syndicate, Ltd., Minerals Separation American (1913), Ltd., all of London; Beer, Sondheimer & Co., Frankfort-on-Main, Germany; Beer, Sondheimer & Co., Inc., and Minerals Separation North American Corporation, New York City; and Benno Elkan, Otto Frohnknecht and Harry Falck, of New York City. These concerns and individuals are cited to appear before the Commission on December 30th, 1918. They are charged with enforcing agreements "with the intent, purpose and effect of stifling and suppressing competition."

If the Federal Trade Commission will push this investigation until the whole situation is clarified, they will deserve the thanks of the mining and metallurgical industry of not only the United States but also of Canada and, in fact, of all mining countries.

THE CANADIAN MINING INSTITUTE

Should the character of the Canadian Mining Institute be changed? Some of the members seem to be of the opinion that it should be merely an engineering or scientific society rather than an Institute which will continue to draw members from all who are prominently interested in the direction of mining and metallurgical enterprises in Canada. We believe that the Institute can be of most service to the industry as at present constituted.

Some time ago numerous false statements concerning the character of the Canadian Mining Institute were given wide circulation by a poorly informed committee of another society. Some gentlemen having misinformed them, the executive of that society published a very misleading report and asked the members to give the matter as much publicity as possible through the newspapers. In this way the statement was spread abroad that the Canadian Mining Institute was merely a "trade organization" and that the number of scientifically trained men among its members was only about 20 per cent.

To these false statements the Canadian Mining Journal took exception and called attention to them editorially. The Council of the Canadian Mining Institute also took up the matter and demanded a retraction. After many months a half-hearted retraction was made.

Since then, a strange phenomenon has occurred. It having been proven that the Canadian Mining Institute is largely made up of scientifically trained men, some of the members seem to have concluded that the Institute would therefore be of greater usefulness if it excluded all mining men of other classes. This absurd deduction has led to some expressions that imply that the only people of importance in the mining industry of this country are the scientifically trained men. The falsity of this idea scarcely needs mention. Scientifically trained men should be the first to recognize that it takes a variety of men to carry on an industry and that the welfare of that industry cannot be properly assigned to any one class. It is complimentary to the scientifically trained men that they make up four-fifths of the membership of the Canadian Mining Institute. That fact shows that they are taking the lion's share of the work which the founders of the Institute initiated. But it should be recognized that scientists have only the right to demand recognition in proportion to the service which they give. They alone do not develop our mineral resources. It is pleasing to record that they are taking a very large part.

GEOLOGICAL SURVEY

PROGRESS IN MINING IN CANADA IN 1918.

This number, the last of the Canadian Mining Journal for the year 1918, is devoted to a review of progress in the mining districts of the Dominion. In this number will be found special articles on mining in Nova Scotia, Quebec, Ontario, Manitoba, Alberta and British Columbia.

Of unusual interest is the recent progress in Manitoba, a province which has only recently become an important producer of metalliferous ores. There can be little doubt that exploration and development of Northern Manitoba's mineral resources will result in material additions to the wealth of the country.

In Nova Scotia, scarcity of miners has resulted in decreased output of coal. In Alberta, a larger market has resulted in great increase in output, so that, for the first time, Alberta produced more coal than Nova Scotia.

The Quebec asbestos industry is flourishing, while the mining of copper-bearing pyrites for their copper and sulphur contents continues actively.

The Ontario nickel, copper, gold and silver production was very large during the year in spite of many adverse circumstances. The record of the gold mines is a remarkable one and may be taken as an indication of the great future of this industry.

British Columbia made a large output of metals and coal. The search for minerals for war purposes drew attention to the resources of this great province and the activity in 1918 will doubtless have permanently good results.

CORRESPONDENCE

THE MINING ACT.

To the Editor of the Canadian Mining Journal:

Sir,—In your issue for November 15th I note the proposed amendments to the Mining Act, as well as a letter from the secretary of Port Arthur Board of Trade.

Probably you, Mr. Editor, or some of the readers of your journal, can inform me of what use any additions or changes to the Mining Act are, so long as sections 85 and 86 remain in force.

Laws of all kinds may be good or bad; but whether they are good or bad is immaterial so long as power is given to one or two officials to say whether the laws are to be complied with or not.

Mr. T. E. Godson claims that, in his opinion, the Ontario Mining Act is the best in the Dominion, is more elastic than those of other provinces.

As for being elastic, that is the root of the evil, for a prospector never knows whether he is in secure possession of his claims or not. Some sharp mining broker may get wise to the fact that some fool of a prospector has made an important discovery and staked and recorded a claim, covering ground that in the dim, forgotten past was owned by himself. Forthwith a lawyer is engaged and a relief against forfeiture applied for, resulting eventually in the lawyer pocketing

a nice fee, the broker feeling elated over his new mining property, and the commissioner feeling satisfied with a day's work well done. But what is the feeling of the prospector? Sad to relate, he feels that legally or illegally he has received a dirty deal. He wonders why the records did not show that the ground was not open for staking, and why the recorder accepted his application for a record, and why, if it was open, he was not allowed to remain in possession. He goes back into the bush to keep company with the wild animals, knowing that the biggest and most vicious brute may be his fellow man; that under the guise of law someone has robbed him of his well-earned reward for honest labor. Of course, he knows that he could appeal, but he has not the money required to do so.

Were anything pertaining to extensions or relief required to be granted and on the records before the expiration of the life of the claim, very little harm might be done. But to allow a claim to become open for staking, and, being staked, to take it from the lawful holder and give it to one who lost it because he did not comply with the law, is, even if lawful, nothing short of robbery.

This ability to get a relief against forfeiture has developed a practice of which I will give a rough outline. Mr. A, who, by the way, is not in the habit of doing work in the bush, approaches Mr. B and offers him a stated sum (away below the amount he knows it would cost) to get the work required to be done during the year by law, stating that he does not care how it is done so long as it is on record. B takes the money and may or may not do any of the work, but files a report of work.

D comes along and finds no evidence of any work having been done. He stakes the claim and files a dispute which in due course comes up before the commissioner. The burden of proof rests on D. Suppose he is able to prove that no work was done. A pleads that he paid B for doing the work and that B is the only and original rascal, and he asks for time in which to do his work. This is usually granted, and he retains possession of the claim.

What does D get? He has to pay his own costs and about the only thing he is likely to receive is a lecture delivered with the purpose of discouraging claim jumping. Any evidence that B might give would never be considered. Accordingly, A, the instigator of the crime, goes clear. In fact, it is usually made to appear that he is a very much abused man. Consequently, no one cares to dispute a report of work filed, even knowing that the work was never done.

Subsection 3, section 85, was first passed as an Order-in-Council and seems to have been created with a view to providing work for the commissioner and the inevitable lawyers. I have no quarrel with the principle of this sub-section, but it lacks in completeness. It does not require, for instance, that the enlisted man report to the recorder of the district in which his claims are located. As a result, the recorder will accept applications for claims that are owned by soldiers and when these soldiers come back the trouble begins. It is, therefore, easily seen that the lack of attention to detail has beclouded the title to all mining locations made since the 4th day of August, 1914.

This, Mr. Editor, is one of the results of the "elastic" nature of the Mining Act.

Yours, etc.,

L. HEDLUND.

Gowganda, Dec. 2nd, 1918.

Mining in the Province of Quebec in 1918.

By Theo. C. Denis.

As regards mining, the Province of Quebec is rather different from the other provinces, inasmuch that, unlike Ontario and British Columbia, its production in metalliferous ores is small and it differs from Nova Scotia and Alberta in possessing no coal mines. The backbone of Quebec mineral production are non-metallic substances—*asbestos*, *mica*, *magnesite*, *pyrites* for sulphuric acid, and a very varied assortment of structural materials. The prominent part which the latter plays in the mineral production of the province is indicated by the fact that in pre-war times (in 1913) in a total value of a little over \$13,000,000 the building materials accounted for 62 per cent., the metallic substance for 31½ per cent., only, the balance (34½ per cent.) being made up of non-metallic minerals, such as *asbestos*, *mica*, *graphite*, *magnesite*. The effect of the war on our mining industry has been most marked, for in 1917 and 1918 the above proportions were greatly altered, and they now stand about as follows: Building materials, 33 per cent.; metallic ores, 12 per cent.; non-metallic minerals, 55 per cent.; the total production of all of which amounted to \$16,266,000 in 1917.

Figures for 1918 are not yet available, but it is likely that the total value will exceed 17 million dollars.

Asbestos Industry is Flourishing.

The *asbestos* industry has been very active during the year, the demand having exceeded the production. At present there are practically no stocks of *asbestos* on hand. The production has been strongly stimulated by the war needs, and fortunately the cessation of hostilities is not likely to have any marked effect on the industry, as the ship construction programmes of various countries call for a large consumption of *asbestos* for a long time to come.

Demand for Chromite Falls Off.

The same cannot be said of *chrome* mining, which for three years past has enjoyed an unprecedented activity in the *Coleraine* district, and also at *St. Cyr*, near *Danville*. Since the signing of the armistice, the demand for *chromite* has noticeably fallen off. However, several producers have contracts to fill for some time to come at satisfactory prices, and the decrease in activity will be gradual. It is even possible that the more favorably situated deposits may continue to produce, and compete, on the American market, with *New Caledonia*, *Rhodesian* and *Cuban* ores. The figures of production for 1918 will probably fall below the previous year's, and 1917 will remain a banner year in the Canadian *chrome* industry for some years.

Magnesite Industry Permanently Established.

Magnesite mining has been very active. Two of the companies are now producing a dead-burned *magnesite* which finds a very ready market. Cement kilns, burning powdered coal, are used for the purpose and the results are very satisfactory. There is little doubt that this industry is permanently established.

Shortage of Labor Keeps Down Production of Pyrite and Copper.

The *pyrite* and *copper* ore production has been greatly handicapped by the shortage of miners. Labor, and especially efficient labor, has been very scarce throughout the year. On this account, and also owing to difficulties in getting railroad cars, the tonnage will probably show a decrease as compared with 1917.

A Successful Year for Quyon Molybdenite Industry.

Throughout the whole of 1917, the price of *molybdenite* was set by the Government at \$1.09 a pound, and exports to countries other than England were prohibited on account of the war needs of Great Britain. The price in the United States increased up to \$2.50. In January, 1918, the restrictions on the export of *molybdenite* were removed and for some time the producers enjoyed the wider market at better prices. The supply, however, seems to have more than met the demand, for during the latter part of the year the price in the United States fell to \$1.00 a pound. The *Quyon* mine had a very successful year and the method of concentration adopted is giving very good results. It is claimed that extraction is about 90 per cent., in concentrates containing 80 to 90 per cent. *molybdenite*.

Steady Production of Zinc by Zinc Co., Ltd.

Zinc and *lead* ore mining progressed during 1918. The mines of "Zinc Company, Limited," in *Portneuf* country, produced all year without interruption, and active development was carried on by the "Federal Zinc and Lead Company, Limited," on their properties at the head-waters of *Cascapedia* River in *Gaspe*. These deposits appear to be very promising. At present, they are handicapped by the lack of means of transportation.

Labor Situation Improving.

Since the middle of November the labor situation has been eased off considerably. There is no longer the great dearth of men which prevailed throughout the first ten months of the year. The mine operators have not reduced wages, but they can now to some extent choose the men and dispense with the incompetent, which they could not afford to do before. The labor employed is now much more efficient and willing than a month ago.

Production of Building Materials Should Be Large in 1919.

The cessation of war material manufacture will be felt on next year's production, when a decrease is to be expected. But, on the other hand, the decrease of activity in mining of war minerals will to some extent be compensated by a resumption of production of building materials, which industry has laid comparatively dormant for the last four years.

DOMELAKE.

Mr. Charles A. Randall has been appointed manager of the *Dome Lake* mine to succeed Mr. A. H. Brown who has resigned. A full force of men has been engaged at the property and a comprehensive plan of development has been mapped out. A winze is being sunk from the 500-foot level to a depth of 600-feet. Three shifts are working.

NEW MANAGER FOR DOMINION REDUCTION.

Mr. S. W. Cohen has been appointed general manager of the *Dominion Reduction* company at *Cobalt*, to succeed Mr. E. M. Steindler who died in *New York* recently. Mr. Cohen visited the property in *Cobalt* early in the month, accompanied by Mr. D. M. Steindler, president of the *Dominion Reduction*. Mr. Cohen was at one time general manager of the *Crown Reserve* and *Porcupine Crown Mines*, and is well known in *Northern Ontario*.

Northern Ontario Gold Mines in 1918 Produced about \$9,168,000, Despite Handicaps.

By J. A. McRae.

Despite the great economic strain caused by the world war, the gold mines of Northern Ontario during 1918 have been able to increase their output over that of 1917. While it is yet too early to know what the exact amount will be, it is nevertheless certain that a production of at least \$9,168,000 will be recorded. This compares with a total of \$8,698,831 during the year 1917, an increase of more than half a million dollars. Such an achievement, with over half the gold mines closed down, is considered extremely important, so much so, that interest in gold properties, both prospective and proven, has been recently growing rapidly.

Hollinger Increases Output.

The progress being made, and the results recorded at the Hollinger Consolidated has exceeded the best expectations of the most sanguine, and by producing approximately \$520,000 monthly, or something like \$6,250,000 during the current year, has eclipsed all its former records. Since 1911, this great gold mine has repeatedly been the cause of startling achievements. However, an increase of over \$2,000,000 in output during 1918 over that of 1917, or more than \$1,000,000 above the previous best year in the company's history, was more than the most optimistic had dared to hope. Since beginning production in 1911 the property of the Hollinger has yielded a total of close to \$26,000,000, out of which \$9,178,000 has been returned to shareholders in the form of dividends, and, in addition to which the greatest mill for the treatment of gold ore on the continent has been erected. Also, a large cash surplus has been accumulated, upwards of \$2,000,000 being invested in Dominion Government bonds. At the beginning of 1918 the official estimate of ore reserves showed a little over \$40,000,000. The following is a summary of the output from the Hollinger, beginning in 1911:

Year	Values Recovered.	Dividends Paid.
1911	\$ 46,082.52	.....
1912	933,682.00	\$ 270,000.00
1913	2,488,022.58	1,170,000.00
1914	2,719,354.47	1,170,000.00
1915	4,205,901.69	1,720,000.00
1916	5,073,401.05	3,126,000.00
1917	4,261,938.72	738,000.00
1918	6,250,000.00	984,000.00
Totals	\$25,978,383.03	\$9,178,000.00

It could perhaps be pointed out that the estimate of output for 1918 is based upon official figures which show a production of upwards of \$520,000 monthly during the first nine months of the current year. The \$984,000 in dividends paid during 1918 does not represent one-half of the net earnings, in that at the beginning of this year the net surplus was less than one-quarter of a million, whereas it is now apparently upwards of two million dollars.

McIntyre-Porcupine.

The McIntyre-Porcupine also continues to develop in a big way. The main works are now being carried to a depth of 1,375 feet, the deepest workings in the camp.

Production at the McIntyre is being maintained at about \$140,000 per month. With additional labor this output could be materially increased. The ore in reserve at the McIntyre ranges between \$4,000,000 and \$5,000,000.

Milling Facilities and Present Production.

Perhaps the clearest and most concise description of the present position of the various gold mines could be given as follows, showing the mining facilities at each mine and showing whether or not the mills are in operation, and at what capacity:

The Porcupine Gold Mines.

Mine.	Daily Capacity, in Tons.	Present Rate.
Hollinger Consolidated	2,800	Half
Dome Mines, Limited	1,350	Closed
McIntyre-Porcupine	600	Full
Schumacher Mine	200	Closed
Porcupine-Crown	140	Closed
Porcupine V.N.T.	120	Closed
Dome Lake	100	Three-quarters.
Davidson Gold Mines	70	Full
Total	5,355	

Kirkland Lake Gold Camp.

Mine.	Daily Capacity, in Tons.	Present Rate.
Kirkland Lake Gold Mines, Ltd.	150	New
Tough-Oakes Gold Mines	140	Closed
Teck-Hughes Gold Mines	80	Closed
Lake Shore Gold Mines	70	Full
Total	440	

Boston Creek Gold Camp.

Mine.	Daily Capacity, in Tons.	Present Rate.
Miller Independence	40	Half
Patricia Syndicate	40	Closed
Total	80	

Munro Gold Camp.

Mine.	Daily Capacity, in Tons.	Present Rate.
Croesus Gold Mines	50	Closed
Hill Gold Mines	40	Closed
Total	90	

This gives the following grand total:

Porcupine	5,355 tons
Kirkland Lake	440 tons
Munro Township	90 tons
Boston Creek	80 tons
Grand total	5,965 tons

In the aggregate, just a little over one-third of the available milling equipment is being used at the

Northern Ontario gold mines as a result of the shortage of labor and high cost of supplies. Now that the peace conference between the Allies and their enemies will probably clear up any possibility of resumption of wars, and with an increasing demand for gold, it seems reasonable to expect the great majority of these mills will be worked to their fullest capacity some time during the coming year. All this points toward great prosperity at the gold mines during 1919 and the succeeding years.

Kirkland Lake Area is Being Successfully Developed.

In addition to the large way in which the Porcupine mines have developed, is the fact that success in the new Kirkland Lake field is second only to Porcupine. Two modern mills have been completed in this district during 1918, namely, at the Lake Shore Mines, and at the Kirkland Lake Gold Mines. The latter has just been completed and is being tried out this month, while that of the Lake Shore has been completed and in full operation since March 8th, last. Since that date, production has ranged from \$40,000 to \$45,000 monthly, and the average grade of ore treated has been around \$24 and \$25 to the ton. The company has disbursed two dividends, each amounting to 2½ per cent. or \$50,000, or a total of 5 per cent., amounting to \$100,000. A mill with a capacity for 150 tons daily is proposed and will probably be constructed at the Wright-Hargreaves mine during the year 1919.

Rich Gold Tellurides at Boston Creek.

In the Boston Creek gold area the sensational development at the Miller-Independence Mines, where gold tellurides have been found to occur profusely in a large vein, has been one of the most interesting and important developments in years. This field constitutes the third best gold mining area in the province, as so far developed. Plans are being laid for aggressive development work at the Independence, and, from the manner in which the rich orebody is developing at the present time, there are reasons for anticipating exceedingly favorable results. Provided the company is able to announce having completed plans for operations on an extensive scale, not a few leading mining men who have had experience in fields where tellurides occur are of the opinion that extensive developments in this area will become general, and that the potentialities of such a deposit of gold tellurides are of the highest importance, so much so that it becomes very difficult to estimate. During the year a mill was constructed on the Patricia property, but owing to the shortage of labor has not been consistently operated. Before long, however, it is expected plans will be made for pressing it into service.

Outlying Fields Await Development.

In the outlying fields not much work was done during 1918. In the Lightning River district a shaft was driven to a depth of about 70 feet on a promising vein, but the costs of supplies when delivered at the property proved prohibitive, and work was suspended in November. Also, in the Fort Matachewan gold area a good deal of activity was shown early in the year. However, with the exception of the Otisse property, nothing extensive has been done. On the Otisse, thirteen diamond drill holes were driven and it has been stated officially that a large tonnage of ore has been

indicated. At the present time, plans are being considered with a view toward installing a mining plant and carrying on work in a large way. In the meantime a company known as the Matachewan Gold Mines Company, has been formed with a capitalization of 4,000,000 shares with a par value of \$1 each, for the purpose of developing the property.

Great Activity in Gold Mining in 1919.

The coming winter is expected to bring a favorable adjustment of working forces. The coming summer is expected to witness practically all the gold mines in full operation. Also, the coming summer is expected to be the most active summer in the prospecting field since the summer of 1914. The outlook, in every way, never appeared so bright for those who have pinned their faith and their fortunes toward the exploring and development of the great gold zone of Northern Ontario, which is already of world importance, and which bids fair to soon assume a leading place among the greatest of gold-producing areas.

DOMES MINES.

With the death of Captain J. R. DeLamar, of the Dome Mines, in New York this week, much speculation is rife regarding the effect his passing will have upon future operations of the big mine, which is conceded to be the second largest gold mine in the Dominion of Canada. It is understood the late president of the company left his affairs in such shape that no unusual disturbance of the affairs of the company is anticipated. The Dome mines will be the centre of increasing interest during the next few months, during which time the property is expected to reach a stage of capacity production once again. It is probable that these next few months will call for exceptional executive ability and able administration, by reason of the fact that it will be necessary to secure the services of a large staff of technically trained men, a task which entails the utmost care if the best interests of the company are to be served. The consensus of opinion appears to be that the first year following the recommencement of milling and mining operations on a large scale will provide many pleasant surprises for those interested in the great mine. Mr. J. S. Bache, of New York City, has been appointed president of the Dome Mines company to succeed Mr. DeLamar, and no doubt the affairs of the company are once again under able administration.

CONIAGAS DROPS OPTION ON ANKERITE.

According to recent word from Porcupine the Coniagas Mining Company has dropped its option on the Ankerite property there. During the currency of the option a large amount of development work was done on the property, and the prevailing impression had been that results being met with were of a very satisfactory nature. However, the option, on which a large cash payment is said to have accrued due the first of the current month, has been allowed to expire. In the meantime the Coniagas has moved its supplies and equipment to the adjoining Maidens-McDonald property which it owns and on which development work is to be conducted.

Cobalt Silver Mines in 1918 Produced 18,000,000 Ounces Silver, Valued at \$17,000,000.

By J. A. McRae.

One and a half decades have passed since silver was first discovered in Cobalt. As the year 1918, the fifteenth year of its productivity, draws to a close, it is evident the production for the year will be equal in value if, indeed, not in excess of any previous year.

Production for the year, it is now evident, has averaged about 1,500,000 ounces per month, and by the end of the current month will have reached an aggregate of approximately 18,000,000 ounces for the calendar year. The value of the output will be over \$17,000,000. Provided no change occurs within the next sixteen days in the quotations for commercial bar silver, the average for the full twelve months will be 96.69 cents per ounce. This compares with an average of 81.41 cents per ounce during 1917, and represents an increase of slightly over 15 cents per ounce. This 15-cent increase on a production of 18,000,000 ounces adds approximately \$2,700,000 to the year's production. It is now quite interesting to look back to the opening year of the war against Germany, when the price of silver fell below 50 cents an ounce, and at one time hovered around 48 cents an ounce, thus constituting approximately one-half the 1918 average. It is needless to emphasize what this doubling in price has meant to the Cobalt mines.

A Year of Steady and Successful Operation.

The year has not been marked by any particularly notable development, but has been one of consistent operation, marked by few particularly sensational successes and likewise only a few disappointments. The Nipissing, Mining Corporation of Canada and the Kerr Lake have been the leading producers, the two former companies producing somewhere around four million ounces each, and the Kerr Lake around two and a half million ounces. Other companies producing over one million ounces each are the O'Brien and the Coniagas. The Nipissing, with its large acreage of unexplored ground, has added a number of high-grade silver veins to the large number previously known. A more or less comprehensive plan of development is now taking place in addition to continuing normal production. This may reasonably be expected to bring in additional, and perhaps important, veins. Everything considered, there is reason to believe the Nipissing from now forward for several years will be able to lay claim to the distinction of being the largest silver-producing mine under the British flag.

Changes in Personnel of Companies.

Development work below the diabase sill at the Beaver Consolidated which, early in the year gave promise of adding greatly to the value of the mine as well as adding to the potential value of adjacent properties, does not appear to have been attended with the success at first indicated. The beginning of December found work suspended in the zone below the diabase sill. However, the lower workings were being kept pumped out and it is evident further work in that zone is contemplated. Early in the year Frank L. Culver, in control of the Beaver, and also formerly in control of the Temiskaming Mine, lost control of the latter, being succeeded to the presidency of the Temiskaming Company by J. P. Bickell. Other changes in the personnel of the various companies included the appointment of T. R. Finnucane, former manager of the McKinley-

Darragh-Savage Mines, to the position of managing-director, and the promotion of J. C. McCloskey to the managership. Douglas A. Mutch resigned as manager of the Hudson Bay Mines, to take over the management of the Ankerite mine of the Coniagas Company. A. H. Brown, a former manager of the Hudson Bay, again entered the service of the company. J. W. Moffet, owing to illness, resigned from the Beaver, and L. W. Ledyard, a former manager of the Teck-Hughes mine, was appointed general superintendent of the Beaver. With the change of control at the Temiskaming mine I. S. McReavy was appointed manager. A number of other less important changes took place.

Prospecting on Non-Producing Properties.

A good deal of prospecting work has been done at a number of non-producing mines. Among these, the Adanac Silver Mines has made perhaps the largest and most consistent effort. During the year approximately one thousand feet of work has been done. A number of large veins were opened up. At the time of writing, very encouraging silver values are being encountered.

At the Ophir, a good deal of work has been done, but with not altogether favorable results. At the Gifford, considerable exploratory work has been carried on. The Cochrane property, adjoining the Temiskaming mine, was taken under option by the latter company a few months ago and is being explored through the workings of the Temiskaming. The mill of the Temiskaming was closed down last spring owing to ore reserves being low, and was re-opened a few weeks ago. The Foster property was leased in the early fall to C. L. Campbell and W. Fairburn. A shoot of high-grade ore was encountered which has yielded almost one carload of ore. The Trethewey company purchased the property of the Castle Syndicate, in the Gowganda district and is conducting development work with fair encouragement.

At the Peterson Lake an oil flotation plant was installed and has been working with good results for the past two months or more.

In the township of Bucke, some interest has been manifested during the current year. The former Green-Meehan Mine, now controlled and operated by Edwards & Wright, has yielded a large tonnage of low-grade ore together with an encouraging amount of high-grade. The Mining Corporation of Canada purchased a property in the late summer near North Cobalt, and has installed an electrically driven mining plant, and propose sinking a shaft to a depth of 300 feet. This work is being watched with a good deal of interest, in that any success here might reasonably lend value to a large area where rock formations are of a similar character as that upon which the Mining Corporation is conducting exploration work.

In South Lorrain.

In the South Lorrain area the Pittsburg-Lorrain Syndicate, having a lease on the Wettlaufer Mine and mill, as well as operating its own property, carried on work throughout the year, but, at the time of writing, has planned to close the mill during the winter. The Keeley mine is being worked in a small way, a carload of ore being sent out about the middle of November.

Cobalt Payroll, \$3,500,000; Power and Supplies, \$3,500,000.

Employing approximately 2,375 men, the payroll of the Cobalt mining companies has approximated nearly \$10,000 per day or about \$3,500,000 for the year. At least an equal amount, perhaps, has been paid out for

power and supplies. This appears to indicate a profit of upwards of \$9,000,000 for the year 1918, probably the greatest net profit ever realized in any previous year in the history of the camp.

There were times during the year when a number of the mines conducted operations with a deficiency of perhaps ten per cent. in the number of men normally required to operate to best advantage. Also there were times when more or less difficulty was experienced in securing the requisite supplies without expensive delays. These factors combined to reduce the efficiency which otherwise might have attained a higher plane. However, now that peace is in sight, and now that men are returning from the munition plants and seeking employment at the mines, the deficiency in numbers and efficiency may reasonably be expected to rapidly become adjusted.

Cobalt Has Produced 292,724,172 Ounces Silver Worth \$169,360,561.

The output of silver from the Cobalt mines has now reached the enormous aggregate of approximately 292,724,172 fine ounces with a value of about \$169,360,561. Before the middle of 1919 the output will pass the three hundred million ounce mark.

The following is Cobalt's record:

	Average price, cts. per oz.	Ounces.	Value.
1904	57.2	206,875	\$ 111,887
1905	60.4	2,451,356	1,360,503
1906	66.8	5,401,766	3,667,551
1907	67.5	10,023,311	6,155,391
1908	52.9	19,437,875	9,133,378
1909	51.5	25,897,825	12,461,576
1910	53.5	30,645,181	15,478,047
1911	53.3	31,507,791	15,953,847
1912	60.8	30,243,859	17,408,935
1913	57.8	29,681,975	16,553,981
1914	54.8	25,162,841	12,765,461
1915	49.69	24,746,534	12,135,816
1916	65.661	19,915,090	12,643,175
1917	81.417	19,401,893	16,131,013
1918	96.69	18,000,000	17,409,998
Totals		292,724,172	\$169,370,559

At the present rate of production, and with silver maintaining at its present price, it would require less than five more years to bring Cobalt's total to close to four hundred million ounces and with a total value of upwards of one-quarter of a billion dollars.

A Promising Future for the Cobalt Silver Mining Industry.

As for the future, with metal authorities predicting a continued high price of silver for several years, Cobalt's prosperity is expected to increase during the post-war era. The reasons are several. Chief among them is the fact that abundant labor will be available, and that the cost of supplies will decline. Indeed, there is already evidence of the commencement of this expected decline in costs. In recording the foregoing statement, that Cobalt's prosperity is expected to increase during the post-war era, it should perhaps be well to point out that such is not meant to convey the belief that the output of silver will increase. Quite to the contrary, there may reasonably be expected a slight decrease in output from year to year, but so slight, especially with silver at the present high quotation, as to convey no threat to the profitable existence of the mines for a great many years. A few of the mines will gradually reach the end of their resources, while others

may reasonably be expected to bring in new and hitherto unknown deposits, this to continue for many years. The increase in efficiency and the lower costs, for a considerable time should serve to offset any slight decline in output, and thus maintain profits, in the aggregate, at about the present level.

Casey-Cobalt.

A car-load of ore was shipped a few days ago from the Casey-Cobalt Mine situated in the township of Casey, about nine miles north-east from New Liskeard. The ore was shipped to Denver, Colorado.

Mr. Bruce White, one of the best known mining men in the Kootenay District the man who staked the Slocan Star, died at Nelson, B.C., recently.

R. K. Neill, the proprietor of the Bush Mines, Portland Canal District, B.C., is preparing for extensive development work. He is arranging for the purchase of horses and outfit to haul ore from the mines to the wharf. Meanwhile, everything possible is being done to complete road building.

IRON ORE ON BELCHER ISLANDS.

Iron ore of good grade is reported to have been found on Belcher Islands. Mr. Robt. Flaherty reported that the deposits examined by him were low-grade—38%. More recent discoveries, of which we show photographs, are said to be of higher grade. The ore is blocky hematite resembling that of Newfoundland. The photographs are furnished by Mr. Sainsbury, one of the discoverers. Mr. M. M. Gibson, of Toronto, has reported favorably on the property.



Iron Ore on Belcher Islands, Hudson Bay.

Coal Mining in the Province of Alberta in 1918.

Production Increased 20 Per Cent.

By John T. Stirling.

It is estimated that the production of coal in Alberta for the year 1918 will be slightly in excess of six million tons, and as the production for the year 1917 was 4,863,414 tons this means that there will be an increase during 1918, over 1917, of approximately 20 per cent. Exact figures are only available for the nine months ending September 30th, 1918, and these figures show that there were produced during that period 4,594,200 tons as compared with 3,182,826 tons during the same period in 1917.

Increased Quantity of Alberta Coal Sold in Canada.

It is gratifying to note that the market for Alberta coal has been extended to such an extent that 384,622 tons of domestic coal were shipped into the province of Manitoba during the first nine months of the present year as compared with 153,243 tons during the same period of 1917. The reason for this large increase is, of course, due to a great extent to the statement made several months ago, by the Fuel Controller of Canada, that shipment of anthracite coal from the United States to Canada would be very considerably decreased during 1918 and also to the fact that an extensive publicity campaign was started by the Provincial Government of Alberta warning consumers to put in their supply of fuel at the earliest opportunity. As a result of this campaign a great deal of fuel has been stocked throughout the western provinces, ready for use during the winter months, to such an extent that no shortage of fuel need now be anticipated in the provinces of Alberta, Saskatchewan and Manitoba, even although a severe winter is experienced.

Several new mines have been opened during the year and several abandoned, making the total number now in operation 263. There are employed at the present time 2,782 men above ground and 6,195 men underground.

Now that a great deal of the prejudice that has existed in Manitoba and Saskatchewan has been overcome it is to be expected that the market, which has been obtained in these provinces during the last few months for Alberta coal, will continue to increase.

There Is No Necessity of Importing Coal Into Prairie Provinces.

There appears to be no reason whatever why any coal should be imported from the United States into these provinces, unless in a few isolated cases where it would appear that small amounts of anthracite coal were essential.

Alberta Could Produce 9 or 10 Million Tons Coal Annually Now.

Although the output produced in Alberta has increased so considerably during the past few years, I am of the opinion that if the mines were worked steadily during the whole year without increasing the present labor employed and with the present amount of development work done that between nine and ten million tons of coal could be produced annually. This is a safe estimate, as during four or five months of each year 80 per cent. of the mines are idle owing to lack of orders. Even with the wide publicity that has been given the question of fuel during the last twelve months very few of the domestic coal mines in the province have worked to more than 50 per cent. of their capacity

during the months of September, October and November. The same conditions exist in the steam coal mines, although in a lesser degree and a number of the operators of these mines are becoming seriously alarmed regarding the outlook for market during the next few months.

MILLER-INDEPENDENCE.

According to advice received it has been planned to increase the capitalization of the Miller-Independence Mines of Boston Creek from 500,000 to 700,000 shares. This decision was reached by the directors at a meeting held in Dayton, Ohio, the early part of the current month. This has been made advisable owing to the large way in which the company's property is developing. Heretofore it had been planned to operate a 40-ton mill already installed, and in this small way work the rich deposit. Development work during the past few months, however, has entirely outgrown the present equipment. In order to facilitate the desired additions to the plant and mill, which will be increased to several times its present size, as well as improve transportation to the property and make available electric power, it was decided to increase the capitalization by 200,000 shares. The price at which the new stock will be issued has not been announced. In the meantime work at the property is going ahead unremittingly.

Mr. Wm. Adams is in charge of surface and milling operations, while Mr. Jack Murphy, formerly of the Tough-Oakes Gold Mines, is superintending underground operations.

As the development of the property proceeds it becomes more apparent that a series of veins occur, the richness and extent of which only future developments will reveal. It has been expected that the number one vein which is dipping sharply to the north, would come in contact with the main vein at a depth of about 120 feet. However, the working has been carried to a depth of 200 feet on the main vein with no sign of the number one vein coming in. Between these two veins another strong fracture occurs, and it is now believed the number one vein joins this fracture and straightens up in conformation with its dip. It is thus thought that the number one vein which is narrow and dipping sharply to the north is but an off-shoot of a large fracture between the two veins being worked. Another interesting and important development is the fact that there is a good deal of the mineralization of the main vein of the Miller-Independence which was hitherto believed to be copper pyrites (chalcopyrite) has been found to be in reality a bronze-colored telluride. The first intimation of this was contained in an article written by W. E. Simpson in September, in which Mr. Simpson says in part: "In mines like the Miller-Independence, the ore, at present, seems rich enough to bear the expense of any method of treatment, no matter how costly. Fine bronze colored tellurides are scattered profusely through the selected pieces (meaning those pieces taken for analysis), giving them a coppery appearance, although no copper may actually be present." This bronze colored telluride occurs in close association with the heavy and extremely rich calaverite. The foregoing announcements prove the most interesting in connection with the development of the Miller-Independence since the early announcements of the striking of telluride gold ores on the property.

MINING OPPORTUNITIES IN NORTHERN MANITOBA

Mineral Areas

Approximately three fifths of the total area of Manitoba is Pre-Cambrian, and all but a small part lies in Northern Manitoba. In the Pre-Cambrian in Ontario, the well-known camps of Sudbury, Cobalt and Porcupine have been developed. In Northern Manitoba there was practically no prospecting until the Hudson Bay Railway gave access to the mineral districts. There are three fields in particular to which attention is now directed—The Pas Mineral Belt, the Cross and Pipestone Lakes area, and the Oxford Lake, Knee Lake, God's Lake and Island Lake area.

Development

Since 1915, development has been rapid in the Pas Mineral Belt. An extensive body of low-grade copper ore has been explored by diamond drilling at Flin-Flon Lake. High grade copper is exported from Schist Lake to the smelter at Trail, B.C.; three and three-quarter million pounds of copper have already been realized. Copper prospects are under development on Athapapuskow Lake, Copper Lake and Brunne Lake. The building of a smelter will give impetus to the development of a large copper industry. Gold is now produced at Wekusko Lake, and important discoveries have been made on Copper Lake, and on Knee Lake on the Hayes River route.

Transportation

Transportation is available by the Hudson Bay Railway, by the Ross Navigation Co. Steamboats on the Saskatchewan River, and by wagon roads built into the producing areas by the Manitoba Government. Wekusko Lake may be reached in less than one day from The Pas. The Hudson Bay Railway gives easy access to several promising districts where little prospecting has yet been done.

Mining Regulations

The mineral resources are under Federal control, and the Dominion Mining Laws apply to Northern Manitoba. No mining license is required. Work to the value of \$100 per year must be performed for a period of five years on claims filed under the quartz mining regulations. The office of the Mining Recorder for Northern Manitoba is at The Pas.

To Prospectors

The mineral areas in Northern Manitoba are virtually unprospected. Valuable discoveries both in copper and in gold have been made within the last few months. The opportunities for prospectors are exceptionally good.

For maps, reports and general information, apply to

**The Commissioner of Northern Manitoba,
The Pas, Manitoba.**

Mining in Northern Manitoba, 1918

By R. C. WALLACE, Commissioner of Northern Manitoba.

In Northern Manitoba there has been steady progress during the year. With the building of a railway and the erection of a smelter—and this should be well advanced before the close of another year—a large copper industry is assured. A detailed and fully illustrated article by J. A. Campbell, M.P., on mining operations and prospecting in this area was published in a recent issue (Nov. 1st) of this journal. It will, therefore, be unnecessary, in a review of the progress for the year, to do more than refer to some of the salient features.

Enormous Tonnage of \$10 Ore at Flin-flon.

On the Flin-flon property, diamond drilling was continued by the Fasken-Black syndicate until the end of June, when the preliminary work of mapping out the orebody was completed. The tenor of the ore is remarkably uniform, the average value being slightly less than \$10 per ton. Horseshoes of unmineralized rock occur throughout the orebody; and these, it is understood, have now been fully defined. Official figures are not to hand as to the total extent of the orebody, as explored by drilling, but the figure of 20,000,000 tons has been commonly quoted in this connection. The obstacle to development was the war situation. This obstacle has, happily, been removed, and development should now be rapid.

Mandy Mines Shipped 6,300 Tons Ore, Averaging Over 20 Per Cent. Copper.

At the Mandy mine, work has proceeded continuously though the labor situation made it difficult to maintain the necessary staff. Six thousand three hundred tons of ore were transported to Trail during the summer. Owing to the abnormally low water in the earlier part of the summer, steamboat navigation was difficult, and ore shipments came in slowly. The open season was, however, unusually prolonged, and transportation was possible till the beginning of November. A contract has been let for winter haulage of 10,000 tons to Sturgeon Landing, to be ready for water transportation next year. The tenor of the ore is slightly higher even than the shipment of 1917.

Other Copper Properties.

Diamond drilling has been continued by a Duluth syndicate on the Chica group, near the mouth of the Pine-root river. Important discoveries have been made in a new district on the northeast arm of Lake Athapapuskow. The ore consists of bornite and chalcopyrite, distributed through a sheared porphyry, and occurring also as stringers in the rock. Development work is proceeding to determine the average surface values. If sufficiently high, large low-grade properties will be opened up in this area. Extensive sulphide orebodies are also being prospected at Copper Lake, some

10 miles northeast of the discoveries on Athapapuskow Lake. In this field a spectacular gold discovery has recently been made by K. J. Peterson.

Rex Mine Begins Gold Production.

The province is now definitely a producer of gold. Up till the end of October, the returns from the Rex mill, at Wekusko Lake, which commenced operations in May, were approximately \$21,550. While the figures are not high, it is remarkable, nevertheless, that under present adverse economic conditions, and in face of a very seriously depleted labor supply, a gold mine somewhat far removed from transportation should be in a position to initiate and continue operations. During the winter a 30-ton Lane mill was installed, two amalgamating plates, two Deister Overstrom concentrators, one 60-h.p. engine, two 60-h.p. boilers and one 320 cu. ft. compressor plant. The returns are from the plates, the concentrates being stored till suitable machinery is installed. The shaft has been sunk 117 feet, the south drift at the 100-ft. level has been run 200 ft. and the north drift 90 feet. At present the ore is stoped from the north drift near the shaft. The vein continues to show an average width of 4½ feet, and the values are remarkably high. The prospects are favorable that this mine will become a large producer.

The Makeover Brothers, who have formed a company to operate the mine, took an option on the Dauphin-Elizabeth group, and sank a shaft to a depth of 50 feet. The option was not taken up, but The Pas Consolidated Mines, Ltd., have now begun operations on this property.

An option was also taken on the Northern Manitoba property, and a shaft has been sunk beyond the 100-ft. level, and some 50 ft. of drifting done at that level. This is a narrow vein, carrying very rich ore, and persisting practically without change as far as prospected. In places values also occur in the quartzite of the hanging wall when heavily mineralized with arsenopyrite and tourmaline.

Gold Quartz in Sheared Porphyry.

It is noteworthy that in at least three widely separated areas gold discoveries have been made which resemble one another fairly closely, and differ from the gold deposits hitherto prospected. They occur as series of stringers or veins of gold-bearing quartz in wide bands of sheared porphyry extending to 75 ft. in width. Two of these areas are in Northern Manitoba. P. Gasse discovered a deposit of this nature in a sheared zone in the granite at the north end of Wekusko Lake. This has been sampled to a width of 75 feet. On the north shore of Knee Lake, on the Hayes River route, a prospecting party under H. M. Paull, made two such discoveries in a sheared porphyry, mineralized with copper sulphides and arsenical pyrites. High values have been obtained on cross-channeling widths of 50 feet on both locations, presumably on the same line of shear. These latter deposits are of interest in that they will attract attention to the Keewatin belt which extends southward to God's Lake and Island Lake.

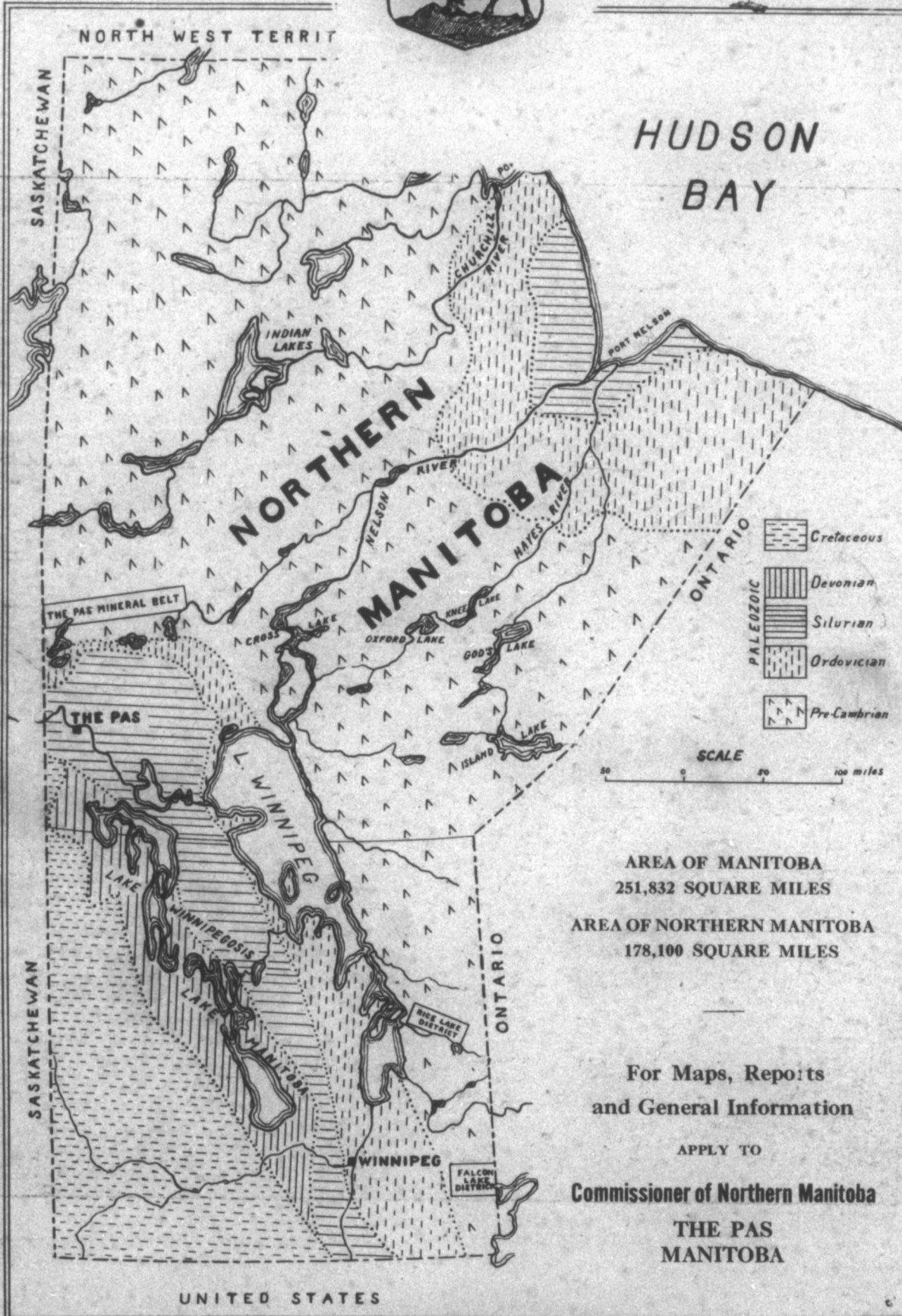
Copper Ore from Northern Manitoba



Copper and Zinc Ore from the Mandy Mine, Schist Lake, The Pas Mineral Area, Northern Manitoba.

The larger piece is chalcopyrite, such as is being mined. The ore shipped averages over 20% copper.

The smaller piece contains chalcopyrite mixed with sphalerite (zinc sulphide). This mixed ore is not being shipped.



AREA OF MANITOBA
251,832 SQUARE MILES

AREA OF NORTHERN MANITOBA
178,100 SQUARE MILES

For Maps, Reports
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Commissioner of Northern Manitoba

THE PAS
MANITOBA

GEOLOGICAL SKETCH MAP OF MANITOBA

BRITISH COLUMBIA IN 1918

By Robt. Dunn.

With the approach of the end of the year it is the custom to cast the eye back over the twelve months about to expire, with a view to ascertaining what has been accomplished in comparison with other similar periods. By this means it is possible to determine whether, in the particular industry under review, the country is making progress or otherwise. To no one is vouchsafed the gift of unerring accuracy in prophecy, but it is interesting, by taking the figures available and gauging the general conditions of the moment, to endeavor to arrive at some conclusion as to what the future is likely to hold for the special line of endeavor being discussed.

It is generally admitted that British Columbia is wealthy in its minerals. From the fifties of the last century it has been widely known as a mining province. Ever since the fame of the gold fields of the Cariboo District brought thousands of pioneer prospectors to the then unexplored and little-known Canadian West, British Columbia has been recognized as one of the most important of the mineral sections of the Dominion. Its output has steadily mounted and, though outstripped by the province of Ontario up to the present, there are many who predict that the time is coming when the Pacific Coast province will justify the faith of those identified with the development of its mineral by overcoming the lead now established, and obtaining and maintaining a comfortable margin.

When the war was declared in 1914, and various forms of mineral became an imperative necessity to the allied nations, this province, in common with all other mineralized sections of America, began to experience a stimulation of activity which made its mark on the annual production and, of much greater importance, brought home to local mining men and to outside parties interested in mining, a clearer conception of the mineral resources of the province. This advance in output continued until 1916, when the record of \$42,290,462 in mineral values was established. Then came the drop of 1917 with \$5,280,070 less, the total being \$37,010,392. Different explanations were given of this decline, chief among which were labor troubles, and those who discuss these matters, and whose judgment the general public has been educated to accept, ventured the opinion that, barring similar distressing experiences, it was likely that the 1918 production would come back to that of 1916. Will it? Were the predictions of those referred to sound and are they going to be borne out by the statistics that shortly will come to hand?

These are the questions which are being debated as the year draws to a close. They are subjects of much argument and much speculation.

Copper Production in 1918.

It is not the intention of the writer to venture, even now, on the quicksands of prophecy; but it may be said with reasonable assurance that British Columbia, when the books of 1918 are closed, having been audited and found correct, will be found with a copper production to her credit in excess of that of 1917, but possibly not quite up to the mark of the record year of 1916. This assertion is based on the figures available for the first nine months of the year.

Before going any further, it seems best to explain, as far as possible, the situation with regard to copper

production. In 1916 it totalled 65,379,364 lbs. and in 1917, 59,007,565 lbs. Official returns indicate that the Granby Consolidated Mining & Smelting Co., by far the largest producer of copper in the province, had turned out at the end of the month of September, or during the first nine months of the year, 29,081,635 lb.; the American Smelting & Refining Company at its Tacoma, Wash., smelter had produced from British Columbia ores over the same period, 16,344,376 lb.; and the Ladysmith Smelting Corporation, at its Ladysmith smelter, which now is closed down, had produced 96,212 lb. No advice has been received as to the results of the operations of the Consolidated Mining & Smelting Co. at its Trail Smeltery. The Northport Smelting & Refining Company reports that, at its Northport Smeltery, no British Columbia ores had been treated during the first three-quarters of the year. Therefore, the total output for nine months of 1918, of which there is knowledge, was 45,518,223 lb. Therefore, there must be produced in the last three months of the year 13,489,342 lb. in order to equal the mark of 1917. Simple figuring shows that the Granby smelters have been producing at the rate of 9,693,878 lb. a quarter and the Tacoma smelter at the rate of 4,086,094 a quarter. If they alone continue this pace until the close of the year the additional production will aggregate 13,779,972 lb. and the provincial production will reach at least 59,298,195 lb., or 290,630 lb. in excess of 1917. Working on the basis given the margin resulting is small; but it must be remembered that nothing is said of the Consolidated Mining & Smelting Company's production which, it is to be presumed, will not be inconsiderable. It is with these facts in mind that the prophecy is ventured that in copper, the back-bone of British Columbia's mineral industry, 1918 is likely to make a more satisfactory showing than the preceding year.

Silver, Lead and Zinc.

It is impossible to say much at the present moment with respect to the production of silver, lead and zinc. From general information it is surmised that silver will about equal in value the 1917 figure, but lead and zinc are likely to be somewhat below the previous year.

In explanation of these statements it can only be said that operations have been affected by the high costs and the difficulty of obtaining labor. These two factors, so pronounced throughout 1918, have had their influence on mining throughout British Columbia, as they have, no doubt, on the industry in other parts of Canada. Unquestionably the greatest producer of lead and zinc in the West is the Consolidated Mining & Smelting Co. at Trail. The story of the demand for zinc in the earlier days of the war is well known. It will be remembered that the price at one time advanced to 40 cents and all mining men in this section know that the Trail smelter management, because of the need of this metal for munition purposes and because of the high prices offering, installed an electrical plant, costing some \$2,000,000, for the purpose of recovering the zinc from the fractious ores of the Kootenays. At the high prices it was profitable; but whether the plant, under conditions of the day, is proving a commercial success, is another question. In fact, the company obtained from the Dominion Government a bonus on zinc production, to be applied should the price fall below a certain figure, and, no doubt, is now receiving assistance under this legislation in order that the industry may not receive a knock-out blow and in order that valuable experiments in the treatment of the

silver-lead-zinc ores of the Eastern Districts of the province may be continued. With these circumstances in mind, and having before us the recollection of the number of zinc plants which sprung up in the United States following the great call for the metal, and remembering that this company was not exempt from the problems of costs and labor, it cannot be supposed that its production of zinc in 1918 will prove to be record-breaking.

Investigation of Smelter Costs.

While referring to the Consolidated Mining & Smelting Company, it is apropos to state that it has been, and still is, rather a storm centre, so far as the mining fraternity of the eastern part of the province is concerned. The trouble is of long standing; in fact it was the subject of debate at the last session of the British Columbia Legislature when a motion was introduced to the effect that the affairs of the company should be subjected to rigid and thorough inquiry by a Board of Investigation clothed with authority to take evidence, examine books, etc. At the time, however, the Associated Boards of Trade of Eastern British Columbia had the matter up with the Dominion Government, having appointed a committee to apply the probe and having asked that the Federal Administration support their nominees in the work financially and, so to speak, morally. This being the situation, Hon. Wm. Sloan, Minister of Mines, suggested that it would be better to defer provincial action until it was learned what the Ottawa authorities proposed to do. On behalf of the Government he agreed that, should the committee be properly authorized, he would be glad to see that the province was represented and, on the report of this representative, it could be determined whether further provincial action was necessary. Shortly after, it was learned that the Dominion Government was glad to give the aforesaid committee moral backing, but hesitated as to finances. Further pressure, however, elicited this support as well, and now the committee is prepared to proceed. The Spanish influenza interfered with plans made recently; but the inquiry, it is assured, will be started at an early date. The committee's work is to establish whether the charges made by operators in the Kootenay and Boundary Districts that the rates imposed for treatment of custom ores at the smelter are unfair and unjustified. The smelter's customers allege that schedules issued during the year leave them little or no profit and that, in many instances, small operators are driven to close down their properties. Some take the extreme view that the smelter should be taken over by the Government. The smelter management, on the other hand, maintain that the schedule allows them the smallest possible margin for treating and marketing the ore purchased and that the changes made from time to time have been rendered necessary because of increased costs and by reason of fluctuations of market quotations. They declare that an impartial investigation is welcomed.

To revert to the question of production, the record of tonnage of ore received by the Trail smeltery for treatment during the first ten months of the year possible is of some significance, especially with reference to zinc and lead, and to a lesser extent in regard to gold.

Gold Mines Suffered as in Other Provinces.

Before giving the figures, a word may be said as to gold, now that it has been mentioned. That the production of the placer grounds of British Columbia will show a decline, more or less marked, cannot be doubted.

The reasons for this are the same in this province as they are in all parts of America, viz., the fixed value of gold, high costs which are conservatively estimated to have advanced 60 odd per cent. in the West, and the scarcity of labor. In the Atlin District, for instance, it is said that it was very hard to obtain workmen at any price and, incidentally, one of the largest of the hydraulicking concerns of the camp, the Columbia Mines, Ltd., was obliged to close down and its plant was sold for a song to creditors. Indubitably this was the result of the difficulties enumerated—difficulties, as has been said, which have been common in all gold-mining centres and which led to a widespread and strongly supported agitation in the United States for the institution by the Government of a policy of subsidy or bonus in order that the industry might not languish and that the production of the precious metal so necessary in the re-adjustment of the world's credits, might be stimulated.

Ore Treated at Trail.

The Trail Smelter figures mentioned show that from January to October, 1918, inclusive, 271,417 tons of ore were received as compared with 327,639 for 1917, and 415,983 for 1916. (same period); that at the end of October, 1917, there were 148 mines shipping to Trail more or less regularly while on October 31st, 1918, the total of the mines that had shipped during the year was 122; and that in October, 1918, there had reached the smelter 26,042 gross tons of ore as compared with 49,975 tons for October of the previous year. The latter parallel, however, is scarcely fair, as October of last year was an exceptional month in point of receipts. The following table of gross tonnage receipts at Trail for each of the first ten months, 1916, 1917 and 1918, is interesting at this time:

	1916.	1917.	1918.
January	26,986	36,570	27,404
February	37,863	40,967	33,989
March	43,810	42,949	41,725
April	41,771	25,909	37,029
May	43,031	15,969	21,162
June	42,252	17,129	17,956
July	40,268	20,744	20,871
August	46,814	38,134	23,465
September	42,863	39,293	21,765
October	40,350	49,975	26,042
Totals	415,983	327,639	271,417

No. 5 Mineral Survey District.

No. 5 Mineral Survey District, which includes all the eastern part of the province, is in charge of Mr. A. G. Langley, the resident engineer, with headquarters at Revelstoke, B.C. It is the operating mines of this section which contribute much the greater part of the ore for the Trail smelter. Mr. Langley, in discussing the season's work, roughly compiles the tonnages of ore sent to Trail from the several mining divisions under his supervision as follows:

	1918.	1917.
Slocan	13,097 tons	27,657 tons
Ainsworth	16,249 "	9,105 "
Slocan City	157 "	199 "
Fort Steel	81,528 "	116,324 "
Windermere	2,339 "	2,211 "
Nelson	3,934 "	8,108 "
Golden	803 "	272 "
Trail Creek	105,897 "	97,717 "

Thirty-four properties, which made small shipments in 1917, are listed as having dropped from the shipping list this year.

The resident engineer, in going into details, states that the Slocan, and especially the Sandon Camp, is enjoying more activity than has been experienced for a number of years. The closing down of the Standard Mine, he declares, is likely to result in a decrease in tonnage production in 1918 from this particular part but "other developments which are now taking place will tend to make future shipments from this district compare favorably with those of former years." On the other hand, the Ainsworth District has had a banner year and the production will greatly surpass that of the past. The same is the case with the Slocan City Division, while the Fort Steele Mining Division probably "will show an increase in gold production, on account of the recent hydraulic work and possibly a slight decrease in silver, lead and zinc." Referring to other mining divisions, he asserts that Windemere and Golden will show slight increases, that Nelson's output will be about the same as last year and that the returns from other districts will compare favorably with 1917.

Concluding, he remarks that "generally speaking, I would consider that there has been actually more prospecting done this year than last."

No. 6 Western Mineral Survey District.

Mr. Wm. Brewer, resident engineer in charge of Western Mineral Survey District, No. 6, which embraces Vancouver Island and a part of the lower mainland, mentions twenty-one properties within his purview on which new work either is in progress or is contemplated. In this district there has been one new metalliferous shipping mining property developed during the year. It is the bog iron deposit situated near Mons on the Pacific Great Eastern Ry., and is sending ore to the Irondale smelter for fluxing purposes.

North-eastern District.

In discussing mining conditions in the North-eastern District, Mr. J. D. Galloway, district engineer, observes that the scarcity and high price of labor, the high cost of mining supplies, especially powder and machinery, and the reluctance of capitalists to invest in purely speculative mining development has retarded progress during the past year. He adds, however, that there is a large virgin field in the North-eastern District for prospecting and undoubtedly when men return with the declaration of peace, prospecting, which now has practically ceased, will again be revived and many new discoveries may be made. He enumerates twelve properties on which development work is under way.

North-western District.

Mr. George Clothier, resident engineer North-western District, speaks of fifteen properties which are being opened up in the further development, in some of which plant is to be installed.

In No. 3 District, of which Kamloops City is the centre, Mr. R. W. Thompson, the resident engineer, enumerates fourteen properties on which new work is being done.

There has been considerable activity in No. 4 District, Boundary Country, of which Grand Forks may be styled the hub and over which Mr. P. B. Freeland presides as resident engineer.

Good Progress in Coal Mining Industry.

It is possible to speak of the coal production of

British Columbia during the past twelvemonth with enthusiasm and to view the future with optimism. The gross tonnage output up to the end of October was 2,204,255 tons, the results of the month of October giving the encouraging total of 217,482 tons. Place this beside the aggregate for 1917, which was 2,398,715 tons, and it will be readily seen that, with two more months to go at the time of writing, the prospects are that 1918 will show an increase over the previous year and possibly top the record of 1916, which was 2,485,580 tons. To reach the 1917 aggregate, 194,460 tons have yet to be mined. Certainly this should be achieved, providing nothing serious happens in the interim, and it would seem safe to predict that the province will show an output at least a quarter of a million tons in excess of the previous year.

This is especially gratifying as the operators throughout the province have been confronted with problems, not alone of costs and labor, but of the necessity in some instances of opening new mines to replace those that have become exhausted and to maintain the output. Mines closed down include No. 4, Extension B.C., Canadian Collieries (D) Ltd., and Nos. 1 and 2 Slopes, of the Pacific Coast Collieries, South Wellington. In the former case the Canadian Collieries immediately arranged to maintain their tonnage by opening No. 5 Mine at South Wellington, which now is in operation and making a first-class showing.

The Pacific Coast Collieries, on their part, are maintaining Nos. 3 and 4 shafts, Morden Mine, South Wellington Colliery, from which they are obtaining good results. The British Columbia Coal Mining Co., in October of 1917, had its Jingle Pot mine closed down by the inspector of mines because of an outbreak of fire. It was not re-opened until a short time ago, but now its tonnage is slowly advancing. On the other hand, the companies have had an accession to their ranks in the Granby Consolidated Mining & Smelting Company's new colliery at Cassidy's, Vancouver Island, the production of which now has reached quite a respectable total. Development work, too, has been undertaken by the old concerns.

B.C. Coal Output Statistics for the First Nine Months of 1918.

	Island Fields.	
	Output, 1917, Jan.-Sept. inclusive. (Tons.)	Output, 1918, Jan.-Sept. inclusive. (Tons.)
Canadian Western Fuel Co.....	472,656	563,605
Canadian Collieries (D), Ltd. (Cumberland)	387,172	419,516
Canadian Collieries (D), Ltd., (Extension)	218,223	173,429
Canadian Collieries (D), Ltd., (South Wellington, new mine)		11,951
Pacific Coast Coal Mines, Ltd. ...	120,448	70,385
B.C. Coal Mining Co.	61,065	3,673
Nanoose Colliery Co.	15,583	25,083
Granby Cons. Mining & Smelting Co. (Cassidy's)		10,195
Totals	1,275,147	1,277,847

Island increase up to end of September, 2,700 tons.

Crowsnest Field.

	Output, 1917, Jan.-Sept. inclusive. (Tons.)	Output, 1918, Jan.-Sept. inclusive. (Tons.)
Crow's Nest Coal Co. (Coal Creek)	216,778	319,209
Crow's Nest Coal Co. (Michel) ..	76,054	157,290
Corbin Coal & Coke Co. (Corbin)	57,348	95,511
Totals	350,180	572,010

Crowsnest increase up to end of September, 221,830 tons.

Nicola-Princeton Field.

	Output, 1917, Jan.-Sept. inclusive. (Tons.)	Output, 1918, Jan.-Sept. inclusive. (Tons.)
Middlesboro Colliery Co. (Merritt, B.C.)	57,860	79,542
Fleming Coal Co. (Merritt)	7,439	22,451
Merritt Colliery (Merritt, not now operating)	9,345	.....
Columbia Coal Co. (Coalmont, B.C.) new mine .....	.....	2,985
Princeton Coal & Light Co. (Princeton)	31,544	31,688
Telkwa (new mine) .....	.....	150
Totals	106,158	136,816

Nicola-Princeton increase up to end of September, 30,658 tons.

Total increase in tonnage, 255,188.

The tonnage returns for the month of September showed a decline of 75,777 tons as compared with the results during August. The trouble in September was the strike at Fernie and Michel, B.C., when the mines were closed down, the men striking for a Single Shift as the only satisfactory means of adequately safeguarding the dangerous condition of the mines. The production of the Crowsnest Pass Field was seriously affected. The chart shows that the output in this section had declined steadily from the beginning of the year to the end of August, at which point it takes a decided slump, no less than 60,000 tons of coal being lost because of this difference between the miners and their employers. Whether the mines were in a dangerous condition, which condition would be improved by the Single Shift System, remains to be demonstrated by Royal Commission, it being provided under the terms of the agreement by which the mines were re-opened in accordance with the men's demands that the point indicated should be subject to inquiry on the part of such a body. The personnel of the Commission, however, has not yet been announced, but is expected to be made known very shortly. The tonnage total also was influenced during September by the fact that there were more than the usual number of off-days, there being Labor Day, five Sundays, a thirty-day month, as well as the Nanaimo accident, in which sixteen miners lost their lives when the hoisting cable in No. 1 Shaft, Protection Western Fuel Co., broke and let a descending cage crash through the heavy timbering at the bottom, carrying its passengers to a terrible death. The months of October and November have developed their particular trouble for the operators who are striving to maintain the pace set early in the year and to establish a record for 1918. It is the influenza plague. And

while there is a disposition to treat this matter lightly, its seriousness in the coal mining camps of this province cannot be questioned. The production of the Canadian Western Fuel Company, Nanaimo, B.C., for October was 59,219 tons. This is the total for 27 working days as against 61,200 tons for 25 working days in September. Compare those two figures and some idea is obtained of the ravages of the epidemic among the miners. Clearly it has reduced this company's daily results by about 300 tons, which, it will be admitted, is no inconsiderable amount in the aggregate. And from authoritative reports the same difficulty not only is being met with in other Island camps but is being experienced at present in somewhat accentuated form in the Crowsnest Field.

War Minerals.

There are two points to which attention should be directed in concluding a summary of the year's mining activity in the province of British Columbia. One is that the pressure of the war brought to light some of the minerals of which little was generally known until their necessity for munition purposes was emphasized. Most important of these is manganese, of which several most promising deposits have been located in the Cowichan District, Vancouver Island, and no doubt will be developed without loss of time. Chromite, also, has been discovered and, although nothing can be said as to the extent of the deposits, those which have been recorded in No. 4 Mineral Survey District, near Midway and on Scotty Creek, north of Ashcroft, are said to be encouraging in their indications. Then there is a very promising molybdenite property at Alice Arm; scheelite in the Cariboo District, near Barkerville; and platinum on the Tulameen River and in some placer ground of the northern country. With respect to the Tulameen placers the Dominion Government has been prospecting bed-rock at several points, using a Keystone drill for the purpose, and good results have been obtained.

Bright Outlook for Coming Year.

The second point is that the future is bright and is so considered by all identified with the industry. The catch phrase that "the mineral resources of the country have but been scratched" can be applied to this province literally and without exaggeration. Naturally, problems are constantly becoming apparent, the annual output fluctuates considerably, but the upward curve, as will be shown by a glance back over the records, has been steadily maintained. In the last few years this tendency has been more marked and it is the consensus of opinion that, with the return to normal conditions now that peace is in sight and the demands of the reconstruction period at the threshold of which we stand, the mining industry of the province is bound to come into its own.

KIRKLAND LAKE GOLD.

Considerable delay, occasioned by the shortage of labor has retarded development and construction work at the Kirkland Lake Gold property of the Beaver Consolidated Mining company. Construction work on the new head frame at the central shaft is well under way however, and the structure should be completed this month. This headframe will be 80-feet in height and when completed everything will be in readiness for the commencement of production in the new 150-ton mill, which is now being tuned up.

THE COAL TRADE OF NOVA SCOTIA IN 1918

By F. W. Gray.

The trend of the coal industry in Nova Scotia is indicated by the subjoined tabulation. The figures given for 1917 and 1918 are closely approximate, and an attempt is made to forecast the probable production of 1919. In last year's Review the writer forecasted the 1918 production as likely to be—barring accidents or stoppages of work—in the vicinity of 5,300,000 tons. A reduction of about 100,000 tons was caused by the explosion at the Allan Shaft early in the year. With the exception of a strike at the Pictou Collieries during the summer, which lasted a fortnight, there were no other notable interruptions to production.

Coal Outputs in Nova Scotia (Tons of 2,240 lbs.)

Tons	Percentage from Cape Breton Island per cent.	Percentage from Main-land Mines per cent.	Percentage of Reduction from the basis of 1913 per cent.
1913 ... 7,263,485	81½	18½	...
1914 ... 6,650,031	81½	18½	8½
1915 ... 6,709,951	82½	17½	7½
1916 ... 6,171,424	81¼	18¾	15
*1917 ... 5,667,000	77¼	22¾	22
*1918 ... 5,175,000	77¾	22¼	29
†1919 ... 5,100,000	77½	22½	30

*Approximate.

†Estimated.

The production for 1919 has become a factor of greater uncertainty because of the suspension of hostilities and the probability of a return of the soldiers to work, but it would appear probable that the decline in production will continue during the first half of 1919, and that the outputs may commence to increase by the summer, when presumably some of the soldiers formerly employed as miners will have returned to the collieries.

Some difficulties may arise whenever the soldiers commence to return in large numbers if they should apply for work at the collieries, at least so far as those men are concerned who cannot work at the production of coal at the coal-face, either because of inability or because they prefer other work around the collieries. At the present time, and throughout the greater part of the war period, the restricted production, and in a great part the increased cost of mining also, has been attributable to a shortage of skilled miners and face-workers. There are employed at the collieries a disproportionately large number of non-producers, and before any more men of this class can be employed, and indeed before the men now working in this class can be employed to their full efficiency, it will be necessary to augment the number of producers. These men are most badly needed, but they are needed in advance of any general increase of the colliery working forces, and there may be misunderstanding, or worse, when the soldiers return and apply for work at the collieries, unless this condition is thoroughly understood. If the shortage in producers can be made up, presuming a sufficient market for coal, then outputs can be increased, costs can be decreased, and employment can be given to men who otherwise will be out of work. But it should be realized that as the enlistment of men from the collieries was of a discriminating character, seeing that it was largely confined to the producing class, so must the re-employment discriminate against non-producers until the existing disproportion is remedied.

It cannot be claimed that the future of the coal industry in Nova Scotia is encouraging. Because of the operation of adverse factors, which were fully dealt with in the 1917 review, the coal operators find themselves confronted with a labor shortage, war-time wages, a permanently increased getting cost, and collieries that are either approaching exhaustion, or are incapable of producing the pre-war outputs because of the arrested condition of their underground development, brought about by a labor shortage extending now over a full three years.

The actual cost of mining coal in Nova Scotia exceeds greatly the maximum selling prices allowed by the United States Fuel Administration at the bituminous mines in that country. In some instances it costs twice as much to defray the bare outlay on wages and materials as the maximum pit-mouth selling prices just referred to. The bituminous coal production in the United States to-day is in the neighborhood of 700,000,000 tons annually, and an increase of 18 per cent. over 1917 figures has been achieved. The coal production of Nova Scotia now barely exceeds 5,000,000 tons per year, and it shows a reduction from 1917 figures of about 9 per cent.

For the first time it appears probable that Nova Scotia will fall behind Alberta in coal production, for, in the expectation of the Chief Inspector of Mines for that Province, Alberta is looking towards a production of 6,000,000 tons in 1918.

The position of the Nova Scotian coal industry has latterly been obscured by the dominance of the steel industry, because the percentage of the coal output used in steel manufacture is now so great as to have made the production of coal for domestic uses a secondary consideration. So long as the steel trade continues profitable this condition of affairs may continue, but it will eventually become plain that the coal industry itself is the basis of industrial prosperity, and the coal industry cannot be regarded as stable unless in addition to supplying the steel industry with the required fuel, it can also provide the railway, shipping, factory and domestic requirements of the accustomed distribution area of Nova Scotian bituminous coal. At the present time this is not possible, and unless the coal operators of Nova Scotia are resigned to going out of business entirely they must speedily take steps to increase the coal production, for only by increased production can the cost of extraction and marketing be reduced to figures that will permit of sales being made in competition with United States fuel, just so soon as the present coal shortage passes away.

The miners of Nova Scotia, so far as they are represented by the Amalgamated Mine Workers of N. S., have announced their intention to demand a substantial increase in wages at the end of the year, an increase which will be cumulative upon advances since 1916 totalling from 75 to 100 per cent. The miners' leaders state they wish to be paid wages on a scale as high as that of the highest paid miners on the Continent, but it is quite certain that if the miners of Nova Scotia wish to be paid the same wages as it is claimed are earned in some of the States, they will have to move to the States, because there is no blinking the fact that the extraction of coal in Nova Scotia is pursued under natural conditions that make the cost of mining much higher than in the United States, and this handicap must be accepted by all who engage in the industry. Miners' wages in Nova Scotia have reached, if they have not exceeded, the maximum burden that the economic limitations of the industry will allow.

The long-standing wage agreement between the Dominion Coal Company and its mine workers expires at the end of 1918, after having run continuously—with supplements and modifications—for a period of fourteen years. This agreement, while existing only between the Dominion Coal Company and its employees, has really dominated the wage agreements elsewhere in Nova Scotia.

In view of the critical stage at which the coal industry has arrived it is to be hoped that wise and moderate counsels will prevail in negotiating a new wage agreement, because it is to be doubted whether since the era of depression in the coal trade that paved the way for the formation of the Dominion Coal Company twenty-five years ago has the outlook of the industry been so uncertain. In fact the logic of events will eventually force the coal operators, as it did in 1893, to realize that in consolidation of interests lies the only hope of healthy survival.

SPECIAL CORRESPONDENCE

Kirkland Lake.

Interest is increasing in the southern section of the Kirkland Lake Gold Area, the chief properties in this section are the Ontario-Kirkland, Canadian-Kirkland and Hunton-Kirkland properties. Interest attaches to the Ontario-Kirkland through the fact that the company expect to have their new \$15,000 mining plant in operation by the middle of the current month, when the work of sinking the main shaft to a depth of 300 feet will be proceeded with at once.

Mr. D. Angus, of the Right of Way Mines, Cobalt, and Mr. George E. Drummond, of Montreal, are understood to be negotiating for purchase of control of the Canadian Kirkland, which is located a short distance south of the Kirkland Lake Gold property, and to the west of the Ontario-Kirkland. The Canadian-Kirkland occupies a leading place among the undeveloped properties of the Kirkland Lake Camp. A number of large well-mineralized veins have been opened up with the limited amount of development work already done. Two of these veins have been found to contain free gold and the assays as a result of careful sampling show a very encouraging grade of ore. The geology of the property is exceedingly favorable for the deposition of commercial ore bodies.

Negotiations involving purchase of control of the Hunton-Kirkland are also under way. Exceedingly rich specimens of gold ore were taken from the Hunton-Kirkland property in the early days of the camp from the surface workings. Just prior to the outbreak of war, the property became involved in a deal with English interests.

Lightning River

The case heard recently before Mining Commissioner T. E. Godson, K.C., regarding the claims in the Lightning River district known as the Howie Cochenour has been dismissed. Mr. R. N. Austin entered claim against W. M. Cochenour, L. B. Howey, M. R. Howey and George F. Martin for an interest in the claims above referred to, but the claim was disallowed. Work at the property has been suspended for the time being at least, owing, it is said, to the difficulties and high cost of transportation. It is understood that while good encouragement has been met with, the cost of operation has led to the discontinuing of the work. It required about four days for a team of horses to

make the road trip from the railway to the mine with about half a ton of supplies. Whether or not plans are being made for a resumption of work at some later date has not been announced.

Hollinger Makes New Record.

It is evident the output of the Hollinger-Consolidated for the year 1918 will exceed \$6,250,000. This entirely eclipses any previous records of the company and is the greatest yearly production from any precious metal mine in the Dominion of Canada. This is all the more remarkable when the prevailing conditions regarding gold mining in general are taken into consideration, scarcity of labor and high cost-of materials of all kinds. The Hollinger has been operating with but about half the men required and utilizing about half of their large milling equipment. During the year several miles of new underground work has been done, during the course of which a number of large and important ore bodies have been added to those previously known and a large amount has no doubt also been added to the already huge ore reserves. The 425 foot level continues to constitute the main source of ore supply. The property is developed in such a manner as to permit of great economy in mining. All levels above the 425-foot might be termed auxiliary levels, as all the ore from these workings finds its way through various passes to the main haulage way where it is loaded onto cars and conveyed by electric power to the main shaft and hoisted to the mill for treatment. Not far under 1,500 tons of ore are hoisted at the property every twenty-four hours or approximately 45,000 tons per month. Under normal conditions and working the property to full capacity the amount of ore hoisted annually will probably be about 1,000,000 tons. It is estimated that the monthly output of the mine has been around \$520,000 with a net profit of about not far under \$300,000, for at least a few of the twelve months. It will probably be some little time after the close of the year before the official statement of the company will be available and the result of operations in detail made known. However, from a careful study of the statistics available it is expected that the net earnings of the company will be about three million dollars or equal to about 11 per cent. on the issued capital.

With the prospects of sufficient labor to operate at capacity early in the new year, it would appear that 1919 has great possibilities of showing an even greater production.

To Drill O'Donald Claims.

Arrangements are said to have been completed for the commencement of a diamond drilling campaign on the O'Donald claims at Boston Creek. The full extent of the work planned has not been made known yet. The O'Donald claims have been under option to various interest since the commencement of development of the Boston Creek area, and are said to have much merit. They are well located and should benefit materially from work being done on properties in the immediate neighborhood.

Tellurides on Campbell Claims, Catherine Township.

Very satisfactory results are attending development work on the Campbell claims in Catherine township near the Miller-Independence. The claims are situated in a direct line with what is considered to be the strike of the main vein of the Miller-Independence. One strong vein opened up on the property contains tellurides as well as visible gold. The property is owned by Duncan Campbell of Haileybury.

Cane Silver.

Trouble appears to be brewing for the Cane Silver Mines, Limited, with property situated in the township of Cane, near Kenebeck Station, on the Elk Lake branch of the T. & N. O. railway. In 1913 the property was optioned to Col. D. B. Shepp, of Philadelphia, at which time considerable surface exploration was done and a shaft sunk to a depth of 50 feet. While a good deal of encouragement was met with, the ore deposition was found to be erratic and the option was allowed to expire. Since that time various interests have had the property under exploration, but without success in the finding of silver ore in commercial quantities. The Trethewey Company of Cobalt held an option on the property for a short time recently, but decided not to exercise it. Toronto interests later organized a company known as the Cane Silver Mines Company, to operate the property. It now transpires that the latter company propose granting a ten-year option on the property with the privilege of renewal for a like period to other interests. The original owners of the property, who are Elk Lake men, appear to be opposed to such action and reports state that they are preparing to endeavor to prevent the consummation of such an agreement.

Silver was first discovered in this part of the township of Cane in the spring of 1913. The most consistent effort to develop the property was while under lease to Col. Shepp, since which time operations have never been continued for more than a few weeks at a time. One large aplite vein was opened up on the surface; in which leaf silver was to be seen, while a number of narrow veins carried spectacular samples of native silver.

Paragon-Hitchcock.

One machine and one shift of men is engaged in development work at the Paragon-Hitchcock property near Elk Lake. Since October 1st about 130-feet of lateral work has been done at the 100-foot level. Results met with are said to have been promising.

Plans are said to be under way for the resumption of operations at the property of the Moosehorn Mines. It is announced that endeavors are being made to secure the necessary capital to commence work again in February. In the early days of the Elk Lake boom, two or three shipments of high-grade ore were made from this property. Work at this time was confined principally to surface exploration, no effort being made to work the claims at depth.

Foster Mine.

From present indications the ore shoot encountered

some time ago at the Foster property will produce about one car-load of high grade ore. The ore is exceptionally rich and will make up a very valuable consignment. At the time of writing the high grade has disappeared from the vein in the face of the drift. The working however is being continued with the expectation of encountering a recurrence of the rich deposit. The vein is showing in the roof and floor of the drift, and a good deal of ore still remains in place.

MARKETS

Messrs. J. P. Bickell & Co. report the following quotations of the Standard Stock & Mining Exchange, at the close of business, December 10th, 1918:

	Bid.	Asked.
<i>Gold.</i>		
Apex .....	.03 3/4	.04
Boston Creek .....	..	.34
Dome Extension .....	.26 1/2	26 1/2
Dome Lake .....	.18	..
Dome Mines	12.00	12.90
Imperial .....	.02 1/4	.02 1/2
McIntyre	1.73	1.74
Hollinger	6.25	6.30
Newray .....	.15 1/2	.17
Porcupine Crown .....	.24 1/2	.25
Vipond .....	.22 1/4	.25
Preston .....	.03 1/2	.04
Teck-Hughes .....	.32	.34
West Dome .....	.14	.15
<i>Silver.</i>		
Adanac .....	.09	.09 1/2
Bailey .....	.05	.04 1/4
Beaver .....	.38	.39
Ferland .....	.10 1/2	.12 1/2
Coniagar .....	..	3.35
Crown Reserve .....	.22	.23
Foster .....	.03 1/2	.04
Gifford .....	.03 1/8	.03 1/4
Great Northern .....	.03	.04
Hargraves .....	.02 1/2	.03
Hudson Bay	23.00	..
Kerr Lake .....	..	5.90
La Rose .....	.33	.35
McKinley .....	.45	..
Peterson Lake .....	.09	.09 1/2
Temiskaming30 1/4	.31
Tretheway20	..
Wettlaufer04 1/2	..
Mining Corp.	2.20	2.40
Ophir04	.04 1/4

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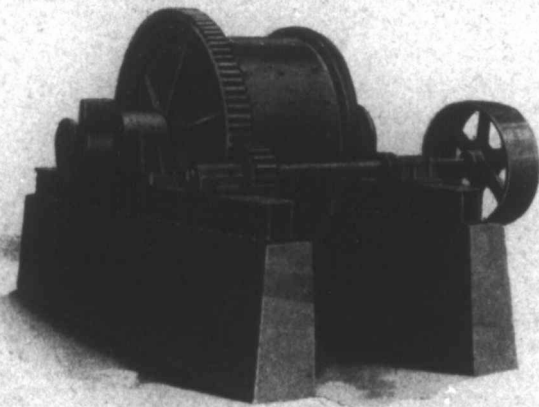
Harry P. Corliss.

Dr. Harry P. Corliss, Chemical and Metallurgical Engineer with the Metals Recovery Company, died on November 16th, at the age of thirty-two years, at Ray, Arizona. His death was the result of pneumonia following influenza.

In 1910 Dr. Corliss received the degree of Bachelor of Science in Chemical Engineering at New Hampshire State College. He then continued his studies at the University of Toronto for two years, specializing in physical and organic chemistry. At the end of this time he accepted a position as Industrial Fellow in the Mellon Institute of Industrial Research, Pittsburgh, Pa. In 1913 he received the degree of Doctor of Philosophy at the University of Pittsburgh.

Dr. Corliss' work at the Mellon Institute extended over a period of five years. During most of this time he was engaged in research upon metallurgical problems. The research resulted in several important improvements upon the flotation process for the recovery of minerals. Perhaps his most notable contribution to this industry was his discovery of alpha-naphthylamine as a flotation agent. It is too early as yet to estimate the full value of the discovery to the metallurgical world, but the results already obtained with it justify the belief that Dr. Corliss' work will one day be recognized as being of first importance in this field.

In 1917 he accepted a position with the Metals Recovery Company in order to initiate the large-scale application of his discoveries. In this work he was uniformly successful and was rapidly making for himself an enviable reputation as a metallurgical engineer when death called him.



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