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A REAL MINISTER OF MINES NEEDED.

That committee of Civil Engineers which so completely misrepresented the mining societies of Canada, is recommending to Premier Borden that the Departments of Mines and Inland Revenue be placed under the same Minister. The suggestion is worthy of its authors. They apparently do not know any more about the magnitude of the mining industry of Canada than they do about the number of technical men in the mining societies.

Mining is one of Canada's greatest industries and should be recognized as such by the government. We should have as Minister of Mines a man familiar with the mining industry and he should not be given charge of any other Department. The job requires the whole attention of a properly qualified man, not the half attention of a politician.

Apparently those who have been chosen to govern the country look on the portfolio of Minister of Mines as a sop to be passed around to aspiring members, rather than a position of great responsibility to be carefully administered. How else can one explain the absurd selections that have been made in recent years?

The chief qualifications for the portfolio of Minister of Mines in Canada seem to be political favor and ignorance of mining. It is perhaps recognition of this fact that leads the Civil Engineers to suggest that the Minister of Inland Revenue might as well be also Minister of Mines. Possibly the same reasoning led our brilliant statesmen to combine the portfolio of Mines with that of Secretary of State.

Canada needs a Minister of Mines. We have had enough of the double portfolio nonsense.

The news that the plant of the Kristiansands nickel refining company had been destroyed by fire was received here with mixed feelings. There is regret here for the loss of the plant; but no regret for the cessation of export of nickel from Norway to Germany.

The Norwegian company was not a large producer of refined nickel; but it was under contract to sell a large proportion of its output to Germany. We are not sorry that Germany suffers by the fire.

The process used at Kristiansand is the Hybinette process, which is to be used in Ontario by the British America Nickel Corporation. The construction of a new plant in Norway at this time would therefore be of especial interest here.

Mr. A. A. Cole, President of the Canadian Mining Institute, is in British Columbia seeking the assistance of Westerners in the distribution of the Advisory Council's questionnaire. The Canadian Mining Institute is the organization best qualified to make an intelligent census of mining men in Canada and it is to be hoped that Mr. Cole's trip will result in the hearty co-operation of the Western branch.

THE STRIKE OF THE UNITED MINE WORKERS OF AMERICA IN THE WEST.

The strike of the U. M. W. of America in the western collieries is a thing to dishearten all patriots. At this distance it is not possible to judge who is to blame, but a condition of affairs which brings about a stoppage of coal production at this time is something which no government should tolerate and with which no decent man should associate himself. The strike is announced as "a pure formality" seeing that the miners have for several weeks been taking a "holiday." If there is anything worse than a lie it is a euphemism of this nature. The action of the Western miners is casting the same disrepute upon Canadian coal miners as did the action of the miners in South Wales, and in New South Wales, upon the miners of Britain and the miners of Australia respectively. The western situation is one that calls for stern and immediate action on the part of the constituted authorities of Canada, and the public should accept no excuse from any of the parties involved for a cessation of coal production at this critical juncture.

There have been ugly rumors from time to time of the effect of German propaganda in bringing about labor troubles in British Columbia and the Canadian West, and certain evidence given in the Franz von Rintelen trial now taking place in the United States does not serve to dissipate the uneasy feeling that certain well-informed quarters possess with reference to the conscious and unconscious connection of the United Mine Workers of America with the subtle propaganda that the Germans carried on to stop the production of munitions in the United States in the earlier years of the war.

Reference was made in this trial to the Rev. Dr. Thomas C. Hall of the Union Theological Seminary, and now of Heidelberg, and his connection with David Lamar, Frank Buchanan and von Rintelen. The evidence states that when Mr. Hall asked Lamar where he thought the propaganda ought to begin he replied "With the United Mine Workers of America," because he had had previous dealings with that organization. Lamar and Martin, one of the men the Government is prosecuting in the case, went to Indianapolis, Ind., where a meeting of the miners' union was being held. Through the intrigues of these men the United Mine Workers were induced to pass certain resolutions calculated to embarrass the manufacture of munitions of war in the United States. There are certain other interesting details showing how the German agents tried to compromise the late Secretary of State, Mr. Bryan, by working on his well-known peace proclivities. Evidently Mr. Samuel Gompers was not deceived by Lamar and his associates, but the United Mine Workers became the tool of German intrigue, probably without fully realizing the fact.

Whether the coal producers in the Canadian West have been beguiled unconsciously along the same pathway cannot be stated with any definiteness; but the result is the same. The miner who strikes today is an ally of the Kaiser, he is acting a disloyal and a traitorous part. He is doing exactly what von Rintelen spent half a million dollars of German secret service money to cause to happen. And worse still, this hampering of Britain's effort, this disloyalty to the thousands and thousands of brave men that went from Canada West to France, is taking place, not in the United States before the republic entered the war on our side, not in the hyphenated centres of the Middle West of which we have heard so much that evidently was not true, but right here in Canada.—F. W. G.

THE CIVIL ENGINEERS' MEMORANDUM.

Editor Canadian Mining Journal:

Sir,—Your rather startling statement (May 1st), vague as to details, referring to the Canadian Society of Civil Engineers, followed by your further remarks on May 15th, gave me no small concern, and being a member of both the Canadian Mining Institute and the Canadian Society of Civil Engineers, I have taken the trouble to ascertain the facts relating to the memorandum in question.

The memorandum on National Industrial Preparedness was not presented to the Government by the Canadian Society of Civil Engineers, but by four of its members and Sir Charles Ross, almost a year and a half ago. At the annual meeting of the Canadian Society of Civil Engineers the attention of the members was called to this memorandum and the suggestions made therein met with such general approval that it was ordered to be printed and distributed among the members. This was the first official notice taken of this memorandum by the Canadian Society of Civil Engineers, and was accepted in the best of faith as being compiled by men of integrity and responsibility.

Having read the memorandum—not having seen it before you referred to it—I submit that the plan outlined is an excellent one and deserving of commendation. Further, it was published by the Society in appreciation of the plan it contained and without the slightest thought of making comparisons derogatory to any other organization.

It is unfortunate that any comparisons were made in this memorandum and that figures relating to the Canadian Mining Institute were inaccurate and did not do justice to the mining fraternity. As soon as the attention was called of the Council of the Canadian Society of Civil Engineers that the table and the paragraph relating to other organizations were inaccurate, the members responsible for the memorandum were asked to correct any statements therein that were not in accordance with the facts, and it was resolved that all the publicity that had been given to the original memorandum, as far as the responsibility of the Canadian Society of Civil Engineers was concerned, should be given to the corrections to be made.

In this connection, I would suggest that it would greatly interest the mining men if you would publish in full this memorandum in your paper, calling attention to the errors appearing in it.

We want harmony and not discord among the technical men of Canada, and the fact that the secretaries of the Canadian Society of Civil Engineers and the Canadian Mining Institute are today working together in the closest accord in assisting the Honorary Council for Scientific and Industrial Research in distributing and getting in returns from the Research Council's Questionnaire, and are co-operating in an effective manner, shows that there is much to be gained by this meeting on a common ground; and the uniting of forces in this work should augur well for the future relations of these organizations.

Yours, etc.,

R. W. LEONARD.

St. Catharines, Ont., May 26th, 1917.

We are pleased to learn that at last these civil engineers are correcting their statements concerning the technical men of Canada. The memorandum ordered to be published by the Canadian Society of Civil Engineers showed plainly that no effort whatever had been

made to enlist the co-operation of other technical societies. Otherwise the absurd statements concerning the Canadian Mining Institute would not have been made.

As our correspondent points out, the memorandum was not presented to the Premier by the Canadian Society of Civil Engineers, but by four of its members and Sir Charles Ross over a year ago (May 15, 1916). Its inaccurate statements did not therefore get wide publicity until the annual meeting of the Civil Engineers approved of it and ordered it to be printed and distributed.

The letter accompanying the copies distributed is dated April 18, 1917.

The Canadian Society of Civil Engineers in recommending the publication of this memorandum has not merely failed to co-operate with other technical societies, but has made itself responsible for the dissemination of false statements concerning these technical societies.

Mr. Leonard suggests that we publish the memorandum in this journal calling attention to the errors appearing in it. We do not feel qualified to undertake to point out all the errors. We have pointed out some of those that refer to the Canadian Mining Societies. Whether the statements referring to the other technical societies are no more accurate than those referring to mining societies we leave for others to point out. After reading the statements concerning mining men we are naturally suspicious that much of the remainder of the memorandum may also be inaccurate.

While we have pointed out some of the inaccuracies in the memorandum we are ready to agree with Mr. Leonard that it contains many good suggestions worthy of consideration by all technical men. We would be glad to publish the memorandum if it were first carefully revised. Such revision would be made easy if the Canadian Society of Civil Engineers would co-operate with the other technical societies.

ON THE ORIGIN OF SUDBURY NICKEL DEPOSITS

Editor Canadian Mining Journal:

Sir,—The recently issued Report of the Royal Ontario Nickel Commission is in the main excellent, as would be expected from the ability and high standing of the commissioners, yet a geologist reads one portion of it with some surprise. He finds that all previous students of the geology of the region have been quite wrong in their interpretation of the ore deposits as formed by magmatic segregation, since they are really due to replacement by hot waters.

The gentleman, not a member of the commission, who prepared this part of the report, had already settled this point by studying some polished sections of ore, and so had an advantage over earlier workers, who attacked the interesting problems of the region without any prearranged theory. Knowing the true source of the ores he naturally finds little to commend in former reports, except Robert Bell's description of the sedimentary basin near Sudbury, which seems innocent of any magmatic taint. When T. L. Walker encloses the basin with micropegmatite merging outwards into norite, however, there is a dangerous approach to the doctrine of magmatic segregation, which, of course, vitiates his work. But the worst offenders are Barlow and Coleman, who boldly declare the ore deposits to be magmatic segregations from the norite the latter geologist even stating that the norite-micropegmatite belt is really a sheet underlying the sediments, and that

the ore settled to the lowest points by gravity. A good deal of space is devoted to refuting these heretical views, which are properly condemned whenever mentioned.

For instance, Walker's idea that micropegmatite merges into norite is shown to be quite unorthodox, since the process does not go on as rapidly or as regularly as it ought. Analyses specially made show practically no change in the composition of the norite for half a mile from the edge, so that the magmatic machinery worked badly, if it worked at all, and Walker was unwise to touch the risky subject. Again Barlow and Coleman claim that they have found blebs of ore completely enclosed in fresh norite. This error is demolished by showing that ore occurs also in weathered norite. It should perhaps be mentioned that Walker and Coleman have numerous thin sections which they believe prove their point; but it was not worth while for the writer to cross Queen's Park to see them. Talking over the matter with men who had taken the wrong road could serve no good purpose and might lead to controversy.

The fact that the ore really is found with norite seems a little embarrassing and leads to the suggestion that the norite looks like a dike. Just how this would avoid the difficulty is not shown, and the theory of a norite dike miles in width and enclosing a sedimentary basin, like a serpent biting its own tail, is not elaborated, but the idea is interesting.

The methods employed in refuting the errors of his predecessors are well shown in the account of the famous Creighton mine. Instead of a mass of ore which had settled to the bottom of the norite while liquid we are introduced to a sort of conglomerate or breccia of rock fragments cemented by sulphides brought in by water and occurring between a foot-wall of granite and a hanging wall of norite, but within the granite rather than the norite. The upper edge of the ore-body, instead of passing by gradations into the norite, has a "comparatively abrupt" contact with it; though we are informed a little later that "some of the mineralized norite near the deposit contains from 1½ to 2½ per cent. of nickel and copper combined," and that the spotted norite extends about 2,000 feet beyond the ore.

The explanation given is that hot solutions, coming from a source unknown, have removed the rock and replaced it by the millions of tons of sulphides of the ore-body. And this has all been done so deftly that the rock fragments left are perfectly fresh; no quartz or carbonate has been blunderingly introduced as a gangue; the ores themselves show no banding or crustification; and spots of ore have been neatly planted throughout 2,000 feet of the overlying norite, some of which at least is quite unweathered. Hot water accomplished the work unaided.

This account of things seems so reasonable that no evidence of the methods of replacement by "hot solutions" requires to be given, and the absurdity of the idea that the liquid ore separated from the molten norite and penetrated all the fissures and spaces of the fractured country rock beneath is manifest.

There are prejudiced geologists who still believe that micropegmatite passes downward into the heavier norite; that norite passes into pyrrhotite-norite; that cubic miles of this mixed rock overlie the great marginal deposits; that marginal deposits are always at the lowest points on the floor of country rock and never at upward bends of the contact; and that no ore is found without norite even in the longest offsets.

These features really look like magmatic segregation under the influence of gravity, but they are snares of the evil one. The true believer in the aqueous theory sees through the deception and knows that hot water did it all. One is reminded of the faith which removes mountains.

After the magmatic theory has been so completely discredited in the Sudbury region it is disquieting to find it crop up again a few pages farther on, quite unabashed, where another authority uses it in a modified form to account for the Alexo nickel deposit. There is the definite statement that no replaceable mineral has been attacked and that the ore reached its present position while molten and not by the action of heated waters; so that things happened at Alexo which have been quite discarded by the latest student of the Sudbury ore deposits.

The mining geologist finds much of interest and much to ponder over in the Report of the Royal Ontario Nickel Commission.

Yours, etc.,

GEOLOGIST.

THOSE PRODUCTIVE PHOSPHATES.

Editor Canadian Mining Journal:

Sir,—It seems mean to gloat over anyone who is smarting from wounds received in combat, but I cannot refrain from alluding to the answer or quiverfull of answers you got from Mr. White (winner of L.M.) re the discovery of phosphate deposits. I warned you at the time that your attack was ill-judged. Now see what you got! It was more like a shower of quills from a porcupine than anything else. Many a dog has attacked the harmless, if unmolested, porcupine in wanton sportiveness just because he looked slow and stupid and an easy mark, and has regretted it bitterly afterwards. You understand now how the dog feels, and can appreciate Seton-Thompson's famous picture of the porcupine and the dog reproduced below.

Yours etc.,

OBSERVANT READER.

Editor's note.—Those phosphate deposits seem to have produced a crop of correspondence, if nothing else.



AN APPRECIATION.

The reproduction, in colors, on the front cover of our March 1st number, of a specimen of gold ore from the Croesus mine has been favorably commented on by many of our readers. The following is from Mr. A. G. Charleton, a past president of the Institution of Mining and Metallurgy:

"I am greatly taken by your artistic frontispiece to the Journal of March 1st. It is the best thing of the kind I have seen, both from the point of view of the mineralogist and artist. It is absolutely truthful and realistic, whilst it is pleasing to the eye."

THE M. C. M. BATTALION.

Houghton, Mich., May 6.—A battalion of United States engineers, to be known as the Michigan College of Mines Battalion, is the result of an address delivered by Col. J. P. Petermann of Calumet at the banquet of the Alumni Association of the Michigan College of Mines last Saturday night.

After a lapse of one week, President F. W. McNair of the college was enabled to give out yesterday the announcement that the battalion virtually is organized, officered, and manned. The celerity with which this strong and important military unit was brought into existence indicates the patriotic intent of the Copper Country.

The plan of the battalion organization is this:

It will be known as the Michigan College of Mines Battalion of Engineers of Michigan in the National Guard of the United States.

It will be officered by alumni of the Michigan College of Mines, with the exception of present vacancies in the Calumet Company, which will be filled from among the membership of that company.

The Calumet Engineers will be Company A. Companies B and C will be wholly new, with the exception that their non-commissioned officers will for the most part be drawn from the Calumet company in order to facilitate the training and organization of the companies. Students and alumni of the college, practical miners and all eligible young men are asked to fill up the ranks.

The organization will be completed this week, with the companies up to full peace strength at least, and the battalion will be mustered into the service of the state within ten days.

Within a month it is confidently expected the battalion will be equipped and mustered into the service of the United States and in active training at some mobilization camp.

As soon as the preliminary organization is effected non-commissioned officers of the Calumet company will begin drilling the recruits.

Mr. B. W. Vallat will be major.

PLATINUM.

Most people are apt to think of platinum as pre-eminently adapted to settings for precious stones, but the metal is in fact indispensable to many essential industries. Platinum dishes and utensils are absolutely needed in all chemical laboratories, and upon these laboratories all great industries are dependent for guidance. Alloys have been devised for use in the ignition systems of internal-combustion engines, but no substitute for platinum has been found for certain delicate parts of these systems. Platinum and allied rare metals are widely employed in instruments of precision required for making physical tests of materials of all kinds. Probably platinum is now most valuable for its use in the contact process of making concentrated sulphuric acid, which is essential to a great number of industries that are vitally important at all times, and particularly in time of war.

MOLYBDENITE DEPOSITS OF ONTARIO.

By A. L. Parsons.

During the month of May and part of the month of June, 1916, the writer was engaged in an examination of the occurrences of molybdenite in eastern Ontario with a view to ascertaining not only the mode of occurrence but also the possibilities of production of this mineral which is in considerable demand at the present time for the manufacture of high-speed steel. In the present state of the industry it is difficult to accurately judge the possibilities of old prospects or even new ones upon which only a little work has been done, as most of the high-grade molybdenite has been removed from the older prospects and the remaining material has been oxidized and to a large extent washed away, while in the newer prospects it is seldom that fresh molybdenite shows on the surface, and it is necessary to estimate the quantity of rock that has been removed and then estimate the proportion of high-grade ore that has been laid to one side. In either case the results are likely to be fallacious, with the probability of minimizing the quantity of molybdenite present.

In view of the demand for molybdenite for munition work, this preliminary report is submitted before the completion of the work so that those interested in the development of the industry may have a list of the known occurrences to guide them in their search for properties and also that the prospector may have the common association well in mind.

With but few apparent exceptions to the rule, the molybdenite of eastern Ontario is intimately associated with pegmatite dikes in the gneisses and crystalline limestone, probably of Grenville age. In case limestone is present it is usual to find that the pegmatite is not directly in contact with the limestone but is separated from it by a band of pyroxenite which is presumably due to a chemical reaction between the pegmatite and the limestone. Where this pyroxenite is present it usually carries the greater part of the molybdenite and with it considerable quantities of pyrite and pyrrhotite. In certain instances brown and black mica replace part of the pyroxene. When limestone is absent and the pegmatite has intruded gneissic rocks the pyroxenite band is seldom present and the molybdenite is in the normal pegmatite, but in only one case did the writer find an outcrop where no trace of pyroxene was to be seen. In the more normal pegmatite deposits tourmaline is frequently associated with the molybdenite, and in certain instances the pegmatite becomes more siliceous until it appears to be an ordinary quartz vein. The deposits at Net Lake, near Timagami, district of Nipissing, appear to be an exception to the pegmatitic origin of the deposits. At this place the molybdenite is present in a series of gash veins of quartz, which contain in addition small quantities of gold and copper, the latter being in the form of chalcopryite. Whether these veins are pegmatitic in origin is not definitely known, though such an origin has been suggested for some of the gold veins at Poreupine. In case the pegmatitic origin for this deposit can be shown, the deposits of eastern Ontario may all be grouped together as being associated with pegmatite.

A list of localities where molybdenite has been found in Ontario is given below and brief comments are made concerning the development of some of them.

Addington County.

Sheffield Township.—Lot 5, con. XIV. Chisholm

mine. About a dozen men were working in clearing the pits and in regular mining work. The old stock piles were being cobbled and the high-grade ore shipped. The mine is being operated by the International Molybdenum Company, Limited.

Lot ..., con. ... On the farm of Timothy Dwyer is a pit about 8 x 10 feet and 10 feet deep, at which some molybdenite was seen. Not working.

Lot 8, con. XV. On the farm of Matthew Spratt a pit about 10 x 20 feet and more than 10 feet deep was sunk in pegmatite by L. L. Cailloux. The bottom of the pit was filled with water.

Lot 12, con. XII. On the farm of A. Kellar five open cuts have been opened up by O'Briens-Greenfield, of Superior, Wisconsin, and about 160 pounds of pure flake have been taken out in the prospecting. Five men were working at the time of the writer's visit.

Lot 15, con. XVI. Owner, William Wager. Property not visited.

Victoria County.

Laxton Township.—Lot 5, con. XI. Two mines are being developed at this place, one on the farm of Wm. Adair by T. Horscroft; the other a few feet away in Mud Turtle lake by Douglas Ponton and A. J. H. Russell. At the time of the writer's visit, Mr. Horscroft was just installing a pump and had done very little work, but the writer was later informed that he had taken out ore which was being shipped to the Mines Branch, Ottawa. Little could be seen of the association, but a small pegmatite dike shows up and a few flakes of molybdenite were found in pyroxenite above water level in the pit which had been opened. The other property, under the management of Captain Russell, was not working on account of the high water which had flooded the shaft. This shaft is about 50 feet deep, and encounters a micaceous pyroxenite containing considerable molybdenite. Several tons of concentrating ore were in a stock pile.

Lutterworth Township.—Lot 7, con. X. On property belonging to A. Y. Hopkins, of Kinmount, a small opening has been made in a small quartz vein in gneiss. Some molybdenite has been found, but probably this vein is not economic. There is, however, a larger mass of pegmatite a few rods to the west which might pay for further prospecting.

Renfrew County.

Bagot Township.—Lot 15, con. X. Owner, Samuel Hunter, Calabogie. No work has been done for some years and the deposit does not appear to be economic.

Lot 28, con. XII. On the farm of John Culhane, Ashdod, development work has been done by R. R. Gamey. The molybdenite occurs in a pyroxenite mass adjoining pegmatite. Mr. Culhane informed the writer that about 200 pounds of pure flake had been taken out. There is about half a ton of concentrating ore on the dump. The pit is about 40 feet long by 8 feet wide and averages 4 feet in depth.

Lot 27, con. IV. On the farm of Wm. Warren development work has been done by Mark J. Paterson and Sir Henry Pellatt. The pits were filled with water and the molybdenite-bearing rock was not seen in places. Several tons of low grade ore were seen on the dump.

Lot 25, con. IV. On the farm of Mr. Morin of Springtown. Property not examined.

Brougham Township.—Lots 35 and 36, con. XIV. An open cut about 10 x 70 feet has been excavated by Legree Bros., Dacre, in a micaceous pyroxenite. About 8 tons of ore running possibly 3 per cent. MoS₂, together with possibly 400 pounds of pure flake, had been

* From a report published by the Ontario Bureau of Mines.

taken out and laid aside for shipment. The property merits further prospecting, and the ore should be shipped to prevent loss by oxidation.

Lots 76 and 17, con. XI., and lot 17, con. X. Owners of mineral rights, International Molybdenum Company, Limited. Development work is being carried on under the superintendence of J. C. Murray. From 20 to 30 men are employed. The molybdenite is in a series of parallel pegmatite-pyroxenite dikes, and at the time of the writer's visit the work had all been by stripping and open cuts. More than 200 tons of concentrating ore have been shipped from this property. The writer was informed that a shaft was started after his visit.

Lots 7, 8 and 9, con. XI., and lot 8, con. XII. The Renfrew Molybdenum Mines, Limited, under the superintendence of Charles Spearman, are working on a low-grade pyroxenite which lies between Grenville limestone and pegmatite. Several carloads of concentrating ore have been shipped from the property. A drift about 60 feet long and a cross cut about 90 feet in length have been driven into this deposit and two holes have been put in with a core drill. The deposit as exposed is about 600 feet long and 40 feet wide, and apparently offers a large tonnage of concentrating ore. Preparations were in progress for the erection of a mill, and two boilers were being installed. It is proposed to use the Elmore (flotation) concentrator in the mill. Preparations were being made for the sinking of a shaft.

Lot 15, con. XI., known as the Connelly-Chown property. Two pits have been sunk on a couple of narrow pegmatite dikes of apparently the same character as those on the adjoining claims, which are worked by Mr. Murray.

Bromley Township.—Lot 24, con. V. Lessee, J. E. Cole, Renfrew. Development work is being done on a large mass of pyroxenite and about a ton and a half of concentrating ore has been shipped.

Blithfield Township.—Lot 29, con. I. Some development is reported on the farm of Thomas Quilty, but the property was not seen by the writer. He was informed, however, that further development work will be done during the summer.

Griffith Township.—Lots 31 and 32, con. V., and lot 31, con. IV. Owner, W. J. Spain, New York city. Manager, George R. Gray, Daere. The molybdenite is in two dikes of pegmatite and pyroxenite in gneiss and crystalline limestone separated by about 10 feet of gneiss. The two dikes together give a width of about 25 feet of working ore. The molybdenite occurs in extremely large flakes, some of them being more than a foot across. Masses of nearly pure molybdenite weighing as much as 50 pounds have been taken out. A mill has been erected and was nearly ready for work. As much of the flake molybdenite as possible will be picked out on picking belts, and the remainder, after passing through rolls, will go to a Hooper Pneumatic Concentrator.

Lyndoch Township.—Lots 5 and 6, con. VII. Jamieson mine, operated by the International Molybdenum Company, Limited. Idle at the time of the writer's visit and workings filled with water. There were 57 sacks of low-grade ore ready for shipment and a few small piles of ore to be cobbled. This is looked upon as one of the promising properties.

Matawatchan Township.—Lot 3, con. VI. On the farm of James Wilson one shot has been put in a pyroxenite mass. Mr. Wilson's son told the writer that 2½ pounds of pure molybdenite had been taken out. The rock that had been blasted out appeared to have

run about one-third to one-half per cent., and showed flakes of molybdenite scattered through it. The pyroxenite is on the margin of a large pegmatite mass and is from 40 to 50 feet wide. Nothing definite can be said as to values at present, but there is a possibility of a large tonnage of low-grade material. Further prospecting is desirable.

Miller Township.—Lot 3, con. ... On the farm of Thomas Armstrong a pegmatite dike has been opened up by C. G. Shannon, of Kingston. Some molybdenite was seen, but the property does not appear to be high grade.

Lot 3, con. 8. Property not visited.

Lot 5, Northeast Range. Not visited.

Raglan Township.—Lot 27, con. IX., and lot 27, con. X. Three pits have been sunk on these properties and molybdenite is on two of the dumps. The best pit is on or near the line between the two properties. The dike is about 4 feet wide, and 30 to 40 tons of rock have been removed, and possibly a ton of 3 per cent. ore lies on the dump. The other two pits are on concession IX. John Windle owns the lot in concession X. and H. Liedke the lot on concession IX.

Ross Township.—Lot 22, con. II. Owner, John Rose, Haley. An open cut has been made in a pegmatite dike from 2 to 4 feet wide. The cut is about 50 feet long and from 2 to 8 feet wide. The part showing molybdenite was under water. A ton or so of concentrating ore was on the dump.

Lot 7, con. IX. Property not visited, but the writer was informed that no work had been done for several years.

Sebastopol Township.—Lot 18, con. VII. On the farm of Edward Ziebarth are two small dikes in gneiss and crystalline limestone. Some molybdenite has been found, but further development is necessary to show a sufficient quantity for commercial purposes.

Haliburton County.

Cardiff Township.—Lot 12, con. XI. Owners of mineral rights, Matthews and McMahon. An opening from which possibly 50 tons of rock has been taken has been made in pegmatite. Some large flake has been taken from this place and a small amount of concentrating ore is on the dump. No estimate could be made as to values.

Lot 11, con. X. On the farm of Alex. Evans a shaft has been sunk and an open cut has been made, but the property has not been worked for some time and the workings are filled with water. A small concentrating plant was erected containing a Wettlaufer crusher, 12-inch rolls and a screen. Several tons of finely pulverized ore containing small flakes of molybdenite were stored in a bin.

Lot 18, con. IX. On the farm of John Mooney is a mass of pegmatite, in which scales of molybdenite are visible. No work has been done on the outcrop.

Lot 6, con. IX. Owner, Walter R. Kidd, Paudash. An open cut has been made upon two parallel pegmatite dikes, each about a foot wide, in gneiss.

Lot 11, con. V. Owner, Walter R. Kidd, Paudash. Two open cuts or pits have been made upon a deposit similar to the last mentioned.

Harcourt Township.—Lot 3, con. I. and II. This is the property formerly worked by S. Dillon Mills and described by him.* In the main workings little molybdenite was to be seen, but at one of the workings further south a considerable quantity of rich ore had been laid to one side. This ore is a concentrating ore, but the writer would judge that there is from one to two tons of 15 per cent. ore at this place.

General.

Other localities which have been mentioned in various reports are noted below, but in most instances the deposits are probably not of economic importance.

Anstruther Township, lots 24 and 25, con. XIV. Beatty Township, lot 4, con. I. Belmont Township, not far from Cordova mines. Big Duck Lake, north of Schreiber. Black River, Lake Superior region. (Probably the same as Terrace Cove.) Carlow Township. Craigmont, Raglan Township. Digby Township, lot 16, con. VII. Dungannon Township, lot 25, cons. XIII. and XIV. Visited, but no molybdenite was found.) Foley Township, lots 32 and 33, con. V. Graham Township. Gull Lake, northeast from Dryden. (Not visited. The writer was shown good flakes of molybdenite from this locality several years ago.) Kirkland Lake, district of Timiskaming. Lake of the Woods region. (Several occurrences are known and have been visited by the writer, but with possibly one exception they are not economic.) March Township, lot 6, con. II. (Not visited.) Molybdenite lake near Michipicoten Harbour. Monteagle Township, lots 26 and 27, con. VI. (Visited, but no molybdenite found. It is also reported from lot 6, con. I.) North Crosby Township, lot 14, con. V. Bear's Passage, Rainy Lake. Smooth Rock Lake, Manitou region. (Not economic.) Somerville Township, lot 3, con. A. (Visited. No molybdenite was found. This was the second locality at which molybdenite was discovered in Canada.) Swastika, district of Timiskaming. Talon Chute, about 25 miles east of North Bay. (Dr. T. L. Walker reports that he found graphite but not molybdenite.) Terrace Cove, Lake Superior. (This was the first locality at which molybdenite was discovered in Canada.) Worthington mine, Sudbury district. (Not economic for molybdenite.)

25TH ANNUAL REPORT ONTARIO BUREAU OF MINES.

There has just been published the Twenty-fifth Annual Report of the Bureau of Mines, consisting of three parts, being for the calendar year 1915.

Part I. comprises a Statistical Review of the Mining Industry of Ontario for 1915 by W. R. Rogers; a report on the Mining Accidents of the year by T. F. Sutherland, Chief Inspector of Mines, and Inspectors E. A. Collins and James Bartlett; an account of the operating mines in the Province by Mr. Sutherland and Inspectors Collins, McMillan and Bartlett; a description of the Iron Deposits of Hunter Island with notes on the Gunflint Lake Area, by A. L. Parsons of the University of Toronto; notes on Iron Pyrites Deposits in Southeastern Ontario, by P. E. Hopkins; a Study of Certain Minerals from Cobalt, Ontario, by H. V. Ellsworth, of the University of Toronto; reports on Boston Creek Gold Area and the Goodfish Lake Gold Area, by A. G. Burrows and P. E. Hopkins of the Geological staff of the Bureau; and a preliminary report on the Kowkash Gold Area, by P. E. Hopkins. The several illustrated reports of a geological nature are accompanied by appropriate maps and plans, both colored and in black and white.

Part II., entitled Lead and Zinc Deposits in Ontario and in Eastern Canada, by W. L. Uglow, was prepared for the purpose of bringing together all the available information on the subject in view of the

increased demand for these metals occasioned by the war. Dr. Uglow was particularly fitted for this task, having had experience in the investigation of deposits of these metals in the State of Wisconsin. He also made private examination of several properties in Ontario. The mines and prospects are described individually, and the report is accompanied by two geologically colored maps.

Part III., a description of the Geology of Kingston and Vicinity, by Prof. M. B. Baker, of Queen's University, is accompanied by a contoured map, geologically colored, of the southern part of Frontenac county. This part of eastern Ontario is well mineralized, mica and feldspar being mined extensively. The report is accompanied by two appendices by officers of the Geological Survey of Canada Appendix I., the Ordovician Limestones of the Kingston area, by E. M. Kindle; Appendix II., a Synopsis of the Common Fossils of the Kingston area, by A. E. Wilson and K. F. Mather.

In the introductory paragraphs of his statistical review Mr. W. R. Rogers says:

"The Mining Act of Ontario (section 170) requires the owners or operators of all mines, quarries, metallurgical and mineral works in the Province to make returns to the Bureau of Mines, showing the quantity and value of the minerals produced during the year together with such particulars as to number of employees, wages paid, etc., as are necessary for statistical purposes. A penalty is provided for non-compliance with the provisions of the Act, and a further penalty for every day after written notice has been given that the offence continues. Owners and operators are reminded of the importance of supplying complete and accurate information promptly in order that the compilation of statistics for any particular industry may be presented at the earliest possible date in a careful and authoritative manner.

"There are facts regarding the importance of several of the mineral products of the Province, perhaps not widely known in some instances, which are worthy of emphasis. The largest high-grade tale deposit on the continent is situated at Madoc; the greatest mica mine, the Lacey, near Sydenham; the largest high-grade feldspar mine near Verona; and the greatest graphite deposit known as the Black Donald mine, near Calabogie. All these non-metallic deposits are located in eastern Ontario in the counties of Hastings, Frontenac and Renfrew. Coming to the metals, Ontario possesses at Sudbury the most valuable nickel deposits in the world. Of these the Creighton ore body is undoubtedly the largest, the highest grade and most important. Cobalt is widely known as the richest silver camp in the world, the value of the output to date approaching that of gold from the Yukon. Ontario also possesses in Porcupine the most promising of the younger gold camps on the continent. During 1915 in the Province of Ontario there were 79 producing mines, 62 of which operated at a profit."

Much of the information contained in the report just published was given out by the Bureau of Mines some time ago. A preliminary statistical review was published in March, 1916, and most of the articles in the volume were published in bulletin form several months ago. Extracts from several of the special reports have appeared in this journal during the past year. Others will be found elsewhere in this issue.

WAGE INCREASES AT THE COLLIERIES IN NOVA SCOTIA.

Increases in wages have been gained by the mine workers employed by the Dominion Coal Company, both in Cape Breton and at the Springhill Mines, and by the employees of the Nova Scotia Steel & Coal Company at Sydney Mines.

The Provincial Workmen's Association and the Dominion Coal Company were unable to agree on the amount of the increase in wages that was required to adjust the diminution in the earning capacity of the workmen caused by the increase in the cost of living, and owing to the complicated situation occasioned by friction between the Provincial Workmen's Association and the United Mine Workers of Nova Scotia, the Minister of Labor declined the request of both these organizations, made at separate times, for Boards of Conciliation, and appointed a Royal Commission composed of the Honorable Mr. Justice Chisholm of the Supreme Court of Nova Scotia, Rev. Dr. John Forrest of Dalhousie University, and Mr. John T. Joy, a member of the Workmen's Compensation Board of Nova Scotia.

This Commission, after hearing informally the representations of the workmen with reference to the increased cost of living, and also the representations of the company, gave as its finding the following memorandum of settlement, namely:

1. That ten cents a day be added to the wages of all workmen who are at present receiving wages up to and including \$2.50 per day.
2. That an increase of twelve and one-half per cent. be given to all workmen, including these mentioned in paragraph (1) hereof.
3. That said increase date from the first day of May, 1917.
4. This agreement shall continue in force until the 31st day of December, 1917, and from year to year thereafter, unless any of the parties hereto give notice of its termination two months prior to the expiration of any calendar year.

A resume of the increases in wages given to the workmen of the Dominion Coal Company since the first of June, 1916, may be of interest. At that date an increase of 6 per cent. to all workmen was given, followed in November, 1916, by a further increase of 14 per cent. In addition the Company is paying a "steady work" bonus of 5 per cent. on the earnings of all producers working 22 days out of each working period of 24 days.

At Springhill Mines the Dominion Coal Company have also given an increase in wages effective as in the case of the Glace Bay Mines, from May 1st. An increase of ten cents per day is given to men earning \$2.50 per day and under and in addition an increase of 10 per cent. is given to this and all other classes of mine labor.

The workmen at Springhill are not satisfied with the extent of the increase, and the duties of the Royal Commission were extended to cover a review of the situation at the Springhill Mines also, (and at the time of writing the Commission was in session at Springhill.

Before proceeding to Springhill the Commission investigated the relations between the Nova Scotia Steel & Coal Company and its workmen at Sydney Mines, where an increase of 30 per cent. had been asked by the employees. After hearing the representations of both parties, the Commission gave as its finding the following basis of settlement:

- Ordinary laborers, 12½ per cent. increase.
- Other classes from \$2.50 and under, 15 per cent. increase, including a number of hoisting engine men.
- All classes from \$2.50 to \$3.00, ten per cent. increase.
- All classes above \$3.00, 5 per cent. increase.
- Hand pick miners, 7½ per cent. increase.
- Shooters and loaders, 7½ per cent. increase.
- Machine runners, 5 per cent. increase.

To become effective May 7. All bonuses to be put on a flat rate. This award is to continue to 31st December, 1917, and from year to year thereafter until or unless two months' notice by either party before the expiration of any calendar year is given of intention to terminate the agreement.

The Commission devoted a considerable portion of its attention to the relations existing between the Provincial Workmen's Association and the United Mine Workers of Nova Scotia, and it is believed was able to persuade the leaders of the two organizations to agree to the establishment of a new organization intended to absorb the membership of the two existing bodies.

It is thought that the amalgamation recommended by the Commission will take place and that as a result a new union will be formed having an entirely different name, with new officers, and with its activities confined entirely to Nova Scotia under a Provincial charter.

It is yet too soon to say what the result will be, but those who favor amalgamation express much optimism.

ALIEN ENEMY COMPANIES.

An order-in-Council of May 8th, 1917, is as follows:

"3. No company shall acquire or hold any of the rights, powers or benefits hereinbefore referred to if such company be an alien enemy company, or registered in an alien enemy country, or having its principal place of business within such country, or if the chairman of such company or any of the directors are subjects of an alien enemy country, or if such company is controlled, either directly or indirectly, by an alien enemy or alien enemies, or by an alien enemy corporation or alien enemy corporations.

"4. Any alteration in the memorandum of articles of association, or in the constitution, or in the laws of any company holding any rights, powers or benefits hereinafter referred to shall be reported by the proper officer of the company to the Minister of the Interior, and two months previous notice in writing shall be given to the Minister of the Interior of the intention to make any alteration which might conceivably, either directly or indirectly, affect the character, or control of any such company, and if, in the opinion of the Minister of the Interior, the said alteration shall be contrary to the cardinal principal that the said company shall be and remain a company not of alien enemy origin or control, the Minister of the Interior may refuse his consent to such alteration, and if his refusal is not obeyed, may declare such company to be an alien enemy company and may cancel the said rights, powers and benefits under the provisions of the next following regulation.

"5. If any company which has acquired any right, power or benefit hereinbefore referred to shall, at any time, become subject to the control of an alien enemy or alien enemies, or an alien enemy corporation or corporations, or shall assign any of the rights, powers or benefits aforesaid, without the consent in writing of the Minister of the Interior being first had and obtained, or if the said right, power and benefit has been acquired through error, misrepresentation or fraud,

the Minister of the Interior may cancel the grant of such right power or benefit and thereupon the same shall ipso facto be cancelled and any moneys or fees paid to or deposited with His Majesty shall be ipso facto forfeited to His Majesty."

ONTARIO'S METALLIFEROUS PRODUCTION FOR THE FIRST QUARTER OF 1917.

Returns from metalliferous mines and works of the Province have been collected by the Ontario Bureau of Mines for the three months ending March 31st, 1917. The following table shows quantities and values, also comparative quantities for the corresponding period of 1916. It will be seen that most items show a considerable increase with the notable exception of silver. Explanatory notes are appended.

Summary of Metalliferous Production, First Quarter of 1917.

Product.	Quantity.		Value \$.
	1916.	1917.	
Goldoz.	107,818	127,692	2,601,760
Silveroz.	5,297,831	3,945,957	2,831,873
Cobalt (metallic) .lbs.	36,460	84,710	78,668
Cobalt oxidelbs.		83,014	66,798
Nickel oxidelbs.		5,495	550
Other cobalt and nickel compoundslbs.		118,292	13,695
Nickel (metallic) lbs.	11,976		
Nickel in matte. tons	10,032	10,141	5,070,410
Copper in matte. tons	5,491	5,063	2,025,227
Copper oretons		1,507	44,097
Iron oretons	6,573	52,694	94,718
Pig irontons	160,749	163,020	2,743,441
Molybdenite, concentrateslbs.		25,073	32,202
Leadlbs.		263,046	27,290

Gold.—Despite the scarcity of labor and high cost of operating gold properties, the production of the northern Ontario gold mines has increased by 18 per cent. over the corresponding period of 1916. Of the nine producing mines the Hollinger, Dome and McIntyre output amounted respectively to \$1,315,034, \$528,787 and \$425,408. Other producers in order were Porcupine Crown, Tough-Oakes, Schumacher, Vipond-North Thompson, Croesus and Dome Lake. The Teck-Hughes mill is now in operation, and precipitates are being shipped to the Buffalo mill at Cobalt until the local refinery is completed. All the above mentioned mines are located at Porcupine, with the exception of the Tough-Oakes and Teck-Hughes at Kirkland Lake, and the Croesus in Munro Township. In addition to gold, 20,465 oz. of silver, worth \$15,321, were recovered from auriferous ores.

Silver.—A considerable decline in production is evidenced in the figures presented for the quarter as compared with the first three months of 1916. Deducting silver recovered from gold and copper ores, the total production from Cobalt and Gowganda amounted to 3,924,849 oz. valued at \$2,815,091. Twenty mines contributed to this total. Those shipping one quarter million oz. or over are named in order: Townsite-City, Kerr Lake, O'Brien, La Rose and Coniagas. Production of bullion by the Nipissing mine exceeded shipments by 636,182 oz. valued at \$481,438. As this company usually ships to London, no doubt the increase

in ocean insurance rates has deterred marketing the entire product. Flotation methods are now in use at several of the mines for recovering silver from tailings dumps. For example, at the Buffalo, 5,444 tons of ore and 21,379 tons of tailings were concentrated. The average New York price of silver for the quarter was 75.69 cents, low 71.75 and high 78.64 cents per fine oz.

Refineries.—At Deloro, Thorold and Welland the refineries treated 1,109 tons of ore and 341 tons of residues from the silver camps. A total of 1,676,617 oz. of silver worth \$1,045,246 was recovered. In addition, 847,101 lbs. of cobalt metal was marketed, 25,998 lbs. of which was in the form of stellite, a high speed tool "steel" much used in munition work. Cobalt and nickel in the form of oxides and other compounds add to the total output of the refineries.

Nickel-Copper.—Smelters at Copper Cliff and Coniston continue operating at the same high rate as last year. For the quarter year 18,995 tons of nickel-copper matte were produced as compared with 80,010 tons for the year 1916. Ore smelted for the period was 358,961 tons. As a basis of valuation nickel and copper in the matte have been placed at 25 and 20 cents respectively, or the same price as in 1916 for nickel but an advance of 1½ cents per pound for copper. Construction of the new refinery of the International Nickel Company at Port Colborne is proceeding.

Copper.—The prevailing high prices obtaining have stimulated copper mining, despite labor scarcity and high operating costs. A new shipper of chalcocite is the Hudson Copper Company at Havilah, near Bruce Mines, Algoma district. The main shipper was S. W. Ray, who is operating the Tip Top mine at Kashabowie, west of Port Arthur. At Mine Centre, Rainy River district, a concentrator is being built by the Connell-Hewitson interests. In the meantime shipments to Trail smelter have ceased. The concentrating mill and flotation plant of the Kenyon Copper Mines at Massey is being overhauled and shipments will be made in the near future.

Iron Ore and Pig Iron.—Iron ore from the Helen and Magpie mines which are operated by the Algoma Steel Corporation, was shipped to Ontario blast furnaces. No iron ore was exported. The Algoma Steel Corporation, Canadian Furnace Co. and Steel Company of Canada smelted 60,838 tons of Ontario ore and 256,385 tons of foreign ore producing 163,020 tons of pig iron, of which 118,503 tons were used in steel making. Good progress is being made by Imperial Forgings, Limited, on the new electric steel and forging plant located in the Toronto harbor industrial area. It is expected to be ready for operation in July.

Molybdenite.—The production for the quarter is greatly in excess of that for the entire year 1916. Concentrators treating Ontario ore are operated by the Renfrew Molybdenum Mines Ltd., at Mount St. Patrick; the International Molybdenum Co. at Renfrew, and the Mines Branch, Ottawa. In addition, refineries in operation at Belleville and Orillia produced 41,967 lbs. of ferro-molybdenum valued at \$98,513.

Lead.—The entire production came from Galetta, Carleton County, where the James Robertson Estate is operating both mine and smelter. A shipment was made from the Frontenac mine by the Indian Lake Lead Mining Co. to the Kingston Smelting Company, but was not treated.

AGREEMENT REACHED AT ROSSLAND, B.C.

Full details of the results of the negotiations between the committee of five delegated by the Rossland miners who had been employed in the mines in that camp of the Consolidated Mining and Smelting Company, and officials of the company have been published.

In its report to the miners, after having been in negotiation with company officials, the committee said, in part: Owing to the unsettled state of the coal-mining industry, which condition has cut off the supply of coke for the smelting of the Rossland ores, it was found that any further work to be carried on by the Consolidated Mining and Smelting Company at this time must be development work. Your committee suggested to the officials of the company that, in their opinion, if at all possible, such work should be undertaken, so that the men who had already been out of employment five weeks could resume work, if only for a month or so. This the officials of the company agreed to do, the understanding being that as soon as the head-frame at the company's Centre Star mine is repaired, men will be put to work underground in the company's Centre Star, Le Roi, and White Bear mines, the company agreeing to start the work as rapidly as possible, until a maximum of approximately thirty machine drills shall have been started.

It was pointed out by the officials of the company, and agreed to by your committee, that the cost of this work should exceed the usual cost of such work when carried on under more favorable conditions, that is the cost of development work while operating at full capacity. The company's officials believe that much can be accomplished toward lowering this extra expense providing all men co-operate in reducing wastage to a minimum. This suggestion on the part of the company your committee believes to be fair, and we would suggest that all our members use their influence to make this development cost as little above the usual cost as possible.

While this work is being carried on the increase will be the War bonus of twenty-five cents per man per day, as set forth in the company's letter dated March 12th, 1917.

When the conditions in the Crow's Nest Pass again become normal and the company shall resume shipment of ore from the Rossland mines to the extent of 750 tons a day, there will be an increase of fifteen cents per man per day over and above the War bonus, this further increase to extend over a period of time of approximately two years.

In the opinion of your committee this arrangement is fair, and we would recommend that it be ratified by the members of the Union as a complete settlement of all matters under dispute.

Company's Proposals Accepted.

It was announced that the result of the miners' vote on the proposals of the company to the men was that they were almost unanimously accepted. The Rossland Miner, commenting editorially, said:

The men employed in the mines here, and the Consolidated Mining and Smelting Company, have reached an agreement in respect of the differences—if differences they can be called—that have existed between them, and it is now quite likely the situation will be cleared completely here if the Crow's Nest coal section employees and the coal-mine operators can reach an understanding; or, should the Dominion Government

answer the appeal of both the coal companies and some of the men and take charge of and operate the mines.

Upon the settlement of the Crow's Nest troubles depends solely, it would appear from the letter of Mr. J. J. Warren, managing director of the Consolidated Company, a complete resumption of operations in Rossland mines, but in the meantime the company has signified its willingness to care for the workmen remaining here through development work, although this, it is stated by those who know, will entail a greater expense than if the work were done with the property on a full working basis.

The company appeals to the men to co-operate with them in performing this work, while the coke conditions remain as at present, as economically as is possible, through preventing wastage, and in turn the committee representing the workmen make a similar appeal to the men, which indicates that both interests are willing to work to the end that the concessions made to the men may be effective and probably lasting until such time as better conditions shall prevail.

When such differences arise between the laborer and employer it is always a case of give and take, and the letter of the committee read at the meeting of the Miner's Union shows that the members of that committee pursued their duties diligently and worked untiringly to bring about a resumption of work by agreeing with the company, which is at present having other troubles through the shortage of coke affecting the big smelting plant at Trail, and by recommending the company's proposals be accepted.

It would appear from the understanding arrived at between the company and the men that, when all obstacles shall be removed—and it is sincerely hoped that this will occur soon—a complete resumption of work will take place in the company's mines in Rossland camp. May the trouble elsewhere clear at once. This is the hope of everyone resident in this region.

WHO AM I?

I am more talked of than anything else in America!
 I am the autocrat of the commercial interests!
 I control the treasuries of the world!
 I command the bank clearances!
 I am as powerful as Ajax!
 I can stop commerce!
 I am supreme!
 Rulers and the common people alike
 Take off their hats to me.
 My aristocratic cousins, the luxurious Pullman car,
 And the steel coach who in the past snubbed
 Me, now crave my favors!
 I am merciful!
 I can help you, but
 I lack energy!
 You must supply that!
 Left to my own efforts
 I am inert and innocuous!
 Energize me and you increase your bank account!
 Stimulate me and the wheels of commerce revolve!

Who Am I?

I am the freight car!
 I market your crops!
 Load me promptly!
 Unload me quickly!
 Move me swiftly, and
 You will prosper!

—St. Louis Furniture News.

COAL WASTAGE.*

By Francis S. Peabody,

Waste of the wonderful store of power that the Creator placed at our disposal appears to have been the theory and the basis of our methods of extracting this power—waste from the time the coal is mined to the time it is consumed. Let us consider the prime causes of this wastage which has been the heritage of the coal mining industry.

In the early days—about 150 years after "Stone Cole" was discovered in Illinois by Joliet and Marquette, and Father Hennepin noted a "cole" mine on his map—the mode of mining prevalent among farmer land-owners, on whose property coal was discovered near the surface or out-cropping on the hillsides, was to enter the seam by a shallow shaft or drift into the hillside and remove the coal by wedging it down until a large room was left. The roof without support would fall and our primitive coal operator would then sink another shaft or drive another drift. In these early operations only the large lumps were taken and all small pieces and screenings were left to be covered by the fall of the roof—in fact this condition prevailed in Illinois up to about 1885.

Gradually the method of mining changed from the open chamber, to a single entry with rooms turned to the right and left. Later, as the demand for coal increased and the necessity for larger mines became evident the "room and pillar" system grew to be regular practice.

The room and pillar system of mining consisted of starting away from the shaft bottom or drift mouth, with a pair of entries usually 12 to 15 ft. wide and about 30 ft. center to center, one entry being used for the air intake and the other for the return-air and haulage; from each entry rooms or chambers were turned, narrow at the mouth and widening to between 20 and 30 ft., these rooms being driven to a depth of about 200 ft. from the neck or mouth.

Practically all present-day methods and systems of mining bituminous coal in the United States, except "longwall," are based on this system and it is surprising to note how little improvement has been made over the old method even in what is considered the most approved system of today, the "panel" system.

Using the panel system the operator starts away from the shaft or drift mouth with a pair, or sometimes three entries; but instead of turning rooms off the main entries, "stub" or "panel" entries are turned. These panel entries are driven between 1,000 and 1,200 ft., and from them are turned rooms as the entries advance.

As we study the old laborious methods of our fathers and compare them with present-day practice, we realize we have not improved coal mining methods at a pace equivalent with other industries. True, we have machines for mining and modern high-speed hoists at our mines producing 5,000 or 6,000 tons of coal per day, but our percentage of recovery is little, if any higher, than in early practice.

With all credit to present-day coal operators let me remark that most, if not all, mines are started with the view of recovering the chain pillar coal, at least, on the second mining, or as the mine retreats after having reached its boundaries and just prior to abandonment. I am afraid, however, it is mostly a case of "the spirit is willing but the flesh is weak," for I know of only one mine about to be abandoned which worked for nearly two years before abandonment recovering pillar

coal and recovered approximately 350,000 tons out of possibly 4,000,000 tons left in the ground.

Another, and the most deplorable condition created by present haphazard methods, is the dangers to life and limb. Our miners produce a great many more tons of coal per year per man employed than they do abroad, because we have less supervisors, and therefore naturally there are less men employed per ton produced.

The coal industry is beset by all manner of waste, waste of natural resources, waste of the human element and waste of capital, and we do not seem to realize how dearly future generations must pay for it.

It would be far better if a situation could be created in the near future with strong governmental control, so that the bituminous coal industry could be thoroughly regulated with respect to the operation of present properties, so that all may operate on a reasonable basis, returning a fair percentage of recovery, with regulations that will insure the best conditions for the safety of life and limb, and so founded that the operator will be assured of a reasonable return on his capital invested.

Such regulation of the coal industry when it does come must begin at the bottom. The industry must be regulated from every standpoint. The governing commission must be assured that the prospective operator owns, or controls, sufficient coal land to permit a mine large enough to produce a sufficient tonnage to return the investment in the surface plant and non-movable machinery, etc.—in other words, to wipe out the capital accounts.

A system of mining whereby all, or at least 97 per cent., of the coal in the ground must be recovered, would have to be provided and rigidly enforced; a system providing for the protection of the now valueless thinner seams of coal and also for the protection of the other minerals, sandstones, shales and other rocks, which are now of no conceivable value, but may in future years be discovered to be a very important factor in some industry yet undeveloped.

All this regulation would necessarily involve much time and study and would gradually be revised as new conditions were met. Objections would be raised; attempts would be made to prove the early acts unconstitutional; claims would be made, that only those controlling large amounts of capital could enter the business.

Let me say that the coal business is not a business for small capital. That is one of its greatest difficulties today. If we want a charter for a coal company now, we can get several dummy directors and pay a lawyer \$50 or \$100 and secure a charter for a full-fledged coal company, with the rights to sink shafts and produce coal, and incidentally waste 45 to 50 per cent. of the natural resources in the ground.

In Germany, where wages are much lower than in this country and where machinery is less expensive, the investment in the coal business per ton of the annual production, not including any sums spent for mineral rights, for the government owns it all, is \$2.50. It is a law, in this war-besieged country, that all the coal must be mined. In the States of Illinois and Indiana the investment per ton of the annual production is about \$1.46 and we are mining only practically half of the coal in the ground. When we consider the greater money value in Germany, it is apparent that coal mining in Germany is limited to those who are able to do business in a large way and with business-like methods.

*Extracts from a paper to be presented at the St. Louis Meeting, A. I. M. E. October, 1917

I do not know of, nor would I attempt to specify any particular system whereby all the coal can be recovered, but I do know that if the "retreating" system or something similar to it were adopted and so regulated that all coal operators must meet this standard, it would be a very desirable advance over our present methods.

In the retreating system, as it is talked of among coal men, main entries are driven to the boundaries of the coal property after which stub or panel entries are driven. The main body of the coal is extracted as the mine retreats to the shaft. To do this it is necessary that the mine be sunk and worked for a number of years, probably averaging between 10 and 15, at a loss.

The surface plant would be fully equipped at a cost of approximately \$300,000 taking the average mine of today as a standard. The coal rights, either owned or leased would necessitate a carrying charge of say \$25,000 to \$30,000 per year, until the boundary is reached by the main entries the output would be small, probably no more than 200 tons per day in the first year and about 1,500 tons per day the year the boundary is reached. From then on the tonnage would rapidly increase and the mine be on a paying basis immediately.

Every ton of coal taken from the entries would undoubtedly cost the operator not less than \$2.50 to \$3 per ton to produce and would probably sell, judging from present market conditions, for \$1.50 per ton, leaving a deficit of \$1 to \$1.50 per ton produced, to be charged to the capital account. I do not wish to infer that our present entry coal costs this much to produce, but with the system outlined it would also be a part of the proposed scheme of things that all supports, such as we now call "timbering" would be of a permanent and possibly a recoverable nature. Our mine tracks would be laid of far heavier steel than used at present and all items of operation would be of a far more permanent nature than is now required.

Assuming we opened a mine according to this ideal standard, carried it through for a number of years until the entries reached the limit, all work done being of a permanent nature, with the losses on production capitalized up to the time when production reached a stage sufficient to put the mine on a paying basis, our investment, according to my general figures, would amount to \$500,000. Our mines naturally being fewer in number than at present our operations would be steady and our ideal mine would produce possibly 2,000,000 tons of coal per year. Then taking into consideration our sinking fund for all causes, we would have to be guaranteed not less than 20c. per ton net profit to realize an equitable return on our investment. In Germany, where regulations similar to those I speak of are in effect, persons entering the coal business must show unquestionable evidence that they are able financially to stand the enormous investment called for.

It is not unreasonable to assume the investing public and the capital interests would not bear the same ill feelings toward the coal industry they now do, if they could be assured the business was so regulated that the possibilities of loss were minimized. It would not be any more difficult to call upon them for large sums to be invested in operating property than it is at present to secure capital for investment in coal lands.

I venture to say that many operators in the business today, if compelled to keep their costs in a standard commercial manner, charging just and fair depreciation on their coal lands and their plants, would find that they are not making any profit. I maintain that it would not be against the interests of the public to exact a profit, for we would be saving the natural re-

sources for the years to come, which, under our present method of extravagance, will be so minimized in the future that five and six times the profit I mentioned will be regarded as just.

The consumers will lose in the long run if the mine operators do not make a fair profit or the miners do not receive a fair wage; therefore, in the opinion of the English Privy Council, the mere intention of an agreement to raise prices does not always prove the intention to injure the public. To prove an intention to injure the public by raising the prices, the intention to charge excessive or unreasonable prices must be apparent. I, therefore, believe it is to the best interests to all, not only those in the coal industry, but also those who have dealings with the coal industry to advocate strongly the enactment of a law providing for combinations and agreements of the kind which will permit producers of natural resources to produce and market their products under a uniform cost-accounting system, and a uniformly regulated manner of production, safeguarding the natural resources of the earth from wanton waste, and returning to the men in the industry a return which is commensurate to the value of their services to society. When I say the men in the industry I mean the men who work with their hands, the men who are charged with the executive management, and the men who furnish the necessary capital and credit.

PERSONAL AND GENERAL.

Mr. Ben W. Vallat, formerly superintendent of the Newport iron mine, Michigan, is to be major of the Michigan College of Mines engineering battalion. Mr. Vallat is president of the Dominion Forge and Stamping Co., Walkerville, Ont. Other officers of the battalion will be: Ira G. Penberthy, engineer for the Calumet & Hecla Mining Co.; W. F. Lewis, of Ewen, Mich.; Harold M. Schmidt, of Calumet; Carl G. Smith, of Mohawk; Eynon S. White, W. H. Clark, H. L. Parrish and S. H. Lorain.

Mr. H. K. Boysen, formerly on the staff of the Tough-Oakes mine, is a cadet in the Royal Flying Corps and is now at Camp Borden, Ontario.

Mr. H. W. Whittingham, formerly of the Nipissing mine staff, is a captain in the 71st heavy artillery, B. E. F.

Mr. A. J. Tonge has been elected, by acclamation, second Vice-President of the Mining Society of Nova Scotia. His name was omitted in the account of the annual meeting published in our May 1st number.

Mr. A. A. Cole, president of the Canadian Mining Institute, is in British Columbia. He attended the meeting of the western branch at Nelson, May 19th.

Mr. H. G. Young has been granted a commission in the Canadian Engineers, tunnelling division, and is now at St. John's, Quebec, training depot.

Mr. J. S. DeLury has left Winnipeg on a trip to the Rice Lake district.

Mr. H. G. Young, formerly manager of the Hudson Bay Mines, Ltd., also of the Trethewey Silver Cobalt Mines, Ltd., at Cobalt, Ont., has returned to the east from Alaska and is stopping at the Windsor Hotel, Montreal. Mr. Young has been engaged in gold mining near Juneau, Alaska, during the last three years for the Algonican Development Co., Ltd., a Belgian company.

Mr. Clyde Weed, manager of the Lake Mine, has been appointed manager of the Hancock copper mine, Michigan, succeeding John L. Harris.

MINERALS SEPARATION WINS SUIT.

Philadelphia, May 26.—United States Circuit Court of Appeals late yesterday afternoon rendered a decision in favor of the Minerals Separation Co., Limited, against the Miami Copper Co. The case involved use of certain patented processes in the separation of copper from ore. The majority opinion was written by Judge Woolley, and concurred in by Judge McPherson, a dissenting opinion being rendered by Judge Buffington. It was generally believed by those in court when the decision was handed down that the case would again be appealed, the suit involving matters of such tremendous importance to the mining industry.

Philadelphia.—Majority decision in favor of the Minerals Separation, Limited, of Great Britain against the Miami Copper Co. in the United States Circuit Court of Appeals here hinged upon the priority of the patent rights involved.

Judges Woolley and McPherson ruled that the defendant in employing slight variations of the Minerals company patents merely adopted a subterfuge and that "in our opinion the patent discloses invention and has not been anticipated."

Judge Buffington, in writing his dissenting opinion, holds that:

"Putting aside all minor incidents, the case in my judgment involves one broad, basic and far-reaching question, and that is whether any and all advance and improvement in the sphere of air flotation in mineral recovery for the next few years shall be subject to what will practically be a blanket claim for any use of air as a flotation agent."

The opinion is probably one of the most technical, complete, and consequently voluminous, handed down by any court in years. The jurists discuss in technical detail about every phase of the various separation processes, and state their opinions upon the bearing which the practices employed by the defendants, such as use of an oil of slightly different specific gravity than that specified in the patent rights of the patentees, or the slightly different manner in applying air in the course of the flotation process, have upon the legal rights of the patentee.

Upon this point the majority of the court says: "The question simply is whether certain practices come within scope of the patent claims. But the question of infringement has grown far beyond the borders of the case, and we are really asked, both by the plaintiff and by the defendant, to determine the scope of the patent in such terms as will inform the art as well as the owners of the patent of the precise field covered by the patent and the extent of the field left free to the art." * * *

"We are aware that this very brief statement is technically inadequate and will be understood only by those who are familiar with the history and development of the art of ore concentration." * * * "We do not find it necessary to discuss the question of validity; our conclusion is that the patent discloses invention and has not been anticipated."

"As in the case of the oil process, the patentees seem to have taken the final step which converted experiment into solution, turned failure into success, and we find nothing in the prior art which can be held to anticipate it."

The suit was brought for damages and to secure an injunction against Miami Copper Co., capitalized at \$4,000,000, and which in 1916 was producing copper ore from its properties in Gila county, Arizona, at the rate of 50,000,000 pounds annually and that at an average cost of eight and a half cents per pound.

Judge Buffington, in weighing effect of the court's decision upon the industry, says: "To my mind this claim should not be awarded in this sweeping scope, which will paralyze the subsequent development of a great art."

STANDARD SILVER-LEAD MINING CO.

Income Last Year Exceeded Nine Hundred Thousand Dollars.

Surplus of Standard Silver-Lead Mining Co., Silverton, B.C., was \$296,726 on March 31, according to report submitted at annual meeting in Spokane on Tuesday, May 8. Net profits for the month were \$43,918, as compared with \$71,690 in February and \$53,811 in January, while gross receipts were \$100,194, as against \$118,855 in February and \$99,109 in January. Settlements for the period were \$16,768 for 116 tons of lead ore and concentrates shipped; zinc sales were \$74,641, and boarding house and miscellaneous receipts were \$8,785. Operating expense was \$35,787.

Report of operations for 1916 showed a total income of \$934,312, of which \$664,267 was derived from preliminary settlements on 5,284 tons of lead ore and concentrates shipped, \$207,521 from zinc sales, \$58,864 from boarding house and \$3,660 from umpires. From this was deducted \$28,600 for zinc penalties on lead shipments and corrections for final settlements, leaving \$905,712. Disbursements for the period were \$517,348, distributed as follows: Ore production, \$252,755; tramming, \$9,711; milling, \$42,284; power, \$7,052; general expenses, \$11,748; shipping and selling, \$10,416; salaries, \$3,600; boarding house, \$51,357; taxes, \$15,873; insurance, \$1,959; casualty insurance, \$6,132; development, \$43,070; construction, \$92,129; Aylard tunnel, \$22,645; No. 7 tunnel, \$2,602; store supplies, \$1,961; experiments, \$339 and home office account, \$21,712.

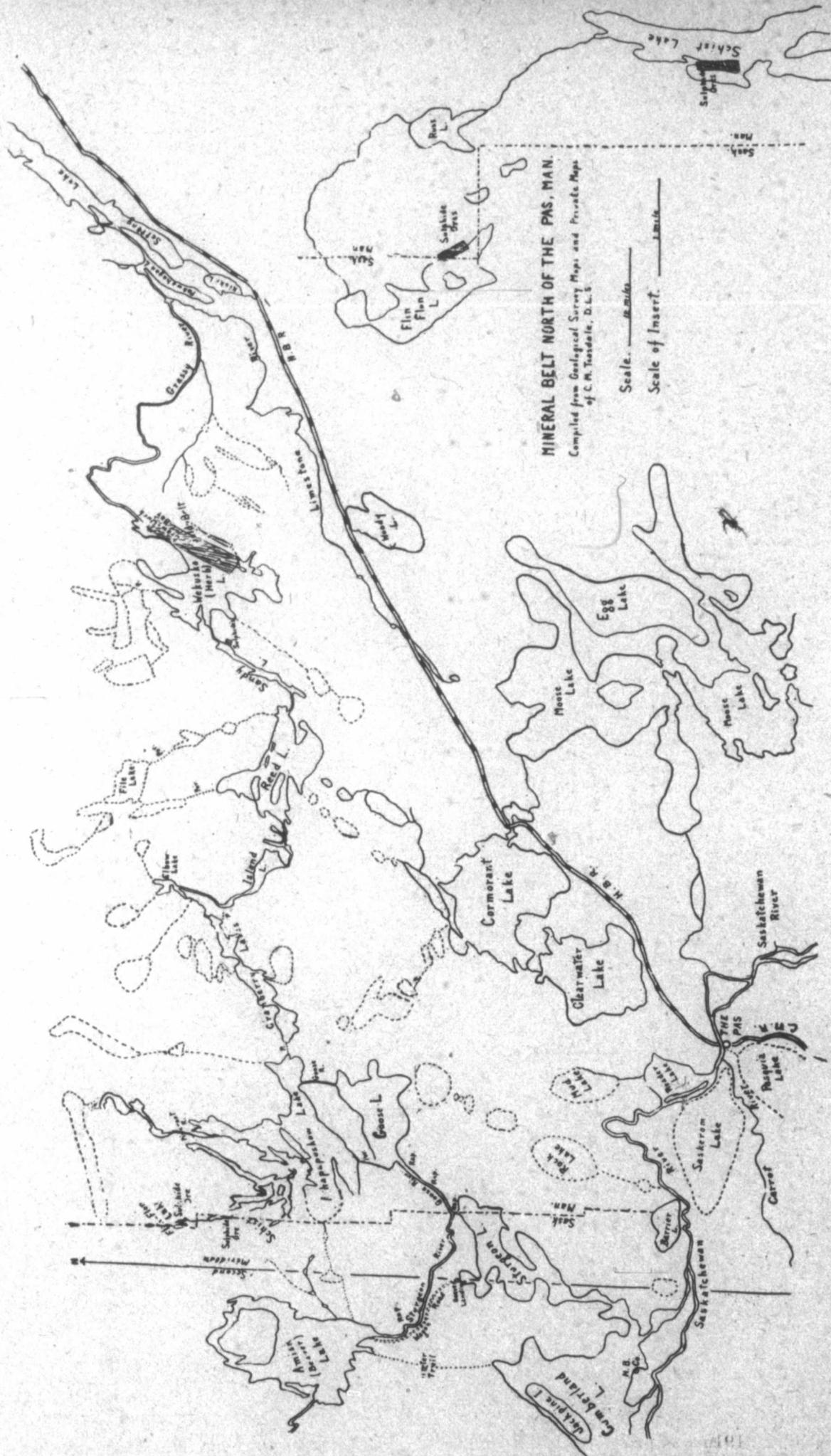
Net profits for the year were \$388,364, as against \$510,430 in 1915, and the surplus carried over from the previous year was \$336,943. Dividend payments in 1916 amounted to \$600,000, or 30 cents a share on issued capitalization of 2,000,000 dollar shares, leaving surplus on January 1, 1917, \$125,307.

Former officers and directors were re-elected at the meeting. W. J. C. Wakefield is president, John F. Clark, vice-president; George H. Aylard, managing director, and Charles Hussey, secretary-treasurer. Henry White, Wallace, Idaho, completes the directorate.

THE BUSINESS PROFITS TAX.

Ottawa, May 22.—The business profits tax imposed by the Dominion Government on earnings in excess of seven per cent. will not be renewed after the end of the three-year period provided in the original legislation. An intimation to that effect was given to the Commons last evening by Sir Thomas White.

The Minister of Finance, in replying to a question by E. M. Macdonald, of Pictou, during the consideration in committee of the resolution providing for increased profits taxes, stated that by 1918, when the Government would receive the taxes for accounting periods ending in 1917, the war should be nearly finished. The excess profits tax, he explained, was necessary and fair during war time, but it was not a tax that should be continued into peace times since it operated to prevent a flow of capital into the country. Limited as it was to war time it did no damage in this direction since the business world rightly regarded it as a war measure only.



AT THE PAS.

The Pas, Man. May 18.—A 60-foot barge has just been launched at the Ross Navigation Company's dock. It is one of a number to be used for the conveying of ore from the Mandy mine now on the dump at Sturgeon lake portage.

The work of constructing the stern wheel passenger steamer of the Ross Nav. Co. is going ahead. It will ply between the mines northwest and The Pas.

Messrs. G. Garwood and Lindsay Parks are outfitting at The Pas for a prospecting tour through the Athapuskow, Amisk and Herb lakes regions. Mr. Garwood has spent some years in Alaska and British Columbia, while Mr. Parks is a former student under Professors DeLury and Wallace.

Mining Engineer in charge of the Rex mine, Walter Neal, has arrived from the south, and immediately departed for Herb lake. He is most optimistic concerning the prospects of the Rex, which he is now developing. He states that he has ordered a compressor, and has

J. MacMartin was a visitor to the Herb Lake mine region the past week, and was well pleased with what he saw.

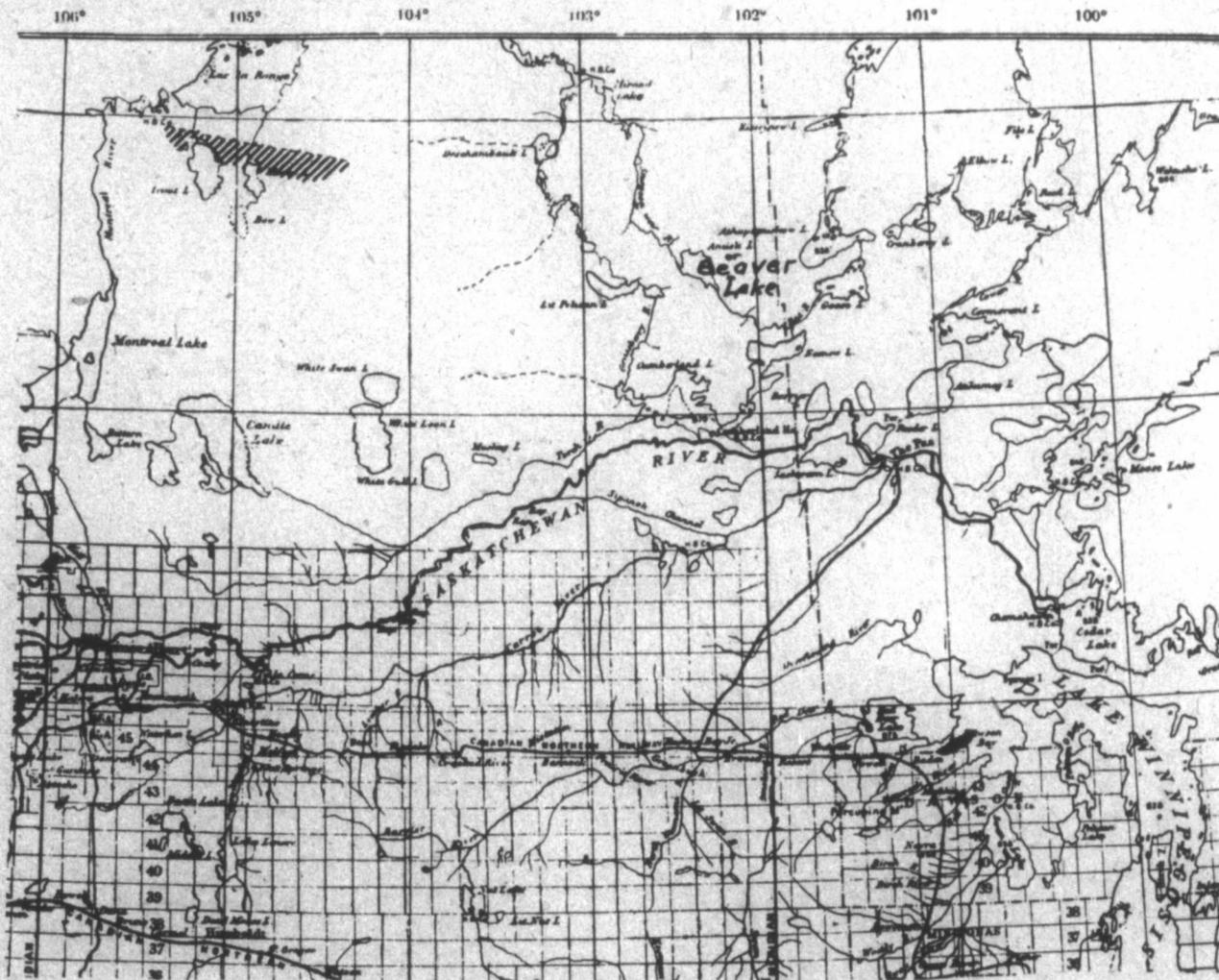
A copy of the statement of results from the first car of ore shipped by the Northern Manitoba mine of Herb lake:—

Trail, B. C., April 24, 1917.

Consolidated Mining & Smelting Co.

Contents of car 20164:

114,572 ounces gold (\$20) at 95 per cent.	\$2,175 86
31.67 ounces silver	22 15
	<hr/>
	\$2,199 01
Less treatment.....	86 36
	<hr/>
	\$2,112 65
Less freight.....	299 02
	<hr/>
	\$1,813 63



Sketch Map Showing Routes to The Pas.

authority from his company to immediately put in a mill of 15 stamps capacity.

Robert Kerr has just returned from a trip to the Northern Manitoba property, at Herb lake. He reports that all the machinery and supplies are now on the ground, and that everything should be in shape to start drills going by June 1st.

Hackett and Campbell are turning up some very rich ore off the Bingo vein.

Tom Rivers staked a small island on the lake which has a vein showing free gold. So Tom now takes rank amongst the many "millionaires" at Herb Lake.

It is the intention of the company to ship five more cars of ore as soon as circumstances will permit.

A number of mining men and others connected with mining affairs took train Monday for Saskatoon, where they will give evidence in the court case of Reynolds vs. Jackson. The former claims an interest in the find that has now developed into the Mandy mine. Amongst those departing for the southwestern city were: R. A. Hazelwood, J. P. Gordon, C. M. Teasdale, D.L.S., A. P. Seymour, J. R. Campbell, W. J. Young, H. C. Carlisle, S. S. Reynolds and Paul.—The Pas Herald.

OBITUARY.

H. S. Poole.

The following obituary is copied from the Halifax Chronicle, and will doubtless be of melancholy interest to the mining profession in Canada. In the passing of Dr. H. S. Poole, Nova Scotia loses, as the Chronicle remarks, one of her most prominent scientific men, and one who was closely associated with the beginnings of the great development of coal mining in Nova Scotia that dates from the early seventies.

A perusal of the Transactions of the Nova Scotia Institute of Science gives rise to many reflections on the changes that have taken place in the past fifty years, and one cannot but feel that notwithstanding the enormous development of the mining industry, and the great increases in output and capitalization that have taken place, we have lost something of the taste for scientific investigation, flavored perhaps to our modern minds with a suspicion of dilettantism, that was characteristic of the more leisured times of our immediate forerunners. There was a great galaxy of scientific men in Nova Scotia when Dr. Poole was a young man, and nowhere can one gain a better idea of the different atmosphere of those days than by reading the Transactions of the Nova Scotia Institute of Science. We find Dr. Poole's writings intermixed with papers from such men as Mr. R. H. Brown, the author of the classic account of early coal-mining in Cape Breton, from the younger Haliburton, the Rev. Dr. Honeyman, Edwin Gilpin, with recent reminiscences of Sir Charles Lyell, Sir J. W. Dawson and Sir W. W. Logan.

Dr. Poole, when manager of the Caledonia Colliery, could find time to record and leave for future readers interesting information of the meteorological conditions, of the appearance and disappearance of the drift-ice, and the migratory birds along the sea-coast. He was attracted by speculative geology, and left behind him disquisitions on such subjects as the possibility of coal under Prince Edward Island, and a short contribution to the Transactions of the Royal Society of Canada on "A submerged tributary of the great pre-glacial river of the Gulf of St. Lawrence," in which he deduced from the soundings of the Gulf the probable course of that most ancient waterway, the St. Lawrence River, when Prince Edward Island and the Nova Scotia mainland were joined by dry land.

Dr. Poole's most serious contribution to Canadian geology was his report of 1893 and his later and revised report of 1904 on the Pictou coalfield, and no student of geology could wish to investigate a more complicated geological puzzle than this extraordinary coal deposit.

Dr. Poole, it is believed, was the only Fellow of the Royal School of Mines connected intimately with coal-mining in Nova Scotia, and his professional record, as may be gathered from the following account, has well supported the reputation of that notable school of mining.

Dr. Poole's death severs one of the few remaining links with the early history of coal-mining in the Province of Nova Scotia, and with his passing there comes a sense of real loss to the profession, and particularly to the Nova Scotia Mining Society, of which he was a long and honored member.

There is also another sense of loss in reading of the death of one who belonged to the "old school" of men who were able to combine scientific pursuits with active participation in industrial activities. Scientific enquiry and pure research are now largely left to college professors, or to the members of government de-

partments, such as the Geological Survey, and there has taken place a more or less complete divorce between the captains of industry and the ranks of the scientists. Several technical societies in Canada are now deploring the absence from their membership and their meetings of college professors, and scientific men of eminence. There are one or two outstanding instances of men in Canada who have worthily maintained the traditions of an older and less strenuous school, but such men are becoming less in numbers. The loss is mutual. The simon-pure scientist and professor sometimes becomes a rather terrible person, as we have had occasion to observe them in German circles, and, on the other hand, the man of business and nothing else is a person whose defects do not require enumeration to be remembered.—F. W. G.

"Henry Skeffington Poole was born at Stellarton, N.S., in 1844. He was educated at King's College, Windsor, receiving the degree of B.A. in 1865; M.A. in 1874, and D.Sc. in 1903. He received his professional education at the Royal School of Mines, London, of which he was an associate and fellow.

"Returning to Nova Scotia, Dr. Poole practised his profession at the Coal Mines, Cape Breton, and then at the silver-lead mines, Utah. He was Inspector of Coal Mines, Nova Scotia, from 1872 to 1878, and subsequently chairman board of examiners for mining certificates, and general manager of the Acadia Coal Company. During this management, he resided at Stellarton, and many will remember the hospitality of his home at "Birch Hill," Stellarton.

"When he retired from active work and moved from Stellarton to Halifax in 1901, he was presented with a silver service by the directors of the company.

"Dr. Poole was a member of the Mining Society of Nova Scotia, of the Canadian Society of Civil Engineers, F.R.S., Canada, F.G.S., and of the Nova Scotia Institute of Science, in which he took an active part. He was also a contributor to various technical journals, to the reports of the Canadian Geological Survey, to the Journal of the Geological Society, etc.

"He married Florence, second daughter of the late Col. Hon. J. H. Gray, C.M.G., Charlottetown, formerly of the 7th Dragoon Guards, who survives him. To her with the family we extend our deepest sympathy. In the death of Dr. Poole Nova Scotia loses one of its most prominent scientific men."

C. H. McDougall.

Trail, B.C., May 18.—Despatches last Saturday brought the unpleasant news that Lieut. Clarence H. McDougall, formerly construction superintendent for the Consolidated Company, had been killed at the front in France.

Mr. McDougall, who had been in the employ of the Consolidated Mining and Smelting Co. of Canada for some ten years, had a host of friends all through the Kootenays, having lived in several parts of the district while looking after various phases of the development of the company's properties. At one time he was superintendent of the Sullivan mine at Kimberley and of the St. Eugene mine at Moyie. For a year or two he had charge for the company of the Snowshoe mine, Phoenix, which was under lease to the Consolidated. He had also been superintendent of the Centre Star mine at Rossland.

He had an interest in the Richmond-Eureka mine near Nelson, and was known as one of the most competent engineers in the Kootenays, it being the opinion of his former associates in Trail that he was one of the

brightest men in the profession in British Columbia. He was a McGill graduate of 1904, a native of Clifton, Nova Scotia, and about 36 years of age when he fell for his country in France.

SPECIAL CORRESPONDENCE

BRITISH COLUMBIA

When the last correspondence from British Columbia was written it seemed likely that the labor difficulties in the Crow's Nest district of British Columbia and the neighboring Province of Alberta were approaching settlement. Now, two weeks later, an adverse vote having been meanwhile given by a majority of the miners concerned, the trouble appears more aggravated than before that vote was taken, and what the eventual outcome will be can not, under existing unfavorable conditions be forecasted, except as a mere guess, without foundation of fact or reasonable expectation to warrant any conclusion being arrived at. Shortly, the members of the Western Coal Operators' Association assert that they have conceded all that they believe they are warranted in doing, while the representatives of the miners and other employees make it appear that they are confident they can succeed in wringing from the mine owners practically anything they shall ask, and they will not work unless they are granted greater concessions than the operators now say they will make to them, at least if the practical ultimatum of the latter is to be relied on. A press despatch from Calgary, Alberta, says, in part, that "the miners' representatives are again in conference here and to-day (May 10th) was spent in getting the preliminary business of the meeting over. Every miners' union in the district is represented and the meeting is planning to make the struggle between the operators and the miners effective on account of organization among the miners. The miners have communicated their point of view to the Minister of Labor and all expect that the Government will soon take some action. In fact, from expressions made by the miners' union representatives, it is evident that the men themselves consider that Government intervention is already demonstrated to be a necessity." Another statement made in the despatch was that "nearly every operator who participated in the recent meeting which decided to hold no further negotiations with the men has left Calgary for home." A further statement made follows: "The real factor in the dispute is stated by officials to be the rapidly increased cost of living and that only, although it was felt that the eight-hour day for all 'outside' men, and a number of local adjustments asked for in the original agreement were important. While practically all the men in the southern part of the district are out, there are still 700 in the Brule Lake district along the Grand Trunk Pacific and Canadian Northern railway lines who are working. No strike has been authorized by the district meeting, and until that is done there are, technically speaking, no men on strike."

The effect of the labor troubles on ore production in Kootenay and Boundary districts is in some measure shown by the following figures giving monthly totals of ore receipts at the Consolidated Mining and Smelting Company's smelting works at Trail, West Kootenay, for the four expired months of the current year: Receipts in April 24,909 tons, in March 43,979 tons, in February 40,967 tons, in January 36,570 tons; total for

the four months 146,425 tons. The chief falling off was in April; it appears likely that there will be a further decrease for the month of May. For the corresponding four months of 1916 the total was 160,168 tons. The decrease in quantity of ore mined and smelted in Boundary district this year to date is probably considerably larger than in Kootenay, while to-day (May 16th) the largest mines and smelting works in the district, namely, those of the Granby Consolidated Company, are closed pending settlement of the Crowsnest coal miners' strike and a renewal of coke supplies for the blast furnaces of the company's smeltery at Grand Forks.

East Kootenay.

In contrast to the situation in other parts of the Crowsnest district is that shown in the following news paragraph, taken from the Fernie Free Press: "Inspector of Mines O'Brien returned on May 12th from Corbin. He says nearly all the men in that camp are working as usual. Indications point toward the men at Corbin quitting the union, as they are becoming tired of the ceaseless turmoil and strife existing in the District Union.

The output of ore from the Consolidated Mining and Smelting Co.'s Sullivan mine was well maintained throughout the month of April, the total shipped to Trail during that month having been 14,410 tons. For the first week in May the proportion was smaller, having been only 2,438 tons. Incidentally, it may be mentioned that on May 5th the Nelson Daily News stated that, as the result of a conference between representatives of the men employed at the Sullivan mine, Kimberley, and officials of the Consolidated Mining and Smelting Company, regarding certain claims made by the employees at the mine, which conference was held in Nelson the previous day, proposals were made by the company which will be submitted to the men at the Sullivan mine for their consideration.

NORTHERN ONTARIO.

Kirkland Lake.

The vein at the 600-ft. level of the Kirkland Lake gold mine has been found to be about 42 ft. in width. The vein is highly mineralized and at places free gold is in evidence. A hoist is to be installed at this level, preparatory to sinking to the 700-ft. The new level established at this mine is the deepest in the Kirkland Lake camp and goes far towards demonstrating the fact that the ore-bearing veins will be found to continue to very deep levels similar to those encountered in the Porcupine camp.

The proven gold bearing zone has now been determined to be at least two miles in length, extending from the Tough Oakes mine at the east to the Kirkland Lake gold at the west end of the zone. The Tough Oakes has been operating for a number of years and is producing at the rate of nearly a million dollars annually, while the Kirkland Lake gold has the distinction of having the deepest shaft in the district and consistent values have been found all the way down. Along the strike of the mineralized zone between these two properties are to be found the Teck-Hughes, the Lake Shore and the Wright-Hargraves, which may all be said to have passed the prospective stage. A number of other properties in the district are also being worked and satisfactory results are being obtained on most of them.



Tough-Oakes Mill, Kirkland Lake.

Canadian Kirkland.

A seventh vein has been uncovered on the south end of the west claim of the Canadian Kirkland property at Kirkland lake. This new discovery is about three feet in width and contains a dark greenish quartz which is said to give an assay return of \$4.80 per ton from a channel assay from the vein. So far exploration work has been confined to the one claim and the management is well pleased with the results. During the summer a gang of men will be kept constantly trenching and sinking test pits and otherwise putting the property in shape for determining the policy which will be pursued when deep mining is commenced.

Elliott Kirkland.

Drifting is going on at the 125-foot level of the Elliott Kirkland mine, where it is anticipated that the extension of the Kirkland Lake Gold vein will be encountered. This vein at the 100-foot on the latter property was about a foot in width and it would not be surprising if it were found to be narrow on the latter property. As soon as this vein is located the management will commence sinking the shaft to a deeper level where further exploration work will be carried on.

Minaker Kirkland.

Owing to the fact that a second substantial payment has been made on the Minaker-Kirkland Gold Mines, Ltd., it is anticipated more extensive mining operations will be carried on from this time forward. Several promising veins with a number of free gold showings have been uncovered on the property during the past eight months and the property is considered to have very fair chances of success.

Hunton Kirkland.

A small force of men have been set to work at the Hunton-Kirkland property making preliminary preparations for the taking on of a large force in the near future, when the work of proving the merits of this property will be energetically carried on.

McIntyre.

The McIntyre Mill at Porcupine is now treating upwards of 500 tons per day, and the mill heads are being maintained around \$11. The production will total around one and three-quarter million dollars annually.

The porphyry-Keewatin contact extends for about one mile along this property and wherever extensive development work has been carried on it has been proven to be productive of good results. The most gratifying feature is the fact that the deeper the work is carried the higher is the grade of ore encountered. At the 1000-foot level a drift over a thousand feet in length has already been driven along this contact and the working is in good

grade ore for the entire distance. This drift extends from the McIntyre across the McIntyre Extension and into the Jupiter property and is about twenty eight feet in width. It is understood that this huge drift will be utilized as the main haulage way for the properties and will be electrified. When it is considered that prominent mining men are of the opinion that the orebodies in the Hollinger-McIntyre zone will continue to greater depths than present-day mining facilities can be operated, some idea of the immensity of this mine can be gleaned.

On the upper levels of the property much faulting of the formation occurred and gave considerable trouble. However at the deeper levels this has disappeared and geological conditions are very favorable to economical mining.

Schumacher.

With twelve machines working underground on the Schumacher mine at Porcupine rapid progress is being made in developing the workings of the mine and blocking out the orebodies, and when the annual report is issued in the near future it will show the wisdom of the policy of the company to conserve the net profits which amount to approximately \$3,500 per month for this purpose, and the future of the mine will be greatly benefited thereby. The mill is treating approximately three thousand tons monthly, from which about \$20,000 in gold is recovered. Mining and milling expenses are about \$16,500. Diamond drilling has proven that the values increase with depth and arrangements will be made to reach lower levels with all possible speed, when it is anticipated the mill heads will be substantially increased.

West Dome.

A vein about eight feet in width has been cut at the third level of the West Dome Consolidated, and is said to contain fair milling values. The vein was located by diamond drill some time ago, and a crosscut was run from the drift at this level, which is about 250 feet from the shaft. The vein was cut after about fifty feet of crosscutting had been accomplished.

Beaver.

Satisfactory results are being obtained in development of the high grade veins encountered on the 1600-foot level of the Beaver early in the year, and stoping is being energetically carried on. On the Temiskaming property four machines are driving the crosscut east and west with the expectation of cutting the extension of the Beaver vein on this property and about 100-feet of crosscutting has already been done. It is hard to indicate just how much work will be necessary to encounter the vein as the angle at which it is running cannot be definitely determined from the Beaver with regard to

the Temiskaming. Fourteen machines are in operation on the Temiskaming and the mine is understood to be in very good condition generally.

Shamrock.

Work on the Shamrock mine adjoining the Beaver is now confined to the 200 and 300 foot levels and consists chiefly in crosscutting. Eight men and one machine are employed. The general direction of the Beaver veins at the 1,600-foot level are in the direction of the Shamrock, and may decide the management to sink to deeper levels when the value of the Beaver discoveries at this depth have been more definitely established.

Hargraves.

About thirty men and four machines are employed at the Hargraves property, Cobalt. The winze from the 375-foot level has reached a depth of 50-feet and a crosscut will be run to pick up the vein which dipped out of the winze. A quantity of high grade has been bagged and considerable mill rock broken down and it is expected a shipment will be made from the property in the near future.

Trethewey.

A shoot of high grade ore containing approximately \$8,000 worth of silver was encountered in one of the old stopes of the Trethewey mine recently. Although not very extensive, the shoot produced a handsome revenue from an unexpected quarter.

Nipissing.

Monthly report of the Nipissing Mining Company for April states that nothing unusual was encountered on the property. The average width and grade of ore was maintained in the various stopes. The company mined ore of an estimated value of \$259,082, and shipped bullion of an estimated net value of \$517,719 from Nipissing and customs ore. Exploration work in the new areas encountered nothing of much value.

Kerr Lake.

April production from the Kerr Lake Mining Company established a record, when 250,683 ounces was recovered. This is the first time the quarter-million ounce mark has been passed. The monthly production for the year to date has been:—

January	215,206
February	206,474
March	219,335
April	250,683

The company has subscribed for \$300,000 of the United States Liberty Loan, which pays interest at the rate of 3½ per cent.

Pittsburgh-Lorrain.

At the Pittsburgh-Lorrain in South Lorrain (formerly the Currie) about twenty-five men are employed and the work is confined chiefly to the 300-foot level where values at times are said to be very encouraging, but are not very consistent. A diamond drilling programme is being carried out to test the formation at the 800 and 900-foot depths.

Lorrain Consolidated.

Work on two veins on the Lorrain Consolidated is being carried on at the 260-ft. level and while the veins are encouraging the values so far encountered are not very high. Drifting is being continued. The old plant of the Haileybury Frontier mining company is being used by the Lorrain Consolidated and is giving good satisfaction.

Boston Creek.

The snow is disappearing rapidly from the bush around Boston Creek and judging by the number of prospectors commencing to do their work in this district

the coming summer is going to be a very active one for this new camp.

Matachewan.

The formation of the district where the gold finds were made last fall near Fort Matachewan on the Montreal river is said to be similar to that of the producing area of the Kirkland Lake camp, and prospectors returning from the district are of the opinion that there will be some surprises in store for those doing their assessment work here during the coming summer. At present there are about fifty prospectors on the ground and others are preparing to go in.

Merger of Boston Creek Properties.

A deal is said to be pending which will include the R.A.P. Syndicate properties and the Boston Creek Mine at Boston Creek. Development work on the Boston Creek mine at the 300 and 400-foot levels is said to be very encouraging.

Tashota.

Favorable results are said to be attending development work on a number of properties in the Tashota mining field. The Tash-Orn shaft is down 115 feet and at the 100-foot level 250-feet of drifting has been done, and considerable free gold is in evidence in the vein which is the full width of the shaft. The wall rock is also said to carry fair values. This company also own the King Dodds property on the Kowkash river at Howard's Falls and it is understood that if they decide to put in a larger plant at the Tash-Orn property they will move the present plant to the King Dodds.

On the Hull-Kipper claim near Tashota a shaft has been put down about fifty feet and the results met with place the property in a class with very fair prospects.

McIntyre.

McIntyre-Porcupine is now producing gold bullion at the rate of upwards of \$150,000 monthly. This is considerably above the Dome figures and is not far short of the Hollinger Consolidated on its present reduced rate of production. McIntyre has a full force of men employed and the mill is now treating about 530 tons daily. It is understood arrangements will be made shortly for the installation of another milling unit with a view to raising the capacity to 1000 tons daily. Mill heads maintain around \$11 to the ton and provided such expansion is effected, production would total about \$11,000 daily, which works out at \$330,000 monthly or nearly \$4,000,000 annually. The mine is capitalized at just \$4,000,000, and less than 3,500,000 shares are issued. It therefore follows that McIntyre will probably ultimately produce bullion in excess of issued capitalization. No mine in the north country would appear to have a future any better than McIntyre.

SILVER PRICES.

	New York.	London.
	cents.	pence.
May 8	73¾	37½
" 9	73¾	37½
" 10	74½	37½
" 14	74½	38
" 15	74½	38
" 16	74½	38
" 17	74½	38
" 18	74½	37½
" 19	74½	37½
" 21	74½	38
" 22	74½	37½
" 23	74½	37½
" 24	74½	37½

MARKETS

TORONTO MARKETS.

Cobalt oxide, black, \$1.50 per lb.
 Cobalt oxide, grey, \$1.65 per lb.
 Cobalt metal, \$2.25 per lb.
 Nickel metal, 45 to 50 cents per lb.
 White arsenic 15 cents per lb.

May 28, 1917—(Quotations from Canada Metal Co., Toronto)
 Spelter, 12½ cents per lb.
 Lead, 14 cents per lb.
 Tin, 70 cents per lb.
 Antimony, 30 cents per lb.
 Copper, casting, 34 cents per lb.
 Electrolytic, 36 cents per lb.
 Ingot brass, yellow, 23 cents; red, 25½ cents per lb.

May 28, 1917—(Quotations from Elias Rogers Co., Toronto)
 Coal, anthracite, \$9.50 per ton.
 Coal, bituminous, nominal, \$9.00.

NEW YORK MARKETS.

Connellsville Coke—
 Furnace, spot, \$8.25 to \$8.50.
 Furnace, contract, \$8.00 to \$8.50.
 Foundry, spot, \$9.50 to \$10.00.
 Foundry, contract, \$9.00 to \$9.25.
 Straits Tin, spot, f.o.b. nominal, 65.50 cents.

Copper—
 Prime Lake, nominal, 31.50 to 32.50 cents.
 Electrolytic, nominal, 32.00 to 32.50 cents.
 Casting, nominal, 30.00 to 31.00 cents.

Lead, Trust price, 10.00 cents.
 Lead, outside, nominal, 11.00 to 11.50 cents.
 Spelter, prompt western shipment, 9.42½ to 9.67½ cents.

Antimony—
 Chinese and Japanese, nominal, 24.50 to 25.00 cents.

Aluminum—nominal.
 No. 1 Virgin, 98-99 per cent., 59.00 to 61.00 cents.
 Pure, 98-99 per cent. remelt, 56.00 to 58.00 cents.
 No. 12 alloy remelt, 41.00 to 43.00 cents.
 Powdered aluminum, 85.00 to 90.00 cents.

Nickel—Shot and ingot, 50.00 cents.
 Electrolytic, 55.00 cents.

Quicksilver, \$100.00.

Platinum—
 Pure, \$105.00.
 10 per cent. iridium, \$110.00.
 Cobalt (metallic), \$1.70.
 Tungsten, per unit—
 Sheelite, \$17.50.
 Wolframite, \$17.00.
 Silver (official), 74¾ cents.

COBALT AND PORCUPINE STOCKS.

As of May 28th, 1917.

Silver.		
	Asked.	Bid.
Bailey .....	.04	.03
Beaver Con. ....	.36½	.36
Buffalo	1.25	1.00
Chambers Ferland .....	.10½	.10
Coniagas	3.70	3.55
Crown Reserve .....	.29½	.29¼
Gifford .....	.04	.03¾
Gould .....	.00¾	...
Great Northern .....	.11	.10
Hargraves .....	.12½	.12
Hudson Bay .....	...	38.00
Kerr Lake	5.00	4.70
Kenabeek Con. ....	.29	.27
La Rose .....	.48	.40
Lorrain Consolidated .....	.20	.16
McKinley Darragh .....	.54	.52
Nipissing	7.35	7.15
Ophir .....	.09¼	.08½
Peterson Lake .....	.10	.09½

Gold.		
	Asked.	Bid.
Apex .....	.05½	.05¼
Boston Creek .....	...	.60
Davidson .....	.78	.61
Dome Extension .....	.13½	.13
Dome Lake .....	.18	.17
Dome Mines	12.50	12.00
Eldorado .....	.02	...
Foley O'Brien .....	.75	...
Gold Reef .....	.02¾	.02½
Homestake .....	.55	.45
Hollinger C.	4.45	4.40
Hunton Kirk. ....	.20	...
Inspiration .....	.08½	...
Keora .....	.12	...
Kirkland Lake .....	.39	.36½
McIntyre	1.48	1.47
Newray M. ....	.66	...
Porcupine Crown .....	.57	.56
Porcupine Gold, xr .....	.02	...
Porcupine Imperial .....	.03	.02¾
Porcupine Tisdale02¼	.01¼
Porcupine Bonanza09	...
Vipond39½	.38½
Preston East Dome04	.03¾

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