



CANADIAN MINING JOURNAL

VOL. XXXVIII

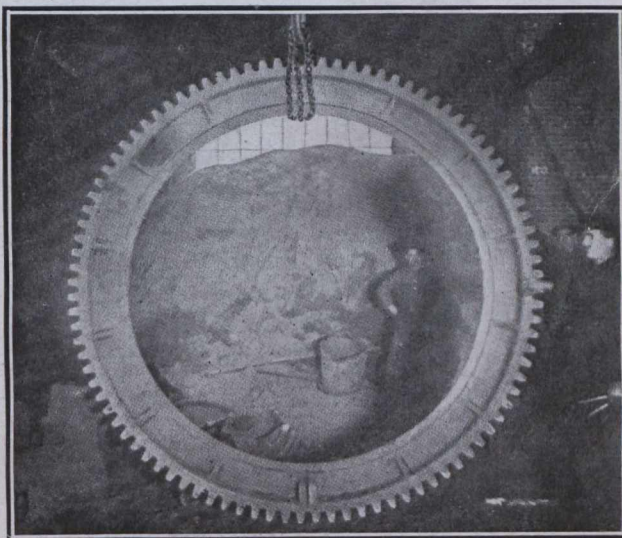
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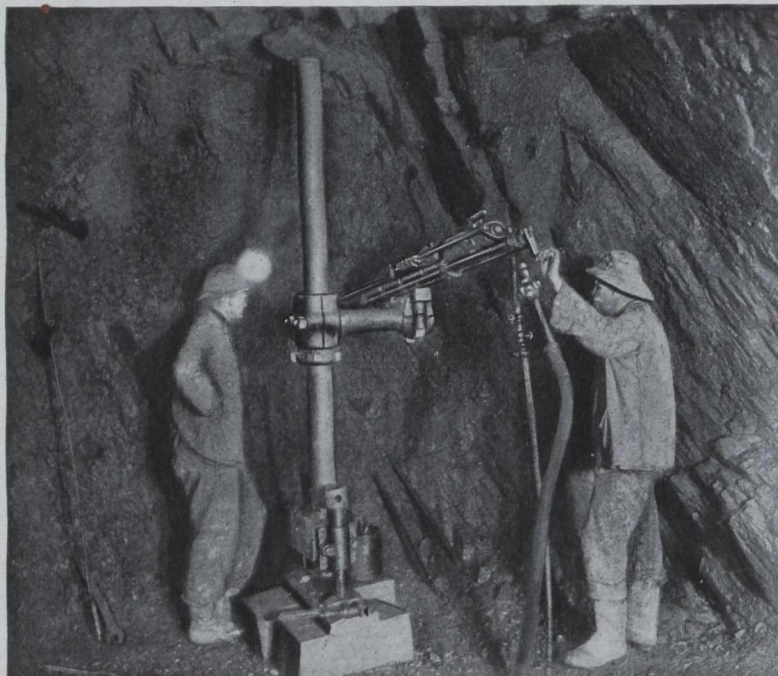
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Competitor "A"	\$20.66
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Bulletin 670G.

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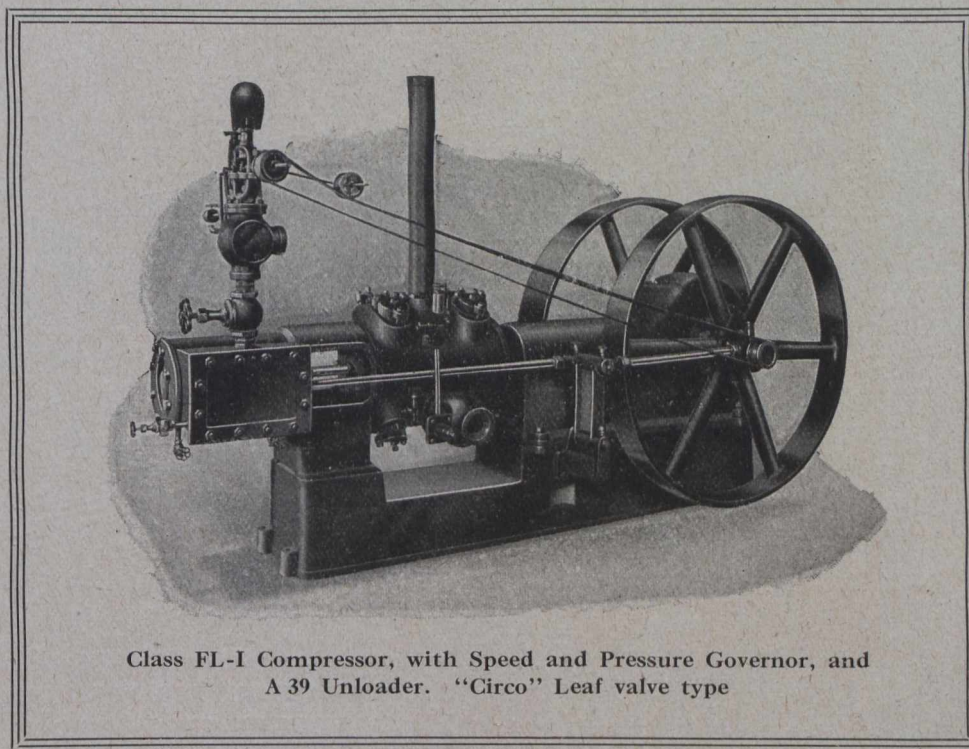
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In addition, the fact that the steam-driven machine shown above can be readily converted to belt drive and *vice versa*, when necessary, is a very valuable feature in itself.

Bulletin K-302 describes this type of compressor fully.

Bulletin K-300-A describes the belt-driven single-stage machine. A copy of either or both publications promptly sent on request.



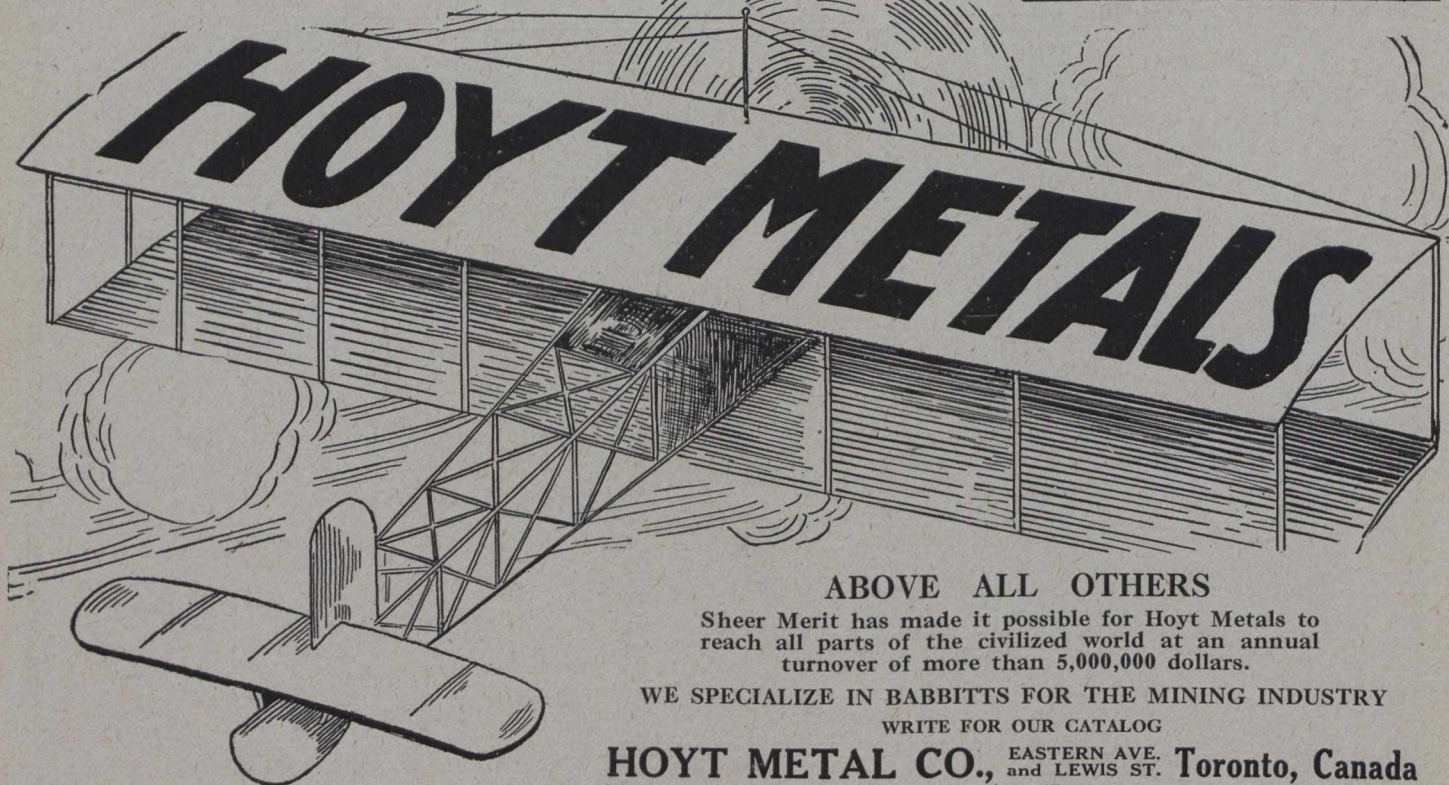
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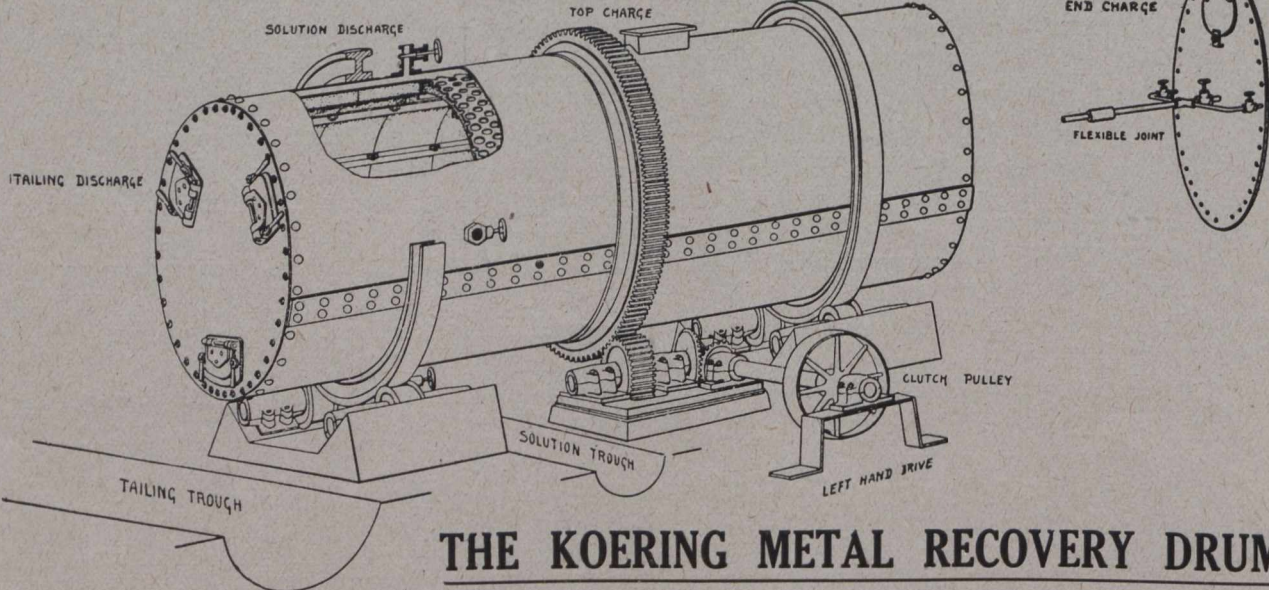
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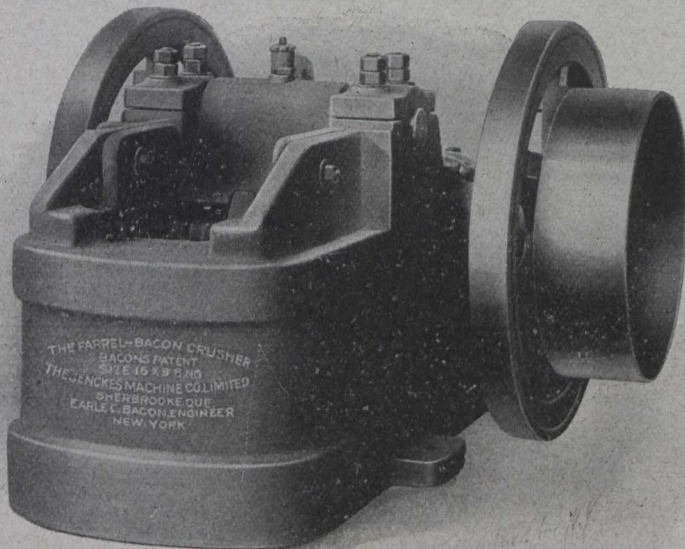
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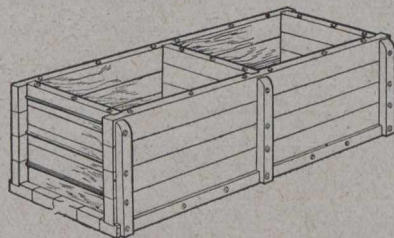
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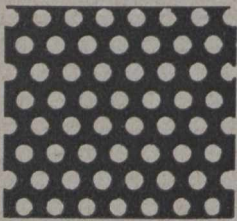
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Has produced Minerals valued as follows: Placer Gold, \$74,039,603; Lode Gold, \$86,763,450; Silver \$39,298,273; Lead, \$33,407,662; Copper, \$96,774,870; Other Metals (Zinc, Iron, etc.), \$3,659,473; Coal and Coke, \$156,928,640; Building Stone, Brick, Cement, etc., \$25,398,282; making its Mineral Production to the end of 1915 show an

Aggregate Value of \$516,270,253

The substantial progress of the Mining Industry of this Province is strikingly exhibited in the following figures, which show the value of production for successive five-year periods: For all years to 1894, inclusive, \$88,904,199; for five years, 1894-1899, \$46,906,258; for five years, 1899-1904, \$90,391,394; for five years 1904-1909, \$121,618,733; for five years, 1909-1914, \$139,002,161, for the year 1915, \$29,447,508.

Production During last ten years, \$267,607,077

Lode-mining has only been in progress for about twenty years, and not 20 per cent. of the Province has been even prospected; 300,000 square miles of unexplored mineral bearing land are open for prospecting.

The Mining Laws of this Province are more liberal and the fees lower than those of any other Province in the Dominion, or any Colony in the British Empire.

Mineral locations are granted to discoverers for nominal fees.

Absolute Titles are obtained by developing such properties, the security of which is guaranteed by Crown Grants.

Full information, together with mining Reports and Maps, may be obtained gratis by addressing

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Nova Scotia possesses extensive areas of mineral lands and offers a great field for those desirous of investment.

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Iron The province contains numerous districts in which occur various varieties of iron ore, practically at tide water and in touch with vast bodies of fluxes. Deposits of particularly high grade manganese ore occur at a number of different locations.

Gold Marked development has taken place in this industry the past several years. The gold fields of the province cover an area approximately 3,500 square miles. The gold is free milling and is from 870 to 970 fine.

Gypsum Enormous beds of gypsum of a very pure quality and frequently 100 feet thickness, are situated at the water's edge.

High grade cement making materials have been discovered in favorable situations for shipping.

Government core-drills can be had from the department for boring operations.

The available streams of Nova Scotia can supply at least 500,000 h.p. for industrial purposes.

Prospecting and Mining Rights are granted direct from the Crown on very favorable terms.

Copies of the Mining Law, Mines Reports, Maps and Other Literature may be had free on application to

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PROVINCE OF QUEBEC

MINES BRANCH

Department of Colonization, Mines and Fisheries

The chief minerals of the Province of Quebec are Asbestos, Chromite, Copper, Iron, Gold, Molybdenite, Phosphate, Mica, Graphite, Ornamental and Building Stone, Clays, etc.

The Mining Law gives absolute security of Title and is very favourable to the Prospector.

MINERS' CERTIFICATES. First of all, obtain a miner's certificate, from the Department in Quebec or from the nearest agent. The price of this certificate is \$10.00, and it is valid until the first of January following. This certificate gives the right to prospect on public lands and on private lands, on which the mineral rights belong to the Crown.

The holder of the certificate may stake mining claims to the extent of 200 acres.

WORKING CONDITIONS. During the first six months following the staking of the claim, work on it must be performed to the extent of at least twenty-five days of eight hours.

SIX MONTHS AFTER STAKING. At the expiration of six months from date of the staking, the prospector, to retain his rights, must take out a mining license.

MINING LICENSE. The mining license may cover 40 to 200 acres in unsurveyed territory. The price of this license is Fifty Cents an acre per year, and a fee of \$10.00 on issue. It is valid for one year and is renewable on the same terms, on producing an affidavit that during the year work has been performed to the extent of at least twenty-five days labour on each forty acres.

MINING CONCESSION. Notwithstanding the above, a mining concession may be acquired at any time at the rate of \$5 an acre for SUPERIOR METALS, and \$3 an acre for INFERIOR MINERALS.

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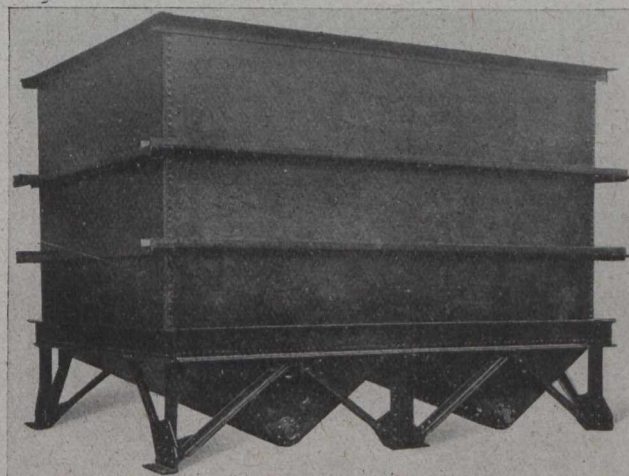
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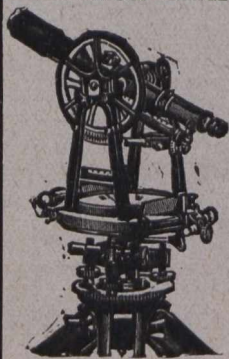
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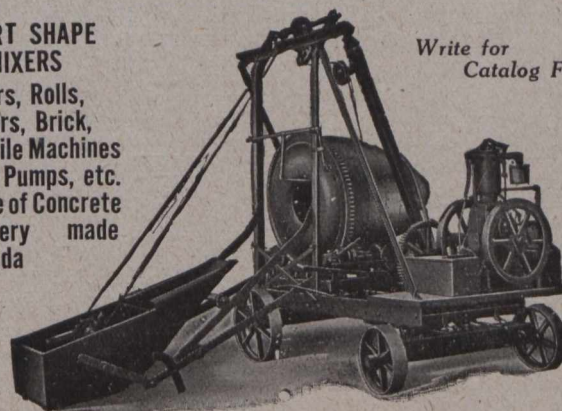
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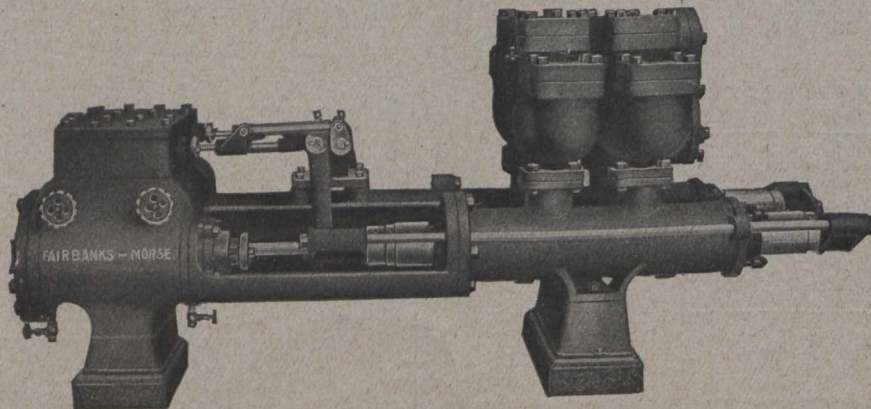
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MINES BRANCH

Recent Publications

- The Nickel Industry: with special reference to the Sudbury region, Ont. Report on, by Professor A. P. Coleman, Ph.D.
- The Copper Smelting Industry of Canada. Report on, by A. W. G. Wilson, Ph.D.
- Building and Ornamental Stones of Canada (Quebec). Vol. III. Report on, by W. A. Parks, Ph.D.
- The Bituminous Sands of Northern Alberta. Report on, by S. C. Ells, M.E.
- Peat, Lignite and Coal: their value as fuels for the production of gas and power in the by-product, recovery producer. Report on, by B. F. Haanel, B.Sc.
- Annual Report of the Mineral Production of Canada During the Calendar Year 1914, by John McLeish, B.A.
- The Petroleum and Natural Gas Resources of Canada: Vols. I. and II., by F. G. Clapp, M.A., and others.
- The Salt Industry of Canada. Report on, by L. H. Cole, B.Sc.
- Electro-plating with Cobalt. Report on, by H. T. Kalmus, Ph.D.
- Electro-thermic Smelting of Iron Ores in Sweden. Report on, by A. Stansfield, D.Sc.
- Non-metallic Minerals Used in Canadian Manufacturing Industries. Report on, by H. Frechette, M.Sc.

The Mines Branch maintains the following laboratories in which investigations are made with a view to assisting in the development of the general mining industries of Canada:—

- Fuel Testing Laboratory.—Testing value of Canadian fuels for steam raising and production of power gas; analyses, and other chemical and physical examinations of solid, liquid and gaseous fuels are also made.
- Ore-Dressing Laboratory.—Testing of Canadian ores and minerals, to ascertain most economical methods of treatment.
- Chemical Laboratory.—Analysing and assaying of all mineral substances and their manufactured products. Copies of schedules of fees, which are slightly in excess of those charged by private practitioners, may be had on application.
- Ceramic Laboratory.—Equipment is such that complete physical tests on clays and shale of the Dominion can be made, to determine their value from an economic standpoint.
- Structural Materials Laboratory.—Experimental work on sands, cements and limes is also undertaken.
- Applications for reports and particulars relative to having investigations made in the several laboratories should be addressed to The Director, Mines Branch, Department of Mines, Ottawa.

GEOLOGICAL SURVEY

Recent Publications

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- Memoir 74. A List of Canadian Mineral Occurrences, by Robert A. A. Johnston.
- Memoir 77. Geology and Ore Deposits of Rossland, British Columbia, by C. W. Drysdale.
- Memoir 82. Rainy River District of Ontario. Surficial Geology and Soils, by W. A. Johnston.
- Memoir 84. An Exploration of the Tazin and Taltson Rivers, Northwest Territory, by Charles Camsell.
- Memoir 85. Road Material Surveys in 1914, by L. Reinecke.
- Memoir 87. Geology of a Portion of the Flathead Coal Area, British Columbia, by J. D. Mackenzie.
- Memoir 88. Geology of Graham Island, British Columbia, by J. D. Mackenzie.
- Memoir 89. Wood Mountain-Willowbunch Coal Area, Saskatchewan, by Bruce Rose.
- Memoir 92. Part of the District of Lake St. John, Quebec, by John A. Dresser.
- Memoir 93. The Southern Plains of Alberta, by D. B. Dowling.
- Memoir 94. Ymir Mining Camp, British Columbia, by Charles Wales Drysdale.
- Memoir 95. Onaping Map-Area, by W. H. Collins.
- Map 59A. Wheaton, Yukon Territory.
- Map 60A. Wheaton, Yukon.
- Map 67A. Kirkfield Sheet, Victoria County, Ontario.
- Map 150A. Ponhook Lake Sheet, Nova Scotia.
- Map 175A. Ymir, Kootenay, British Columbia.
- Map 176A. Graham Island, Queen Charlotte Islands, British Columbia.
- Map 177A. Southern Portion of Graham Island, Queen Charlotte Islands, British Columbia.
- Map 180A. Espanola Area, Sudbury District, Ontario.
- Map 184A. Roberval, Lake St. John County, Quebec.
- Map 187A. Southern Plains of Alberta.
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ALUMINUM ORES—BAUXITE.

Mr. J. Barkley Percival, of Dutch Guiana, South America, will shortly be in New York on a trip in connection with valuable bauxite properties which he is desirous of placing with capitalists interested in aluminum and its ores. Mr. Percival will have with him samples of the ore, maps, and other full data, and an interview can be arranged by addressing him by mail at 20 West 16th Street, New York City.

Mr. Percival, in an interesting article, published in "The Engineering and Mining Journal," New York, of 27th March, 1915, was the first to make known in the United States the opportunities offering in bauxite enterprises in Dutch Guiana.

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CIRCULATION

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We are pleased to be able to publish in this issue some account of Professor S. F. Kirkpatrick's contributions to the metallurgy of the silver ores of the Cobalt district. Such work deserves recognition. It is fitting that the McCharles prizes has been awarded to a Canadian metallurgist who has played an important part in the establishment of a new industry in Canada.

The judgment recently handed out in the Sudbury sulphur smoke cases, indicates that there is little doubt that real damage is done to farms in the neighborhood of the roast heaps. Claims for damages are to be expected each year; but extravagant claims are not likely to be so popular in the future. It is to be hoped that a reasonable basis will be found for settling claims without recourse to lawsuits.

The high price now being obtained for silver is likely to result in quickening of development of properties in the silver-bearing areas of Northern Ontario. Many prospects that were turned down when the silver was selling at less than sixty cents an ounce and arsenic at two cents a pound will be reconsidered in view of the present prices for the contents of ores of the Cobalt district. It is not unlikely that important developments will take place in spite of the shortage of labor and the high cost of supplies.

The Industrial Workers of the World are proving to be, what their history might lead one to expect, a source of annoyance to the citizens of the United States at a time when even rabid socialists might have the good sense to devote some thought to the welfare of the country in which they live. It is not surprising that citizens of Bisbee deported the I.W.W. agitators from the Bisbee district, or that the Citizens Alliance of the Michigan Copper Country has given warning to agitators at Calumet. Reports of I.W.W. activities in various parts of the United States indicate that the Germans knew where their money would give results; but that they overestimated their ability to conceal their influence. Realization of the menace will doubtless result in stern measures for suppression of traitors and their dupes in other parts of the United States as well as in Michigan.

A disastrous explosion is reported to have occurred in No. 2 colliery of the Dominion Coal Co. at New Waterford, Cape Breton. It is known that many lives have been lost; the list including several brave men engaged in rescue work. It is hoped that fire will not follow.

This issue goes to press too early to give particulars of the disaster. It is already known, however, that many miners were killed at their work. That they died bravely we have no doubt.

WINNER OF THE McCHARLES PRIZE, 1917.



S. F. KIRKPATRICK.

Professor of Metallurgy, Queen's University, Kingston.

CHAS. DRYSDALE AND WM. GRAY DROWNED.

Invermere, B.C., July 12.—While attempting to cross the Kootenay River, near Cross River, on a raft yesterday, Charles W. Drysdale, of Ottawa and Montreal, chief of the geological survey party, and his assistant, Wm. J. Gray, a student of aviation at Vancouver, were drowned by the raft upsetting. The bodies have not been recovered, having been swept away by high water. George Smith was also on the raft, but he reached shore.

CONSOLIDATED MINES SELECTION CO.

The appointment of Mr. J. B. Tyrrell as Canadian representative for the Consolidated Mines Selection Co., Ltd., is an indication that this strong company is to take greater interest in mining in Canada. The company holds a controlling interest in Brakpan Mines, Ltd., Spring Mines, Ltd., Rand Selection Corp., Ltd., and New Era Consolidated, Ltd., and a large interest in Daggafontein Mines, Ltd., Burma Mines, Ltd., Irtys Corporation, Ltd., Hampden Cloncurry Mines, Ltd., Mt. Lyell Mining and Railway Co., Ltd., and Itabira Iron Ore Co., Ltd.

The directors of the company are W. McDermott (chairman), R. J. Frecheville, F. W. Green, L. Oppenheimer, B. Kitzuger and J. S. Wetzler.

CORRESPONDENCE.**Professor Haultain and the Geologists.**

Editor, Canadian Mining Journal:

Sir,—At the March, 1916, meeting of the Canadian Mining Institute, when Dr. Adams had concluded his address on the discovery of phosphate in the Rocky mountains, Prof. H. E. T. Haultain said:

"I make the most profound obeisance. . . . Dr. Adams' work represents the most magnificent piece of prospecting of which one has knowledge."

One of his auditors said to his neighbor:

"That is the first time I ever heard Haultain say anything complimentary about the work of a geologist."

His cynical friend replied:

"It is only because he was taken by surprise. He regrets it already, and, if you give him time, he will take it all back."

All who read Prof. Haultain's communication in your issue of July 1st will agree that the cynic was also

AN OBSERVANT OBSERVER.

July 18, 1917.

READY FOR THE I. W. W.

Houghton, Mich.—The atmosphere at the Lake copper mines, somewhat foggy last week because of rumors of impending trouble with the I.W.W., seems to have cleared. The clarifying process undoubtedly was effected by a monster mass meeting held under the auspices of the revived Citizens Alliance at Calumet Sunday afternoon. A gathering of 5000 people warned the disaffected, if there are any, in simple terms that the patriotic citizens of the copper country will not tolerate agitation that may tend toward the curtailment of copper production at a time when that production is vital to the nation. The citizens of the copper country in assuming this attitude stood squarely on the issue of loyalty to the United States and on no other.

GRANBY CONSOLIDATED.

Granby Consolidated made net earnings of \$5,500,000 in its fiscal year ended June 30, according to preliminary estimates. This compares with \$4,100,000 in the preceding fiscal period. This was equal to about \$35 per share, against \$25 in the 1915-16 year. Dividends paid during the past year amounted to \$9 per share.

Copper production in 1916-17 showed little change from the previous year—41,312,884 pounds, against 42,198,083 pounds in 1915-16.

Last February the company encountered extreme cold weather, particularly at Anyox, which cut production down materially. The Grand Forks plant was forced to close down early in April for lack of fuel, although this situation has since cleared up and the smelter in the Phoenix district should be in position to resume operations by the first of August.

Granby has been spending large sums during the past few years in building up its new plant at Anyox to the point where it can be regarded as one of the most economically operated in the western copper camps. The management has plans for more of these improvements and additions during the fiscal year just started which will call for further large expenditures.—Boston News Bureau.

S. F. KIRKPATRICK'S CONTRIBUTIONS TO METALLURGY OF COBALT SILVER ORES.

By S. B. Wright.

In connection with the treatment of cobalt-silver ore from the Cobalt district, Mr. Kirkpatrick carried out an elaborate research at the School of Mining, Kingston, in 1905. The Deloro Mining & Reduction Company, Limited, was formed in 1906 for the purpose of treating cobalt-silver ore, adopting the processes worked out by Kirkpatrick. The plant started operating in November, 1907.

Extraction of the Silver from Ores of Cobalt District.

The original process consisted in cyaniding the milled ore direct in conical-bottom agitation tanks, the circulation of pulp and solution being performed by means of centrifugal pumps drawing from the bottoms of agitators and delivering on to spreaders at the tops. After the necessary clarifying of solutions, the silver was precipitated by means of aluminum dust, fluxed and melted down to commercial bar 996-999 fine. The ore residue after cyaniding was smelted to a speiss for the extraction of the remaining silver and of the cobalt, nickel and arsenic values.

Subsequently, 1908, on account of the very variable nature of the ores handled and of the uncertainty of their amenability to cyanide treatment, the direct smelting of the ore was adopted. This, of course, produced a speiss containing much higher silver values; but process losses did not increase.

The treatment of the speiss, whether low or high silver, consists in roasting down to 10% As, and lower, in mechanically rabbled furnaces, chloridizing this roast speiss with salt in muffle furnaces and cyaniding the product.

This treatment of a chloridized speiss by cyanide was undoubtedly an entirely new departure in metallurgy, and as its success was dependent on the use of aluminum as a precipitant, this part of Kirkpatrick's processes has been of the greatest importance. Particularly so in view of the fact that on account of the restricted market for cobalt, it was necessary to have a method of extracting the bulk of the silver values without putting heavy costs on the cobalt contents which might have to be stored for a long time.

This method of treatment proved satisfactory, and has been carried on from the start.

Advantages of Aluminum Dust as a Precipitant of Silver.

In our case, one part by weight of aluminum precipitates eight parts of silver. With solutions less rich in silver than those obtained in our practice, a slightly lower efficiency is naturally expected (e.g., Nipissing Mining Co.'s low grade mill practice); but the regeneration of the cyanogen combined with the silver in solution comes up to the theoretical figures in all cases.

This regeneration is of course of the utmost importance, as it would enable aluminum to compete with zinc at normal prices even if there were no other advantages, the regeneration of cyanide in the case of zinc being practically nil.

A further important advantage of aluminum, however, is the fact that by means of a simple melting operation without any subsequent refining, silver bullion 996-999 fine is produced, all further refining charges being thus obviated.

As the refiners' charges on all bullion below 996 fine and on brittle bullion range from one-quarter cent per ounce up, it will be readily seen that this point is of great importance in the matter of costs.

Quite apart from the advantages already mentioned, it is a fact that in attempting to apply zinc as a precipitant to the cyanide solutions used on cobalt-silver ore, the solutions become foul so rapidly that the cyanide treatment would be commercially unsuccessful.

This was proven in the case of the Nipissing Mining Co.'s low grade mill, which was originally designed for zinc dust precipitation, but was eventually changed to aluminum dust.

The first mill in Cobalt to treat low grade ore by the cyanide process successfully was that at the O'Brien mine, which adopted Kirkpatrick's aluminum precipitation and the general treatment advised by Kirkpatrick after a somewhat elaborate series of tests had been conducted by him on that ore.

Since that time a very large quantity of silver has been produced in Cobalt by this process, but I am unable to give actual figures.

The output of the Deloro Mining & Reduction Co.'s plant from 1906 to the present time has amounted to approximately 40,375,000 ounces of silver, of which about 50 per cent. has been produced by aluminum precipitation.

Extraction of Cobalt and Nickel.

In the extraction of the cobalt and nickel from the ore by the processes worked out by Kirkpatrick, the following figures are interesting:

	lb.
Cobalt (metal), in form of oxides, metal, etc.	1,168,491
Nickel (metal), in form of oxides, metal, etc.	371,747
Arsenic (white)	15,646,258

The cobalt oxides produced are of the highest grade, our black oxide being guaranteed to contain 70 per cent. cobalt. In 1915 the production of cobalt and nickel metals was started in our works, and we are now able to produce cobalt metal in the forms required by the market, at the rate of about one ton per day.

In the extraction of the cobalt and nickel from the speiss (residues) Kirkpatrick's first aim was to get away from the old hydrochloric acid treatment, with its attendant difficulties. This he succeeded in doing by sulphating the above mentioned residues with H₂SO₄, rendering the bulk of the iron insoluble by roasting, and eventually obtaining a neutral cobalt-nickel sulphate solution from this material. By the methods employed, the question of corrosion of plant by acid solutions, etc., is practically overcome, in fact we are able to use wooden tanks and iron pipe systems throughout.

The advantages of such a process over earlier methods in the extraction of these metals will be readily appreciated by all metallurgists.

As we also produce about 150 tons of refined white arsenic per month, it will be appreciated that Kirkpatrick's work on the metallurgy of cobalt-silver ore has resulted in the successful extraction of the silver, cobalt, nickel and arsenic contents of the ore, each and all of these being produced in the refined and finished state in Canada by a Canadian company.

The operations of this company have undoubtedly enabled the Cobalt mine owners to obtain far higher prices for their ore, for they were at the mercy of the United States smelters until we came into the field.

LABOR ORGANIZATION IN CANADA.

The sixth annual report on Labor Organization in Canada, containing statistics, etc., for the calendar year 1916, has been issued by the Department of Labor.

Figures are given showing the extent to which the trade unionists of the Dominion have contributed to the Canadian expeditionary forces since the outbreak of the war in August, 1914. Enlistment of one or more members has been reported by 1,284 local branch unions, the recruits numbering 21,599 and reservists 593, a total of 22,192 trade unionists in the ranks.

The loss in trade union membership recorded in the two previous years has been partially overcome by the increase of 17,064 reported for 1916, the total numerical strength at the close of the year being 160,407. In all there are 1,842 local branch unions in Canada, 1,626 comprising 129,123 members, being affiliated with international organizations, 189 with 22,884 members are connected with non-international bodies, and 27 having 8,400 members are independent units. There was a loss of 35 international local branches during the year, but the membership was increased by 14,401; the non-international bodies lost two branches and 780 members, and the independent units were decreased by four, but the reported membership shows a gain of 3,443. The membership of all classes of organized labor in Canada as reported to the Department for the past six years has been as follows:

1911	133,132
1912	160,120
1913	175,799
1914	166,163
1915	143,343
1916	160,407

Of the 1,842 local trade union branches in Canada, 828 of them are located in eighteen cities, and 589 reported a membership of 69,225, representing over 40 per cent. of the entire trade union membership in the Dominion. Montreal occupies first place as to number of local branches; while Toronto, Winnipeg and Vancouver follow in the order named.

Nearly all of the central labor organizations operating in Canada have benefit features on a varying scale. A table is furnished showing the expenditure made on this account by the various organizations, the disbursements for 1916 being \$12,502,128, a decrease of \$2,063,237, as compared with the payments made in 1915. The expenditure for each class of benefit was as follows:

Death benefits	\$7,808,225
Strike benefits	2,811,426
Sick and accident benefits.....	1,120,186
Old age pensions	461,780
Unemployed and travelling benefits	106,458

Four of the non-international bodies reported having made payments on account of benefits, the total expenditure amounting to \$11,933.

A statement is also published showing the amount paid in benefits for the year 1916 by local branch unions in Canada to their own members, the disbursements aggregating \$248,180, an increase of \$119,509 as compared with the expenditure for 1915. The payments made on account of each class of benefit was:

Death benefits	\$56,646
Unemployed benefits	2,121
Strike benefits	15,542
Sick benefits	146,592
Other benefits	27,279

A chapter gives details of restrictive measures which have been adopted by certain labor organizations against members joining the military forces, and the action of central labor bodies in Canada on registration is also recorded.

The report follows closely along the lines of former reports on Labor Organization in Canada, the various phases of the scheme of organization which have been developed being given due consideration.

The report serves as a directory of trade unions for the Dominion for 1917, including as it does particulars not only of every known local trade union in Canada, but also a list of all international and non-international central organizing bodies, together with the names and addresses of the chief executive officers.

CONSOLIDATED SMELTERS.

Montreal, July 21.—The increasing activities of the Consolidated Mining and Smelting Company are slowly but surely bringing the big Canadian mining concern into a position similar to that occupied by the celebrated Anaconda Mining Company of the United States. The production of the company this year, according to information furnished The Financial Times will establish a new high record of earnings, in fact, we are in a position to state that for the year ending September next, the earnings from the zinc and lead operations alone will be more than sufficient to pay the dividends twice over, and as the disbursements on the stock during 1916 amounted to \$776,337, a fair idea may be had of the profits accruing from the operations mentioned, to say nothing of the earnings from the gold, silver and copper production.

The marked progress in the development of this company is indicated by the fact that the production of zinc is now almost 50 tons per day. This electrolytic zinc plant was producing about 10 tons of zinc daily about a year ago, and the management felt well satisfied with themselves because of the fact that they would ultimately turn out about 25 tons daily. That their expectations have been greatly exceeded and that the plant has made phenomenal progress is indicated by the present increased production to 50 tons daily. The large gain in earnings due to this increased output will be further augmented when it is considered that while the price of zinc in 1914 was .495 cents it is now quoted at 8½ cents.

The expansion in the output of lead and copper is equally encouraging, the demand for these metals being so insistent that the output is sold for months ahead and, of course, at advancing prices. Lead to-day is quoted at 10½ cents compared with .385 cents in 1914, while copper has advanced from 13½ cents at the beginning of the war to 28½ cents to-day. That there will be a continued demand after the war for refined copper and zinc is easily appreciated as there is no reason why the entire output of these metals should not be absorbed by the Canadian metal trades and fabricated by Canadian workmen—a condition possible only when these metals are available in a refined state.

With the increased earnings, and the elimination of the heavy outlay which during 1916 was applied to construction of new plants, the annual statement for the year-ending September next will undoubtedly prove a pleasant document for the shareholders.—Financial Times.

SULPHUR SMOKE DAMAGES.

Sudbury, July 20.—His Honor J. J. Kehoe, Judge of the District Court of Sudbury, handed out the following judgment on July 16, in five claims against the Canadian Copper Co. made by Jos. David, Louis B. Giroux, Morley Arthur, Matti Lindala and John Lindala:

These five cases are for claims made by farmers for damage to their crops and meadows through sulphur, gas or smoke which came mostly from the new roast bed of the defendants, and in a lesser degree from the older roast bed.

In the David and Giroux cases the defendants deny that there was any sulphur that reached the lands in question, but admit in the other three cases that the streams of sulphur smoke did reach the lands, but insist in two of the cases that the damage was so slight as not to be appreciable. In the case of the plaintiff, Arthur, they also maintain that the claim for damage is exaggerated.

Dealing firstly with the question as to whether the sulphur smoke reached the land of David and Giroux, there is the evidence not only of these two plaintiffs but of four other witnesses, who testify to having seen the sulphur smoke from time to time during May, June, July and August of 1916. Sometimes the smokes were light, at others in greater volume, and on one occasion it was so thick that it was difficult to see for any distance, and it was sufficient to cause the person who experienced it to suffer from heavy sensation of choking. These witnesses spoke of the duration of the smoke as well as they could recollect it each time, the time of the day that it happened, and of the blight that was immediately visible after.

Against this evidence the defendants offered the evidence of experts who travelled the country in automobiles, following the track of each and every wave of smoke, and who also spoke of what they saw of David's and Giroux' farms and they asserted that from following the line of smokes from the defendants' roast beds and seeing final ending of them and from inspecting the crops in question, that no sulphur smoke reached even near to these farms.

On both sides the evidence was positive. I may add that I am well satisfied that all of these witnesses on both sides believed what they said. Deciding between them as to what really happened I am led to the conclusion that I must find that sulphur smoke streams did reach these lands as described by those who said that they saw them, and also that the plaintiffs in each case suffered damage by the injury caused to their farms. The reason for my so deciding is obvious. The witnesses who speak of what they see and feel are to be taken in preference to those who speak from signs that they see and the observations which they make after the events have happened.

It remains therefore only for damages to be assessed in these as well as in other cases.

In coming to assessment of damages I do not find in any case that the plaintiffs have underestimated them. In some cases they have been unreasonable. The acreage of cultivated land as claimed turns out to be considerably less in some instances than actual survey shows, and the value of the crops as claimed is, according to sale prices, usually higher than it should be. Then no account is taken of diseases to plants and the year 1916 is put forward as a year of good growing

weather. Losses on crops in 1916 are made by comparison with the yields of other years which were much better.

If a crop which has been visited by sulphur smoke becomes in a degree blighted, it by no means happens that the sulphur dioxide causes all the damage. In the smoke zone and out of it throughout this region and in other parts of this province different plant diseases have been conclusively proven before me as to each of the cases.

It may be here mentioned that I have not only heard expert testimony on this branch of the case, but have examined the several written authorities submitted, all of which for the practical purpose of dealing with the matters in dispute are fully summarized in the judgment of Mr. Justice Middleton in the cases tried before him. It will serve no useful purpose to repeat as to these. I have carefully considered the evidence given on the trials before me which lasted six days and three evenings, listened attentively to the one and a half days' argument which followed and from every point of view that I could, I have weighed the evidence in all its bearings as to weather, soil, drainage, cultivation, prices, dates, diseases, palatability of blighted fodder, wind, moisture, etc.

In cases of claims for damages the presumption is against the spoiler. In some cases where the wrongdoer is wanton in committing damage the law makes him smart heavily for it and even double damages are allowed. In the cases now before me I cannot say that there is any wantonness. The defendants have established their rights in the actions tried before Mr. Justice Middleton to carry on their work of roasting and smelting and an injunction was refused as against them. The judgment says that "It is impossible for the individual to assert his individual rights as to inflict a substantial injury on the whole community." Therefore the injunction which would have practically closed the company's operations was denied. But the right to damages for injury from the spreading of the sulphur fumes remains and so actions such as these now tried before me are brought.

In the sections tried before Mr. Justice Middleton he speaks of the plaintiffs as those who having gone "into that area to farm, have (in almost all cases) gone there with their eyes open seeking to avail themselves of a market in which abnormally high prices rule because of the demands created by those mines and their great distances from ordinary sources of supply. In these present cases three of the plaintiffs have settled, cultivated their farms and made their homes before there was any mining and nickel was not only unknown to exist, but its present varied usefulness was also unknown. They came at a time, too, when lumbering, affording a profitable market for the farmer, was in full swing. Railway construction also brought them hither and towns and villages sprang up, the existence of which in the Sudbury district is more due to other causes such as I have indicated than to mining operations.

The awards of damages should not be unduly pressed against the defendant even if he is a wrong doer. But they should be full, or as Mr. Justice Middleton says, "liberal."

In arriving at the damages there are many difficulties and a close calculation can not be made. The considerations to be taken into account have already been mentioned. The amounts which I have arrived at are

as follows: Joseph David, \$175; Louis B. Giroux, \$150; Morley Arthurs, \$300; Matti Lindala, \$140; John Lindala, \$80. Counsel can speak to me on the question of costs.

There remain quite a number of cases yet to be tried and it looks as if an era of litigation of this kind is started. The region tributary to the smoke fumes of the new roast beds of the defendants is one of good cultivation.

The history of damage claims of this kind is that at first they were settled without litigation. For a period of six years prior to 1915 Sheriff Irving settled hundreds of claims, not one having been entered in suit. There followed the arbitrations of 1915 which, rightly or wrongly, produced intense dissatisfaction among the farmers and others interested. Suits followed since then. A remedy that would do away with this widespread litigation and the consequent great expense is greatly to be desired. A whole countryside in continual lawsuits is in every way a great bane to the community. I venture to express the hope that in some way this condition will be avoided.

BOUNDARY DISTRICT OF BRITISH COLUMBIA.

In the northeastern part of Boundary district of British Columbia there is a mineralized region known as Franklin camp. Several Geological Survey officials have made investigations in that part of Grand Forks mining division and their reports have been published by the Survey. The British Columbia Department of Mines, too, has given it some attention, and in 1914 it was visited by Mr. A. G. Larson, mining engineer, then of Vancouver, B. C., under instructions from the Provincial Minister of Mines, and his report was first published in bulletin form, under title of "The Mineral and Other Resources of the North Fork of Kettle River," one of the forks of which stream passes through Franklin camp. Owing to its distance from a railway, which is 25 to 30 miles, there has been comparatively little ore-production made in the camp, the only property that has shipped ore on a commercial scale being the Union mine, which sent out 261 tons of ore in 1916 and 520 tons in 1915, according to statements printed in Provincial official publications. A quotation from one of those publications follows:

"Of the ore produced from the Union mine in 1915 about 400 tons was shipped to the Granby Company's smelting works at Grand Forks, and the remainder to the Consolidated Company's smeltery at Trail. A good idea of the average value of the ore is conveyed in a report by the mine superintendent, in which it was shown that the average gold and silver contents of more than 200 tons of ore shipped to Grand Forks were 0.85 oz. of gold and 45 oz. of silver to the ton. The cost of hauling 25 miles to the railway was \$13.50 a ton; freight by railway to smeltery was \$1.50, and charge for smelting \$6.75; total freight and treatment costs, \$21.75 a ton, which is a rather heavy handicap on mining in Franklin camp. A carload shipment was made to trail from the Maple Leaf, which group, lying contiguous to the Union group, is also described in the bulletin. The Gloster group was bonded by the Granby Company, and some development work done."

On June 22nd, the Grand Forks Gazette published the following account of mining in Franklin camp:

"An important strike of native copper was made this week on the Maple Leaf mineral group in Franklin camp. The strike has been made at the foot of the mountain, 1000 ft. below the main workings, and 40 ft.

of the contact deposit has been uncovered. In this instance instead of chalcopyrite, as was the case in the upper workings, the ore is native copper and red oxidised copper, and in addition it contains about a quarter of an ounce of platinum to the ton, as well as substantial value in silver.

"The Maple Leaf is near the Union mine, the biggest shipper of the North Fork, and considerable development work was done on it a number of years ago and some ore was shipped. For some years, however, little or no work was done until the past few months, when Mr. H. W. Young, who is acting manager, undertook plans looking to more active work. About a fortnight ago seven men were started to work with Mr. Thomas Newby, a veteran prospector, in charge as foreman.

"In line with some suggestions made by Washington State College, which examined several samples of Maple Leaf ore, the new development work was started to determine the depth of the deposit. A comparatively small amount of work was done before making the new strike.

"Plans are being made for the installation of a new amalgamator and concentrator which is manufactured in Vancouver, B. C. Satisfactory reports concerning its operation have come from the coast and half a ton of Maple Leaf ore has been sent to Vancouver for testing purposes, and if results are satisfactory installation will follow.

"The proposed plant is said to give complete recovery of all minerals, and in addition will separate each mineral by itself, while at the same time having a capacity of 50 tons a day. Should the plant give the results desired it will mean a great boon not only to the Maple Leaf but to North Fork mining generally, but should it not operate satisfactorily, Mr. Young says that a small smelter will be put in.

"A new find has also been made on the Union mine, where manager Lewis Johnson has seven men employed at development work in a tunnel at a depth of about 300 ft. from the main workings. Work on the tunnel has been of a periodical nature and ore was struck last week after driving nearly 300 ft. Mr. Johnson expects to make further shipments in the course of a month or two.

"Nearly 100 men are now engaged in mining in the Franklin camp, the largest number for more than a decade. This is partly due to miners availing themselves of the opportunity while the Granby Company is working so few men to do assessment work on their claims. Mr. Elmer Rice has been getting very encouraging results on his property, on which he has completed 100 ft. of development work. Matt Frankovitch is also doing considerable work on his claims, which are at Franklin townsite."

OBITUARY.

Mr. John Stockett, brother of Mr. Lewis Stockett, manager of the coal branch of the Canadian Pacific Railway Co.'s Natural Resources Department, at Calgary, Alberta, and of Mr. Thos. R. Stockett, until quite recently general manager at Nanaimo, Vancouver island, B.C., for the Western Fuel Co., of San Francisco, California, was found dead in the offices of the Galt Coal Company, at Lethbridge, Alberta, on the morning of June 27th, heart failure, presumably, having been the cause of death. He had been ailing for some time, but had only recently returned from a holiday trip, seemingly in improved health.

THE PAS MINERAL AREA.

The Pas, Man., July 13.—Mr. F. H. Kitto, D.L.S., representing the Natural Resources Intelligence Branch, Department of Interior, has just returned from a trip through Northern Manitoba's mineral belt, on which journey he was accompanied throughout by Mr. J. A. Campbell, Commissioner.

The party left here by the Ross steamer "Minasin," on June 26th, and arrived back by Hudson Bay Railway on an extra train last Tuesday, thus completing the round trip in exactly two weeks, an exceedingly quick trip considering the ground covered.

Mr. Kitto was very enthusiastic regarding the country through which he travelled, not only as to its mineral resources, its fish, timber and pulp wood, but as to the agricultural possibilities of a considerable portion of it.

The party reached Sturgeon Landing in record time, arriving there Wednesday evening at 7 o'clock. There was manifest at that point considerable activity in connection with the loading of ore, construction of the Athapapuskow road, and the departure of the various passengers to different northern points. Mr. Kitto's party got away early the following morning, and he and Mr. Campbell walked over the new road along Sturgeon and Goose rivers, a distance of eight miles. The road for this distance is already in pretty fair shape, requiring only some finishing touches in the way of culverts, drainage and a little corduroy. Contractors Burman and Boyd have a gang of men at work further on in that part between Goose and Athapapuskow Lakes. The travellers were struck with the possibilities of this region from an agricultural standpoint. Along these rivers there is a considerable stretch of good arable land, and several gardens at Sturgeon Landing give evidence of this.

Lake Athapapuskow.

Goose Lake was negotiated that afternoon and Goose Creek the following morning, when the great Lake Athapapuskow—the lake of many rocky islands—was reached. From a scenic standpoint this lake is not surpassed, if it is equalled, on the continent, the rocky shores in some places rising to a height of 150 to 200 feet. They are covered with a thick growth of spruce, poplar, jackpine and birch, the last mentioned being a particularly noticeable and pleasing feature. Ideal camping spots graduating all the way from almost bare rock to dense bush, are abundant. Mr. Kitto has travelled a great deal, and it is his opinion that for natural beauty this lake surpasses anything he has ever seen, and is bound in the near future to be a Mecca for tourists. Besides, from a utilitarian standpoint, evidences are abundant that mineral deposits abound on its shores and islands. Already a number of claims have been staked out, but no development work has yet been done.

Mandy Mine.

A particularly beautiful stream, known by the not particularly euphonious name of Schist Creek, is the connecting name of Schist Lake. A seven mile paddle on the centre of the three arms of this great lake brought the party to the Mandy Camp, noted for its mining and shipment of 3,600 tons of sulphide ore last winter. The makeshift and somewhat primitive machinery which was used in this work has been discarded, and new modern machinery installed in a large frame power house which is now almost completed.

A small stern wheel steamer and barge completed during the winter and spring are now plying the waters of Schist Lake in connection with these mining operations. Several other barges are in course of construction. The company has also installed and is now operating a saw mill a mile or so from the camp. Good spruce and poplar timber is available in the vicinity. The mill is in charge of Mr. George Cann. Mr. Donald Graham, accountant, and Mr. Kennedy, mine foreman, or "captain," took the visitors over the works, and down into the shaft, which is now to a depth of about 90 feet. After a little further sinking drifting will be commenced. The work throughout is progressing very satisfactorily, and augurs well for a big output of ore during the fall and winter months.

Flin-Flon Lake.

Flin-Flon lake was the next point of attack. This necessitated a trip over the so-called trail "estimated" at four miles. Mr. Thomas Creighton received the visitors. Mr. John W. Callinan and Mrs. Callinan provided them with a real meal. Then they watched Supt. Scarfe and Zar. T. Crittenden sealing up numerous packages of crushed core for shipment to the authorities now conducting operations at that point; but information of an official nature as to the progress of the work and extent of the orebody uncovered was as scarce as the mosquitoes were numerous. However, it is a fair inference from general information gathered, that the two diamond drills now running night and day on the great sulphide property are showing up satisfactory results, both as to the extent of the orebody and quality of ore. It has been intimated that it is owing to scarcity of machinery and labor that additional drills are not now on the job.

AN OKANAGAN MINING DEVELOPMENT CO.

The Penticton Herald, published in one of the most productive fruit-growing districts of British Columbia, says: The Penticton Development and Exploration Company is the name of a new enterprise recently launched here. The company has been formed by four well-known local men, Messrs. D. J. McIntyre, H. M. Ramsay, Art Thompson and W. J. Armstrong, with an authorized capital of \$25,000.

The company has been organized chiefly for the purpose of locating and developing mining properties in this vicinity, and it already has in view a number of promising properties near by, which will be thoroughly investigated, it will also afford encouragement to prospectors, and on a share basis will assist them in developing any claims that they shall find, if they are not in a position to do so themselves.

For many years it has been claimed by men who have made some study of mining matters that there are indications of valuable mineral deposits in this part of the Okanagan Valley, but until now very little prospecting has been done in the neighborhood. The new development company will likely have the effect of promoting a keener interest in local possibilities, as according to the promoters the day is not far distant when Penticton will be classed as another mining centre.

The local company has been founded on sound business principles, and no promotion stock has been or will be issued. A limited amount of the capital stock will be offered for public subscription.

THE COAL TRADE OF NOVA SCOTIA DURING THE FIRST HALF OF 1917.

By F. W. Gray.

In a review of the coal trade of Nova Scotia for 1916 which appeared in the Journal in the issue of January 15th last, the writer estimated the production of coal in Nova Scotia during 1917 would not exceed 5,750,000 tons. During the past six months, however, the decline in outputs has been arrested by the cessation of recruiting at the collieries, and some additional production has been recorded from the smaller collieries which have recently been opened up, and it is gratifying to know that present indications are for a slightly larger production. It is probable the output for the year will reach 5,900,000 tons, and may even touch the figure of six million tons. This will compare with approximately 6,173,000 tons in 1916, so it may be closely estimated that the production of 1917 will be 200,000 tons below that of 1916.

As stated, the cessation of recruiting has arrested the long continued decline in outputs, and since last October production has been maintained at about the same level. The trade seems to be down to a war basis, and indications are that while no material increase in outputs is possible during the further duration of the war, the present rate of production can be maintained more or less indefinitely.

At a meeting of the coal operators of Nova Scotia called for the 13th and 14th July in Halifax by the newly appointed Fuel Controller, the operators were able to assure Mr. Magrath of their ability to take care of the fuel needs of the Maritime Provinces and Newfoundland, but this, together with the supplying of bunker requirements to naval vessels and transports, will exhaust the possibilities of the Nova Scotia coal tonnage during 1917, and will leave a quantity between 100,000 and 200,000 tons for forwarding to those markets in the St. Lawrence which formerly in normal years took up to 2,000,000 tons of Nova Scotia coal.

The operators undertook not to further increase the current maximum prices of coal at the pit mouth for consumption in the Maritime Provinces and Newfoundland. These current maximum prices are as follows:

F.o.b. mines per net ton. Screened Coal.	Rummine.
Mainland collieries	\$5.00 \$4.75

Cape Breton collieries . . .	\$4.75 to \$5.00	\$4.50 to \$4.75
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These prices are understood to apply so long as present conditions obtain, and any change in conditions necessitating an increase in selling prices is to be submitted to the Fuel Controller for his approval before any increase becomes effective.

It will be noted that the pit-mouth prices mentioned are quite moderate, and are very much less than the prices that the consumer has to pay for coal delivered at his works, or in his cellar. Herein is the application of the cost of transportation and distribution, which is largely beyond the control of the coal operators, but a comparison between pit-mouth prices and delivered prices serves to further emphasize the suggestion put forward by the writer in these columns several months ago, namely, that the coal operator, if he wishes to safeguard himself against uninformed public opinion and to really serve the public, should seek to control as much of the machinery of transportation and distribution as possible. Every person acquainted with coal mining operations knows the capital outlay, the planning and work of many individuals that must take place before it is possible to achieve even the smallest

economy in the cost per ton of mining coal. Thousands of dollars are cheerfully expended by the mining engineer to effect an economy which may be measured by a half cent per ton, and until the coal leaves the tracks at the pit mouth, economy and efficiency is the watchword of everyone concerned. But what happens afterwards? How much economy is there in the distribution of coal by half-ton lots in antiquated conveyances around the streets of a city? How much lost energy is there in re-screening coal to suit the whims of faddy customers, leaving an unsaleable residue of dust and slack? The energies of the coal operator stop short of the consumer, and it would be very much better in every way if they did not, both for the consumer and the operator, and with regard both to the quality of the coal and its ultimate price.

The first half of 1917 has seen a bewildering variety of changes in the local coal trade, and the coal operator is perforce acquiring an ability to adjust himself to changes in his environment that would have pleased Herbert Spencer, and should connote, according to that philosopher, the further ability to maintain the struggle for existence when peace arrives. The year commenced with the appointment of a Workmen's Compensation Board, and has been followed by the introduction of weekly pays in lieu of the long established system of fortnightly pays, and the appointment of a Fuel Controller. Whether it is the effect of the "wind from Russia" or is due to the general tautening of moral fibre that the war has occasioned, there has also been a laudable and partly successful attempt to "dry" the colliery and steel districts, and this attempt, small as it has been, has done more real good in improving social conditions than all the long list of paternal legislation that has descended upon us of late. The sale of liquor has actually been restricted, and more than anything else, this event has served to mark out 1917 as **annum mirabilis**.

In the memorandum handed by the operators to the Fuel Controller it was stated the recruits to the forces of the Empire and the Allies from the mines of Nova Scotia had been not less than six thousand men. The sacrifice of the miners is now being all too clearly borne out by the casualty lists. The number of men killed in action from the Glace Bay and Sydney districts alone now reaches almost 200, and there are visible reminders of the actuality of the war in the large number of wounded and returned soldiers to be seen on the streets of Sydney and Glace Bay.

It is therefore with good reason that the operators in addressing the Fuel Controller wrote: "We are of opinion, judging from experience during the war, that the men appreciate the position in like manner with the operators." The miners of Nova Scotia should receive the meed of praise that is their due. They have, as has been stated previously in these columns, given men and money to the war, freely and generously, and they have remained at work throughout the whole period of the war, in striking contrast to those men who in Western Canada and in other parts of the Empire have actually gone on strike in war time in the face of the appeals of the Government and even their own leaders.

We venture to state that this natural attitude of the miners of Nova Scotia is more typical of the working classes of our country than the attitude which might be imputed to them if full credence were to be given to so-called labor leaders like J. C. Watters and James

Simpson, men who purport to represent the workmen of Canada through the Trades and Labor Councils. The industrial masses of Canada most emphatically are **not** represented by the Trades and Labor Councils, and in a war of such import and magnitude as that in which we are engaged, the actions and sacrifices of the labor unionists of Canada are a far better guide to their patriotism than the seditious and shallow vaporings of men who so totally and wantonly misrepresent them as do the leaders of the Trades and Labor Councils. The record of enlistment and service among the workers of Canada is a standing denial of the representations of these men, and an ever present rebuke to those who, in the guise of exponents of the workers' cause, seek to impute to the workers opinions and ideas they would be the first to repudiate.

COPPER DEPOSITS WEST OF SUDBURY.

By Albert E. Hall.

Encouraged by the profitable development of great mineral deposits of nickel and copper at Sudbury there are always some men prospecting in the district, especially along the C.P.R. Soo branch which runs west from Sudbury to Sault Ste. Marie.

No nickel deposit of importance has been found, as far as is known, west of Worthington mine, which property is owned and operated by the Mond Nickel Co. However, there are some nickel prospects west of Worthington that a little work is being done on.

There are also a few gold claims, chiefly back of Espanola. The old Shakespeare gold mine, about four miles north of Webbwood, has been shut down for some years. They were sampled last year, but are idle at present.

By far the greatest number of claims are staked on chalcopyrite showings. The most important of the copper propositions is Bruce Mines, which is operated by the Mond Nickel Company and the ore shipped to Coniston for its fluxing properties. This property has been operating for some years and very successfully.

Another property that is being developed is that of the Sudbury Copper Company, located at Iron Bridge, which is eight miles north of Dean Lake on the C.P.R.

Next in importance, but one which has had a more or less up-and-down career, is the old Massey mine. Several years ago this property was operated and the ore shipped to the smelter of the district. The property is fully equipped and the Elmore flotation system was installed in the mill. The property worked for a few years and was then closed down and nothing more was done till about two years ago when the Loble River Copper Company installed the Callow flotation cells. This company ran in debt and closed down and the Kenyon Copper Mines, Ltd., took it up and now controls the property. The mill is now about 100 ton capacity—24 hours. The property was operated last winter but the company ran behind in wages and closed down. However, it is reported that operations will start in the near future and this time on a basis that will insure permanent operations. This property is about three miles north of Massey.

Operations are also to be started in the Whiskey Lake district which is twenty miles north of Massey. At present a gang of men are working on the road into the lake and a launch has been put on the lake. Whiskey Lake caused quite a stir some years ago when some spectacular gold was found there. This, however, proved to be more or less spotty. Present operations are for copper.

Due to the fact that "Jack Wilson," the Dome prospector, lives in Massey and that the Massey mine is close by, nearly everybody in the district has been or is interested in some mining claims. Thus we find claims staked all over the district. Some of these are more or less promising. Two of the most promising are: The McCaully claim at Birch Creek, three miles northwest of Webbwood, where two good showings are to be seen where pits have been sunk that justify some work being done; and a claim six miles north of Webbwood owned by J. F. Flynn. There are many other claims, but the above is a summary of some of the promising ones.

Shut down at present are the Hermina mines which adjoin the Massey mine. The Hermina has an excellent mining equipment, but has no mill. It is reported to have some good ore, but is filled with water at present. Then there is the Cheney property back of Thesalon that was in the public eye last winter.

All these properties have chalcopyrite for their dependent ore. It runs from 1.5 per cent. to 3 per cent. It occurs in veins from 3 to 6 feet wide that are often faulted and brecciated, occurring with schist and quartz. These when treated by flotation will give as high as 22 per cent. concentrates.

History is against the district and though the price of copper remains high, men are very scarce except at the larger Sudbury mines. Even they are in need of a good many men.

PERSONAL

Dr. Frank D. Adams is at Banff, Alberta.

Mr. A. D. Miles has returned to Copper Cliff from New York.

Mr. W. E. Segsworth, who is interested in the industrial training of returned soldiers, will shortly visit industrial centres in the Maritime Provinces.

Mr. W. R. Wilson, of Fernie, B.C., general manager for the Crow's Nest Pass Coal Company, Ltd., recently paid a business visit to the company's headquarters in Toronto.

Mr. Chas. F. Law, of Vancouver, B.C., for many years interested in placer-gold and platinum claims in British Columbia, has again been spending a few days on the Tulameen river where he still holds placer-mining interests.

Mr. M. E. Purcell, formerly superintendent of the Consolidated Mining and Smelting Co.'s Centre Star-War Eagle group of mines at Rossland, B.C., has gone on a trip to Southeast Alaska in the interests of the Consolidated Co.

Mr. A. W. McCune, of Salt Lake City, Utah, who is a periodical visitor to Ainsworth and Slocan mining divisions of British Columbia, in which he is developing several mining properties, recently donated \$25,000 to the funds of the American Red Cross.

Mr. Geo. R. Rogers has returned to Toronto from West Shiningtree, where he has laid out work for sinking a shaft on the Ribble vein on the Wasapika Gold Mines property.

Mr. W. M. Brewer has been appointed district mining engineer of the Western mineral survey district, B.C., and Mr. D. B. Freeland, district engineer for District No. 4, with headquarters at Grand Forks.

Lieut. W. M. Goodwin, of the Canadian Engineers, has been awarded the Military Cross. Lieut. Goodwin is a son of Dean W. L. Goodwin of Queen's University, Kingston.

SPECIAL CORRESPONDENCE

NORTHERN ONTARIO.

New Vein at Hollinger.

A new vein twelve feet in width was encountered a few days ago at the 410-foot level of the No. 10 shaft of the Hollinger mine at Porcupine, and as the average gold content is understood to be high, it will prove a valuable addition to the already large ore reserve at this mine. Free gold was in evidence in many places on the vein. A crosscut is now being driven to make the new orebody more accessible to the central shaft. This is in accordance with the management's plan to centralize the underground workings as much as possible, which will also help materially in reducing the costs of mining operations. When the network of underground workings is systematically connected up and the milling facilities increased and pressed into service at their full capacity, the lowest mining and milling costs in the history of the company will probably be recorded.

With additions to the ore reserves at the rate lately maintained and drawing only a limited amount for treatment in the mill, it is anticipated that the end of the current year will show the ore reserves to have an estimated value of nearly forty million dollars. The deficit accumulated when sufficient labor could not be obtained to work the property sufficiently to meet these disbursements is almost completely wiped out, and it will only be a short time until a handsome surplus should be built up.

Generally speaking, conditions at the Hollinger show much improvement during the past couple of months, and with a return to pre-war conditions much is predicted for this, the largest gold mine in the Dominion.

Diamond Drilling on Davidson.

Diamond drilling has been going forward rapidly lately at the Davidson property in Porcupine, and at the 500-foot level, an orebody 32 feet in width of high grade has been encountered. Four other holes were sunk from the 200-foot level and two of them located very promising orebodies. The cores from these last four holes are now in the hands of the assayers and the results are being awaited with a great deal of interest by those connected with the company. Since the new management took over the property some fifteen months ago, over half a mile of drifting and crosscutting has opened up extensive orebodies located previous to that time, and a large tonnage of ore has been put in sight. However, only a small portion of the known orebodies have been opened up, and Davidson is looked upon with a good deal of favor in the camp.

Shaft Started on Whelpdale.

A shaft has been started on the Whelpdale Vet, and will be sunk to the 100-foot level. Drifting will be done both north and south at that point. Considerable prospecting has been done lately on this property. Eight men have been engaged in stripping and trenching for the past month, and four new veins have been discovered in addition to the six previously located. These veins have all been uncovered for five or six hundred feet and look very promising. This veteran claim lies west of the Gold Ridge property and is on the north of Gillies Lake.

Prospecting Lucky Baldwin.

Crosscutting was started last week from the 100-foot level of the Lucky Baldwin property at Kenogami. It is not anticipated that much crosscutting will be neces-

sary to cut the vein as it was almost perpendicular, the shaft having followed it for over thirty feet from the surface. The vein is in a contact of porphyry and Keewatin formation and has been traced for about four hundred yards on the surface. The porphyry and conglomerate formations are somewhat similar to those encountered at Kirkland Lake.

Good Ore on Jupiter.

The main working at the 1,000-foot level of the McIntyre mine at Porcupine, which is already over 1,100 feet in length has entered the Jupiter ground, having crossed the territory formerly known as the McIntyre Extension. At a point about twenty feet from the boundary of the Jupiter, the drift was said to be 52 feet wide of high grade mill ore. At the Jupiter line this orebody widened out to 52 feet and is now reported to be 55 feet in width and of a grade considerably above the average of the mine, which has been around \$12.50 to the ton.

Murray-Mogridge.

It is anticipated that the 200-foot level of the Murray-Mogridge will be reached before the end of the current month. The south shaft of the property which is located at Wolfe Lake, near Bourke's Siding, on the T. & N. O., is now down below the 100-foot level. The vein is continuing consistently in width and values.

Prospecting in Thackeray.

Prospecting work in the township of Thackeray is opening up some promising looking veins. The rock formation in the district is very similar to that of the Kirkland Lake camp, and the composition of the veins bears more or less resemblance to those located in that district also. So far nothing very spectacular has been reported.

Nickel Ore Shipments from Alexo.

During the month of June the Alexo Nickel Company shipped ten car loads of ore from their property near Porquis Junction. The weight of the ten cars was approximately 846,800 pounds, and compared very favorably with the amount sent out during the preceding few months.

Rich Ore Shipped from Gowganda.

During the months of May and June the Miller Lake-O'Brien mine at Gowganda shipped silver ore to the extent of 211,000 pounds, which required four cars for shipping. The last shipment was made on June 27th. The ore being mined at this property is among the richest in the north country silver mines at the present time and is coming from the high grade ore shoot developed about eleven months ago.

The result of this development at the Miller Lake-O'Brien was to increase activity in the Gowganda district to a considerable extent, and a number of properties are being worked at the present time with more or less vigor. About eighty men are employed at the property.

Croesus Adds Pumps.

As a result of a water seam being encountered at the lower workings of the Croesus mine in Munro township a considerable amount of water has come into the mine causing the suspension of work on these levels. Additional pumps are being installed and it is expected the trouble will be remedied in a short time. The new fifty-ton mill is in operation and is understood to be treating almost to capacity, with the mill heads maintaining around forty dollars to the ton—the highest of any mine working in the north country.

Boston Creek.

It is reported that operations at the Boston Creek Mine have been suspended pending re-adjustment of agreements with the R. A. P. Syndicate. The Boston Creek company have heretofore used the shaft of the R. A. P. Syndicate for development purposes. The winze in the Boston Creek has reached a depth of nearly 500 feet and it is said that the results being obtained are very encouraging. The vein continues comparatively strong with considerable high grade ore in the pay streak. At one of the upper levels crosscutting operations were also being conducted. It is understood that the suspension of work is only temporary.

Hunton-Kirkland.

A new vein nearly four feet in width has been uncovered for a considerable distance on the Hunton-Kirkland property and has been found to contain good average gold values. It is learned on good authority that a deal is pending for the amalgamation of the Orr and the Hunton-Kirkland property. It is understood that the main vein of the Teck-Hughes and the Kirkland Lake Gold crosses the northwest portion of the Orr claims. Official announcement of the amalgamation will be made in the course of a few days.

Elliott-Kirkland Will Instal Steam Plant.

At the 165-foot level of the Elliott-Kirkland a water seam has been encountered, and for the time being it has been decided to discontinue underground work. The water is not coming in very rapidly, but the size of the plant will not permit of the operation of the necessary equipment being added to handle this trouble, and a small steam plant will be installed. The electric equipment will then be used to run the drills, and the small steam plant will take care of the pumping and hoisting, in the meantime the electric equipment will be used to keep the shaft pumped out. It is expected that sinking will again be resumed the first week in August.

Charette.

Surface work on the Charette claims about the centre of Boston township is said to have uncovered very promising veins carrying free gold and tellurides. The veins have been traced for a considerable distance and vary in width from ten inches to three feet.

Teck-Hughes to Increase Milling Capacity.

The mill report of the Teck-Hughes mine at Kirkland Lake for the month of June shows that the mill treated 1,260 tons of ore, with an average value of \$9.66 per ton, which is considerably higher grade than that treated during April and May. Shortage of labor helped to curtail the production to a certain extent.

The main shaft at the property is to be sunk to the 600-foot level at once and the various veins which have been very persistent both in values and width from the surface to the 400-foot level will be tapped at the 600. At the same time it is the intention of the management to increase the capacity of the mill another 75 tons, which will bring the tonnage available up to around 150 tons per day. It is anticipated that a considerable reserve will be piled up by the time the mill addition is completed. At the present time the ore going to the mill is all coming from development work and the values are not as high as would be the case were the ore coming from the bodies now known to exist in the mine. The veins on the Teck-Hughes vary from a few feet to over thirty feet in width at the 400-foot level.

Buffalo Interests in Boston Creek.

It is understood that interests closely associated with the Buffalo mines of Cobalt have taken over a group of claims in McElroy township of the Boston Creek district. These claims formerly belonged to Messrs. Mondeau, Briseboise, Phirlbert, et al., and comprise over a dozen claims situated on the east of the Boston Gold Leaf property, near the old winter road to Larder City. Considerable surface work has been done and a number of promising veins have been opened up. Free gold has been found and assays taken are reported to have proven very satisfactory. The claims are located about three miles from Boston Creek station.

Kirkland Lake Gold to Instal Ball Mill.

Nearly one year's ore reserves for a 150-ton mill are now in sight at the Kirkland Lake Gold property. The ore reserves of the mine show a steady increase. Already approximately 50,000 tons of ore ranging in value from \$10 to \$12 a ton has been blocked out and a quantity of it has already been conveyed to the dumps. Arrangements have been concluded for the installation of a ball mill of a capacity of 150 tons per day, which it is anticipated will be in operation by the spring of 1918.

The main shaft has now reached a depth of 700 feet and crosscutting has been commenced to tap the vein at this level. At the 600-foot level indications pointed to the vein having gone considerably below the conglomerate formation and the fact that values continued satisfactory is considered as evidence that the mine is destined to be a deep mining proposition.

Canadian Kirkland.

Twelve veins have been uncovered on the Canadian Kirkland property, which is situated a quarter of a mile west of the Hunton and a little south from the Elliott Kirkland. One of the latest veins opened up is of a blue-grey quartz and highly mineralized. A small force of men has been employed on the property for about three months, and the results obtained to date are considered very encouraging.

Wright-Hargraves.

Work at the Wright-Hargraves property in Kirkland Lake is again in full swing, and No. 2 shaft is now down to the 200-foot level. A station will be cut at this point and the vein tapped, after which the shaft will be continued to the 300-foot level. At the latter depth a large station will be cut and drifting will be commenced to connect the No. 2 and No. 3 workings, which are separated by a distance of nearly 900 feet. On the surface the main vein of the Hargraves is about 12 feet in width and carries ore of a high grade milling value, which was also determined to persist to the 100-foot level, which has been reached in both the No. 2 and No. 3 shafts.

Large Production at Nipissing.

The Nipissing mining company's production for the month of June was the highest since February last. In his regular monthly report to the directors and shareholders, Mr. Hugh Park, manager, states that during the month of June the company mined ore of an estimated value of \$269,469 and shipped bullion and residue from Nipissing and customs ore of an estimated net value of \$475,329. The high grade mill treated 136 tons and shipped 567,409 fine ounces of silver. The low-grade mill treated 6,252 tons. The following is an estimate of the production for the month of June:—Washing plant, \$176,670; low grade mill, \$92,799; total,

\$269,469. The total for the half year ending June 30th, amounts to 1,492,677 ounces and the average per month during the current year was 243,779.50 ounces.

The usual amount of development and exploration work was done in the various shafts, and the several small veins were encountered. With the exception of one which will produce a small amount of high grade they are of interest and value at their present stage of development for the small amount of mill ore that may be obtained from them. Ore is now being stoped from the 6th level of vein 490 and it is expected that the future monthly production will be obtained largely from this vein, but no other ore shoots have been found as yet. The condition of all the stopes on the various veins continues to be satisfactory.

Casey-Cobalt.

Reports from the Casey-Cobalt mine in the township of Casey to the northeast of New Liskeard are to the effect that good results are being obtained from the limited amount of operations being conducted on the property. The ore reserves of the mine are understood to be quite large and prior to the disastrous fire of a year ago, when the equipment of the mine was completely destroyed, the Casey-Cobalt was a steady shipper.

The Adanac Discovery.

The vein recently discovered at the 310-foot level of the Adanac mine at Cobalt is understood to be standing the test of development very well and has widened out to upwards of eighteen inches. At the point where encountered the vein had a width of about four inches, but as drifting continued this widened out to the former mentioned width, and the values are said to be very consistent. The ore being bagged shows considerable native silver. The work at the Adanac since the commencement of the current year has been done under contract.

Buffalo.

For the past year ended June 30th last the report of the Buffalo Mines, Limited, shows a gross income of \$306,465: total expenditures of \$339,882 and net income \$36,583. The balance sheet as of April 30th last, shows ore and cash and bullion of \$839,229. A surplus of \$669,177 and total assets and liabilities of \$2,018,004. The total production of silver for the year, including concentrates, etc., on hand and at the smelter amounted to 304,587 ounces. During the year the mill treated 14,452 tons of ore from the mine by a combination concentration and oil flotation process. There is broken ready for hoisting approximately 15,700 tons of ore in the stopes of an approximate value of 25 ounces per ton; unbroken ore developed 17,000 tons of the same estimated value, or 951,125 ounces. There is 8,000 tons of ore on the dumps of an approximate value of 120,000 ounces, making a total of 1,071,000 ounces. Sand tailings of approximately 275,000 tons remain of an estimated value of 1,400,000 ounces, also 3,000 tons of residue at the high grade plant for further treatment. "As soon as a steady production of the plant of an estimated capacity is assured, the directors will determine the amount advisable to distribute to the shareholders."

Temiskaming.

Temiskaming mining company's half-yearly report shows cash on hand of \$343,135, as compared with \$275,817 on hand six months ago. Silver on hand amounts to 320,667 ounces. A little high grade is still in place

near the north boundary. There is 8,400 tons of ore broken on the stulls of which twenty ton is 4,000 ounce ore. Prospecting is being continued at the 1,600-foot level in an endeavor to locate values at this depth. During the past three years considerable mill rock has been taken from the old workings and according to the report it looks as though this part of the mine had been thoroughly cleared up. Development work on the Gans lot has been most thorough, but up to the present has not been productive of good results.

Hudson Bay.

Mill troubles at the Hudson Bay Mine in Cobalt was largely responsible for the falling off of production at the plant for the month of June, some ten days were lost in making repairs. The production amounted to 28,000 ounces.

Chambers-Ferland.

While at work digging an excavation for sewers on Earle Street, Cobalt, on the property of the Chambers-Ferland mining company, a comparatively strong vein containing niccolite and a small amount of native silver was discovered. Sufficient development work has not yet been done on the vein to determine its value to the Cobalt Aladdin Mining Company, who now own the Chambers-Ferland property.

Labor Troubles Settled.

The labor troubles have been amicably settled for the time being in the mining district of Northern Ontario. It was announced at a public meeting on Sunday night that it had been decided not to strike at the present time as the scale of wages being paid was in some cases higher than that demanded when the strike vote was taken. The executive committee announced that it would not be necessary to take another strike vote of the members of the union should they decide to call the men out at a later date, when they seemed to fear that with the reduction of the cost of living there would also be a reduction of the present wage scale.

There are very few men in the Cobalt mining camp to-day who are making less than \$3.50 per day, and underground men at the Hollinger mine are now receiving a minimum wage of \$4 per day, while all other classes of mine and mill men received a raise in wages of approximately 50 cents per day in the form of a bonus.

It is considered that the labor troubles throughout the district are at an end for the time being, and the supply of labor is daily becoming more normal. Men who feared the possibility of labor troubles and were going elsewhere, are returning to the north where conditions are as good as any place in the Dominion at the present time.

BRITISH COLUMBIA.

An additional dividend disbursement to those advised two weeks ago are those of the Standard Silver-Lead Mining Co., of 5 per cent., total \$100,000 payable July 15th, and of the Granby Consolidated M. S. & P. Company, of 2½ per cent., payable August 1st., total of this profit distribution being \$374,963.

Settlement of the coal mine employees' strike in Crowsnest district in Southeast Kootenay, and in Alberta, now seems to be within measurable distance. The appointment by the Dominion Government of Mr. W. H. Armstrong, of Vancouver, B.C., with power to arrange for a resumption of work in the coal mines, makes

it reasonable to look for prompt action to break the deadlock that has existed for several months.

East Kootenay.

While the two or three small shippers that added their output to the very much larger production of the Sullivan mine in May were not on the list of those mines from which ore was received at the smelting works at Trail during the three weeks ended June 21st, the daily average was increased from 348 tons a day for May to 370 tons a day for June. The St. Eugene, in Fort Steele division, and Paradise, in Windermere division, were two of the small producers referred to.

West Kootenay.

Ainsworth.—There has been an increase in ore production from mines in Ainsworth division, or rather in the quantity of ore received at Trail therefrom. The Bluebell is steadily maintaining its output of lead ore; the Florence Silver Mining Co. recently shipped 100 tons of silver-lead concentrate following several weeks' operation of its new concentrating mill; the lessees of the Retalack & Co. mines at Whitewater shipped 146 tons. Further improvement in a similar direction is looked for, prospective producers in the near future being the Silver Hoard, Cork-Provence, Utica, Bell, and others that for one reason or another have not lately been on the shipping list.

Slocan.—In this division, too, there should soon be a marked increase in production, for with the snow gone roads and trails will shortly be fit for ore hauling or packing, and there is now plenty of water for power and concentration uses. Beside, it is expected that suitable arrangements will soon have been made for treatment of zinc ore from the Lucky Jim mine, the output of which has been small through the winter.

Nelson.—In addition to the new find of zinc ore at the Hudson Bay mine, Salmo, already communicated to the Journal, there is news of an improvement at the Granite-Poorman gold mines, near Nelson, a recent report from which told of a recovery of gold and concentrate together worth \$5,000, from a short mill run.

Rossland and Trail.—After a suspension of production that extended over about two months, shipment of ore from the Consolidated Mining and Smelting Company's Centre Star group of mines, in Rossland camp, has been resumed. The output, though, appears to be restricted to ore taken out in the course of doing development work, for receipts from this source at the company's smelting works at Trail were only 263 tons during the week ended June 14th and 564 tons in that ended 21st. Under normal conditions Centre Star output has been very much larger; for nine months ended October 31st, 1916, the total was 138,986 tons, an average of 3,564 tons a week, so it is evident that ore-stopping is not now being done, production being so very much smaller, notwithstanding that there are large reserves of ore available. As soon as the copper furnaces at Trail shall again be blown in, a considerably larger output of ore from the company's Rossland mines may be looked for.

The report of the Josie mine, Rossland, for the month of April has been received and made public by the London office of the Le Roi No. 2, Limited, which company's managers at Rossland reported as follows: No ore was shipped. The receipts from the smelting works at Trail, on account of ore shipped in March, were \$6,009 in payment for 508 tons; sundry receipts (including \$1,173 refund in respect of explosives), were \$1,204; total receipts, \$7,213. Estimated working costs for the month were, for ore production \$5,980, and for

development, including diamond-drilling, \$2,720; total, \$8,700. An office note states that shipment of ore, which was suspended about March 31st, is about to be resumed. The published statements of receipts at Trail do not, however, to June 21st, show that this expectation had by then been realized.

Ore receipts at the Consolidated Co.'s smelting works at Trail during the week ended June 21st, totalled 5,102 tons, as compared with 3,852 tons for the week ended June 14th, and 3,749 tons for that ended June 7th. The districts or mining divisions from which ore was received during the week ended June 21st were as follows: From Fort Steel division of East Kootenay, 2,791 tons. From West Kootenay district: Ainsworth division, 403 tons; Slocan division, 646 tons; Nelson division, 73 tons; Trail Creek (Rossland) division, 564 tons. From Boundary district: Greenwood division, 508 tons. From Troy, Idaho, U.S.A., 117 tons. The larger shippers were the Consolidated Co.'s mines, the Sullivan having shipped 2,791 tons, the Centre Star 564 tons and the Emma 508 tons. The Standard mine, near Silverton, Slocan Lake, shipped 415 tons. The total of receipts for the current year, to June 21st, inclusive, is 176,067 tons, of which quantity 126,123 tons came from the company's mines and 48,944 tons was of custom ores.

There has been a decided falling off in the quantity of ore received at the Consolidated Co.'s smeltery from the United States. During four weeks ended June 21st, the total was only 516 tons, as compared with 2,360 tons during four weeks ended May 21st. Earlier in the year the receipts were still larger than in May. One reason is that the copper furnaces at Trail have been inoperative for some time, owing to the available supply of coke being too small to admit of their being operated. Then there has been a diversion of some custom ore to the smelting works at Northport, Washington, past which all ore coming from Washington mines has to be hauled to reach Trail. One instance of such diversion is that of ore from the Hercules mine, in the Coeur d'Alene district of Idaho, from which mine 2,112 tons of ore was received at Trail in February and March, while not any reached Trail from that mine during the last three months.

Vancouver Island.

A resident of Victoria who recently made a trip to the west coast of Vancouver Island, included in his notes of what he saw, published in the Daily Colonist, Victoria, the following concerning mining properties in Quatsino division, in the northwestern part of Vancouver Island:

"At Yreka the old camp looks decidedly lively once more and from all information obtainable there is every appearance of its staying this time, the large bodies of ore now uncovered and blocked out seeming to justify expectation of a good future for the camp. A large new ore-bunker, just east of the old sawmill site, is about finished, and the superintendent, Mr. N. A. Clark, informed me that they would be ready in a day or two to try out the new aerial tramway, and he expected to have a load of ore ready for shipment in about a week or ten days. The ore is copper sulphide, and some of it runs as high as ten per cent. copper.

Three miles farther up this arm of Quatsino Sound we stopped at June Landing, which is the saltwater terminus for the Elk Lake and June mining properties. Here we put off from the steamer lots of freight which is packed in on horses about seven miles to Alice Lake,

then it is taken across the lake in a launch, then there is packing again for three miles, to Kathleen Lake, and thence is taken by boat to the end of a short trail from the Old Sport group mining camp to the lake, the total distance from June Landing to the camp being about twenty miles. This is an active camp, under the superintendence of Mr. William Clancy. They have there a compressor plant driven by water-power, and they are down 400 feet on the ore. The plan is to do a lot of development work before undertaking the construction of a railway to tidewater and the provision of smelting facilities. Along the shore was seen the recently completed Dominion telephone line."

To the foregoing notes may be added the following excerpt from the official "Preliminary Review," for 1916, published by the Provincial Department of Mines: The Old Sport group of mineral claims was acquired by a company subsidiary to the Consolidated Mining & Smelting Co., of Trail, and further development work was commenced on September 1st under the superintendence of Mr. William Clancy, who had previously prospected the property for the Quatsino Copper Co. with diamond-drill, long crosscut adit, and trenches every 50 feet, for a total length of 3,000 feet, along the length of the orebody.

Portland Canal.

A report concerning the Outsiders' group, Maple bay, Portland Canal mining division, printed recently at Prince Rupert, is that a Mr. Drumbheller had gone thence to Maple bay with the intention of doing further development work on the Outsiders' group. About ten years ago the Outsiders' mine was a producer of copper ore, and shipped a considerable quantity of it to the Brown-Alaska Company's smeltery at Hadley, Prince of Wales Island, Southeast Alaska.

The preliminary work of getting the camp buildings and surface works generally into good order is being proceeded with. The expectation is that when mining shall be undertaken the working force will be increased to about sixty men. About 2,000 feet of work was done when the mine was being operated years ago, so that there is not nearly so much development required as would be the case were the property not developed at all. Supplies in considerable quantity are being shipped in, the purpose being to do a lot of mining this summer.

General Notes.

Employees of the Vancouver-Nanaimo Coal Mining Co., operating the Jingle Pot mine, near Nanaimo, Vancouver Island, have been granted an increase of ten per cent. in wages, effective immediately.

Four groups of mineral claims, situated near the head of Seymour arm, Shuswap lake, Kamloops mining division, are now being worked. A diamond drill was recently taken from Kamloops to this field, which, it is hoped, will be developed into a permanent mining camp.

A syndicate of Vancouver men is reported to have bonded a group of mineral claims in Aspen Grove camp, Nicola mining division. The first work to be undertaken after establishing camp, is to dewater two prospect shafts, one 65 and the other 80 feet in depth. It is intended to employ about twenty men doing development work. Mr. Robert R. Hedley will be in charge.

The Granby Consolidated Co.'s copper production at its Anyox smelting works, Observatory Inlet, during May was 3,159,284 lb., as compared with 3,026,795 in April and 2,814,780 in March. There was not any pro-

duction of copper at the company's plant at Grand Forks, in Boundary district, in May, but in April the output from that smeltery was 784,348 lb., and in March 1,086,618 lb.

Cariboo.

Correspondence from Barkerville, published in the Cariboo Observer, Quesnel, includes the news that although the hydraulicking season is not yet half over, several of the hydraulic placer gold mines have had satisfactory clean-ups, especially Mosquito creek, which is again producing splendidly this year.

The same newspaper also gives the information that Mr. S. J. March, who is manager for the company which recently purchased the Killam mining properties at Cottonwood mouth, has returned from a month's visit to Denver, Colorado, and the coast cities, where he had been for the purpose of purchasing machinery for the effective development of the above-mentioned mining property.

Messrs. L. A. Borde and J. Blake, engineer, arrived in Quesnel, from Victoria, last month. They came in connection with the operation of the plant owned by the International Dredging and Exploration Company.

West Kootenay.

Mining in this district is in a progressive condition, and it is hoped that nothing more will occur this year to prevent production being made on a larger scale than has been practicable since the Crowsnest coal mine employees went out on strike several months ago. There has been some talk of the miners in Sloean and Ainsworth divisions stopping work unless higher wages were paid to them, but up to the present no decision to strike appears to have been arrived at, although the matter has been discussed at meetings of local Miners' Unions.

Ore Receipts at Trail.—Notwithstanding that conditions were not quite favorable to shipment of ore to Trail in June, it was pleasing to find that in that month ore was received from six mines in Ainsworth division and seven in Sloean, the month's total of receipts of ore and concentrate at the Consolidated Mining and Smelting Company's works from those two divisions having been 2,915 tons, of which 1,917 tons was from Sloean mines and 998 tons from those of Ainsworth division. The Sloean mines that contributed to the total were the Galena Farm, Hewitt, Lucky Thought and Standard, in the neighborhood of Silverton; the Sloean Star and Surprise, situated near Sandon; and the Rambler-Cariboo, three or four miles east of Three Forks. The mines in Ainsworth division that shipped to Trail in June were the Bluebell, on the east shore of Kootenay lake; the Banker-Maestro, Highland and Florence, in the neighborhood of the town of Ainsworth; and the Retallack & Co. property in what was formerly known as Whitewater camp.

The total of ore receipts at Trail from all sources in June was 17,129 tons, which compares with 42,249 tons for the month of June in 1916. This considerable decrease was largely the result of the stoppage of the supply of coke from the Crowsnest district of Southeast Kootenay. The proportions of total of receipts in that month from the various districts and mining divisions were as follows: East Kootenay district: Fort Steele mining division, nearly all from the company's Sullivan lead-zinc mine, 9,823 tons. West Kootenay district: Ainsworth division, 998 tons; Sloean division, 1,917 tons; Nelson division, 302 tons; Trail Creek (Rossland) division, 994 tons; Trout Lake division, 39 tons.

Boundary district: Greenwood division, nearly all from the Consolidated Company's Emma copper mine, 2,254 tons. Yale district: Nicola division, 36 tons. Province of Manitoba, 323 tons. United States: Washington, 83 tons; Montana, 360 tons.

Now that work has been resumed at the Crowsnest coal mines, it is to be expected that receipts of ore at Trail will be in gradually increasing quantities until they shall again become about normal.

Coast.

The British Columbia Mining News, published in Vancouver, has printed the following information relative to two mining properties situated on Howe Sound in Vancouver mining division.

"Some interesting ore samples have been recently brought to Vancouver from the Paystreak group of claims on Howe Sound by the owners, Messrs. J. B. Edwards and W. C. Savage. The property is an old abandoned location which was re-located in the spring of this year by Mr. Edwards. Not enough work has been done to determine the value or extent of the mineral deposit, but an assay made in Vancouver of picked ore shows results as follows: Gold \$1 and silver 4.5 oz. to the ton; copper, 12.33 per cent.; giving a total value with metals priced as they were when the assay was made, of \$83.23 a ton. The property extends back from tidewater, and is only twelve miles from Vancouver. When ore is shipped it can be loaded directly from the shaft or tunnel mouth onto scows.

"Through Messrs. Cowan, Ritchie & Grant, of Vancouver, a syndicate composed of New York and Boston capitalists has made an offer to purchase the Bowena copper mine, and a meeting of shareholders of the company was called to vote on the proposition. The offer is \$200,000 on terms extending over a year, and if accepted will net shareholders 80 cents a share. The shareholders agreed on the price and negotiations are now proceeding as to terms of payment. The Bowena is situated on Bowen island, 14 miles from Vancouver, and a considerable amount of development work has been done and several shipments of ore made, the last of which went to the Ladysmith smeltery, being Lot No. 5 received by that institution. The net dry weight of that lot of ore was 19,602 pounds. Assay returns were as follows: Copper, 3.38 per cent.; gold, 9.12 oz., and silver, 1.16 oz. to the ton; iron, 3.37 per cent.; silica, 70.65 per cent.; lime, 1.15 per cent.; sulphur, 6.45 per cent. Total value, \$19.18, and treatment charges, \$5 a ton.

Vancouver Island.—The Blue Grouse copper mine, situated near Cowichan lake, is being operated by Messrs. Kitchen, Miller and others of Victoria, under a lease and option of purchase, according to a provincial publication. Up to date two shipments of ore have been made. The first was made by Messrs. Palmer and Kier, who were operating the mine on a royalty basis; they sacked and shipped to Trail 37 tons of ore and realized a profit of \$1,815. The assay of this ore was: Copper, 11.7 per cent.; iron, 22.4 per cent.; gold, 0.8 oz., and silver 4 oz. to the ton; silica, 36.4 per cent.; lime, 14.2 per cent.; alumina, 8.4 per cent., and sulphur, 12.9 per cent. Another shipment was made in March to the smelting works at Ladysmith; this consisted of 855 sacks, about 70 tons, and probably realized more than \$4,000 profit.

The ore occurs in large lenses of irregular shape and size, and at some distance from the intrusive grano-

diorite. These lenses occur in the Sutton limestone, which are lenses in the Vancouver volcanics. The copper ore occurs as chalcopyrite, being associated with pyrrhotite, pyrite, and magnetite, and it is a replacement deposit. Many inclusions of country rock in the orebody occur. The country rock is much sheared and slickensided. The development and exploitation is by a high-level tunnel and by open-cut.

From The Prince Rupert Daily News it is learned that Mr. Drumheller, who had been in Prince Rupert for several days past, has gone to Maple Bay, Portland canal, where he intends going ahead with the further development of the old Outsider mine there. This mine was a producer ten years ago, shipping its ore to the Brown-Alaska Company's smeltery at Hadley, Prince of Wales Island, Southeast Alaska; recently there has been a change of ownership. The preliminary work of getting the camp buildings and surface erections in shape is proceeding, quite a few men being employed, and before long when actual mining operations shall be under way, it is expected that this mine will employ about 60 men. There is already about 2,000 feet of underground work done, so there should not be so much preliminary work required as there would be in the case of a new mine. Large quantities of supplies are being shipped in, in expectation of a long summer's work.

H. C. Hoover has been awarded the Cross of a Commander of the Legion of Honor by the French government in recognition of his services in provisioning Belgium and northern France.

SILVER PRICES.

	New York. cents.	London. pence.
July 6.....	78 ³ / ₈	39 ¹ / ₈
" 7.....	78 ¹ / ₄	39 ³ / ₄
" 9.....	78 ³ / ₄	39 ¹ / ₈
" 10.....	79 ¹ / ₂	40 ¹ / ₈
" 11.....	80	40 ⁵ / ₈
" 12.....	80 ¹ / ₄	40 ³ / ₄
" 13.....	80 ³ / ₄	41
" 14.....	79 ³ / ₈	40 ¹ / ₄
" 16.....	81 ¹ / ₄	41 ¹ / ₄
" 17.....	80 ⁵ / ₈	40 ¹ / ₈
" 18.....	80 ¹ / ₄	40 ³ / ₄
" 19.....	79 ¹ / ₂	40 ³ / ₈
" 20.....	78 ⁵ / ₈	39 ¹ / ₈
" 23.....	78 ⁵ / ₈	39 ⁷ / ₈

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.
- July 26, 1917—(Quotations from Canada Metal Co., Toronto)
- Spelter, 12¹/₂ cents per lb.
- Lead, 13 cents per lb.
- Tin, 63 cents per lb.
- Antimony, 18 cents per lb.
- Copper, casting, 34 cents per lb.
- Electrolytic, 36 cents per lb.
- Ingot brass, yellow, 23 cents; red, 25¹/₂ cents per lb.
- July 26, 1917—(Quotations from Elias Rogers Co., Toronto)
- Coal, anthracite, \$9.50 per ton.
- Coal, bituminous, nominal, \$9.00.

MARKETS

NEW YORK MARKETS.

Connellsville Coke—
 Furnace, spot, \$11.50 to \$12.00.
 Furnace, contract, nominal.
 Foundry, spot, \$12.50 to \$13.50.
 Foundry, contract, nominal.
 Straits Tin, spot, f.o.b., 62.50 cents.
 Copper—
 Prime Lake, nominal, 28.00 to 29.00 cents.
 Electrolytic, nominal, 26.25 to 26.75 cents.
 Casting, nominal, 25.00 to 25.50.
 Lead, Trust price, 11.00 cents.
 Lead, outside, nominal, 10.00 to 10.25 cents.
 Spelter, prompt western shipment, 8.55 to 8.67½ cents.
 Antimony—Chinese and Japanese, nominal, 15.00 cents.
 Aluminum—nominal.
 No. 1 Virgin 98-99 per cent., 53.00 to 55.00 cents.
 Pure, 98-99 per cent. remelt., 51.00 to 53.00 cents
 No. 12 alloy remelt, 38.00 to 40.00 cents.
 Powdered aluminum, 75.00 to 85.00 cents.
 Metallic magnesium—99 per cent. plus, \$2.00 to \$2.50.
 Nickel—Shot and ingot, 50.00 cents.
 Electrolytic, 55.00 cents.
 Cadmium, nominal, \$1.45 to \$1.50.
 Quicksilver (July shipment from California), \$115.00.
 Platinum—Pure, \$105.00.
 10 per cent. Iridium, \$111.00.
 Cobalt (metallic), \$2.70.
 Tungsten—
 Wolframite, \$22.00 to \$23.00.
 Scheelite, \$26.00.
 Silver (official), 78½ cents.

Metal Products.—Following quotations represent mill prices and are strictly nominal except in the case of lead sheets and sheet zinc:

Sheet Copper—
 Hot rolled, 38.00 to 40.00 cents.
 Cold rolled, 39.00 to 41.00 cents.
 (Shipments from stock 2c per pound extra.)

STANDARD STOCK EXCHANGE.

(As of close, July 26.)

Silver.		
	Asked.	Bid.
Adanac .....	.16	.15½
Bailey .....	.04	.03½
Beaver Consolidated .....	.35	.33
Chambers-Ferland .....	.15	.14
Coniagas .....	...	3.55
Crown Reserve .....	.30	...
Foster .....	.05	...
Gifford .....	.04¼	.03½
Great Northern .....	.07¼	.07
Hargreaves .....	...	.11½
Hudson Bay	40.00	38.00
Kerr Lake	5.00	4.90
La Rose .....	.48	.46
Lorrain .....	.10	...
McKinley Darragh .....	.56	.54
Nipissing	7.70	7.60
Ophir .....	.09¼	.08¾
Peterson Lake .....	.11½	.10½
Right of Way .....	.05½	.04¾
Seneca Superior .....	.02¼	.01½
Silver Leaf .....	.02	.01¼
Timiskaming .....	.33	.32¼

Trethewey .....	.15½	...
Wettlaufer .....	.08	.05
White Reserve .....	...	.13
York, Ontario .....	...	.01½

Gold.

	Asked.	Bid.
Apex .....	.06¾	.06½
Davidson G. ....	.41	...
Dome Extension .....	.16½	.16
Dome Lake .....	.19½	...
Dome Mines .....	...	10.25
Eldorado .....	.02	.01
Gold Reef .....	.03¼	.02¼
Homestake .....	.55	.45
Hollinger Consolidated	4.55	4.50
Keora .....	.25	.23½
Kirkland Lake .....	...	.40
McIntyre	1.56	1.54
Moneta .....	.09	.07½
Newray .....	.64	.62
Porcupine Crown .....	.48	.47½
Porcupine Gold, xr. ....	.01½	...
Porcupine Imperial .....	.03¼	.02½
Porcupine Tisdale .....	.02	.01½
Porcupine B. ....	.09	...
Vipond .....	.33	.31
Preston East Dome .....	.05	.04½
Schumacher .....	.45	.42
Teck Hughes .....	.50	.47
Thompson Krist .....	.09	.08
West Dome .....	.20½	.19¼

Second-hand Power Equipment for Sale

IN FIRST-CLASS RUNNING ORDER

- Item 1—High-speed Steam Engine, 11" x 10", Goldie, McCulloch, 340 R.P.M.; will take \$200.00.
- Item 2—D.C. Generator, 600 Amp., 270 R.P.M. 115-125 volts, belt driven, General Electric; new price \$2,700.00; will take \$750.00.
- Item 3—Corliss Steam Engine for above, 13" x 30"; will take \$725.00.

THE FOLLOWING WOULD REQUIRE SOME OVERHAULING

- Item 4—Corliss Steam Engine, in fair condition, 12" x 24", with fly-wheel and 80" driving pulley; will take \$450.00.
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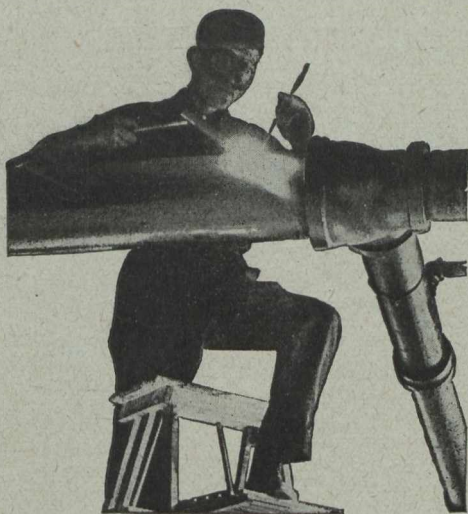
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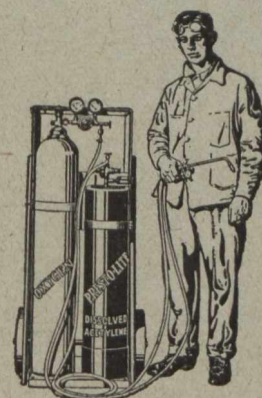
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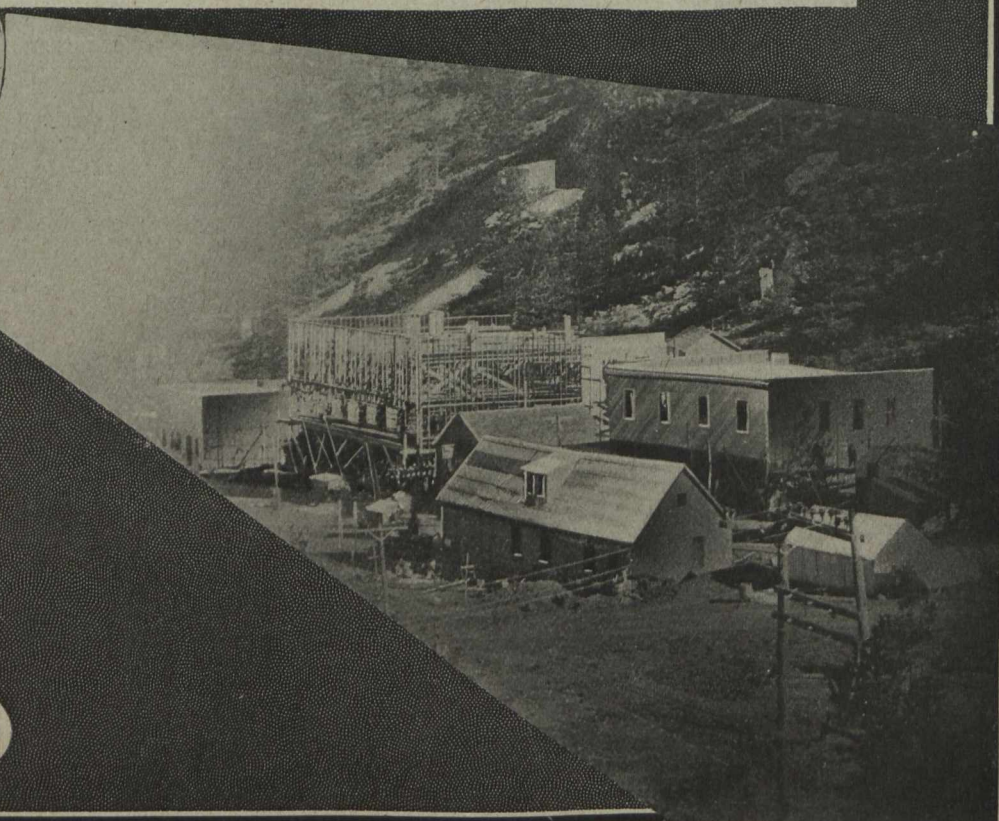
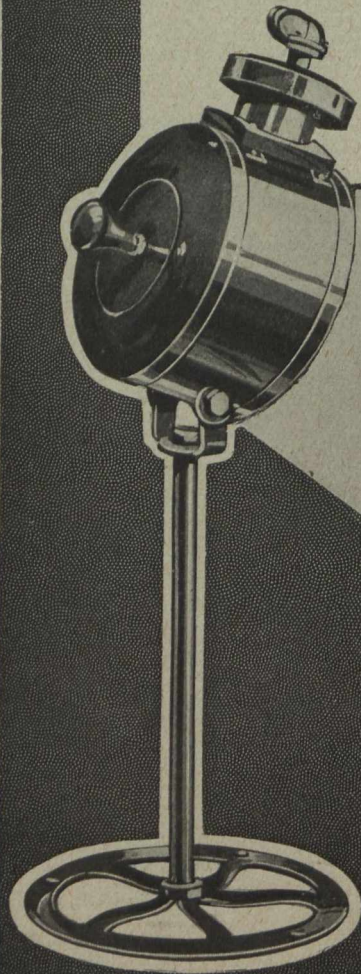
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who is the registered owner of the following Canadian patents: Nos. 76,621; 87,700; 94,332; 94,516; 94,718; 96,182; 96,183; 99,743; 127,397; 129,819; 129,820; 134,271; 135,089; 137,404; 142,607; 147,431; 147,432; 148,275; 151,479; 151,480; 151,619; 151,810; 157,488; 157,603; 157,604; 160,692; 160,693; 160,694; 160,846; 160,847; 160,848; 160,849; 160,850; 160,937; 163,587; 163,608; 163,707; 163,936; 165,390; 166,415; 167,474; 167,475; 167,476; 167 603.

On December 11, 1916, the SUPREME COURT OF THE UNITED STATES adjudged our basic patent for air-froth flotation to be valid, holding that this patent covers any process of froth flotation wherein the results obtained are such results as are secured by the use of a fraction of one per cent., on the ore, of an oily frothing agent in an ore-pulp, with agitation. Three of the thirteen claims which specified the use of "a small quantity of oil" and which the Court held to be invalid have since, by proper disclaimer, been brought within the scope of the Supreme Court's decision and, at a recent trial in the United States District Court at Butte, Montana, Judge Bourquin admitted these claims as amended.

On May 24, 1917, the UNITED STATES CIRCUIT COURT OF APPEALS at Philadelphia, in the case of Minerals Separation, Ltd., against Miami Copper Company, unanimously sustained the validity and broadly construed a second basic patent, owned by us, for the use of all "Soluble Frothing Agents." In the same opinion, the Court also validated a third patent for the use of cresols and phenols in the cold and without acid. The defendants, Miami Copper Company, endeavored to avoid infringement of these patents by using Callow pneumatic cells, but the Court held that the operations of the defendant company infringed all three patents.

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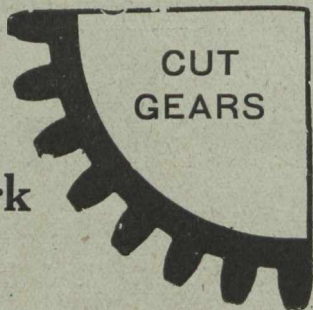
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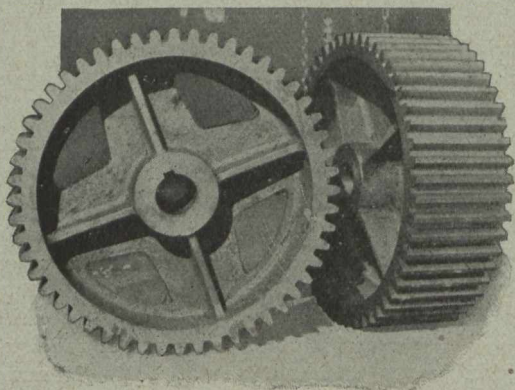


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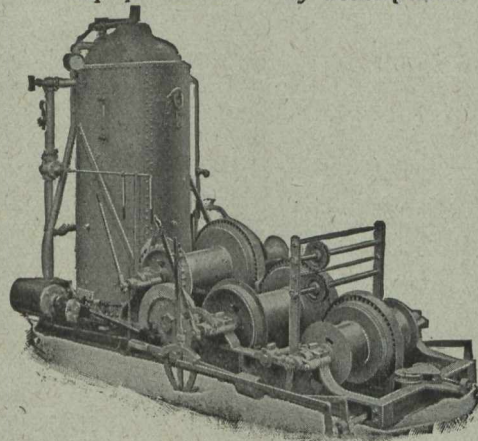


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- High Speed Steel Twist Drills**—
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Armstrong, Whitworth of Canada, Ltd.
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Fraser & Chalmers of Canada, Limited.
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Northern Canada Supply Co.
Can. Ingersoll-Rand Co., Ltd.
Fraser & Chalmers of Canada, Limited.
Wettlaufer Bros.
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Escher Wyss & Co.
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M. Beatty & Sons.
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Fraser & Chalmers of Canada Limited.
- Pumps—Electric—**
Can. Fairbanks-Morse Co.
Darling Bros., Ltd.
Smart-Turner Machine Co.
Can. Ingersoll-Rand Co., Ltd.
Fraser & Chalmers of Canada, Limited.
- Pumps—Pneumatic—**
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Darling Bros., Ltd.
Smart-Turner Machine Co.
Can. Ingersoll-Rand Co., Ltd.
Sullivan Machinery Co.
- Pumps—Steam—**
Can. Fairbanks-Morse Co.
Can. Ingersoll-Rand Co., Ltd.
Darling Bros., Ltd.
Mussens, Limited.
Northern Canada Supply Co.
- Pumps—Turbine—**
Can. Fairbanks-Morse Co.
Darling Bros., Ltd.
Smart-Turner Machine Co.
Can. Ingersoll-Rand Co., Ltd.
Fraser & Chalmers of Canada, Limited.
- Pumps—Vacuum—**
Can. Fairbanks-Morse Co.
Darling Bros., Ltd.
Smart-Turner Machine Co.
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Sullivan Machinery Co.
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W. Fraser.
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- Steel Drums—**
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C. L. Berger.
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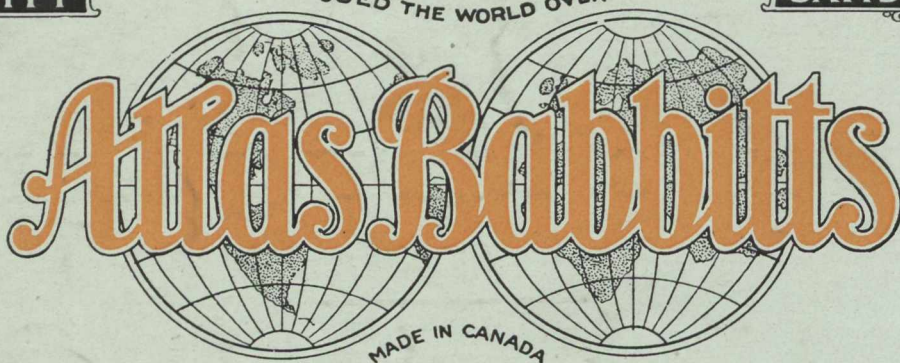
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