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The laws passed by the Provincial Legislature of British Columbia at its session of 1901 include several which are of importance to mine owners and operators; and in relation to one or two of these there is likely to be some complaint. The most important of these is the act amending the mines inspection law, which provides for the appointment of an inspector or inspectors of metalliferous mines, who shall have had at least seven years' practical experience. The Provincial mineralogist shall have the powers and may exercise the functions conferred on an inspector of metalliferous mines by the act. The act further provides that accidents must be reported forthwith to the minister of mines and to the inspector of the district. A monthly return is required to be made to the Department of Mines, setting forth the name of the mine, its extent, the name of the company or person operating it, the quantity of ore treated, and any other particulars deemed necessary by the minister of mines. The mine recorder is to be notified of the shipping or the treating of ore from or at any mine. The act includes a new code of mine signals, to be known as the "British Columbia Code of Mine Signals."

An amendment to the coal mines law adds to that act a chapter in which it is provided that no person shall be employed as a coal miner, fire boss, overman or shot lighter in any coal mine who is not in possession of a certificate of competency as such in the form set forth in the act. Certificates of competency are to be granted by a board of five examiners, to be constituted at each mine, one appointed by the Lieutenant-governor in council, two to be appointed by the owners or managers of the mine, and two coal miners actually working in the mine and who shall have at least three years' experience as working miners, to be elected by the miners actually working in a mine. It is provided that the two coal miners who act on the board of examiners for the first year after the coming into force of the act shall not be required to hold a certificate of competency. The members of the board are to hold office for one year, or until successors are appointed.

Other bills provide for the inspection of steam boilers, and the limitation of the hours during which engineers of mine hoists can work.

THE LE ROI MINING COMPANY.

A welcome change has just come over the prospects of the Le Roi Mine by the forced resignation of Mr. Whitaker Wright and his friends from the London board of directors. This event is only a single incident of the general rout of Mr. Wright and his methods which has recently been taking place in London. We have never concealed our opinion as to this gentleman's methods of finance and mine management, and knowing some of his doings before leaving America for England, and being acquainted also with his system of handling the properties in Zacatecas that he sold to the Abaris Mining Corporation of London 10 years ago, we were not prepared to welcome his flotation of the West Australian Exploring and Finance Corporation when he decided to go with the crowd in the West Australian boom of 1894. Fortune favored him when he acquired Lake View Consols, then an undeveloped and unproved prospect, and from that time forward his reputation as a mining promoter was secure. One flotation followed another, and millions of pounds were raised with the greatest ease. Diplomats, royalty, society and the Stock Exchange were all caught in his net and for a time things went magnificently. Of genuine mines sold to the public there were Le Roi in British Columbia, Lake View Consols and Ivanhoe in Western Australia. There were also a great quantity of valueless properties disposed of at high figures, but his pet schemes were his "parent" companies, The London & Globe Corporation, the British America Corporation and the Standard Exploration Company. The business undertaken by these was pure Stock Exchange speculation, and it was this insane gambling which pricked the bubble at the beginning of the present year. The disclosures which have since been made by the official receivers in bankruptcy, who are winding up the business of the companies, showed that enormous amounts were lost in speculation, and we should like to know where they really went. These three parent companies have collapsed and the control of the three real mines has been wrested from him. His influence in Lake Views and Ivanhoes was broken by his old ally Charles Kaufman, who, together with a group of Stock Exchange people, acquired a majority of shares and so obtained control, while the onslaught on him in connection with Le Roi is due to Mr. Henry Bratnober and his Stock Exchange friends. During the last few months they have been quietly buying shares, and, taking advantage of the shareholders' disgust at Whitaker Wright's methods as shown forth by the condition of the parent companies, they called a meeting of shareholders to discuss a resolution removing Mr. Wright and his colleagues from the board. When Mr. Wright found that the majority of proxies sent in were against him he resigned in a great hurry, thus escaping the indignity of having the question put to the vote. In retiring he sent round a circular to shareholders informing them that the leaders of the agitation against him were as bad if not worse than himself. He asserted that they only wished to get control for the purposes of Stock Exchange manipulation and that Mr. Bratnober had at some unspecified previous period tried to induce the manager at the mines, Mr. Bernard Macdonald, to regulate the output to suit the purposes of his Stock Exchange clique. His circular frightened some of the shareholders from supporting his opponents, but the majority considered it best to make a change, for things could not be worse than under Mr. Wright's regime and might possibly be better. It is impossible to free mining companies from speculative doings by members of the Stock Exchange, and shareholders were wise in not being too particular when changing.

The result of the withdrawal of Mr. Wright and his colleagues from the board was that only two members remained, viz.: Mr. H. H. Andrew, a steel master of Sheffield, and Mr. H. J. Hill, who had only recently been admitted to the board by pressure from those who now have obtained control. It was not deemed advisable to fill up the vacancies on the board all at once, and the only new member elected was Mr. R. J. Frecheville, whose immediate duty will be to go to the mine and report on the state of things generally. Mr. Frecheville is a London mining engineer of position and repute, and it is to be hoped that he will express a perfectly candid opinion as to the value of the property. At the present time there is no intention of making any change in the management, nor is it likely that any change will be made. Mr. Macdonald is well known as a capable manager, and, in his case, association with Mr. Whitaker Wright is not a sufficient reason for dismissal.

The removal of the Whitaker Wright influence and the appointment of Mr. Frecheville to examine the property anew are not, however, all that is required from the independent shareholders' point of view. It is necessary that Mr. Frecheville's report should be perfectly candid. Facts about the exhaustion of the mine at depth and the uncertainty as to the result of future developments—should such exist—should not be suppressed for the benefit of insiders. From reports received from the spot there is some uncertainty felt in England; but we hope that the full and careful examination will establish the fact that the Le Roi is really a great mine, as is generally believed on this side.

THE JEWEL GOLD MINE, BOUNDARY DISTRICT, B. C.

Written for the Engineering and Mining Journal by E. Jacobs.

The Jewel Group of mineral claims is owned by the Jewel Gold Mines Limited, a company organized in London, England, with a capital of £90,000 in shares of £1 each. Of these shares 60,000 were issued as fully paid up, in payment for the mining properties acquired, 20,000 were subscribed for at par, and the remaining 10,000 are available for sale or other disposal for the benefit of the company whenever deemed desirable.

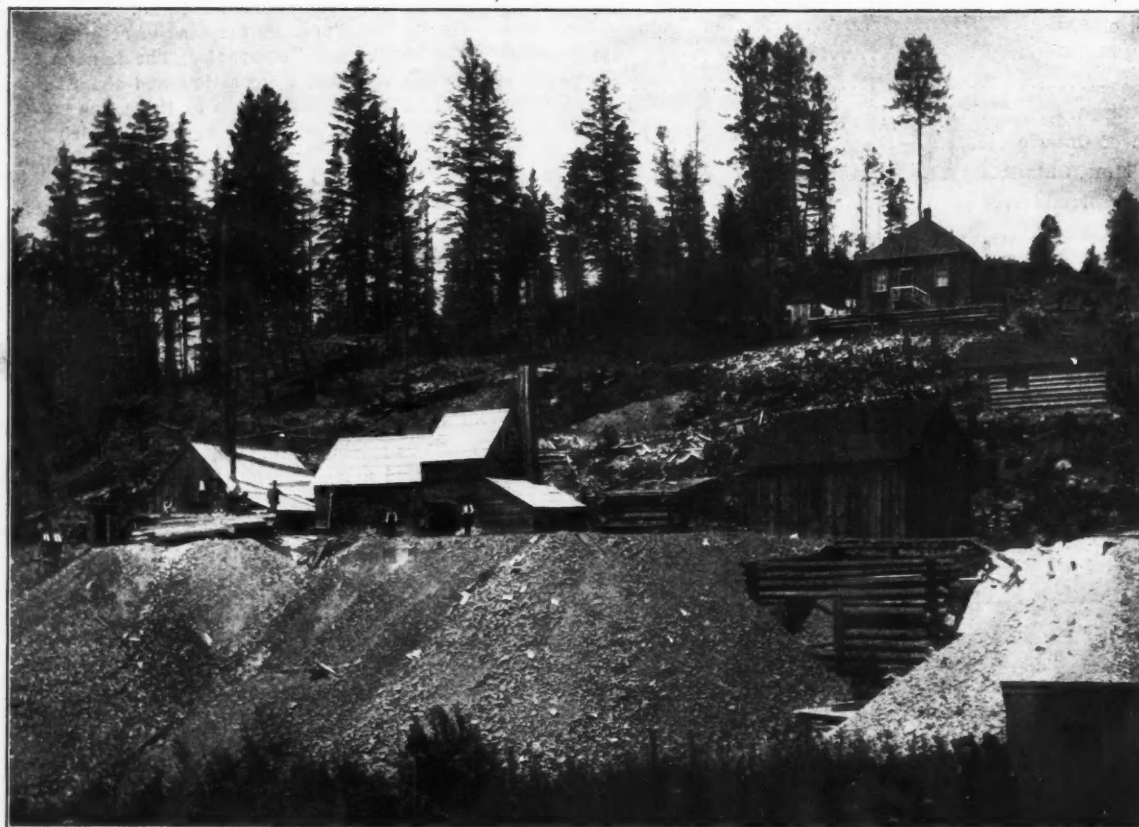
The group consists of the Jewel, Denero Grande, Gold Drop and Massachusetts claims, and the Imperial and Exposition fractions, situate about 8 miles north of Greenwood, in the Kettle River Mining Division, Boundary District, British Columbia. A wagon road connects the group with Greenwood, and another road, which will give access to the Canadian Pacific Railway Company's railway at Eholt Junction, 4 miles distant, is now in course of construction.

The Jewel and Denero Grande were the first claims in Long Lake Camp to have development work of importance done on them. They were bonded in 1896 by Mr. Leslie Hall for the Prospecting Syndicate of British Columbia. A small steam hoisting plant, the first brought into the Boundary District, was hauled from Greenwood to the Jewel in January, 1897, and that year's developments were sufficient to demonstrate that the Jewel gave promise of proving a mine that it would pay

When the 230-ft. level was the lowest working in the Jewel, the mine was reported on by Mr. D. J. MacDonald, who was for a time an Inspector of Mines for British Columbia, and afterward filled a responsible position with the company then owning the Le Roi Mine, Rossland, B. C. Mr. MacDonald carefully sampled the mine and obtained assay values in gold and silver, chiefly gold, ranging from \$1 to \$84. From 35 samples taken from different parts of the mine the average assay return was \$13.36 per ton of 2,000 lbs. Other laboratory tests have confirmed these values, and during the current year 160 tons of Jewel ore sent to the British Columbia Bullion and Smelting Company's works near Rossland for experimental purposes, showed a value of a fraction less than \$12 per ton, by calculation, an extraction of 87.8 per cent. by concentration and cyanidation of tailings.

The faulted portion of the vein—known as the northeast vein, in contradistinction to the Jewel vein, as the southern part is called—outcrops higher up the hillside, showing for about 1,000 ft. in Jewel ground and some 3,000 ft. through the Enterprise, Anchor and another claim beyond. Open cuts and three prospect shafts, two on the Jewel and one on the Enterprise, show this vein to be strong between well-defined walls and averaging about 5 ft. in width. The Enterprise shaft is down 110 ft. Of the two on the Jewel, one is 60 ft. deep and the other 120 ft. and still going down. The latter is to be sunk 300 ft., and a shaft is to be run at the 150-ft. level to prove the vein at that depth.

The considerable difference in surface elevation has encouraged the management to endeavor to cut this northeast vein at greater depth by



JEWEL MINE, NEAR GREENWOOD, BOUNDARY DISTRICT, BRITISH COLUMBIA.

to work. Later the Jewel Development Syndicate was formed to take over these properties, and it afterward acquired the other claims in the group. This syndicate spent about \$20,000 in further development, and then the present larger company was formed and the claims and all other assets were transferred to it for a consideration of 60,000 fully paid-up shares.

To date some 800 lin. ft. of sinking and raising and about 1,600 ft. of crosscutting and drifting have been done in development of the Jewel, and this constitutes the chief part of the underground work done on the group. The ore occurs in a fissure vein running approximately north and south and varying from 2 to 8 ft. in width, averaging about 3 ft. 6 in. The mine has at different times been examined and reported on by several well-known mining engineers, one of whom described the vein filling or gangue as "quartz carrying considerable quantities of galena, zinc-blende, iron pyrites, and occasionally, in smaller quantities, ruby silver, tellurium and tellurides of gold and silver, while free gold is of exceedingly rare occurrence."

The southern part of the Jewel claim is for about 500 ft. in a syenite formation, and the remaining 1,000 ft. in quartzite. At the contact the vein appears to fault by a displacement of about 300 ft. Most of the above-mentioned work has been done in the syenite, where an incline shaft has been sunk 348 ft., following the vein on its easterly dip of about 45°. Three levels have been run, each north and south, at 120, 230 and 330 ft. depth, respectively. These have opened up a shoot of ore about 250 ft. in length and have made available for extraction, according to one engineer's estimate, about 20,000 tons of ore above the 330-ft. level. Underfoot the vein is strong and has every appearance of continuing down to a much greater depth.

means of a drive from the 230-ft. level of the main workings. This drive has passed through the fault and is now in the quartzite, and crosscuts are being run with the object of intersecting the faulted vein. Should it be met with on this level it will give 500 ft. of backs in the northern portion of the claim, so rapid is the rise on the surface.

The results of the exploitation of this vein are being awaited before the determination of the directors to erect a stamp mill and suitable reduction plant shall be carried into effect. Should the northeast vein maintain its strength downward and the ore prove of a similar character and value to that already blocked out in the Jewel vein—and so far indications are favorable to their doing so—the installation of a 40-stamp mill and a cyanide or other chemical plant will be proceeded with; but should a contrary result ensue the reduction appliances will be on a smaller scale.

The company owns an excellent mill site, situate close to and above Long Lake, and distant about 2,000 ft. from the Jewel main shaft. The grading for a mule tramway to this site, on a 6 per cent. grade, has already been done. It is proposed to use electrical power, to be supplied by the Cascade Power and Light Company, Limited, for the mill machinery. The Jewel Company has its own sawmill, located at the edge of the lake, below the stamp-mill site.

The plant and machinery in use at the mine include a 50-H. P. horizontal return tubular boiler, a 25-H. P. upright boiler, a 4-drill Rand straight-line air compressor, a 28 by 10 air receiver, several 3½-in. Little Giant machine drills, two 5 by 5 Bacon hoists, four station and sinking pumps, and other appliances. This plant is small, but it has so far been adequate to the needs of the mine.

A cautious and conservative policy has been pursued from the out-

set. The capital has been restricted to actual requirements and the ultimate object of making the mine a dividend payer has been kept steadily in view. The development of the mine was at first under the direction of Mr. Leslie Hall, who did excellent work. Later Mr. Gilbert Mahon assumed charge as mine manager, and he has purposely deferred putting in a mill and other plant in order to better ascertain the quantity of ore available, so as to admit of the capacity of the mill being adjusted to the requirements of the mine, and to more accurately determine the chemical process promising best results in the treatment of the ore. The mine has an abundant supply of timber and water, and sufficient ore in sight to warrant the erection of a small mill, but this latter notwithstanding, for the reasons stated, a slow and sure policy has been followed, and, too, the provision of improved facilities as regards power, the shipping of concentrates, etc., has been awaited, and development operations have been timed accordingly.

CORUNDUM MINING IN ONTARIO.

We have heretofore referred at some length to the corundum deposits of Ontario. In the year 1900, according to the Bureau of Mines, corundum appears for the first time in the list of the mineral products of Ontario. The very extensive deposits of corundum which were brought to light two or three years ago are being exploited by several companies with the view of supplying the market with abrasive material and goods of a high grade of excellence. The first of these companies to be organized was the Canada Corundum Company, which in addition to lands purchased from private owners, obtained leases from the Crown covering a number of lots in the townships of Raglan, Carlow, Brudenel, Dungannon and Monteagle, containing in all about 1,000 acres. The conditions of the concession, which was dated September 15th, 1899, and made between the Government of the first part and Messrs. Joseph H. Shenstone and B. A. C. Craig of the second part, required the expenditure of \$100,000 in the development of the lands and the establishment of a corundum industry.

Substantial progress has been made by the company which was formed to operate under the contract with the Government. A mill has been erected in the township of Raglan, about 7 miles distant from the village of Combermere, and the various problems which arose in the treatment of a hitherto untried material have been vigorously attacked and it is claimed successfully solved. The company's intention is to replace this experimental plant by a larger and more substantial mill, thoroughly equipped with machinery for separating the corundum from



JEWEL MINE, FIRST LEVEL. VEIN 3 FT. WIDE.

its matrix, crushing and sizing it. About 600 tons of sized corundum grains were produced before the close of 1900, and a large number of wheels have been manufactured therefrom. The testimony from the users of the wheels is unanimous as to their excellent quality and the amount of grinding they will accomplish in comparison with other wheels now being sold for similar purposes, whether made of emery, corundum from other sources, or other abrasive material. The extent and richness of the corundum deposits, which carry as high as 30 per cent. ore, and the satisfactory results obtained in foundries and machine shops from wheels made of the product, afford the best of ground for believing that this Province, among its other unique mineral advantages, possesses that of owning the largest and best corundum fields which have yet been discovered anywhere.

The Crown Corundum Company, Limited, has been organized to work lands carrying corundum, mica and feldspar in the townships of Methuen and Burleigh, Peterborough County. The authorized capital is \$1,000,000 in 1,000,000 shares of \$1 each. President, Wallace C. Keith, Boston, Mass.; managing director, James Curry, Manning Arcade, Toronto.

One or two other parties are also interesting themselves in the corundum business, and the prospects are good for the development of a considerable industry on the basis of Ontario corundum.

CEMENT IN ONTARIO.

The latest report of the Ontario Bureau of Mines says that the manufacture of cement continues to expand, the total production of 1900 being much larger than in any previous year. The increase is wholly in portland cement, the natural rock variety being smaller in output and value than in 1899. The raw materials for an excellent quality of portland cement—marl and clay—being so abundant in Ontario and the demand for pavement and construction purposes being so great and constant, there is every likelihood that the production will continue to increase. The number of cement works reporting to the Bureau last year was nine, of which four made natural or rock cement and five portland cement. In addition to the factories now in operation, one or two others



JEWEL MINE, 230 FT. LEVEL. VEIN 8 FT. WIDE.

will place their product on the market during 1901. The detailed statistics for 1900 are as follows:

Kind of cement.	Works.	Workmen.	Wages.	Prod., bbls.	Value.
Natural rock	4	90	\$32,760	125,428	\$99,994
Portland	5	485	166,143	306,726	598,021
Totals	9	575	\$198,903	432,154	\$698,015

There was an increase in the total quantity of cement produced in 1900 as compared with 1899 of 70,117 bbls. and in value of \$136,749. The average price at which the cement was reported to the Bureau was 79c. per barrel for natural rock and \$1.95 for portland, as against 84c. and \$2 per barrel, respectively, in 1899. That the home market is not by any means wholly supplied by the product of Ontario works is proven by the fact that during the fiscal year ending June 30, 1901, the imports of cement into Canada amounted to 1,312,170 cwt., valued at \$520,593. In 1899 the total value was \$484,371. The imports of Belgian and German cement, which had risen from \$79,370 and \$15,603 respectively in 1896, received a decided check, while those from Great Britain were almost doubled, and constituted even a larger proportion than in 1896, when they were \$123,436 worth out of a total importation of \$252,882. The preferential tariff, whatever may be its operation with respect to other articles, certainly seems to be effective with cement.

A plant having a capacity of 500 bbls. a day is nearly completed at Marlbank, replacing the works recently destroyed by fire. The mixing is done in a wash mill, followed by slurry tube grinders. For burning, rotary calciners are used, 6 ft. in diameter and 60 ft. long, the fuel being ground coal. This is the first time this system of clinkering has been employed in Canada. The clinker will be ground in ball mills and tube mills, the latter yielding a product 95 per cent. of which will pass through a 100-mesh sieve. Tests on the cement from the marl and clay obtained at Marlbank showed a strength of 468 lbs. per square inch after 5 days. The works are being erected by the Canadian Portland Cement Company, Limited, of Deseronto, successors to the Rathbun Company and the Beaver Portland Cement Company.

The Georgian Bay Portland Cement Company, Limited, of Owen Sound, has undergone a change of name, being now called the Imperial Cement Company, Limited, manufacturing what is known as the Imperial brand of portland cement. Its capital stock is \$250,000, and its principal officers are: President, M. Kennedy; vice-president, H. B. Harrison; secretary-treasurer, J. W. Maitland. The plan of the works has also been very materially altered, and the capacity has been raised to 600 bbls. per diem. The present system consists in mixing the marl and clay, after drying and grinding, securing the proper proportions, and then making this into brick, which are dried in Cumber dryers, burnt in Alborg kilns, and ground in the ordinary way, using tube mills for the fine grinding.

A corporation to be known as the Orangeville Cement Company is being organized to erect a 500-bbl. plant at Orangeville. The property is now controlled by T. Rowan, D. B. Brown, John Rowan and H. Gillespie, of Orangeville. It consists of 350 acres, situated in the fourth and fifth concessions of the township of Caledon, Peel County, and in concession B of the township of East Garafraxa, Dufferin County. The marl is overlaid by peat varying from 2 ft. to 6 ft. 6 in. in thickness, the marl itself having an average thickness, as shown by borings, of 13 ft. The deposit of clay is found in East Garafraxa, having a depth of 6 ft. over an area of 20 acres. Three analyses of the marl are reported as follows:

Moisture, etc.	1.	2.	3.
Silica	7.20	10.53	7.10
Ferric oxide	0.90	1.30	1.30
Lime (CaO)	0.94	1.68	1.40
Magnesia (MgO)	52.04	46.49	50.06
Alkalies	1.60	0.54	0.50
Sulphuric acid	0.60	tr.	tr.
Carbonic acid (CO)	tr.	0.54	tr.
	36.12	38.94	39.34
	100.00	100.02	100.00

The average of the clay after burning showed the following composition: Silica, 54.96; alumina, 23.09; ferric oxide, 5.03; lime, 14.57; magnesia, 1.37; alkalies, 0.48; sulphuric acid, 0.57. The properties are situated 2½ miles from Orangeville station on the Canadian Pacific Railway.

A company has been organized to erect large cement works with a capacity of 600 bbls. a day at Lakefield near Peterborough. The corporation is styled the Lakefield Portland Cement Company, Limited, with a capital stock of \$500,000. The president of the company is Mr. J. M. Kilbourn, of Owen Sound. The property, comprising 800 acres of marl land showing marl, where tested, 20 ft. deep, is situated on Buckley's Lake, two miles from Lakefield. The town of Lakefield has granted the company 13 acres of land, a bonus of \$10,000, and exemption from taxation for a period of 10 years.

It is proposed to utilize the large marl beds near Durham in the County of Grey by erecting a cement factory at that place with a capacity of 1,000 bbls. per day, for which purpose a company has been organized. A cement mill is also projected at Crookston in the County of Hastings.

IRON BOUNTIES IN CANADA.

The report of the Ontario Bureau of Mines gives the following statements as to the bounties on pig iron and finished iron paid by the Dominion of Canada.

The assistance which is extended to the iron industry by the Dominion Government is given to the producers of pig iron, puddled bars and steel ingots. Chapter 6 of 60-61 Victoria (1897), Statutes of Canada, provided bounties as follows: On steel ingots manufactured from ingredients of which not less than 50 per cent. of the weight thereof consists of pig iron made in Canada, \$3 per ton; on puddled iron bars manufactured from pig iron made in Canada, \$3 per ton; and on pig iron manufactured from ore \$3 per ton on the proportion produced from Canadian ore, and \$2 per ton on the proportion produced from foreign ore. The period for the payment of the bounties was to end April 23d, 1902.

Chapter 8 of 62-63 Victoria, Statutes of Canada, extended the bounty period to June 30th, 1907, and enacted a sliding scale as follows, looking to the gradual extinguishment of governmental aid; up to April 23d, 1902, the rates were to be as fixed by the Act of 1897; from April 23d, 1902, to June 30th, 1903, 90 per cent. of those rates; from July 1st, 1903, to June 30th, 1904, 75 per cent.; from July 1st, 1904, to June 30th, 1905, 55 per cent.; from July 1st, 1905, to June 30th, 1906, 35 per cent.; and from July 1, 1906, to June 30th, 1907, 20 per cent. By this Act it was further provided that no bounty should be paid on steel ingots made from puddled iron bars manufactured in Canada.

It may be interesting to note the extent to which the aid provided by the Dominion Government is being availed of. During the fiscal year ending June 30th, 1900, payments were made on account of the bounties as follows:

Name of Company.	Bounty on Pig Iron.				Total bounty.
	Pig iron from Canadian ore, tons.	Pig iron from foreign ore, tons.	Bounty on pig iron from Canadian ore.	Bounty on pig iron from foreign ore.	
Canada Iron Furnace Co.	6,051	38	\$18,158	\$76	\$18,235
Deseronto Iron Co.	462	12,820	1,386	28,640	27,026
Hamilton Blast Furnace Co.	11,329	35,611	35,788	71,222	107,010
John McDougall & Co.	1,528	.....	5,485	.....	5,485
Nova Scotia Steel Co.	11,886	18,751	35,659	37,503	73,162
Mineral Products Co., Pictou, N. S.	2,459	.....	7,378	.....	7,378
Totals	34,617	67,221	\$103,854	\$134,442	\$238,296

The following amounts were paid as bounty on puddled iron bars and steel ingots:

Name of company.	Bounty on Puddled Iron Bars and Steel Ingots.		Total bounty.
	Puddled bars made, tons.	Steel ingots made, tons.	
Ontario Rolling Mills Co.	300	.....	\$1,200
Hamilton Blast Furnace Co.	2,974	.....	8,921
Nova Scotia Steel Co.	.....	21,453	64,360
Totals	3,274	21,453	\$74,481

The recent consolidation of iron and steel producing interests on a gigantic scale in the United States has turned the attention of the world upon the vast deposits of raw materials for the production of iron which that country possesses. It is the presence of these deposits, and not merely the combinations of capital and enterprise which self-interest can create and self-interest dissolve, that constitute the real basis for

the apprehension felt in older countries that the industrial supremacy of the world is about to pass permanently to this side of the Atlantic, if indeed it has not already passed. To immense supplies of iron ore and coal are added physical and geographical advantages, such as great inland lakes whose waters make cheap freight rates possible in assembling materials, and an enormous territory within which trade is perfectly free and at liberty to adapt itself to conditions conducive to the greatest possible economy of transportation and manufacture. Other advantages are plants of maximum capacity, labor-saving and automatic processes, and elimination of the middleman's profits by uniting the ownership of iron ores, transportation facilities, blast furnaces and coal mines in the hands of individual firms or companies.

It is pertinent to ask whether these advantages are confined to the United States. Is it practicable for the Province of Ontario, for example, to enter upon the business of making iron and steel on anything like terms of even competition with the republic to the south of us? Even if her undoubtedly large stores of iron ore and abundant deposits of limestone furnish two of the three kinds of raw materials essential to the business, will not her coalless formations and distance from the seaboard heavily handicap Ontario in the struggle to supply the world's markets? These are questions which can only be answered by actual experiment, not by balancing conditions on paper. Nevertheless, there are many features which render the prospect before the developing iron industry of Ontario a promising one. To begin with, the home market is large and steadily increasing. The Province of Ontario with its mills, foundries, factories and railways, is a heavy consumer of pig iron. The career of industrial expansion upon which it has embarked must increase that consumption by leaps and bounds, and apart altogether from government assistance by bounties or tariffs, the home producer will necessarily enjoy the advantage conferred by proximity to his customers. There is now no doubt of the quantity and quality of Ontario iron ores, which are found in the western, central and eastern parts of the Province, and of fluxing materials there is no lack.

METAL PRODUCTION OF ONTARIO.

The production of metals in Ontario for the six months ending June 30th, as reported by the Bureau of Mines, shows a total value of \$1,438,539, being an increase of 13 per cent. as compared with the first half of 1900. The items of production are as follows:

	Quantities.	Values.
Gold	Ounces 6,646	\$116,898
Silver	" 68,200	40,776
Nickel	Pounds 3,964,000	416,288
Copper	" 3,038,000	178,476
Arsenic	" 591,054	18,312
Pig iron	Tons 41,294	594,617
Iron ore	" 63,564	70,572
Zinc ore	" 400	2,000
Total values		\$1,438,539

Pig iron heads the list with a value of \$594,617. This involved the smelting of 69,763 tons of ore, of which 41,172 tons were the product of Ontario mines and 28,591 tons the product of American. Thus the native ore is gaining ground and the imported ore losing. This is the result of the opening of the Helen Mine in Michipicoten. Besides the hematite ore of the Helen Mine considerable quantities of magnetite from Eastern Ontario were used. Nickel stands second on the list of values, aggregating \$416,288. Nickel-copper ore to the amount of 132,370 tons was raised from the mines in Sudbury District. Matte is being produced by the Mond Company at Victoria mines, Algoma. Of pure copper ore 9,000 tons were raised.

FELDSPAR IN ONTARIO.—The Bureau of Mines of Ontario notes that a very large deposit of feldspar (orthoclase) has been worked since December 14th, 1900, by Messrs. H. Richardson and George Smith, of Kingston, on lot 1 in the second concession of Bedford, Frontenac County. The property is owned by Mr. Aaron Hopins, and is situated 4 miles east of Bedford Station on the Kingston & Pembroke Railway, between Desert and Thirteen Islands lakes. There are two separate bodies of the feldspar, separated by a narrow band of white quartz rock. The deposit which is being operated is 150 ft. wide, and has been traced along the outcrop 225 ft. The other deposit is 60 ft. wide and shows on the surface for a distance of 300 ft. The output to March 1st, 1901, has been 4,000 tons, all of which has been exported to Trenton, New Jersey, for use in the manufacture of pottery.

GRAPHITE MINING IN ONTARIO.—According to the report of the Bureau of Mines, the Black Donald graphite mine was worked with some vigor during the year, 1,802 tons of graphite having been mined. Owing to distance from the railway the product can only be got to market during the winter. This deposit, which is of unusual size as compared with most American veins of the substance, has been undergoing development at a point 12 miles west (22 miles by wagon road) of Calabogie station on the Kingston & Pembroke Railroad. The company was organized in 1896 with a capital stock of \$200,000, the directors being G. P. Brophy, J. B. Brophy, S. H. Fleming, J. W. McRae and Hector McRae. The offices of the company are at 58 Queen street, Ottawa. The mine is in the township of Brougham, Renfrew County. The workings consist of open cuts and a shaft 80 feet deep, from the bottom of which a drift on the vein extends 150 ft. northeast, going under Whitefish Lake. The vein stands vertically, and at a depth of 80 ft. measures 22 ft. in width. The enclosing country rock on both walls is limestone. Hoisting is still done with a derrick and a 2-ton hoisting engine. A permanent three-compartment shaft is contemplated, which will be suitably equipped with modern hoisting appliances. The mine is kept unwatered with two mine pumps actuated by compressed air. A three-drill Ingersoll air compressor provides air for the pumps and for rock drills. Steam is generated by two boilers, locomotive type, of 45-H. P. each. The buildings on the property consist of a boiler and boiler house, a storage house 30 by 50 ft., and a boarding and sleeping camp. Since opening the mines 4,000 tons of graphite have been shipped, of which 1,300 tons represent the output for 1900.

THE HELEN IRON MINE, ONTARIO.

In the paper on the "Iron Ranges of the Lower Huronian," by Dr. A. P. Coleman, published in the latest "Report" of the Ontario Bureau of Mines, we find some interesting particulars in relation to the Helen Mine, which is now a regular producer of iron ore.

During the year 1900, the work of developing the mine has been carried on by open cuts, drifts and diamond drill borings. The ore deposit is now better outlined than before and proves to be of very large dimensions. As stated by Captain Williams, it is 1,090 ft. in greatest length (from northeast to southwest) and has a width over all of 400 ft.; and it reaches, as shown by borings, 188 ft. below lake level and rises as a hill 100 ft. above water, a thickness of 288 ft. in all. A drift run into the hill toward the east passes first through loose materials, sand with boulders, some of them banded sandstone, others of the impure siderite of the hill rising 450 ft. to the east, the boulders being changed in various degrees into ore, some of them completely so. About 40 ft. in the drift there is a band of white or gray sand, soft and very fine, 10 ft. wide, sometimes passing into the banded sandstone mentioned before, but good ore occurs beyond this almost to the end of the tunnel, 260 ft., when pyritous chloritic schist was encountered and the drift was stopped. The ore from the drift is partly soft and partly hard, and most of it is of good quality.

The character of the ore is much better shown now than before the development, and it has been proved to consist largely of red hematite, both soft and hard, in addition to the brown ore. The latter is some-

ing, is bluish gray, compact, and contains a good deal of pyrite; and on analysis turns out to be an impure siderite.

In 1900 about 62,000 tons of ore were shipped to Midland and other points before the close of navigation, almost as large a quantity as had been mined in the whole of Canada in the previous year.

The town at the Harbor stands on a terrace of sand and stratified clay near the shore of Lake Superior; and the same blue clay is said to underlie part of the harbor, giving excellent ground into which to drive piles for the ore docks, etc. The clay rises in one of the railway cuttings about 100 ft. above the lake, and goes 160 ft. below it, as proved in driving piles; so that it is present in unexpected amounts. All the terraces inland, as near the Post and Wawa, are of sand, as mentioned in previous reports.

Mr. E. V. Clergue states that the explorations carried out by the company since the previous year have shown that the iron range is interrupted for 2 miles, between Hematite Hill and Eleanor Lake; but then goes on to Red Lake near Park's Lake, where the Josephine Mine is being developed. This mine appears to be of much promise, and important deposits of ore are reported also from a new range found by Professor Willmott north of Paint Lake and west of Iron Lake near Dog River. Under Professor Willmott a series of explorations has been started to determine the economic value of the region, and to make a geological map of the country to be served by the Algoma Central Railway and its branches.

The iron-bearing rocks at the Helen Mine have a width over all from north to south of 800 to 1,000 ft., as shown east of Boyer Lake, which



SECOND BENCH IN HELEN IRON MINE, ONTARIO.

times beautifully stalactitic and concretionary, and occasionally has brilliant blue and green colors, due in all probability to thin films of oxide. The yellow variety of limonite occurs also, though not in large amount, and it is said that analyses of the fibrous, stalactitic ore prove it to be goethite rather than limonite. In general the only impurities in the ore visible to the eye are portions of the sandstone mentioned before, though at times small crystals of clear quartz occur also; and the only source of sulphur observed seems to be the pyrites in the unchanged carbonate which occurs as boulders in part of the ore. There is less of the "blue" ore, or hard steel gray hematite, to be found at the Helen Mine than in most of the Marquette or Vermilion range iron mines; and the considerable amount of limonite present suggests a likeness to the Mesabi ores of Minnesota. The fact, too, that no jasper, but only sandy-looking materials, occur near the ore body, points somewhat in the same direction.

The ore from the Helen Mine contains too much phosphorus to be of bessemer grade, and so does not equal the best of the ores from Michigan or Minnesota, but it stands high among the non-bessemer ores. Analyses of the ore obtained in boring 188 ft. below Boyer Lake average as follows: SiO_2 , 2.28; Fe, 63.83; P, 0.09; S, 0.03. Some assays gave as high as 69 per cent. of iron, and the lowest amount of phosphorus found was 0.02 per cent.

The source of the iron has been made clear by the later explorations, since diamond drill cores obtained from various depths consist of siderite, as shown by Mr. Clergue's chemists. One from a point between 129 and 142 ft. down yielded 36.54 per cent. of iron, equivalent to 75.69 per cent. of carbonate of iron, and is therefore an impure siderite. Another specimen contained only 60.39 per cent. of carbonate of iron and 29.61 per cent. of insoluble matter, mainly silica; and a third, said to consist of orthoclase with siderite, gave only 9.55 of carbonate of iron.

The singular rusty rock at the outlet of Boyer Lake, brownish gray and compact and containing much pyrite when unweathered, turns out to be siderite also; and the same is true of the rock forming much of the hill which rises 450 ft. above the same lake toward the east. This in fresh samples below the brown crust of limonite produced by weather-

corresponds fairly with that given for the Marquette and other ranges, of about 800 ft., though this width is sometimes exceeded in the American iron regions. The rocks stand nearly vertical, so that the width makes also the thickness; and in general the iron-bearing band runs parallel to the schistose rocks on each side, though it has sometimes been shattered and brecciated, and near Sayer Lake has been bent into a nearly vertical fold. Up to the present there is little to show which side of the range is the base, i. e., in what order the strata were laid down; since, unfortunately, the schist conglomerate representing the basal bed of the Upper Huronian, shown at the Harbor and for some miles along the railway, has not been traced all the way to the ore deposit, so that its relation to the latter is unknown. If the two were found in contact the conglomerate would of course be uppermost, and the succession would probably though not necessarily be such that the bed beneath it would be the highest in the Lower Huronian. The only point suggesting a solution of the problem is the fact that most of the sandy rock interbanded with iron ore is on the north side and most of the siderite on the south side. As it has been found in the Penokee range that the purer iron carbonate occupies usually the upper horizons and the cherty rock the lower ones, there is some probability that the southern side was originally uppermost.

The succession from north to south as far as can be judged at the mine begins with a series of ridges of green schist at least $\frac{1}{2}$ mile broad, followed by 400 or 500 ft. of granular silica interbanded with iron ore and probably about 400 ft. of siderite beneath the ore deposit. South of this comes a ridge of felsite schist turned into "paint" rock and "soap" rock next the ore, with various green schists, probably sheared eruptives, beyond.

The section across the top of Hematite Mountain, as worked out last year, is somewhat different, but the wooded hilltop gave only a poor exposure, and the costean pit examined did not run the whole way across. The section begins with the same sandstone and chert, banded with iron ore of undetermined width, followed by 75 ft. of a partly schistose greatly weathered brown rock, an impure siderite with silica and also sericite or talc; then 24 ft. of siderite with some bands of

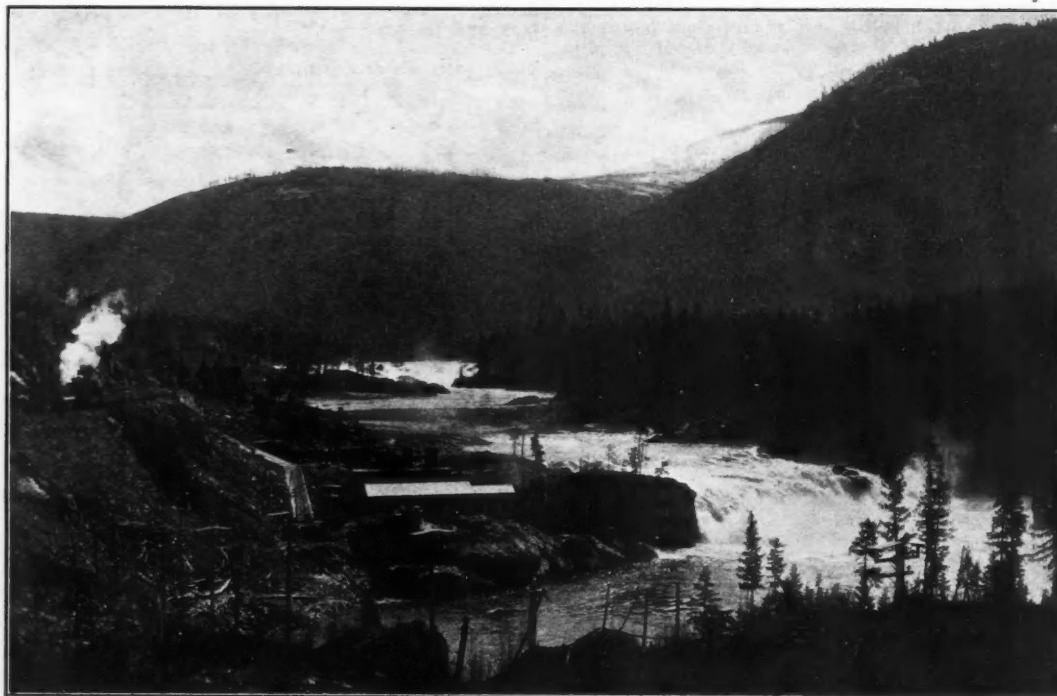
green schist, followed by 54 ft. of nearly pure siderite showing no cleavage or bedding, in all 103 ft. of more or less pure siderite. Next comes a thin band of granular silica succeeded by a few feet of greenish and yellowish-brown schist and 150 ft. of soft green schist, the two latter rocks probably representing the felsitic and chloritic schists of the section at the east end of Boyer Lake.

The different members of the band vary in thickness from point to point, and the length of the siderite as seen by us is not more than a mile and a quarter in a direction about east and west, from the east end of Hematite Mountain, which is about $\frac{3}{4}$ mile long, to a little beyond the west end of Sayer Lake. It should be mentioned that the width of the sandstone and siderite at the west of Sayer Lake was estimated at 1,000 ft., but it was interrupted near the middle by 200 ft. of green schist with some slate. The south shore of this lake is partly formed by a large mass of pyrite mixed with sandy grains, apparently a greatly modified variety of the granular silica.

Two miles to the east of Hematite Mountain and south of Lake Eleanor the siderite is found again, but is apparently absent for the 2 miles between. Here also it is exposed on a steep hill along with iron-bearing silica, the siderite showing as a narrow band on the face of a cliff. It is of interest to note that black carbonaceous shale is exposed to the south of this hill, as in some of the American iron ranges.

in the Kootenay; at Grand Forks, Greenwood and Boundary Falls, in the Boundary, and at Van Anda, Texada Island. The smelter at Northport, Washington, is within 20 miles of Rossland, and other smelters in the United States also treat ores from British Columbia. The biggest stamp mill in the province is at the Ymir Mine, owned by the London & British Columbia Gold-fields, Limited, where 80 stamps are in operation. There are other stamp mills, concentrators, etc., but it is evident that an enormous quantity of plant and machinery will be required to meet the rapidly growing needs of ore production and treatment.

Much outside capital has already been employed in connection with the mining industry of the Province, but much more is needed for the more extensive development of its enormous mineral resources. Eastern Canadian money has been put into mining and smelting enterprises at Rossland, in the Boundary and elsewhere. United States capital has done much toward developing mines at Rossland and in the Slocan, and the British Columbia Copper Company, Limited, of New York, has spent more than \$650,000 on its Mother Lode Mine and smelter, near Greenwood, with returns now coming in. A comparatively large amount of British capital has also found its way into British Columbia mining enterprises, but all these combined will very probably fall far short of the aggregate that two or three years hence will be similarly em-



BONNINGTON FALLS ELECTRIC POWER PLANT, NEAR NELSON, B. C.

Professor Willmott has found that the cherty siderite continues to a point 2 miles east of Goetz Lake, a distance in all of about 8 miles. Adjoining it east of Goetz Lake there is a cherty limestone which probably corresponds to the limestone or dolomite found below the iron-bearing member in Michigan and Wisconsin.

MINING IN BRITISH COLUMBIA, CANADA.

Written for the Engineering and Mining Journal by E. Jacobs.

(Concluded from page 255, Canadian Supplement for August.)

Steam power is used at most of the mines, but some are using water-power or electricity. Besides the three great rivers of the province—the Fraser, Columbia and Kootenay—there are many streams, generally mountain torrents, each giving a tremendous head and furnishing ample motive power for individual properties. In the Slocan especially these are utilized for concentrators and other machinery. Electric power has not hitherto given such generally good results in Rossland mines as could have been desired, but it may be that the appliances in use there were not altogether suitable. Notwithstanding this, the power plant at Bonnington Falls, Kootenay River, has lately been increased to a total capacity of about 4,000 H. P., with a further large extension now being made. The Kettle River Power Company intends to develop the 6,000 H. P. derivable from the Kettle River at Cascade, Boundary District, and plant to develop the first unit of 2,000 H. P. is to be installed shortly, about \$100,000 having already been spent in preliminary work. The Granby Consolidated Mining, Smelting and Power Company has a power plant on the North Fork of Kettle River giving 835 H. P., and an increase of 300 H. P. is being made.

The mines near the coast generally have the advantage of water transportation, and many in the Kootenay and Boundary country are tapped by railways. Other districts are seriously handicapped by the absence of facilities for cheap transportation, but since each succeeding year sees the construction of new roads and railway lines, this obstacle to more rapid progress is being in part removed.

More reduction works are being established as the demand for them increases. Smelters have been erected at Pilot Bay, Nelson and Trall,

in the province, so big will be the future of this important industry.

The following are some of the British Columbia mines whose total dividends to date have each exceeded \$100,000. More have paid totals ranging from \$10,000 to \$50,000, but the list given below, though incomplete, will serve to show that an appreciably large aggregate amount has been returned by the mines over and above the still larger total of earnings that has been expended in development and equipment. Nearly all these figures are taken from the New York "Engineering and Mining Journal" or the British Columbia "Mining Record."

Mine.	Locality.	Total Dividends.
Payne	Slocan	\$1,438,000
Le Roi	Rosslund	1,305,000
War Eagle	Rosslund	545,250
Cariboo	Camp McKinney	487,087
Slocan Star	Slocan	425,000
Idaho	Slocan	292,000
Reco	Slocan	287,500
Hall	Nelson	220,000
Whitewater	Slocan	209,500
North Star	East Kootenay	195,000
Centre Star	Rosslund	175,000
Ruth	Slocan	165,000
Le Roi No. 2	Rosslund	144,000
Ymir	Nelson	144,000
Rambler-Cariboo	Slocan	105,000
St. Eugene	East Kootenay	105,000

A few words in conclusion as to the attitude of the Provincial Government toward the mining industry. At last year's session of the local legislature authority was given to appoint a commission to inquire into the working of the mining laws of the province, but nothing definite has yet been done in this matter. There exists a feeling among mining men that the Government is disposed to unduly burden the mining industry for revenue purposes, but there is not, on the whole, much ground for reasonable complaint. The opinion is general that it will be well for the legislature to avoid tinkering with the mining laws, for the less frequently they are altered the greater the security felt by those investing capital in the industry. Apart from the 2 per cent. tax levied on the output of the mines (less freight and treatment charges) which mine owners are endeavoring to have remitted, it is agreed that further legislation is not called for at present.

The Provincial Department of Mines is doing excellent work. It endeavors to give information relating to mining districts and, as far as it can do so, about individual mines, especially to prospectors, but it very properly refuses to express any opinion at all as to the values of mining stocks. It has its own assay office, where assays are made for the public at usual rates; laboratory; students' laboratory, and a mineral museum. A room 32 by 76 ft. is reserved exclusively for the exhibition of ores, etc., of commercial value, from the mines of the province, classified according to the mining divisions from which they are obtained. There is a separate room for the general mineral collection. Examinations of assayers are also held here, incompetent persons being prevented by law from practicing as assayers.

Mining Laws.—The following is a synopsis of the mining laws of British Columbia:

A free miner is a person, male or female, above the age of 18 years, who is the holder of a valid free miner's certificate, which costs \$5 for a full year, or a proportionate sum for any shorter period; but all certificates expire on May 31st. A free miner may enter on Crown lands and also on other lands where the right to enter has been reserved, and may prospect for minerals, locate claims and mine. Claims may not be located on Indian reserves nor within the curtilage of any dwelling. Should a free miner neglect to renew his certificate upon expiry, all mining claims held by him under its rights, if not Crown granted, revert to the Crown, unless he be a joint owner, in which case his interest or share reverts to his qualified partners or co-owners. It is not necessary for a shareholder in an incorporated mining company, as such, to possess a free miner's certificate.

work under certain conditions and also to grant rights to facilitate working of claims. No special privileges are granted to discoverers of "mineral" claims, but those satisfying the gold commissioner that they have made a new "placer" discovery are allotted claims of extra size.

No free miner may legally hold by location more than one mineral claim on the same lode or vein, and in placer diggings he may not locate more than one claim on each creek, ravine or hill, and not more than two in the same locality, only one of which may be a creek claim.

In both mineral and placer acts provision is made for the formation of mining partnerships, both of a general and limited liability character; also for the collection of the proportion of value of assessment work that may be due from any co-owner.

Leases of unoccupied Crown lands are granted for hydraulicking or dredging, upon the recommendation of the gold commissioner, after certain requirements have been complied with. An application fee of \$20 is payable. Leases may not exceed 20 years' duration. For a creek lease the maximum area is $\frac{1}{2}$ mile and the minimum annual rental \$75; hydraulic lease, area 80 acres, rental \$50, and at least \$1,000 per annum to be spent in development; dredging lease, area 5 miles, rental \$50 per mile, development work \$1,000 per mile per annum, and a royalty payable to the Government of 50c. per ounce of gold mined.

Mineral or placer claims are not subject to taxation unless Crown-granted, in which case the tax is 25c. per acre per annum; but if \$200 be spent in work on the claim in a year this tax is remitted. A tax of 2 per cent. is levied on all ores and other mineral products, the valuation



YMER STAMP MILL, NEAR NELSON, B. C.

A mineral claim is a rectangular piece of ground not exceeding 1,500 ft. square. The claim is located by erecting three posts, as defined in the act. In general, location of a claim must be recorded within a period varying according to distance from a register's office from date of location. A mineral claim, prior to being Crown-granted, is held practically on a yearly lease, an essential requirement of which is the doing of assessment work on the claim annually of the value of \$100, or, in lieu thereof, payment of that amount to the mining recorder. Each assessment must be recorded before the expiration of the year to which it belongs, or the claim is deemed abandoned. Should the claim not meanwhile have been relocated by another free miner, record of the assessment work may be made within 30 days immediately following the date of expiry of the year, upon payment of a fee of \$10. A survey of a mineral claim may be recorded as an assessment at its actual value to the extent of \$100. If during any year work be done to a greater extent than the required \$100, any additional sums of \$100 each (but not less than \$100) may be recorded and counted as assessments for the following years. When assessment work to the value of \$500 has been recorded the owner of a mineral claim is, upon payment of a fee of \$25, and giving certain notices, entitled to a Crown grant, after obtainment of which further work on the claim is not compulsory. The act includes, too, liberal provisions for obtaining mill and tunnel sites and other facilities for the better working of claims.

There are various classes of placer claims severally defined in the "Placer Mining Act" under the heads of creek, bar, dry, bench, hill and precious-stone diggings. Placer claims are 250 ft. square, but a little variation is provided for under certain conditions. They are located by placing a legal post at each corner and marking on the initial post certain required information. Locations must be recorded within three days if within 10 miles of a recorder's office; but if farther away another day is allowed for each additional 10 miles. Re-record before the close of each year is requisite for the retention of placer claims. Continuous work, as far as practicable, during working hours, is necessary, otherwise a cessation of work for 72 hours, except for reasons satisfactory to the gold commissioner, is regarded as an abandonment. The commissioner, however, has power to authorize suspension of

being the net return from the smelter; that is, the cost of freight and treatment is deducted from the value of the product, but not that of mining. These taxes are in substitution for all taxes on the land, and personal property tax in respect of sums so produced, so long as the land is used only for mining purposes. A royalty of 50c. per 1,000 ft. is charged on all timber taken from the land for mining uses.

Applications for coal or petroleum prospecting licenses must, after the publication of certain notices, be made to the gold commissioner, accompanied by plans of the land and a fee of \$50, which sum will be applied as the first year's rent. Limit of land a license will cover is 640 acres. Extension of lease for a second or third year may be granted. Upon proof of discovery of coal a 5 years' lease, at a rental of 10c. per acre per annum, may be obtained. A royalty of 5c. per ton of coal mined, or 1c. per barrel of petroleum, is payable. After proof that land covered by lease has been worked continuously, lessee may, within three months of expiry of lease, purchase said land at \$5 per acre.

Fees payable are: For a free miner's certificate, \$5 per annum; records, \$2.50 each; leases under "Placer Mining Act," \$5, etc., etc. Incorporated companies pay for a free miner's certificate \$50 per annum where the nominal capital is \$100,000 or under, or \$100 where it exceeds that sum.

GERMAN COAL PRODUCTION.—The coal production of Germany for the six months ending June 30th is reported at 53,005,142 metric tons. The output of brown coal (lignite) was 21,237,238 tons, making a total of 74,242,380 tons. The production of briquettes was 4,389,645 tons, and that of coke was 4,759,354 tons.

TALC IN ONTARIO.—The Bureau of Mines states that talc of good quality is being produced from a mine near Madoc, Ontario, 1,000 tons having been raised in 1900, all of which went to New York and, it is stated, was distributed mainly as samples throughout the United States and part of Europe in competition with the fine French and Italian talcs. If the manufacture of paper takes vigorous root in Ontario, as there is every likelihood of its doing, there will probably arise a demand for talc to be used as a filler, for which purpose it is in high repute in the United States.

PERSONAL

Mr. J. Rinley has returned to Park City, Utah, from Dawson, N. W. T.

Mr. W. H. Lee of the Texada Mining Company has been in Victoria, B. C.

Mr. H. L. Frank, of Butte, Mont., is on a visit to his coal mines at Frank, Alberta Territory.

Mr. A. C. Garde, manager of the Payne Mine at Slocan, B. C., has been in Montreal, Que.

Mr. E. C. Hawkins has resigned as general manager of the White Pass & Yukon Railway.

Mr. Philip Argall, recently returned to Denver, Colo., from a professional trip to British Columbia.

Mr. Anthony Madden has returned to Nelson, B. C., after an absence of several years in northern gold camps.

Mr. Henry Bratnover, of San Francisco, Cal., who represents a number of Le Roi stockholders, is looking over matters at Rossland, B. C.

Mr. F. H. Clergue, with a party of guests, including Mr. J. I. Tarte, visited the Helen iron mine near Michipicoten, Ont., on September 4th.

Mr. A. J. McMillan, managing director of the Snowshoe gold and copper mine at Phoenix, B. C., has returned after a visit of several months to London, Eng.

Mr. J. D. Kendall, of Vancouver, B. C., will, it is stated, soon start on a 2 months' trip into the Soudan country, Africa, to examine some lately discovered gold deposits.

Mr. Maxwell Stevenson, of Philadelphia, and his brother, Mr. John Stevenson, have returned to their home at Radnor, Pa. Both were employed in the mines at Kootenai, B. C.

Mr. Henry Roy, of the London Consolidated Company, which is operating the Silver Hill and Hichelieu properties at Crawford Bay, has been in Nelson, B. C., on business connected with his company.

Mr. J. C. O'Neill, of Chicago, Ill., who some time ago organized a company to acquire the North Star Mine, Silverton, Colo., has returned from the Boundary District of British Columbia, in which he owns several mineral claims.

Mr. R. W. Brock, of the Dominion Geological Survey, has a staff at work on a geological and topographical survey of the Boundary District of British Columbia. Operations have started near Greenwood, where the winter will be spent.

Mr. Rufus H. Pope, of Cookshire, Que., lately visited the Buckhorn Mine, near Greenwood, B. C. It is proposed to resume work in this mine, which last year suspended operations, following incompetent management. Mr. Pope is a director of the Buckhorn Gold and Copper Company, Limited.

Messrs. J. F. Tichenor, C. E. Laidlaw, Irving Schmelzer, J. R. Alexander and W. H. Thomas, all of New York; Dr. Jno. B. Laidley, of Conway, Mass., and Mr. Jno. Coughlin, of San Francisco, all stockholders in the British Columbia Copper Company, Limited, of New York, recently spent a week at Greenwood, in the Boundary District of British Columbia, during which time they closely examined the company's Mother Lode mine and smelter. Several of them are also interested in the No. 7 Mine, which they visited.

Mr. Oliver Wethered, chairman of the London & British Columbia Gold Fields, Limited, of London, Eng., has been visiting mining properties in British Columbia, in which the company is interested, including the Ymir and Alma in Nelson District; the Whitewater, Enterprise and Ruth in the Slocan, and the Kettle River Power Company's works at Cascade, Boundary District. They were accompanied by Mr. J. Roderick Robertson, managing director, and Mr. S. S. Fowler, consulting engineer of the company, both of Nelson, B. C.

INDUSTRIAL NOTES.

The Smart-Eby Company, of Hamilton, Ont., is to furnish the corporation of Pictou, N. S., a pair of cross compound duplex pumping engines and a duplex air pump. The company has furnished the Rock Lake Mining Company a duplex power pump, 12 by 14 in., and 1,000 ft. of piping.

The Dominion Rock Drill and Foundry Company, Limited, of Napanee, Ont., is a new company that is to manufacture miners' and contractors' hoists, drills, etc. The company will make the "Empire" rock drill. The officers are J. M. Wallace, president; E. J. Roy, manager, and J. P. Vrooman, secretary-treasurer.

At Sault Ste. Marie work on the steel plant of the Lake Superior Power Company, located a mile higher up the river than the pulp mills, is progressing rapidly. The plant is expected to be in operation this year. Midland pig iron and nickel from the company's mines will be used in making nickel-steel rails. The sulphurous acid

by-product from refining the nickel is to be utilized for bleach in the pulp mill. Next spring it is hoped to have the blast furnaces running on ore from the Helen Mine.

Work on the Canadian Niagara Power Company's plant at Niagara Falls is progressing. The shaft to reach the tunnel is about completed and tunneling is to begin. In preparation for the canal work a cofferdam is being thrown out in the river opposite the works. It will probably take a year to finish the tunnel, while the canal and power house will not be finished in 2 years. The turbines will be made in Philadelphia, Pa., from designs of Escher Wyss & Company, of Zurich, Switzerland, who designed the turbines for the Cataract Company on the American side. The wheel pit is to provide for 11 wheels of 5,000 H. P. each, but at first only 6 will be put in. The following officers were recently elected: W. A. Beatty, president; W. B. Rankine, vice-president and treasurer; A. Munro Grier, secretary; W. Paxton Grier, assistant secretary and treasurer; W. B. Rankine, W. H. Beatty and Wallace Nesbitt, executive committee.

TRADE CATALOGUES.

The "Canadian Engineer," of Toronto, Ont., is sending out copies of its new chart of the metric system of weights and measures. The "Engineering and Mining Journal" has long been an advocate of the adoption of this system by the United States, which, except for Great Britain and Russia (soon to adopt it), is the only great nation not using it. It is a pleasure therefore to see attention in Canada called to the merits of the system.

GENERAL MINING NEWS.

BRITISH COLUMBIA.

Boundary District.

(From Our Special Correspondent.)

B. C. Chartered Company.—The B. C. Mine has reduced its tonnage by sorting more closely to raise the grade, but 2,180 tons were shipped during August. More development is now in progress than at any previous time, most of it on $\frac{1}{4}$ level, at 325 ft. depth. Prospecting with the diamond drill from the underground workings continues.

Boundary Ore Shipments.—The ore shipped during August was: Old Ironsides and Knob Hill Group, 20,218 tons; Mother Lode, 7,245 tons; B. C., 2,180 tons; Sunset, 300 tons; R. Bell, 240 tons; Winnipeg, 200 tons; No. 7, 120 tons; and Snowshoe, 60 tons; total, 30,563 tons. The shipments for 8 months this year to September 1st aggregated 240,333 tons. Ore shipments for the week ending September 7th and the year to that date are given as follows:

	Week.	1901.
Old Ironsides, Knob Hill and Victoria	4,167	151,054
B. C. Mine	270	32,446
Winnipeg	120	235
Athelstan	.....	550
Snowshoe	70	515
R. Bell	.....	560
Mother Lode, Deadwood	736	55,947
Sunset, Deadwood	.....	250
No. 7, Central	70	630
Other Boundary mines	.....	500
Grand total, tons	5,433	242,653

Boundary Smelters.—The tonnage of both the Granby and B. C. Copper Company's smelters was somewhat reduced during August from necessary repairs. Both are now running full blast. The Standard Company's pyritic smelter has not started, but is under option to Chicago men.

British Columbia Copper Company.—This company's Mother Lode Mine shipped during August to its smelter at Greenwood 7,245 tons of ore. The blast furnace needed repairs after a continuous run of 6 months, necessitating a shut-down of 8 days, and no ore was shipped from the mine for 10 or 12 days. The mine is now worked on the pillar and stope system. Much deadwork is completed and stopes are open at both the 200 and 300 levels—in all, a dozen. The output will increase as soon as the second furnace, already ordered from the Allis-Chalmers Company, is ready. The big quarry is producing from 150 to 200 tons of ore daily.

Chicago-British Columbia Mining Company.—This company is developing the Lake Mine.

Dominion Copper Company.—After doing a lot of development work on its Brooklyn, Idaho and Rawhide Claims, the company has reduced its working force and operations were suspended on the Idaho and Rawhide. More machinery is being installed on the Brooklyn, where more men have been put on.

Granby Consolidated Mining, Smelting and Power Company.—The Old Ironsides, Knob Hill and Victoria, during August sent to the Granby Smelter 20,218 tons of ore. The output will be larger from now on. Work on the foundations, buildings and other preliminary work preparatory to putting in 2 more furnaces, 2 copper converters and other additional plant is well advanced. The quantity of ore hitherto sent down from the mines will be required to keep the smelter going.

Hartford Mining Company.—This company, with a capital of \$200,000, has just been incorporated to operate the Hartford Fraction, Ranger, Nabob Fraction, Golden Eagle Fraction and Golden Crown Fraction, situated in Wellington Camp. The provisional directors are S. H. C. Minei, J. H. McKeen, Granby, Que.; A. C. Flumerfelt, H. N. Gaier, Grand Forks; A. L. White, D. Louson and W. A. Matley, Montreal. Thus far about \$12,000 have been expended in development work. A shaft 100 ft. deep and a drift therefrom 125 ft. long are reported all in ore on the Hartford Claim.

Jewel.—This mine is continuing to cross-cut for the northeast ledge at 230-ft. level of the old workings and is following the vein down in an incline prospect shaft which on September 1st was down 120 ft.

King Solomon.—This mine has begun to ship carbonate copper ore to the Greenwood Smelter. About 200 tons are on the dump and it is estimated that 1,000 tons are in sight. This ore runs high in copper.

Montreal & Boston Copper Company.—This company during August shipped about 300 tons of ore to the Hall Mines Smelter at Nelson. A 14 by 20 double-cylinder double-drum hoist has been ordered from the Jenckes Machine Company, of Sherwood, Que., for delivery in November. An electric light plant has also been ordered. Besides extending development underground in the Sunset Mine, the company is opening a quarry in ore on its adjoining Crown Silver claim. The managing director has announced the company's intention to build its own smelter. A short spur now connects the Sunset with the railway, and ore bins are to be erected shortly.

Morrison.—This mine has put in another boiler. Development has lately been at the 300 level. A diamond drill will shortly be prospecting from the lower levels.

No. 7 Mining Company.—This company is sending 3 cars of ore a week to the Greenwood Smelter from the No. 7 Mine.

Rambler Cariboo.—A rich ore shoot is being opened up on the 700-ft. level. It has been exposed for nearly 200 ft. and average assays are said to show 600 oz. silver to the ton. The pay streak is from 1 to 2 ft. wide and occurs in granite.

R. Bell.—This mine closed down in August after running for more than a year.

Ruby.—This mine has been bonded to Detroit people for \$40,000 and work has started on this claim.

Snowshoe Gold and Copper Mines, Limited.—Anthony J. McMillan, managing director, has returned from London, and is arranging to increase work at the Snowshoe Mine. Bunk and boarding houses, offices, cottages, etc., and ore bins are to be built this fall. A big open cut has been started in ore whence ore may be shot down to cars on a railway spur below. The Snowshoe has arranged to ship one car of ore daily to the Greenwood Smelter.

Winnipeg Mines, Limited.—Two important strikes of ore have been made lately at the 300-ft. level of the Winnipeg Mine. One is an 8-ft. vein in a cross-cut from the main tunnel, and the other a 25-ft. vein close to the shaft. Ten cars of ore from these finds have been shipped to the smelter at Grand Forks, from which 17 assays averaged \$12.12. Smelter returns have not been received.

Cariboo District.

Cariboo Gold Fields, Limited.—Melbourne Bailey is manager. The elevator is raising 1,500 yd. of gravel per day, which will be increased to 3,000 yd. in 24 hours with a full head of water. Owing to the lateness of the season, it will not be possible to make a long run. If the output of the present short run is satisfactory the company will put on one or two more elevators. The total height the gravel is raised from the bottom of the pit is 110 ft. The foundations are excavated 10 ft. into solid bedrock, and the frame is built in a series of eight stories. The capacity of the buckets is $2\frac{1}{2}$ cu. ft., which a space of 18 in. between each bucket, of which there are 93, calculated to run at a speed of 60 ft. per minute. Power is obtained from the old pipe line which formerly worked the hydraulic elevators. It will operate a 24-in. Pelton wheel, under a head of 400 ft. This pipe line will also furnish water for the giant to pipe the bank. Another giant will use water from the old Williams Creek ditch, which has been enlarged to 5 ft. The gravel in the bank will be piped into the sluice flumes, which empty on a grizzly. The material, after passing through the screen, drops into a hopper and is carried to the top of the building and emptied on another grizzly, which separates all stuff over 2 in. The fine dirt is passed over a revolving screen, 15 ft. long by 30 in. diameter, constructed of double crimped cloth with $\frac{1}{8}$ -in. meshes. A 4-in. jet pipe washes the dirt while in the screen. From the screen it will fall on tables made of expanded metal laid on coconut matting. The dirt running to the dump will pass through a compartment flume, the coarse on one side, and the finer stuff

from the screen and the tables on the other. Water for this purpose is brought from the Williams Creek ditch through a 19-in. pipe. The water that is used in piping in the pit will, after running through the hopper, pass through a series of settling tanks, and then to the drain tunnel.

Oidium Shepherd.—W. W. Anderson, manager of these properties at Barkersville, has had a satisfactory clean-up.

Thistle Gold Mining Company.—This company at Barkersville has, it is said, cleared \$6,000 above all expenses this season, the first of operation. The company has acquired a number of claims adjoining its first purchase. B. A. Lassel is manager.

Ward Horsefly Gold Mining Company.—This company is working a hydraulic mine at Horsefly. In August between \$8,000 and \$10,000 of gold bullion were shipped. The company's headquarters are in San Francisco, Cal. R. T. Ward is superintendent.

Cassiar District.

Atlin Lake Mining Company.—This Atlin company is down to bedrock on Birch Creek.

Columbia Hydraulic Company.—This company, at Atlin, is installing a hydraulic plant on Spruce Creek. The plant was purchased of Joshua Hendy & Company, of San Francisco, Cal. Fred Cook is superintendent.

Consolidated Spruce Creek Placers Company.—This Atlin company has been incorporated under the laws of the State of Washington with a capitalization of \$2,500,000. Chas. L. Denny is president and W. W. Brook vice-president and general manager. The company proposes to work a number of placer claims on Spruce Creek, from about 80 below to 160.

De Lamare Syndicate.—The property on Boulder Creek, near Atlin, is under the direct management of the Societe Miniere de la Colombie Britannique. The pit is down to pay gravel, reported to yield \$5 per cu. yd. The ditch is about 3,000 ft. long and gives a pressure of 208 ft. for the 2 6-in. giants. The sluice box is 1,500 ft. long. About 30 men are employed, working on 3 shifts. Mr. De Lamare is manager.

Pendugwig Syndicate.—Piping is under way on this company's ground near Atlin.

Thibet Creek Mining Company.—This company at the head of Dease Lake, a hydraulic proposition, is in its first working season and no clean-ups have been made so far. It is running 2 nozzles, having splendid power and dumping facilities.

Lillooet District.

New Dredge.—A company, with an authorized capital of \$250,000, has been organized to put in a new dredge at Lillooet. The dredge, which has been ordered, is guaranteed to handle 4,000 cu. yd. of gravel daily at a cost of 1 1/2 c. per yd. The old Horse Beef Bar Dredger Company's dredge is to be refitted and put to work in the spring. W. J. Amess is superintendent.

Nanaimo District.

Vancouver Island Coal Shipments.—The coal exports from collieries on this island in August amounted to 58,130 tons.

Nelson District.

Avon.—A considerable body of ore has been encountered on this group in Burnt Basin. A body of mineral 15 ft. wide has been discovered, carrying 3 ft. of clean ore in the paystreak. The ore carries lead and zinc with low silver values.

Granite Gold Mines, Limited.—This company's properties were sold under an order of the Court recently, and were bought in by the liquidator of the Duncan Mines for about \$134,000—the amount of the indebtedness of the Granite company to the Duncan Mines. It is stated that the reconstruction of the Duncan Mines has been arranged in London, the new company to be known as the Duncan United Mines, Limited, with a capital of £300,000 in £1 shares. The new company it is said will first develop the Poorman Mine, sinking 300 ft. below the present workings and doubling the output. E. R. Woakes is engineer in charge.

Molly Gibson.—Men are at work on this claim near Nelson, at the head of Kookanee Creek, driving a cross-cut tunnel from the end of the tramway to tap the main lead below the present workings. The total distance will be 250 ft. The ore is galena carrying silver.

North East Kootenay District.

Mica Discovery.—C. P. Price and Chas. Hatch have, it is reported, found a ledge from which sheets of mica 23 by 15 in. can be taken. The location of the claims is in the Big Bend, 2 miles from the river, almost directly opposite the mouth of Wood River.

North West Kootenay District.

Fifty men are now employed in the development of the big iron properties recently purchased by the Montreal Syndicate at Kitchener.

American.—This group near Trout Lake has been sold for \$10,000 in monthly installments of \$1,000 and 50,000 non-assessable shares of the Mountain Lion Mining Company. The lower

cross-cut tunnel is in about 80 ft. Ore has been sacked and a car-load is going out. Capt. Davey has charge.

Fisher Maiden.—What is called the most important mineral strike made in Silverton is that lately uncovered on this claim. It consists of 81 ft. of dry ore that is said to give average assay values of 125 oz. silver to the ton. The Fisher Maiden was once one of Silverton's principal shipping mines.

Hewitt.—This mine at Silverton is shipping about 100 tons of ore per week. It is a "dry" proposition, the ore running from 100 to 150 oz. in silver and from 1 to 5% lead. This property is now opened to a depth of 450 ft. and it is estimated that 3,000 tons of ore are blocked out. A long tunnel, now in 350 ft., when completed will tap the ore at a depth of 900 ft. and will be some 1,100 ft. long.

Lardo Valley Mines, Limited.—This is a development syndicate formed to open up a group of 6 or 7 claims on Tenderfoot Creek, about 6 miles from the new townsite of Twinn Falls. So far there has not been much done on the property, which is traversed by a series of quartz ledges carrying galena. The bulk of the work which the Lardo Valley Mines have done is upon the John L. Claim, where there is a strong quartz ledge on which a tunnel has been run of 90 ft. in 3 ft. of ore. This ore carries gold, besides lead and silver. Lower down the creek some surface work has been done on the Maggie Claim, which has a fine surface showing of galena in a 12-ft. ledge. It is the intention of the company to continue work all winter. James Rutherford, of Rossland, is manager.

Nettie L.—This claim in Trout Lake Division is reported sold to an English syndicate. The long tunnel being driven under the showings in the upper workings has encountered the snoot, which shows about 6 in. of fine ore. This proves the ore body for about 450 ft. in length.

Triune Fraction.—At this claim near the head of Brown's Creek, above Trout Lake City, 14 men are now busy. S. Shannon is manager.

Rossland District.

Rossland Output.—The output for the week ending August 31st and for the year to date is as follows:

	Week.	Year.
Le Roi	270	108,468
Le Roi No. 2	20,750	20,750
Centre Star	54,648	54,648
War Eagle	20,100	20,100
Rossland Great Western	3,486	3,486
Iron Mask	180	3,613
Homestake	20	230
I. X. L.	30	190
Spitzee	20	563
Monte Cristo	74	74
Velvet	52	52
Evening Star	24	24
Giant	—	—
Portland	—	—
Totals	480	217,268

During the week closing September 8th 950 tons of ore were shipped from the Josie and 450 tons from the No. 2 dump at the Le Roi. In addition 120 tons were shipped from the Iron Mask, making the aggregate output from the camp for the week 1,520 tons.

E. W. Thomas, of Philadelphia, Pa., has secured a working bond on a group of St. Thomas Mountain claims, including the New Bonanza, Bonanza No. 2, B. C. Star and See-Me-Home claims, adjoining the Cascade Group. The present owners of the group are Steve Brailo, superintendent of the Cascade Mine, and Steve Barboro. The property has several parallel veins, which are expected to show up with development. The consideration named is \$11,000, payable in 12 months. The bond requires work to start soon and to continue until 200 ft. of development is accomplished.

Abe Lincoln.—Work on this claim is getting under way. The repairs to the wagon road are completed, and the timbering of the shaft is progressing. The shaft will be retimbered from the waterline to the surface and the proper headworks put up, when the balance of the shaft will be unwatered. Mr. Krumb is superintendent.

Iron Mask.—D. C. Corbin, of Spokane, Wash., a principal stockholder in the company, states that this Rossland mine is closed down for an indefinite period, pending a satisfactory settlement of labor disputes. When the property is reopened an extensive programme of improvements will be put in effect.

Josie.—At this mine, one of the Le Roi No. 2 properties, there is a full crew of over 60 men, and the regular work will be carried on.

Le Roi.—The mines have begun shipping to Northport. Arrangements have been completed for a steady supply from the ore dumps.

Rossland Great Western.—Work has resumed and is progressing nicely. Stopping and hoisting have started.

Spitzee.—The center of operations has been transferred to the 100-ft. level, where the cross-cut has been started on the west side of the drift. The ore shipped was stoped on the 60-ft.

level and was similar in character to the previous lot sent out.

Slocan District.

Canadian Group.—On this Slocan group the tunnel is now in 900 ft.

Mountain Consolidated.—Some 18 months ago a Mr. Warner leased this claim near Sandon and shipped a few cars of ore. He then bonded the property to an English company for \$20,000. The company spent \$10,000 in such manner that the manager was recalled and was replaced by another, who after driving a 200-ft. drift on the lead, decided on behalf of the company to throw up the bond. All the company had to show for the money expended was 2 or 3 tons of ore. Mr. Warner has now uncovered in the company's drift a shoot of ore 75 ft. long and from 8 in. to 3 ft. carbonates and galena, which he is shipping. The shoot of ore is reported to assay 286 oz. of silver and 54.48% lead.

Payne.—A large number of men are working underground in this Sandon mine. The new compressor plant and other machinery are at the mine, and in a short time carpenters will be putting up the new buildings. An experiment is to be made with electric drills, which will be put to work in the No. 8 tunnel. These drills have been found advantageous at Georgetown, Colo., but they have never been tried in British Columbia. The drills arrived at Kaslo recently and were sent to the mine. They cost upwards of \$1,700 each.

Queen Bess.—Sixteen men are now employed.

Reco-Goodenough.—In one winze, sunk 130 ft. to an intermediate level and along a drift upon this level, the owners are reported to have a showing of about 8 in. of rich silver ore.

Red Fox.—This claim in Slocan District is driving a long tunnel from both sides of the mountain. So far 1,000 ft. have been driven. Considerable ore is being taken down.

Slocan Ore Shipments.—The total amount of ore shipped from the Slocan and Slocan City mining divisions for the year 1900 was, approximately, 35,000 tons, says the New Denver "Ledge." Since January 1st to August 31st, 1901, the shipments have been as follows:

	Week.	Total.
Payne	20	1,686
Last Chance	131	1,058
Slocan Star	20	2,195
Ruth	20	264
Bosun	20	280
Hewett	180	1,090
American Boy	40	1,123
Ivanhoe	40	336
Trade Dollar	20	160
Sunset (Jackson Basin)	20	340
Sovereign	20	117
Spitzee	20	44
Wonderful	110	2,600
Arlington	20	40
Two Friends	20	400
Enterprise	20	140
Hartney	20	125
Black Prince	40	185
Goodenough	20	20
Miller Creek	20	165
Reco	20	53
Sunset (Can. Gold Fields)	14	14
Silver King	59	59
Noble Five	103	16
Red Fox	186	1,154
Antoine	20	345
Queen Bess (for August)	15	81
Monitor	23	23
Corinth (for August)	20	968
Bondholder	20	20
Rambler	10	10
Surprise	15	19
Kaslo Group	10	10
Chapleau	10	10
Speculator	10	39
Ajax	40	40
Soho	23	40
Emily Edith	20	23
Phoenix	40	40
Alpha	20	20
V. & M.	22	22
Marion	1	1
Ruby	2	2
Esmeralda	6	6
Hampton	22	22
Capella	—	—
Total tons	818	16,077

The ore shipments for the week ending September 7th were: Slocan Star, 148 tons; Hewett, 100 tons; American Boy, 40 tons; Sunset, 20 tons; Arlington, 120 tons; Enterprise, 20 tons; Fourth of July, 7 tons; total, 455 tons; total for year, 16,535 tons.

Slocan Star.—The mine is at present working 50 men, but it is expected that this number will shortly be increased to 150. It is not thought that the litigation between the owners and the owners of the Rabbit Paw and other claims will interfere with the working. Professor Parks is now at the Star. It is generally understood that he is preparing to give evidence for the Byron N. White Company in the apex suit. The showing in the property is called the best in its history. From the No. 5 winze has been sunk 120 ft. upon a fine showing of gray copper from 8 in. to 2 ft. wide. The owners are making arrangements with the Trail Smelter for the shipping of its entire output in its crude form for an exceptionally low treatment rate.

Vicking Mining and Development Company.—This company has secured control of the Phoe-

nix Group in Slocan District. Operations will be started on an extensive scale.

Wonderful.—The last shipment of 33 tons of ore from this Slocan mine shipped to the Hall Mines Smelter, averaged, it is said, \$80 per ton. About 10 tons of ore are taken out daily.

South East Kootenay District.

Follow Me.—Hank Eller and Dan Munroe are reported to have made a rich strike of gold quartz on this group, Fort Steele Division. Sinking has started near the center of a big ledge from 40 to 50 ft. wide. The ledge lies between walls of slate and syenite.

J. T. Laidlaw, representing 7 other parties, has bonded to S. A. Gebo, representing a Helena, Mont., syndicate, 21 iron claims on Bull River, 6 miles from Wardner, for, it is said, \$100,000. Development work will start at once. A large body of ore has been discovered, assaying 65% iron, 8% silica, and low in phosphorus and sulphur.

St. Eugene.—This mine at Moyle is working with a reduced force. Shaft sinking at the mouth of the Lake Shore tunnel is under way. This shaft is to tap the large bodies of ore which were shown up by the diamond drill. Between 75 and 100 men are employed, and in a short time more men will be put on.

Society Girl.—The Farrel Brothers, owners of this claim at Moyle, are steadily at work on their property. The tunnel is in 200 ft., but will have to go between 700 and 800 ft. further to strike the ore body.

Sullivan.—Senator George Turner, J. M. Armstrong, Col. W. M. Ridpath and E. D. Saunders, all of Spokane, Wash., and R. W. Layton, of Ohio, recently visited this group. Messrs. Turner, Ridpath, Armstrong and Saunders were formerly among the chief owners in the old Le Roi Mining Company before they sold their interests to the British America Corporation, and are now the principal stockholders in the Sullivan Group Mining Company. Among the improvements to be made, provided everything is satisfactory, is the erection of a smelter.

West Coast of Vancouver Island.

Mt. Sicker Ore Shipments.—The total shipments of Mt. Sicker ore to the Tacoma Smelter in August were 1,565 tons, valued at \$36,158.

Yale District.

Chieftain Copper Mines.—Dwight Porter, of San Francisco, Cal., a large stockholder in this company, having claims on Sugar Loaf Mountain, near Kamloops, recently paid a visit to the property. E. C. Wood, who has charge of the property, states that work on a large scale will begin, says a local paper.

Edward's Creek Dredge.—The dredge just finished on Edward's Creek, 13 or 14 miles north of Kamloops, was built from designs of F. Satchell Clark, of Vancouver and New Zealand, and is of the bucket type. The boiler, engines, winches, buckets were made by the Wm. Hamilton Manufacturing Company, of Peterborough, Ont., and the centrifugal pump by Beattie & Company, of Welland, Ont., according to the specifications of Mr. Clark. The plant is massive. The material is discharged from the screen upon tables arranged in tiers, 3 on the port side and 4 on the starboard. A meshwork of expanded metal serves as riffles, and the gold is caught in cocoanut matting under the metal network. Any very fine gold that may pass through the matting is caught upon cotton stretched beneath it. After passing over the tables the water, sand and gravel go to launders. Should the dredge be working where coarse gold exists, riffles can be put in to save any washed off the tables. As the buckets come up, any big boulders are to be lifted off before they reach the screen. The screen, pump and buckets are operated by a tandem compound engine of 150 H. P. The winches are 4 in number. The pontoons, measuring 102 ft. long with 38-ft. beam, are of heavy timbers, strongly braced. The bucket ladder, weighing 6 tons without buckets and pinions, is raised or lowered at will by a winch and a ¾-in. steel cable. The weight sustained by the cable is 20 tons. There are 35 buckets and 2 grabs in the chain, each bucket with its 4 connecting links weighing 1,000 lbs. The grabs tear up the gravel and lift or push aside boulders too large for the buckets. The buckets are of the best wrought iron, with lips of manganese steel capable of cutting through hard cement and gravel. The contents of the buckets is dumped into a chute which conveys it to a large tubular revolving screen, about 4 ft. in diameter. Through this screen and at the upper part is a stationary water pipe connected with a powerful centrifugal pump worked by twin engines of 50 H. P. One runs the bucket ladder; another the ½-in. steel cable that keeps the dredge to its work and to the others are attached the side and stern lines. One man at these winches can handle the bucket ladder and the position of the dredge while another at the larger engine controls the operating machinery. With all the heavy machinery in place, some 150 tons, the dredge draws only 3½ ft. The capacity of the dredge is 2,000 yds. per day.

NEWFOUNDLAND.

Reid Newfoundland Company.—This limited liability company, which has been the purpose of Mr. Reid to form for the object of taking over such franchises and properties as were not surrendered to the Colonial Government, has been organized in St. John's. Mr. Shaughnessy, of the Canadian Pacific Railway, was appointed a member of the board of directors, the other members being Mr. Reid and his 3 sons. Mr. Reid is president of the company. The formal transfer of the Reid franchise and properties to the new organization has been made.

NORTHWEST TERRITORY.

Yukon District.

Klondike Gold Production.—It is stated that in spite of a dry season the yield may be larger than last year. More than \$15,000,000 is shown by export records in the Dawson gold commissioner's office to have been sent out of the camp during June and July. It is regarded almost a certainty that the rush at the last of the season will bring the total to \$20,000,000. Some dust belonging to this season's output was sent out over the ice in the first 3 months of the year. July has been the banner month, with a total of \$9,725,000 to its credit. An order went into effect on May 1st requiring all who take gold from the territory to present a certificate at the boundary, and the authorities have since afforded a check on shipments. The gold is weighed by the police before crossing the boundary, and unless the certificate is forthcoming, accounting for all in each shipment, the dust is seized.

Yukon Gold-fields.—The July output of the Adams Hill United Mine was \$9,000.

NOVA SCOTIA.

Cape Breton.

Petroleum Developments.—Prospecting still continues in Cape Breton, province of Nova Scotia. A well begun in 1900 is being put down at North Lake Ainslie, County of Inverness, by the Cape Breton Oil Company, Limited, which was recently organized in Boston on a Nova Scotia charter. It is nearly 800 ft. deep and a good deal of gas and some show of oil have been met. Progress has been slow on account of frequent caves, which have made it necessary to pull the casing a number of times. Another well has just been started in the same county at Skye Glen, near Brook, by Boston parties. No prediction can be safely ventured yet as regards either of these wells, says the Oil City "Derrick," but the former is hopeful and the latter has been located with the idea of getting the strata which crop out at West Lake Ainslie.

Dominion Coal Company.—Shipments of coal from this company's mines in August were 286,000 tons. For the 6 months of the fiscal year from March 1st to August 31st the total shipments were 1,300,329 tons, against 1,403,200 tons for the corresponding period in 1900, and 835,135 tons in 1899.

Dominion Iron and Steel Company.—According to statements made by A. J. Moxham, vice-president and general manager of the company, the main trouble at present is the supply of skilled labor. The 2 blast furnaces are turning out daily 450 to 500 tons of pig, which does not fully meet demands. The company is delivering iron ore within the limits of its estimates. The limestone is being delivered with almost a certainty of coming within estimates and the coke is being brought down to the proper margin. Everything made, with the exception of a low phosphorus iron needed for a special trade, a small percentage of the whole, is entirely of Wabana ore. The English trade is exclusively Wabana ore. Blast furnaces Nos. 3 and 4 are expected to be ready for lighting within 40 days.

(From Our Special Correspondent.)

Dominion Iron and Steel Company.—Since John H. Means, formerly in charge of the North Birmingham furnaces for the Sloss-Sheffield Steel and Iron Company in Alabama, took hold of the furnaces at Sydney the output has much increased. Mr. Means went to the Dominion Company in July. It is reported that for the first 24 days of June the output of 2 of the Sydney furnaces amounted to 5,206 tons, and for the first 24 days of August, 10,472.

Intercolonial Graphite Company.—This company has been organized under the Maine laws to work a deposit of graphite in Cape Breton. The capital stock is \$125,000 and the headquarters of the company are in Boston. The president is John S. Honeycombe, the secretary-treasurer is W. Ramsay Dodge.

Cumberland County.

Minaudie Coal Company, Limited.—The River Hebet coal mine, which has been operated for 2 years by Max M. Sterne, of Amherst, is to be worked by this new company. The capital will be \$150,000, the headquarters Amherst. The following directors were appointed: Mayor J. A. Dickey, Amherst, president; J. D. McGregor and J. H. Sinclair, New Glasgow; M. D. Pride, Amherst; Job H. Seaman, Barronsfield; John Harrison, Maccan, and Max M. Sterne, Amherst. The new company intends putting in a 200-ton

per day plant which it expects to have in operation within 2 months. The present capacity of the one slope worked is about 40 tons per day.

At Fenwick, about 5 miles from Amherst, a 50-ft. slope has been sunk and a 5-ft. seam of coal struck. The owners are E. B. Betts, Wentworth; A. D. McFarlane, Wallace, and W. A. McKeen, Amherst.

ONTARIO.

Algoma District.

Bucce.—The mine has not been abandoned, for pumps are still all working, as well as the electric light plant. Manager William Braden is now in London and mining work has stopped. Five car-loads of new machinery arrived at the mine recently.

Lake of the Woods District.

Michigan-Ohio Mining Company.—This is a new enterprise in which Toledo, O., and Detroit, Mich., are interested. At a meeting in Detroit recently, A. B. Tillinghast was elected president of the company and Rudolph Brand vice-president. The capital is \$1,000,000. The property to be worked by the company is situated on the bank of the Lake of the Woods and 30 miles from Rat Portage, Ont. During the fall and winter a deep shaft will be sunk and in the spring milling machinery will be installed.

Rainy River District.

(From Our Special Correspondent.)

A. McClure, of Ignace, has been developing a copper proposition on St. Ignace Island, north shore of Lake Superior. The shaft, which is now down 25 ft., shows native copper. Some tests made show from 1¼% to 3% of the metal. The lode is an amygdaloid similar to some on the south shore.

Boulder.—Work is temporarily stopped, the men having quit on account of some delay in paying wages.

Sakoose.—This mine after a few days cessation of work started up again. The new manager is not yet appointed. Mr. Guess, the late manager, has accepted a similar position with a mining company in Colorado.

Sultana.—A number of men were laid off recently, and the force is now comparatively small. The management is considering sinking a shaft to the ore body lately located by the diamond drill.

Wendigo.—This property was bought at sheriff's sale recently for \$1,400 by Cameron & Heap, provision dealers of Rat Portage, who had an account against the Wendigo Company for goods supplied while the property was working last fall.

Renfrew County.

Ontario Graphite Company.—This Ottawa company is installing a 500-H. P. generator on the Madawaska to operate a mining plant at Black Donald, 2 miles distant. The plant at the mine consists of a 6-drill air compressor and a refinery for the ore. When completed it will turn out 20 tons per day.

Since the completion of the timbering in the main shaft the cage has been installed and rails laid in the cross-cut. Arrangements are being made with the Allis-Chalmers Company to install an aerial tramway from the mouth of the mine to the mill site, on Manitou Lake, about ½ mile away.

Thunder Bay District.

The Government's large diamond drill has been loaned to McKenzie & Mann, who will use it for some time developing properties in the Atigokan iron range. It has been operating recently on the Mattawin range.

MINING STOCKS.

(Full quotations of the Toronto and Montreal Exchanges will be found on pages 376, 377.)

Montreal.

Sept. 16.

(From Our Special Correspondent.)

A month has shown little improvement in the mining stock market, and from present indications business will continue quiet for some time yet.

The cheaper priced stocks receive most attention by room traders, and only occasionally are there purchases of the higher grade securities for investment.

Some stocks show wide fluctuations, the holder usually asking considerably more than the buyer wants to pay. Thus North Star, of British Columbia, a good dividend payer, is held at 55c., against bids of 20c. or thereabouts. Sales, however, have been made between these prices. This silver-lead mine has distributed among its stockholders \$237,000 in dividends, which is equal to over 18% on the outstanding capital of \$1,300,000. Rambler-Cariboo, another dividend payer, is quoted at 50@45c., but there are no sales to report. The company will pay a dividend of 1c. per share (\$12,500) in October, making its total disbursements to stockholders \$130,000, which is equivalent to 10.4% on the \$1,250,000 capital. Center Star was sold at 37@30c., War Eagle Consolidated at 10@15c., Payne at 20@14½c., and Noble Five at 11@8c.