

THE ENGINEERING AND MINING JOURNAL

AND



CANADIAN SUPPLEMENT.

JANUARY 19, 1901.

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The supplement which we now present is intended to be the first of a series to be issued monthly, and to be devoted especially to the mining and metallurgical interests of Canada. The "Engineering and Mining Journal" has always, as its readers know, given much attention to mining developments in the Dominion; but it seems fitting at the present time that its Canadian notes and news should be brought together and issued in a form which will, perhaps, draw more special attention.

The progress of Canada in this respect has been marked during recent years. The value and variety of its mineral production has gained rapidly and steadily. In the far West and North the mines of British Columbia and of the Yukon have made Canada a gold producer of great importance, its total output of \$26,000,000 in 1900 exceeding that of Russia and falling below those of the United States and Australasia only. British Columbia also contributes its production of silver, copper and lead, that of copper especially growing in importance. Western Ontario in the center and Nova Scotia on the east add to the gold output.

In coal and mineral fuel Canada has extensive resources on both the Atlantic and Pacific coasts, while both have valuable deposits of iron ore, to which must be added the great deposits of the Michipicoten and Atikokan ranges in Ontario, the development of which has only just been begun. Nor must we forget the nickel ores of the Sudbury District, the most valuable of the kind in the world.

Canadians in the past have not fully realized the value of their minerals, but they are now doing more to develop and utilize them than ever before. This is especially the case with the iron ores. The great works of the Dominion Steel Company in Cape Breton; the Hamilton and Midland furnaces in Ontario; and other works projected and in progress will help to give Canada the important place as an iron and steel making country to which her resources in fuel and ores entitle her.

In the future issues of our "Canadian Supplement," we hope to record continued progress in all directions. We believe that the mineral industry of the Dominion has a great future before it—greater perhaps than many of us yet realize. Its advance, once begun, will not be interrupted.

We hope to make this "Supplement" a chronicle of interest to all sections of the Dominion. We shall be pleased to receive correspondence from all quarters, hoping to interest our readers and at the same time to receive their aid in improving its pages and collecting news from all quarters. They can—and we believe they will—render us material aid.

THE ONTARIO BUREAU OF MINES REPORT.

The yearly report of the Ontario Bureau of Mines, which has just been published, gives the total value of the mineral products of the Province in 1899 at \$8,789,901. The details of this production are given herewith, the tons used being short tons of 2,000 lbs. The increase in total values, as compared with 1898, was \$1,554,024, or 21.5 per cent.

ONTARIO MINERAL PRODUCTION IN 1899.

Product.	Quantity.	Value.	Employees.	Wages.
Building stone, rubble, etc.....		\$1,041,350	1,824	\$535,000
Cement, natural rock, barrels.....	139,487	117,039		
Cement, Portland, barrels.....	222,550	444,227	510	163,288
Lime, bushels	4,342,500	535,000	990	200,400
Drain tile, number	21,027,400	240,246	3,416	630,490
Common brick, number	233,398,000	1,313,750		
Pressed brick and terra cotta, number.....	10,808,000	105,000	186	59,068
Paving brick, number	5,300,000	42,550		
Sewer pipe		138,356	85	30,351
Pottery		101,000	123	39,250
Petroleum, Imperial gal.	23,615,967			
Illuminating oil, Imperial gal.	11,697,910	1,069,485		
Lubricating oil, Imperial gal.	2,087,475	189,294		
Benzine and naphtha, Imperial gal. ...	1,394,530	148,963	491	214,171
Gas and fuel oils and tar, Imp. gal. ...	5,410,915	213,544		
Paraffin wax and candles, pounds.....	2,792,766	136,066		
Natural gas		440,904	95	40,149
Carbide of calcium, tons.....	1,064	74,680	48	23,323
Salt, tons	56,375	317,412	261	80,021
Gypsum and products of, tons.....	1,200	16,512	25	9,500
Talc, tons	100	500	3	135
Graphite, tons	1,230	16,179	20	8,000
Mica, tons	266	35,000	81	24,565
Iron ore, tons	16,911	30,951	87	16,463
Pig iron, tons	64,749	808,157	200	79,569
Nickel, tons	2,872	526,104		
Copper, tons	2,834	176,237	839	443,879
Zinc, tons	1,200	24,000	63	13,636
Arsenic, pounds	113,937	4,842	5	2,250
Gold, ounces	37,727	423,978	611	286,797
Silver, ounces	105,467	65,575	40	29,060
Totals		\$8,789,901	10,008	\$2,930,100

Concerning production in 1900, the report says: "Statistics of metal production for the first half of 1900 afford evidence of continuing progress. Several gold mills have been idle, pending development of the mines, enlargement of machinery capacity and other causes. Returns have been received from eight, which show that during the six months 22,177 tons of ore were treated. The yield was 9,983 oz., worth \$156,269 gold and \$142 silver. The silver mines show a product of 12,000 tons ore, with a yield of 85,000 oz. valued at \$51,000. The arsenic product was 208,000 lbs., worth \$8,980. The output of zinc was only 150 tons, estimated at \$900. Seven iron mines in the eastern part of the Province report a yield of 9,608 tons, worth at the selling price at the mines \$19,532. One mine in the Michipicoten Mining Division, which began to produce in July, will probably show a larger output than this total for each fortnight until navigation closes. At two blast furnaces there was smelted during the first half of the year 50,538 tons ore and 8,155 tons mill cinder. The proportion of Ontario ore used was a little more than one-fourth of the whole, being 13,252 tons; but the second half of the year will no doubt show better results in this respect. The quantity of pig iron produced was 32,279 tons, the value of which is \$511,209, computed at the selling price at the furnaces. Open-hearth steel begins for the first time to figure in the metallic industries of the Province. The production for the first six months was 945 tons, valued at \$25,515. The quantity of nickel-copper ore raised was 87,808 tons, and the quantity of roasted ore smelted was 100,073 tons, which yielded a matte product of 12,323 tons. The estimated metallic contents of the matte are 1,925 tons nickel valued at \$413,771, and 1,784 tons copper valued at \$16,968. The total value of metal products for the six months was \$1,353,287, or two-thirds as much as for the whole of last year."

During the year there were 74 companies with a total of \$87,382,994 capital, organized to carry on mining and allied business, while 7 companies organized elsewhere, with \$9,551,000 capital, were licensed to do business in Ontario. There were 294 locations sold, covering 35,049 acres, and valued at \$75,367, while mining leases were issued covering 496 tracts, 63,258 acres in all, at a rental of \$75,608. Of these 235 sales (27,472 acres) and 320 leases (29,217 acres) were in the Rainy River District.

With regard to accidents, the report says: "The year 1899 was notable, among other things, for the number of serious accidents which took place, and it is a matter of the deepest regret that the deaths of 14 men and injuries to 11 must be reported. While two of the fatal accidents may more properly be ascribed to the operation of a railroad than to a mine, 10 of the remaining 12 cases are most distinctly due to the dangerous nature of mining when precautions have not been taken and carelessness has not been checked. Five of the deaths and 2 of the injuries were caused by explosives, and this feature has become so serious that a 'Manual of Explosives,' describing their nature, proper use and the precautions which should be employed, has been drawn up under the direction of the Bureau by Inspector DeKalb for the use of those engaged in mining.

"Another prolific source of accident was the misuse or failure of hoisting apparatus; 4 men were killed and 5 injured by mishaps of this nature. This has led to a revision of those sections of the Mines Act which deal with hoisting, and a set of stringent regulations has been drawn up which will certainly reduce the risk very much.

"In one instance a man was killed by the rolling of a large piece of ore which had been pointed out to him several times as dangerous, and in this case the blame must be laid entirely on the victim himself. Such an accident might readily occur in almost any excavation above ground, and it can hardly be said that a working of a mine is responsible for such mishaps as this. In another instance a man was so severely injured by the collapse of a derrick that he afterward died; and this again can hardly be laid to the account of mining operations."

An interesting part of the report is Dr. A. P. Coleman's paper on the "Copper and Iron Regions of Ontario." With regard to the iron mines he says: "While the Mesabi mines, where millions of tons of

ore are handled with steam shovels, only a very few miners being required, thus far have no parallel in Ontario, it is too soon to say that no parallel will be found in our own Animikie. That impure carbonate ores form considerable beds near Port Arthur, and that immense deposits of hematite occur near the Mattawin River, is certain. The latter ore deposits contain much jasper in some places, and are more deeply tilted than most of the Mesabi rocks, but they seem to correspond better, in some respects, to the conditions of the Mesabi Range, than to those of the Vermilion. As most of the Mesabi deposits are in the ground, covered with drift and difficult to find, it may be that similar beds remain to be discovered in the Mattawin Region. The slaty red hematites of the Mattawin Range occur in hills, evidently being harder than some of the adjoining rocks, unlike the Mesabi ore bodies, and the ore also is considerably lower in iron. If deposits should be found in the valleys, we should expect them to be more highly concentrated, and therefore richer.

"While only one deposit, that of the Helen Mine, has yet been found to be on a scale comparable to the great mines of Minnesota and Michigan, some of which have produced millions of tons of high-grade ore, it must be remembered that the Michipicoten Iron Range has only been prospected for about a year, that it is a region almost inaccessible

linear foot was: Sinking main shaft, 2,285 ft. (\$123.63 per foot); sinking small shafts, 103.5 ft. (\$59.01 per foot); raising, 903.5 ft. (\$56.01 per foot); drifting, 2,421 ft. (\$26.82 per foot). This did not include general work—stations, re-timbering, machinery repairs, etc., for which a charge of \$15,217 was made. There were 4,035 tons ore taken out in development work, and 20,490 tons stoped, making a total of 24,525 tons, the cost of which was: Development, \$165,124, or \$6.73 per ton; mining ore, \$73,591, or \$3 per ton; total, \$238,715, or \$9.73 per ton. The ore was sold to the smelters, the result being shown in the report as below:

	Total.	Per ton.
Tons ore sold.....	24,525
Assay value at New York prices of metals.....	\$493,894	\$20.14
Indirect charge, difference between N. Y. and smelters' prices	87,656	3.57
Smelters' gross assay value.....	\$406,238	\$16.57
Smelting charge, including freight from mine.....	147,130	6.00
Smelters' net value	\$259,108	\$10.57

The manager's report shows a large increase in the ore in sight. The main features of the mine equipment are now completed. They include a 200 H.-P. steam-gear hoist, large headworks nearly completed; a large compound-condensing steam compressor of the latest design, and



MAMMOTH OUTCROP, JANE CLAIM, BRITANNIA GROUP, BRITISH COLUMBIA.

except by canoe, and that up to the present practically no work in the way of diamond drilling or test pits in the low ground has been carried out, except at that mine.

"It is doubtful if the well-known Atikokan Range, still further to the west, is to be looked on as belonging to the same series of rocks, though it, too, is mapped as Keewatin or Huronian by the Geological Survey. Its ore is wholly magnetic, accompanied by green chloritic and hornblende schist and apparently without bands of jasper or sandstone. In fact, it never shows the banded character of the typical iron range rocks, but occurs as large lenses, 50 or more feet wide, more or less blending into the schistose country rocks. Here also there are ore bodies of very great magnitude, soon to be opened up by the Rainy River Railway, and it is probable that these hard magnetites will require some of the softer hematites or limonites of the Michipicoten Range to make a favorable mixture."

ABSTRACTS OF OFFICIAL REPORTS.

Center Star Mining Company, British Columbia.

This company's report covers the year ending September 30th, 1900. The report shows net proceeds from ore sales, \$259,108, less Provincial ore tax, \$3,152, leaving \$255,956; interest and transfer fees, \$3,649; total, \$259,605. Cost of mining and development was \$293,179; dividend No. 1, \$35,000; total \$328,179, or \$68,574 more than the receipts. The balance brought forward from previous year was \$182,122, which was reduced to \$113,548 at the close of the year.

The total development work done during the year and the cost per

with a capacity of 3,960 cu. ft. of free air per minute; a plant of several small compressors; and a boiler plant of 700 H.-P.; a timber framing plant and also a repair and machine shop now under construction. A large amount of work has been done in the way of accessory appliances, water supply, plant for fire protection, ore bins, grading, construction of timber yard, etc.

The directors' report says: "On February 5th last for reasons, some of which were then disclosed and others of which have since become sufficiently clear, the mine was closed down. Two months later your directors were enabled to introduce the contract system of mining, under which payment is made for the work done instead of for the time employed. Under this system the development of the mine is now progressing at about twice its former rate, while the miners are able to earn higher wages and the cost to the company is at least 30 per cent. less. Further benefits, too, have accrued from the fact that the larger wages earned under this system are attracting a superior class of miners to the camp. During the time shipments were suspended the new hoist and compressor, which had been previously ordered, were installed and are now working satisfactorily.

"It has been the custom in British Columbia mines to work on Sundays as on week days. As this seemed objectionable on many grounds your directors determined last summer to test the practicability of closing down on Sundays. The experiment has been in operation since September 1st, and so far has proved satisfactory.

"Next in importance to the question of mining costs and our relations with labor, is the question of smelting rates. Under the existing contract this mine and the War Eagle are bound to deliver nearly 200,000 tons at a charge for freight and treatment of \$6 per ton. The Canadian

Pacific Railway has offered to cancel this contract and substitute therefor another providing for the delivery of 600,000 tons at a rate averaging \$1.25 per ton less than the one now in force. Your directors, while not recognizing the fair spirit in which the Canadian Pacific Railway has approached the discussion of this matter, have not been able to see their way to tie up the mine for so long a time at that rate, and preferred to fulfill the present contract. Shipments were accordingly recommenced on September 4th, and since then have been continued at the rate of about 2,000 tons per week. Negotiations, however, are still afoot looking to the smelting of the company's ores at cost. About this it would be premature to say anything further at present."

THE NEW IRON FURNACE AT MIDLAND, ONTARIO.

The new furnaces at Midland, Ontario, built by the Canada Iron Furnace Company, Limited, which were formally started up on December 18th, will make an important addition to the iron-producing capacity of Canada. The blast furnaces can produce 150 tons daily. The choice of Midland, which is on Georgian Bay, as a location was determined by the excellence of the harbor and the convenience with which supplies of ore and coke can be received by lake, while shipments of iron can be made in the same way, as well as by rail.

The ore supplies for the furnace will be drawn for the present from the Helen Mine on the newly opened Michipicoten Iron Range. The coal and coke will come from the Pittsburg District in Pennsylvania, where the control of a valuable property has been secured by the company. It is believed by the company that it will be in a favorable position to furnish iron for export, as well as for the Canadian trade.

The company's property is located on the northwest side of Midland Harbor, and covers about 50 acres of land. It extends 3,000 ft. along the shore line, where the water will accommodate vessels of 20 ft. draft. The buildings consist of a cast house 42 by 165 ft., an engine house 40 by 63 ft., a boiler house 58 by 76 ft., and a machine shop 30 by 65 ft. The foundations are of Portland cement and the superstructures of granite and brick. The chimney is a steel stack 8½ ft. diameter and 170 ft. above the yard level. It rests on a base of concrete and granite 24½ ft. square, built to a height of 26 ft. The furnace stack rests on concrete faced with granite 32 ft. square at the base and 24 ft. square at the top. The outside measurement of the stack is 19 ft. diameter, and it is supported by eight columns of cast iron. Power is supplied by eight boilers of 70 H. P. each, driving two engines, and there are three ovens of 16 by 60 ft. to heat air for the blast.

The diameter of the furnace stack at the hearth is 8 ft., at the bosh 13 ft., and at the throat 10 ft. The capacity of the crucible is 352 cu. ft. and of the bosh 912 ft. The blast is fed through 8 tuyeres. The steam cylinders of the blowing engines are 34 in. and the air cylinders 72 in., with a stroke of 48 in. At 35 revolutions the two engines will supply 15,000 cu. ft. per minute, and at 40 revolutions they will supply 17,000 cu. ft. This is with allowance for loss, the nominal horse-powers being respectively 616 and 704.

The directors of the Canada Iron Furnace Company are: Messrs. P. H. Griffin and the Hon. T. Guilford Smith, of Buffalo, N. Y., connected with the largest car wheel manufacturing concerns in the United States, with branch works in Canada and at several points in Europe and Great Britain; Messrs. George E. Drummond, James T. McCall and Thomas J. Drummond, of the well-known firm of Drummond, McCall & Company, whose direct connection with the iron trade of Canada, both as merchants and manufacturers, extends over a period of 20 years; Messrs. A. F. Gault, of Montreal; George Gudewill, of New York; F. H. Clergue, of Sault Ste. Marie, and E. V. Douglas, of Philadelphia, the two last-mentioned gentlemen being late additions to the board, forming a link between the new industry at Midland and the iron interests of the Michipicoten mines, as well as the iron and steel works to be erected at Sault Ste. Marie. Mr. John J. Drummond is the general superintendent of the company's works and the new furnace has been designed and built entirely under his supervision. Messrs. Drummond, McCall & Company, of Montreal, will be selling agents for the iron produced.

In this connection it is interesting to note that the Canada Iron Furnace Company, which has built the latest iron producer in the Dominion, is also lineal successor to the oldest. Its older property is that known as the Radnor Forges, in Champlain County, Province of Quebec. The history of the iron industry in the St. Maurice and Three Rivers district dates away back to the earliest days of New France. The St. Maurice Forges were established fully 225 years ago to smelt the bog and lake iron ores which abound in that district. The fine quality of the product of these ores was long ago recognized, and even in the early days some of this metal was exported to France, not only in the shape of pig iron, but also in the form of wrought iron. The Radnor Forges are but a successor of the St. Maurice, and with very little intermission the fires in the St. Maurice and its successor, the Radnor Forges, have been kept alight during all these years. The iron interests of the district have passed successively through the hands of the imperial governments of France and Great Britain, and finally to private individuals, the Radnor property being purchased in 1889 by the gentlemen at present connected with the Canada Iron Furnace Company, who have developed it and put it on a modern basis, because they found that the bog and lake iron ores of the district were of such quality that they gave a product equal to the best iron made in Sweden. The Radnor Forges property embraces the iron works at Radnor Forges, together with all accessories, including a village of 60 workmen's cottages, limestone quarry, water power, clay pits, railway lines, bridges, sidings, ore and wood lands, and other valuable assets, also property at Three Rivers, providing a shipping dock for the use of the company. The company's batteries of charcoal kilns are situated at Radnor Forges, Grandes Piles, Lac des Sables, St. Thecle and St. Pierre-Paul. The company is also the owner of the Grandes Piles waterfall, alongside of which one of its batteries of charcoal kilns is situated. Its property at Grandes Piles is a most

important one, and the waterfall at that point is capable of great development. The special quality of the Radnor charcoal iron gives it a ready market abroad, as well as in Canada.

MINERAL INDUSTRY OF BRITISH COLUMBIA.

Written for the Engineering and Mining Journal by W. M. Brewer.

In reviewing the present conditions of the mineral industry in this Province, it is necessary to consider briefly several features which have led up to the present degree of prosperity. The immense area contained within the boundaries of the Province, which is nearly 1,500 miles north and south, by about 500 miles east and west; or from the international boundary on the south to and including the Atlin District on the north; or from the eastern flank of the Rocky Mountains on the east to the Pacific Ocean, including Vancouver and other outlying islands, on the west, is one of the most important features to be considered. Another is, that a very large portion of this immense area has never yet been explored, and so far as the knowledge of white men goes there is absolutely nothing known with regard to the mineral resources of this unexplored section.

When it is considered that mining for placer gold has been carried on in the Province since 1858, it may seem strange to outside readers to learn that at the present time extensive areas yet remain to be explored. But a visit to the Province and an attempt to travel out of the regular beaten tracks will soon convince any one that the work of exploration has been in the past, and will be for many years to come, a most difficult undertaking. In fact, had it not been for the inland navigable waterways, such as the Columbia River, the Arrow, Shuswap, Okanagan, Kootenay and Harrison lakes, in the southern part of the Province, as well as the numerous canals and inlets which penetrate for long distances inland from the coast, it is very doubtful if one-hundredth part of the country would have been explored.

This work of exploration is extended slowly but surely year by year by the adventurous prospector. That the results are satisfactory is shown from the fact that in 1858 the total value of placer gold produced was only \$705,000; and of coal from 1836 to 1859, \$141,592, as compared with the total production during 1899 of the metalliferous mines, including placer and lode gold, silver, lead and copper of \$8,096,504, while the value of the production of coal, coke and other materials for the latter year reached the handsome figure of \$4,260,051.

Another comparison shows that the total value of the production from lode mines during 1887, which was confined entirely to lead and silver, was only \$26,547, as compared with \$6,751,604, which was the total value of gold, silver, lead and copper produced in 1899. The exact production for the present year cannot possibly be obtained until some time during the year 1901, but from all the unofficial information which can be gleaned, the total value of the production for 1900 will reach a still higher figure than during 1899.

The Province is divided into eighteen mining districts, which are subdivided into thirty-nine mining divisions, as follows:

- Cassiar District, three divisions, Stikine River, Liard River and Teslin Lake.
- Atlin District, two divisions, Atlin Lake and Bennett Lake.
- Skeena District, two divisions, Skeena River and Bella Coola.
- Omineca District, one division, Omineca.
- Cariboo District, two divisions, Cariboo and Quesnel.
- Lillooet District, two divisions, Clinton and Lillooet.
- Kamloops District, four divisions, Kamloops, Ashcroft, Similkameen and Yale.
- Vernon District, one division, Vernon.
- Boundary District, three divisions, Osoyoos, Kettle River and Grand Forks.
- Golden District, two divisions, Golden and Windermere.
- Fort Steele District, one division, Fort Steele.
- Revelstoke District, four divisions, Revelstoke, Illecillewaet, Lardeau and Trout Lake.
- Slocan District, two divisions, Slocan and Slocan City.
- Nelson District, four divisions, Nelson, Goat River, Ainsworth and Arrow Lake.
- Rosland District, one division, Trail Creek.
- Nanaimo District, one division, Nanaimo.
- Alberni District, two divisions, Alberni and West Coast Vancouver Island.

Victoria District, two divisions, Victoria and New Westminster.

During 1899 a readjustment of the boundaries of the mining divisions was made and the heights of land between the drainage areas were taken as the boundaries. This has simplified the question to be solved by the prospector when making a location and desirous of ascertaining in which division his mineral claim should be located.

In reviewing the conditions of the mineral industry at the present time, probably the least complicated method to adopt will be to review each district separately.

Cassiar District.

This district was first brought into prominence during the early sixties, because of the discovery of placer gold on some of the creeks which empty into Dease Lake, but until a concession was granted by the Provincial Government to the Cassiar Central Railway Company in 1897 there was very little activity shown in the district. In 1898 the railway company sent in a corps of prospectors to determine the possibilities of the district. The information obtained by this party was not made public, but the fact that during 1899 and 1900 the company sent other parties into the field is evidence that some promising mineral resources were discovered. During the present year hydraulic machinery was taken in and a considerable amount of prospecting has been done, principally on Thibert and McDame creeks. The party sent in by the railway company returned to Victoria during the autumn and reported very favorable results from their experimental operations in hydraulic mining. The remoteness of the district and excessive cost of

transportation will necessarily retard its progress unless some exceptionally rich finds should be made.

In order to reach the interior of this district it is necessary to travel up the coast of British Columbia by steamer to the mouth of the Stikine River, thence up that river to Telegraph Creek, on the Hudson Bay Company's river steamer, and from Telegraph Creek into the interior by means of Indian trails and canoes on Dease Lake and other waters where canoeing is possible.

Atlin District.

Although this district was first discovered during 1898, yet the action of the local Legislature in passing a bill known as the "Alien Act" resulted in retarding the growth of the district, as well as in causing a great deal of litigation with regard to titles. Owing to these conditions but little work was performed in this district prior to the present year, and even to-day comparatively little is known with regard to the future possibilities of the district.

According to Mr. R. C. Lowry's report to the Provincial Government, the growth of timber, when compared with that of lower British Columbia, is of small size, few trees being seen of more than 2 ft. in diameter at the base. The principal timber is jack-pine and spruce.

During the summer of 1899 Mr. J. C. Guillam, of the Dominion Geological Survey, made a reconnaissance of the district. From his notes are taken the following:

"The general appearance of the district somewhat resembles Kootenay, by its north and south lake system, but the mountain ranges are less rugged, appearing as low rounded groups with wide valleys or low slopes between them. The greater portion is readily accessible either by boat or pack animal. Bunch grass is abundant along the upper valleys. The geological conditions of the district appear favorable to the production of ore bodies, the chief rocks being sandstones, quartzites and magnesian rocks. Areas of granite occur throughout, and other intrusions of a more basic character are common about the more apparently mineralized localities. Pine Creek, with its tributaries, Spruce, Boulder, Wright, Birch and Otter creeks, together with McKee Creek, are at present the productive gold-bearing creeks. They lie in rocks, which appear to be a distinct series. Rocks of a slaty or scistose character are not common, excepting about Wright, Otter and the upper part of Spruce creeks. The prevailing rocks are of a rather massive, fine-grained appearance, often similar to greenstone."

Although a 5-stamp mill was taken into the district in the spring of 1900, for the purpose of testing a group of quartz claims, by syndicate of which Lord Ernest Hamilton was the principle member, but very meager reports have been received of the results. This is principally owing to the fact that litigation was commenced on a portion of the properties.

Articles describing this district from the pen of Mr. W. M. Brook have been published in the columns of the "Engineering and Mining Journal" during the past summer. In one, which appeared in the issue of November 3d, Mr. Brook estimates the production of gold from the district at \$750,000 for the year 1900. At least another year will be required before any reliable estimates of production other than the placer gold can be formed. And especially will this be the case with regard to the operations of the hydraulic companies which are installing heavy machinery, and have several miles of flumes and ditches to build. With regard to quartz or lode mining in the district few facts can be ascertained until more extensive development work has been performed. A larger number of people winter in Atlin this season than during the winter of 1899 and 1900. In consequence of this fact the probabilities are that prospecting and work of a development nature will be carried on as the weather permits.

Skeena.

Of this mining district comparatively very little is known, and up to the present time there has been but little prospecting and no discoveries of importance reported.

Omineca.

Operations in this district have been confined, up to the present time, to placer and hydraulic mining. During the sixties this district was brought into prominence by the discovery of rich placer ground. This created a stampede, but after the richest ground was worked out, the remoteness of the district and cost of getting in supplies were sufficient reasons to retard its progress. In 1897 some hydraulic leases were applied for by some Victoria syndicates, and a gold commissioner was appointed for the district. During the past three years but little reliable information has been received. Apparently the companies which have obtained hydraulic leases have not yet succeeded in obtaining results sufficiently satisfactory to give to the public.

During 1899 some auriferous conglomerate was discovered and several mineral claims located in the zone in which this was found. During the present year, though, but little has been heard of these discoveries. In fact, from reliable information, the statement that the values carried by the material were too low to work in such a remote district is warranted.

Cariboo.

By reason of the discoveries of placer gold which were made on the Fraser River in 1857, and the fact that the prospectors of that period confined their attention to that river and its tributaries, each one pushing forward to outdistance his neighbor in the search for richer ground, this district is not only the oldest in the Province, but has produced the greatest amount of placer gold. The statistics show that for the first ten years after its discovery there was produced \$29,528,398, the bulk of which was mined within the present boundaries of the Cariboo District. The largest percentage of the gold which the district has yielded, has come from within comparatively short radius around Barkerville, which is the most northerly town of the district, distant 280 miles north of the Canadian Pacific Railroad, and from the neighborhood of the forks of Quesnel River and Keithley Creek.

To-day hydraulic and dredge mining are the prevailing industries of the district. The following are some of the most prominent of the hydraulic and dredge mining companies:

In the Quesnel Forks Division: The Cariboo Consolidated Hydraulic Mining Company, Limited; The Victoria Consolidated Mining Company, Limited; The Golden River Quesnel, Limited; The Montreal & British Columbia Prospecting and Promoting Company, Limited; The Maud Hydraulic Company, Limited; The New England Dredging Company, Limited; The Gold Point Hydraulic Mining Company; The Cariboo Mining Syndicate; The California Consolidated Mining Company; The Newell Dredging Company; The Horsefly Hydraulic Mining Company, Limited; The Horsefly Gold Mining Company, Limited; The Miocene Gold Mining Company, Limited.

In the Richfield Division: The Cariboo Gold Fields, Limited; The Cariboo Consolidated, Limited; The Cariboo Gold Lands; The Colonial Mines Development Company of Canada, Limited; The Cariboo Deep, Limited; The Waverley Hydraulic Mining Company, Limited; The Willow River Enterprise, The Cariboo Mines and Development Company, The Lightning Creek Gold Gravels and Drainage Company, Limited; The Peters Creek Gold Mining Company, The Sutherland Hydraulic Gold Mining Company, Limited; The Incorporated Exploration Company; The Cariboo Exploration Company; The Devil's Lake Mining Company; The Slocan-Cariboo Gold Mining Company.

In the Quesnel Division: The Columbia Gold Mining Company, Limited; The Pittsburg and Cariboo Dredging Company, Limited; The Northwest Dredging Company, Limited; The Hall Dredging Company; The Cottonwood Alluvial Gold Mining Company, Limited; The C. J. Seymour Baker Company; The Golden Province Mines Company, Limited.

Of these the most important is The Cariboo Consolidated Hydraulic Mining Company, Limited. The history of this company has, until the present year, been such as would have caused many corporations to throw up their hands in disgust; ever since its organization the shareholders have been anticipating large returns, but first from one cause, then from another, assessments instead of dividends have been the order of the day. During 1899 the expenditure for the season's operations amounted to \$194,520. While the yield from operations was only \$92,678. During the present year, though, the yield has been as nearly as can be ascertained from unofficial figures about \$300,000, while the total expenditure has probably not exceeded \$100,000. Some idea of the magnitude of this enterprise can be gleaned from the following extract from the company's report, dated February 17th, 1900: "The company's property is located in the, Quesnel River mining region famous for its rich, shallow placers, its extensive system of ancient river channels, and its immense deposits of high-grade auriferous gravels. It is situated at Bullion, on the southern side of the South Fork of the Quesnel River, about 4 miles easterly from the town of Quesnel Forks, 4 miles westerly from the outlet of the great Quesnel Lake, about 190 miles, via the 150-Mile House and Beaver Lake, and about 170 miles via the 108-Mile House and Horsefly by wagon road from Ashcroft, on the line of the Canadian Pacific Railway. The property comprises 34 placer mining leases, aggregating 2,584 acres of land and a block of pasture land containing 320 acres. The mining leases cover, for a distance of about 10 miles, the auriferous deposits of a system of ancient rivers.

"The deposits included in the company's property vary from 400 to 600 ft. in depth from surface to bottom of channel. The quantity is estimated at 500,000,000 of cubic yards of high-grade auriferous gravel that is available for future washing by hydraulic process. The average gold tenure is moderately estimated at 20c. per cubic yard, and the total gold contents at \$100,000,000. The Cariboo Consolidated Hydraulic Mining Company's water supply system, as now completed, consists of 33 miles of well-constructed canals, having a capacity for delivering at the mine 5,000 miner's inches of water under a head of 420 ft. The mine equipment consists of a portable hydraulic plant of four lines of 30-in. and 22-in. riveted steel pipes, aggregating 6,000 ft.; six No. 8 Hydraulic Giants, with deflecting nozzles, varying from 6 to 10 in. in diameter, etc. The gold-saving appliances consist of a double extended system of sluices 7 ft. wide by 4 ft. deep, aggregating 2,380 ft. in length. This system of sluices is paved partially with end-wood sluice blocks 1 ft. thick, and partially with improved longitudinal steel riffles. Fixtures and longitudinal steel riffles are on hand for the installation of two improved undercurrents, intended for the recovery of flour quicksilver, fine gold, platinum and osmiridium that cannot be recovered in the ordinary sluice.

"The melting plant consists of three retorts fitted with iron Liebig condensers, for distillation of quicksilver, having a capacity for treating 12,000 oz. of amalgamated gold at a single charge; two furnaces for melting and other appliances necessary for handling ingots of gold weighing up to 12,000 oz.; also a complete assay outfit, for determining the value of the bullion."

Of the other companies operating in the district but little information can be gleaned at present regarding their operations. To the outsider it would appear that as the Fraser River was the source of such a large quantity of placer gold-auriferous quartz would be discovered of sufficient extent and carrying sufficiently high values to warrant extensive mining and milling operations. Such, however, has not been the case, and no lode mining is carried on in the district, although considerable prospecting has been done for quartz. As very large areas of the district remain to-day absolutely unexplored, there is a possibility that further systematic prospecting may yet result in the discovery of paying quartz mines.

(To be Continued.)

PEAT FUEL IN ONTARIO.—A promising industry in parts of Ontario is the manufacture of peat fuel. Many large peat bogs exist, some of them in locations where they can be readily utilized and a market found. The peat is not sold in crude form, but is dried and made into some form of cakes or briquettes which will stand handling and transportation. There are now 10 or 12 individuals and companies engaged in this business or preparing to put up the necessary plants.

PERSONAL.

Mr. Charles Garnett Rothwell, mining engineer, has taken charge of the Rock Lake Concentrating Works, Bruce Mines, Ontario.

Mr. John Johnson, formerly manager at Dominion No. 2, has been appointed general manager of the Broad Cove Coal Company's property in Cape Breton.

Mr. J. F. McElheny, engineer with the Lightning Creek Gold Gravels and Drainage Company, on Lightning Creek, Caribou District, B. C., is on a visit to his old home in Texas.

Mr. W. H. Thomas, lately paid another visit to the mining camps in the neighborhood of Greenwood, B. C. While in the Boundary District he examined several copper properties. It is understood that he was acting for New York principals.

Mr. Charles Connor, mine inspector of the fifth bituminous district, Pennsylvania, has sent in his resignation. He will leave February 14th to take the position of superintendent of the Dominion Coal Company, Cape Breton, Nova Scotia.

Mr. James W. Neill, until recently manager for the Taylor & Brunton Ore Sampling Company, of Salt Lake, Utah, is at present at Greenwood, in the Boundary District, B. C., where he is superintending the completion of the pyritic smelter of the Standard Pyritic Smelting Company is erecting near that town.

Mr. A. A. Munroe, of Montreal, Quebec, has returned to that city after spending a month at the Sunset Mine in the Boundary District, B. C. His visit was in the interests of the Montreal & Boston Copper Company, Ltd., recently organized with a capital of \$3,000,000, to acquire the Sunset group and other mines.

Mr. H. V. Croll, representing the Edward P. Allis Company, of Milwaukee, Wis., was in the Boundary District, B. C., recently. He visited the Granby Company's smelter at Grand Forks and the smelters of the British Columbia Copper Company at Greenwood and of the Standard Pyritic Smelting Company. The E. P. Allis Company has opened a branch office in Spokane, Wash.

Mr. S. G. Pearson, of Nelson, B. C., has sailed for England. After a short stay in London he will go to Africa and lead an exploring party into the Lake Tanganyika country to determine the mineral and other resources of the district for an English syndicate which has a concession in the interior. The country over which the party will go has been covered by other explorers, but no attempt has been made to examine into its mineral possibilities. A few years ago Mr. Pearson spent some time in South Africa at the head of an exploration outfit.

INDUSTRIAL NOTES.

The Canadian Rand Drill Company, of Sherbrooke, Quebec, recently sold the Morrison Mine in Deadwood, B. C., 2 Rand drills, together with pipe and fittings.

The Jenckes Machine Company, of Sherbrooke, Quebec, has sold the Green Mountain Mine a 175 gal. a minute pump for its shaft.

GENERAL MINING NEWS.

BRITISH COLUMBIA.

Boundary District.

(From Our Special Correspondent.)

Boundary Ore Shipments.—During December about 25,000 tons of ore were sent to the smelters from Boundary District mines, as follows: Old Ironsides and Knob Hill group, 19,500 tons; B. C., 3,000 tons; Mother Lode, 2,000 tons; sundry small shipments, 500 tons; total, 25,000 tons.

The total quantity of ore shipped during 1900—more than 5/6 of it during the latter half of the year—was about 104,000 tons. The shipping mines were: Old Ironsides and Knob Hill group, about 70,000 tons; G. C., about 20,000 tons; City of Paris, 3,000 tons; Mother Lode, 5,000 tons; Golden Crown, 1,800 tons; Winnipeg, 1,200 tons; Athelston, 1,200 tons; unenumerated, about 1,800 tons; total, 104,000 tons. More than two-thirds of this ore was sent to the Granby Company's smelter at Grand Forks and the remainder to the Canadian Pacific Company's smelter at Trill.

British Columbia Copper Company.—At this company's smelter considerable progress has lately been made. Practically all the plant and machinery were received before Christmas, excepting the engine for the sampling mill. The main engines, boilers, blower and the electric light plant are all installed and water and blast pipe connections with the furnace are made. The sampling machinery is being put in. There are about 5,000 tons of ore in the bins and more is coming down from the company's Mother Lode Mine regularly. Coke will arrive shortly.

Other preparations for blowing in the furnace are well forward, so that the starting will not be long delayed.

Granby.—This company's smelter has treated about 68,000 tons of ore during rather more than 4 months. The first furnace was blown in on August 21st and the second on October 13th and both have been in continuous operation. The daily average run of each furnace, with a nominal treatment capacity of 250 tons, has been about 320 tons. Mr. Jay P. Graves, the managing director, is said to have stated that the company has contracted to deliver monthly 700 tons of copper matte to New York and 200 tons to Liverpool, Eng., for 3 years.

Standard Pyritic Smelting Company.—The buildings for this smelter are finished, the furnace is being erected, sampling machinery installed and railway connections made. The beginning of February is given as the time smelting operations will start.

Caribou District.

A great mining tunnel is projected to run under the land lying between Silverton and Sandon. The distance between the two towns in a straight line is 6 miles. Under Mt. Alamo the tunnel would be over 6,000 ft. below the surface. There are said to be 80 claims directly over the proposed course of the tunnel.

Kootenai Exports and Imports.—The following are the returns for December: Imports dutiable, \$13,423; imports free, \$155; duty collected, \$3,503. Exports—Ore, lbs., 2,510,000; valuation, \$108,762; lead, lbs., 981,900; silver, oz., 124,140; coal, lbs., 1,757,500; value, \$1,698. For 1900 the figures are: Imports, dutiable, \$106,168; imports, free, \$19,219; duty collected, \$29,140. Exports—Ore, lbs., \$40,522,060; value, \$1,078,494; lead, lbs., 12,361,506; silver, oz., 1,055,434; coal, valued at \$8,738.

Ore Shipments to the Hall Mines Smelter.—According to the Nelson "Miner," shipments to the Hall Mines Smelter are very heavy. The Kootenay Ore Company is shipping regularly 2 cars per day purchased from various properties along the railroad, between Kaslo and Sandon. From Woodbury Creek and Ainsworth regular shipments are also made. The largest quantity of ore from this district is shipped from the Highland group. At various points along the Crow's Nest line considerable ore is sent it, among the best shippers being the North Star. From Slocan large quantities are shipped. The ore from the Payne averages about 7 cars per week, while from the Arlington about 4 cars are shipped. These are the 2 principal shippers. At various times the smaller companies in the district combine and send into the smelter a large quantity. Two carloads were recently received from the Ymir Regular, but small shipments are also received from properties near Erie.

Kaslo & Sandon Ore Shipments.—Ore shipments over the Kaslo & Sandon Railroad via Kaslo for month of December were: Whitewater, 1,028,000 lbs.; Last Chance, 735,000; Payne, 624,000; Ruth, 527,000; Rambler, 330,000; American Boy, 138,000; Bismarck, 87,000; Sunset, 82,000; Antoine, 64,000 Surprise, 35,000; Reco, 35,000; Goodenough, 31,000; Sovereign, 30,000; Wonderful, 8,650; Bell Mines, 6,400; total, 3,818,050 lbs.

Total shipments through Kaslo in 1900 were 18,227 tons as against 10,741 tons during the 8 months in which the mines were shipping in 1899. Kaslo is the chief town of the Ainsworth mining division, but many of the Slocan mines also ship through that port. According to figures obtained from the customs house there are 590 mines under development roundabout. Of these 90 are foreign shippers.

Lightning Creek Gold Gravels and Drainage Company.—This company, according to a local paper, has struck gravel in its drift on Lightning Creek in two places near the end of a drift 160 ft. from the sump hole at the bottom of the 140-ft. rock shaft. The result of the work is not made public, and no dry wood being on hand the pump was stopped and the works allowed to fill up with water. It is likely a Cornish pump, to run with water, will be installed and the present steam pump used only as an emergency pump.

Quesnelle Forks Mines.—It is said that a long ditch will be built for the Gold Point Mine the coming season. The Souther dredging plant is to be completed and worked at full capacity. On Snowshoe and Keithly Creeks more than the usual amount of work will be done.

Triune.—The owners of this mine in Lardeau District recently received returns from 72½ tons of silver-lead ore shipped to the Trail Smelter. After paying all freight and treatment charges, the shipment netted \$16,274.

East Kootenay District.

According to press dispatches, two great tracts of coal lands are reported acquired by separate syndicates. Sir William Van Horne and other eastern Canadian capitalists, including Charles R. Hosmer, have organized the Pacific Coal Company, with a capital of \$4,000,000, to acquire and operate coal fields lying in Kootenay, at the south end of Okonogon Lake. Development on a large scale is to start and shipments will be made over the Canadian Pacific.

The Great Northern has purchased from the Canadian Government 10,000 acres of coal lands lying 10 miles south of the first-mentioned property. It is thought that the Great Northern will build a railroad to these properties, starting at Great Falls, Mont., and running northwesterly to a connection with the Canadian Pacific near Livingston. According to other dispatches the origin of the report of this sale is probably the completion of a contract by which the Great Northern will take 40 cars of Crow's Nest Pass coal per day.

According to Ottawa advices, the branch line of railway, which, if Parliament grants a charter, will give the Great Northern access to East Kootenay and the Crow's Nest Pass coal mines, will be 38 miles long in Canadian territory. It is not yet decided whether the line will be built south and west to strike the Great Northern at Jennings or south and east toward Kalispell. The following notice in the Canada "Gazette" sets forth the powers sought by the Canadian company, at the back of which are Messrs. Cox and Jaffray:

"Notice is hereby given that application will be made to the Parliament of Canada, at its next session, for an act to incorporate a company to construct a railway from the coal mines at Michel, in East Kootenay District; thence by way of Michel Creek and the most feasible and practical route east or west of the Elk and Upper Kootenay Rivers southward to the international boundary; also the valley of the Elk River, and thence to a point on the main line of the Canadian Pacific Railway; also from a point on the proposed line of railway, thence north-easterly by the North Kootenay Pass to Alberta, to connect with the Crow's Nest Pass Railway."

Besides these the usual powers to construct 30-mile branch lines and operate telegraphs are asked. The company apparently seeks power to build north to tap the Canadian Pacific main line about Banff; also to run another line east to strike the Crow's Nest Pass Railway near Lethbridge.

Paradise.—Captain F. P. Armstrong recently brought down the first ore from this Windemere mine to the Columbia River landing.

Texada Island.

According to a press dispatch the Pittsburg Iron Syndicate has leased the iron mines owned by the Union Iron Works situated between Victoria and Vancouver in the Gulf of Georgia. The deposit is said to be 2 miles long and ½ mile wide, and has not been worked since it was secured by the Union Iron Works 17 years ago. The ore runs 50% iron. Eight hundred tons of ore are to be shipped to Washington State and California smelters for 10 years.

Van Anda Copper Mining Company.—H. W. Treat, of New York, the chief owner of the Van Anda group of claims on Texada Island, 30 miles from Vancouver, recently sold to Jas. Lowles, representing a British syndicate, the 25 claims comprising the group, the town site of Van Anda, and the smelter, for a price said to be \$500,000 cash. Mr. Treat retires from the management in February and returns to his home in New York.

West Kootenay District.

A group of 14 claims in White Grouse Basin, owned by Mrs. J. H. Harris of Kaslo and others, was bonded for \$125,000 by Philip Corcoran, representing W. H. Beards of New York City and California men, last August. The first payment was due recently, but a hitch occurred and a suit has been filed in the Supreme Court. The ore runs in copper, gold and silver.

Rossland Ore Shipments.—Shipments for the week ending January 12th and for the year are as follows: Le Roi, 3,849 tons, 6,650 tons; Center Star, 1,980, 3,420; War Eagle, 450, 660; Iron Mask, 157, 315; Le Roi No. 2, 90, 247; Spitze, 23, 23.

Rossland Ore Shipments in 1900.—The shipments of ore from the Rossland Camp last year aggregated 221,902 tons, of which 162,415 tons were shipped from the LeRoi, 41,192 from the Center Star, 10,278 from the War Eagle, 2,997 from the LeRoi to 2,973 from the Iron Mask, 611 from the Giant, 500 from the I. X. L., 428 from the Evening Star, 273 from the Monte Cristo, 155 from the Spitzell, and 80 tons from the Iron Colt.

Arlington.—This Slocan City mine is now shipping its 2 cars daily to the Nelson smelter.

Black Prince.—This Slocan claim is also working again on a lease held by Frank Sherry and partners.

Bluebird Gold Mining Company.—This company is operating the Bluebird group of 5 claims situated 3 miles from Deer Park on Lower Arrow Lake. The property has been developed by a shaft 110 ft. deep and a cross-cut which has been driven 67 ft. The ledge is said to be about 20 ft. wide, and carries a pay streak 3 ft. 10 in. wide. The ore is silver-lead. A smelter test, it is reported, showed on an average \$31.50 to the ton. About 10 men are employed. C. H. Doughten is manager.

Bondholder.—This group on Springer Creek, near Nelson, made a shipment to the Hall Mines Smelter recently which gives 224 oz. silver and

7% lead, on 18½ tons, netting \$2,400 per car after deducting freight and treatment charges. The property is owned by R. C. Campbell-Johnston and others. There is said to be a continuous ore shoot of 150 ft. of clean shipping ore. At the face the depth attained is 300 ft.

Center Star.—Work is progressing in the big slope of this mine near Rossland and in the intermediate level. The shaft is being sunk and the fifth level is being developed. The machine shop is about finished, and a timber framing saw is in use. The company has declared a dividend of 1c. per share payable February 1st.

Giant.—Operations on this Rossland property are regular. Ore is being taken out and a couple of car-loads have been forwarded to the smelter.

Homestake.—On this and the J. C. P. claims, near the May & Jennie, at Nelson, the owners, J. C. and Dave Porter, have men at work cross-cutting to tap a strong vein discovered last spring, but undeveloped.

Iron Mask.—Development on this Rossland mine is proceeding as usual. Work is concentrated on the ledges discovered in the western end of the property.

I. K. L.—Work at this Rossland gold mine progresses. The second level is being extended into the O. K. ground and drifting on the newly discovered ledge is making good progress. The ore found in this ledge is reported as rich as that in the old vein. Stopping continues between the first and second levels.

Last Chance.—Twenty-five men were laid off at this Nelson mine as a result of the Smelter Company's refusal to purchase lead ore.

Lavina-Butte Consolidated.—Martin Salmon, of Rossland, has been looking after the work on the Lavina group in Lardeau division owned by this company. The group consists of 4 claims and a fraction located on Hamill Creek, 8 miles from Argenta. The property has been opened by a series of tunnels, and a large quantity of stopping ground is said to be in the mine, with several thousand tons of ore in sight. The ore may average \$100 to the ton. Considerable difficulty has been experienced of late, on account of the depth of the snow, in getting in supplies, and so work has stopped until the spring.

Le Roi Mining Company.—This company has determined to sink beyond the 900-ft. level 600 ft. and the contract is about to be let. The continuation of the shaft is for the whole of the 5 compartments and will include timbering down to the 1,500-ft. level. This will form the staple of the development work for the year. On the Spokane Falls & Northern Railroad the washouts have precluded bringing in the machinery, dated to arrive some time since, necessary for the completion of the power plant and furnace. The smelter is hardly any further advanced than it was at Christmas.

London Consolidated Company.—This company now has good sleighing from the Silver Hill Mine at Nelson to Crawford Bay, and the management figures on shipping 30 tons of ore daily until the sleighing breaks up.

May & Jennie.—The United Mines, Limited, holds the bond on this Forty Mile Creek property not far from Nelson. Raoul Green is engineer in charge. A 10-stamp plant has been ordered from Fraser & Chalmers, of Chicago, but the mill will not be erected until spring. The ore is said to be free milling. Thorough tests have been made on tailings treatment. The underground work is now confined to a long cross-cut tunnel to tap the ore body several hundred feet lower than the original workings. This is expected to give the owners a large tonnage in sight. The wagon road recently completed to the mine is in good condition and transportation facilities are called excellent.

Onondaga Mining Company.—This company is opening a group of 9 claims at the head of Champion Creek, near Waterloo Station, on the Nelson & Fort Sheppard Railway. The group was purchased in May, 1900, by Louis Will, of Syracuse, N. Y. The price paid is said to have been \$65,000 for the 4 claims; since then \$35,000 has been expended for development for a 10-stamp mill, which is being installed. There are said to be 2 veins on the properties which carry high-grade ore. The ore is a silicious quartz, carrying gold, and the paystreak is 2 ft. wide. The property has been opened by a series of tunnels. Thirty men are at work, and a stamp mill is being put up. It was taken in over a trail which the company built from a point on the Nelson & Fort Sheppard Railway, near the old camp of Waterloo. Thomas James is general manager.

Rosland Bonanza.—Work on the tunnel continues and the showing of ore is reported satisfactory.

Rosland Great Western.—Work on the compressor continues. The foundations are about completed. Cross-cuts driven to meet the middle ore body at the lower level have succeeded in locating it. The width may vary from 15 to 30 ft. The shaft is now down nearly 100 ft. and should

cut the ore body discovered in the pump station at the 485 level within the next lift.

Silverton Boy.—A contract for 250 ft. of tunneling on this Silverton claim is completed and another contract made for 200 ft. more.

Spitzee.—Superintendent Sharp says the shaft is down 50 ft. and the entire bottom is in ore. The intention is to cross-cut the vein when the 75-ft. level is reached and at the 100-ft. run a drift along the vein. In the meantime the shaft will be extended to the 200-ft. The ore is pyrrhotite, carrying considerable copper and some gold values. A contract has been signed with the Columbia & Western Railway to extend a spur to the mouth of the shaft, where bins are to be erected. Before long it is said a 4 or 5-drill compressor plant will be installed.

St. Elmo.—Work goes on as usual in this mine near Rossland. Drifting west on both the north and south veins is in progress.

Two Friends.—This group near Slocan had legal difficulties from parties holding a minor interest. The mine is shipping again to the Nelson smelter.

Velvet.—The work of hauling in the compressor plant to this property on Sophie Mountain from Sheep Creek Station is underway. Seven car-loads have arrived and more are expected. The compressor will be hauled in as rapidly as possible and should be running inside of 6 weeks. It is expected that shipments will start soon. Surveyors are surveying a line up Sheep Creek valley to the Velvet mine. The intention is to run a spur from the Red Mountain Railway to a short distance below Sheep Creek Station to tap the mining section on Sophie and other mountains. The ore will be taken to Northport.

Wagner.—H. N. Boss, according to a local paper, has bonded a quarter interest in this group to Cutler T. Porter, representing New York capital. Porter has secured the other three-quarters from Spokane and Victoria parties and a strong company will be immediately organized in New York City to begin operations as soon as the snow has gone in the spring. The group consists of 4 claims, at the head of Hall Creek on the Duncan River slope and was staked by J. C. Wagner and John Kennedy in 1892. The property originally consisted of 5 claims, 2 of which were sold in 1897 for \$12,000 to Rossland men. There is a showing of 5 ft. of galena and the ledge can be traced through the 4 claims of the group. The ore is reported to run 100 oz. in silver to the ton and high in lead.

War Eagle.—Nearly 100 more men were recently put to work in this Rossland mine stopping on the various levels. The shaft is still going down and has reached the ninth level. Shipments will be for the present about 100 tons daily, coming from the 50 level. The tramway is still under reconstruction.

Vancouver Island.

Alex. Faulds, superintendent of the Alexandria coal mines at South Wellington, with his 15-year-old son, were seriously burned by an explosion of gas in the mine on January 9th. The two went down to inspect, carrying an ordinary lantern, and fire-damp, which had been collecting in the mine for a fortnight, ignited.

NOVA SCOTIA.

Cape Breton.

Broad Cove Coal Company.—Developments at this company's coal areas are planned on an elaborate scale. No. 1 slope will be driven deeper and become the hoisting slope. In No. 2 slope when No. 1 begins work hoisting will be by endless chain with pit boxes of special design, having a normal capacity of 3,000 lbs. The bank head will be of southern pine with a floor 24 ft. above the ground. Shaker screens will separate the small coal from the large, and there will be picking tables if necessary, though the 7-ft. seam, the one being developed, contains no stone nor fire clay. At present the output from No. 2 slope is 150 tons per day. This output is expected to increase until the 2,000 tons daily mark is reached. When the 7-ft. seam has been opened, attention will be directed to the larger—the 14-ft. seam—and another slope sunk and another bank head erected.

Dominion Coal Company.—The Crown lands in Cape Breton containing valuable coal areas and approximating to 70,000 acres, have all, it is said, been secured by this company.

Guysboro County.

Extensive coal areas not far from Antigonish were recently bonded to a London company that has also taken up large iron ore areas adjoining. This iron property, while it has not been much explored, has had sufficient work done on it to demonstrate the existence of valuable ore. The coal so far has not turned out quite so well, containing a high per cent of ash.

Pictou County.

Intercolonial Coal Company.—This company has bought the coal lands belonging to the estate of Mr. Simon Holmes, adjoining the Drummond Colliery at Westville. The Drummond Colliery has been long known as one of the best

in Nova Scotia. A thorough test of pick coal-cutting machines is being made at the company's mines. The seams lie at an angle of 20° to 30°, and while it is impossible to work the machines on the full "rise" or "dip" of the coal, the test is to ascertain whether they can be used in the rooms running at right-angles to the dip, and working "side bassett." The results so far have been favorable.

ONTARIO.

Lake of the Woods District.

Black Hawk Gold Mining Company.—This company, composed of Frank Rockefeller, J. S. Morgan, C. P. Evans and J. A. Stuber, of Cleveland, expects to begin operations at its property 75 miles north of the Minnesota line, about February 1st. T. T. Merry, of Cleveland, will be the ground superintendent.

(From Our Special Correspondent.)

Mr. Neil Campbell has returned to Rat Portage from St. Paul, Minn., where he succeeded in securing capital to test and develop two paying properties in this district. One of these is the well-known Stella on Witch Bay, about 20 miles from Rat Portage. The Stella shaft is already 127 ft. deep and will be sunk 100 ft. further. The shaft on the sulphide vein at the contact will be sunk to 100 ft. and the vein cross-cut to both walls; this shaft is 60 ft. deep now. The other property to be tested by Mr. Campbell is north of Black Sturgeon Lake, about 4 miles north of Margaret Station on the Canadian Pacific Railway, the first station east of Rat Portage. The property was located by John Sundbla and others early last spring, and shows a wide quartz vein near the granite contact. A 100-ft. shaft will be sunk with cross-cuts to both walls. If these properties show up well the parties interested will take up the bond.

Mikado.—A few of the men are laid off until new compressor is in place.

MINING STOCKS.

Full quotations of the Toronto and Montreal Exchanges will be found on pages 101 and 102.

Jan. 5.

The earlier weeks of the new year have witnessed some sensational advances in the higher priced stocks, and trading has been good on the exchanges. There are about 30 active stocks on the different lists, some representing producing mines, some good prospects, and a few exploration companies.

The exchanges are doing their utmost to interest outside capital in our mines, and much information about the mineral resources of the country is being distributed by the railroads and local news agencies. Our brokers and business men also acknowledge that to the "Engineering and Mining Journal" much credit is due for the descriptive articles that have appeared in its pages from time to time regarding the progress of the Canadian mining industry. So successfully were some of our mines operated that in the past few years the dividend disbursements have been very satisfying. Foremost in the British Columbia list is Le Roi, with \$1,305,000 in dividends to its credit, which is equal to 26% on its capital stock of \$5,000,000. Other payers were the Payne Mine, the Reco, and Idaho in the Slocan Mining Division of British Columbia; the War Eagle in the Trail Creek Division, the Cariboo-McKinney in the Yale District. There were also numerous smaller dividend payers, and with the increased operations and economical management of some of the newer properties, there promises to be a large profit sharing in the next few years.

The shares in many of the dividend-paying mines are closely held, and only occasionally do we hear of sales on the open market. Of course there is always some profit taking whenever the market makes a sensational advance, but the actual trading is usually light in these securities. The shares which have been floated by British capital are dealt in almost exclusively on the London Exchange.

Of the trading on the Toronto Exchange this week the feature was Crow's Nest Coal of British Columbia. This stock advanced rapidly on reports that James J. Hill, of the Great Northern Railroad was negotiating for the property. The Crow's Nest shares were bid up from \$55 to \$60.50, while holders asked from \$61 to \$65; sales, however, were limited. Payne Mine shares were higher, and Rambler-Cariboo was in good request at a fractional advance. War Eagle was stronger at \$1.05 owing to the resumption of work at the mine after 10 months' idleness. Other quotations were Center Star, at \$1.40 asked and \$1.20 bid; North Star, 90½@88c.; Old Ironsides, 80c.@60c., and Cariboo 60 and 40c., and Knob Hill 55c. and 40c.

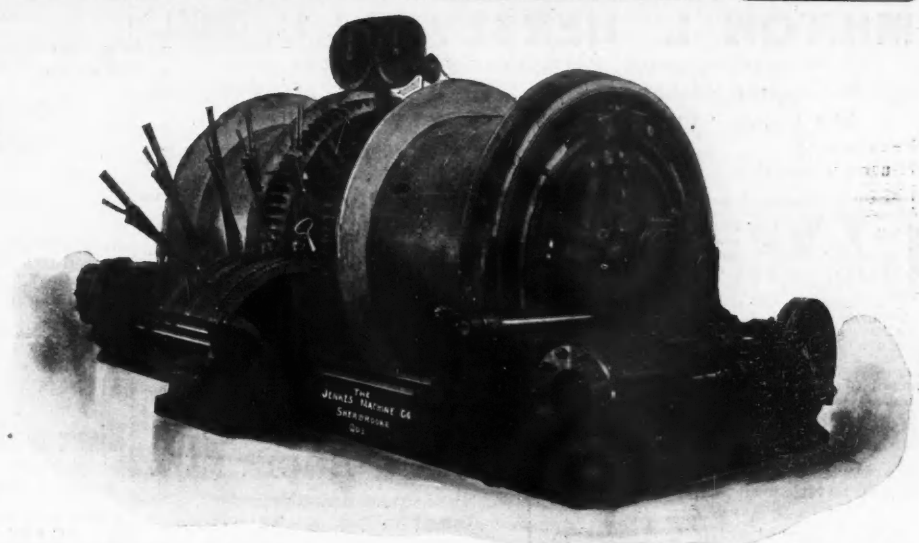
On the Montreal Exchange a fair business was done, the leading transactions being in Virtue, Slocan-Sovereign, Oregon and Big Three.

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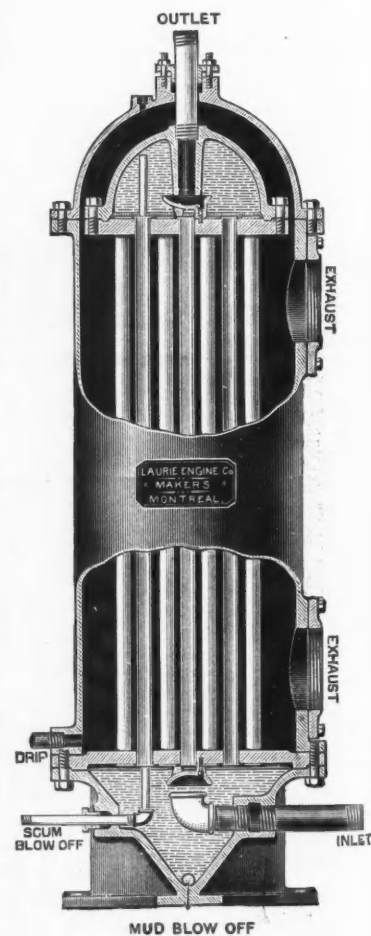
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