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MINING RECORD

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E. JACOBS,.....Manager and Editor

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CONTENTS.

	Page.
Notes and Comments	371
Death of Mr. Clermont Livingston.....	376
Export of B. C. Coal and Coke.....	378
Sullivan Mine, East Kootenay	378
The Duncan Section of the Lardeau Country...	379
Western Fuel Company's New Agreement....	389
Mineral Exhibits at Nelson Fair.....	391
Mining in the Sloean District	393
Landslide Feared at Crow's Nest Colliery....	394
Emma Mine, in the Boundary District.....	395
Dredging for Gold in Australia	397
Company Meetings and Reports—	
Canadian-American Coal and Coke Company	399
Granby Consolidated M., S. and P. Co.....	399
Sullivan Group Mining Company.....	100
Company Cables and Notes	100
Book Reviewed	102
Trade Notes and Catalogues.....	102
Coal Mining Notes	103
Mining Men and Affairs	103

NOTES AND COMMENTS.

Thos. Kiddie has been appointed manager of the smelting works at Northport, Washington, and will assume charge on December 1, or perhaps a week or two earlier.

During the month ore was being shipped to the sampling works at Kaslo by the Ferguson Mines, Limited, owning the Silver Cup and other mines in northern Lardeau.

The Kootenay Ore Company is operating its sampling works at Kaslo, and according to the *Kootenian*, has enough ore on hand to keep the sampler running for three months.

According to report, says the *Kootenian*, the concentrator at the Bluebell mine, opposite Ainsworth, will soon be in operation, when a big tonnage of ore will be shipped from the old mine.

From Fairview, Osoyoos mining division, comes the report that an important body of well mineralized quartz has been encountered on the 200-ft. level of the mine in that camp of the Stenwinder Gold and Coal Mining Company.

A conciliation board under the Lemieux Act has held several sittings in connection with the demands of the employees at the St. Eugene mine and mill, Moyie, East Kootenay, for higher wages. No decision has yet been announced.

A large tonnage of ore of good grade is stated to be available on the 100 ft. level of the Idaho mine at Rosland. This mine is one of several neighbouring properties owned by the Consolidated Mining and Smelting Company of Canada.

A correspondent of the *London Mining Journal*, writing from Frankfurt-on-Main, Germany, says: Fifteen years ago wolfram ore unsaleable at £20 a ton, and hardly any production; today, unobtainable at £150 a ton, although the world's production has increased from 300 tons in 1892 to 3,500 tons during the last twelve months.

A fine specimen of rich ore has been taken from the Whitewater Deep mine to Kaslo. It does not look big, but weighs about 360 lb. It is intended for an exhibit in the mine manager's office there.

At Moyie, East Kootenay, a local syndicate has bonded the Aurora group of five mineral claims situated on the west side of Moyie Lake. It is stated that about \$10,000 has already been expended in development and the property is fairly well opened up.

Some copper ore of high grade has been met with in the Victoria mine, near Nelson. It occurs in a cross-cut from the main tunnel and at a depth of 150 ft. below the surface. It is hoped that further development will prove the strike to be an important one.

During October James Finlay, manager of the Sullivan Group mine, East Kootenay, was in Rossland after machinery. He reports, said the *Miner*, that 60 men are employed in the Sullivan mine. The output of ore is large and the profits being realized are satisfactory.

Messrs. McGillivray and Erickson, two Slocan miners, won the double-hand rock drilling contests at Sandon, Kaslo, Nelson, and Spokane. At Spokane the contest was almost an international one, but the Slocan men proved themselves the best of five teams competing.

J. Shaw Parker, of Fort Steele, who has spent the past six months prospecting along the Yukon telegraph trail in northern British Columbia, has returned to Cranbrook, says the *Herald*. Mr. Parker speaks highly of the country traversed by him and contemplates another trip to that district next spring.

The decision of the stockholders in the Sullivan Group Mining Company to adopt the recommendation of their mine manager to further develop their mine and determine whether the ore body continues to a depth that will assure them of a considerable supply of ore, before enlarging their smelter, would appear to be a wise one.

Louis Pratt, a well-known Slocan mine manager, has recently been quoted as having said, when in Spokane, Washington, "Sandon is picking up considerably, not as a boom, but a steady, healthy growth is noticeable." The same can be said of the Slocan district as a whole, according to a further observation also attributed to Mr. Pratt.

Under the caption "It is rumoured," the *Slocan Mining Review*, published at Sandon, makes the following suggestive observation: "That a decision in the Star-White case will be handed in on the Day of Judgment." Those familiar with the tedious delays

that have occurred in connection with the litigation alluded to, will appreciate the force of this rumour.

The secretary of the Canadian Mining Institute has reminded members by circular that a number of offices will become vacant next month. He has also invited members to send in nominations for the offices mentioned. Nominations will be closed on January 1, 1908. All nominations must bear the signatures of not less than ten members in good standing.

During the second week in October Boundary smelters together treated 35,500 tons of ore—an average of rather more than 5,000 tons a day. The Granby smelter treated 21,524 tons, the British Columbia Copper Company's works 9,800 tons, and those of the Dominion Copper Company 4,176 tons. The Granby made a new record with its daily average total of 3,075 tons.

A press despatch from Calgary, Alberta, states that the Natural Gas Company, after having bored for 14 months, met with gas at a depth of 2,800 ft. on September 26. While the volume of gas is not yet sufficiently strong to make it of commercial value, the company feels warranted in boring to a greater depth. It is expected that better results will be obtained at about 100 ft. deeper.

The London *Critic* said a few weeks ago: "The Ontario government, convinced that the Cobalt mining district will stand the test of scrutiny, have invited a party of English journalists to pay a visit to the province to ascertain the facts for themselves. The party will sail early in September, so readers of the *Critic* may be prepared for columns of Cobalt optimism in the daily press."

Nothing remains of the old smelter at Pilot Bay, Kootenay Lake, except the smoke stacks. The machinery has all been taken down and removed to the Canadian Metal Company's Blue Bell mine, the timbers of the building being used in construction work at the mine. Even the two brick smoke stacks will not be allowed to remain, says the Nelson *Daily News*, as they will be taken down and the bricks cleaned and used again.

C. H. Low of Montreal, secretary and director of the Payne Mining Company, and N. McL. Curran, manager of the North Star mine, East Kootenay, have completed a thorough inspection of the Payne mine. It is thought the ultimate result of their visit will be the development of the Payne on a scale similar to that of the Rambler. If so the former will later resume its old place among the leading shipping mines of the Slocan.

The new agreement between the Western Fuel Company and its many employees is printed in full

elsewhere in this issue of the *MINING RECORD*. Both parties to it are to be congratulated upon having come to a mutually satisfactory understanding without recourse to a similar lengthy suspension of work to those which have on several occasions during recent years involved heavy loss to both operators and miners in the Crow's Nest Pass district of the Province.

A press despatch from Dawson states that the Yukon council opened in special session on September 21 to consider the petition of the White Pass and Yukon Railway for permission to build 12 miles of railway from its present line to the Whitehorse copper mines. It is intimated that the company may also seek for a charter to build to the Selkirk soon. The council appointed a committee to prepare favourable recommendations to Ottawa, with a provision for a time limit to build and rates to be regulated.

Three or four years ago, remarks the *Phoenix Pioneer*, it was difficult to find any one in the Boundary who would buy Boundary copper stocks at the then prevailing low prices. How different is the situation today, when most of the buying orders come from the West and from the Boundary, where the oldest residents have increasing confidence in the country and its resources as the years roll on. As the sales are mostly in small lots, it shows also that it is not the men of largest means that are thus showing their faith in the Boundary.

Supt. Frank Little, of the Wellington Colliery Company, who recently returned to Nanaimo from Englishman's River, stated, according to the *Herald*, that work of boring for coal, which was suspended at 1,200 ft. owing to light machinery, will be resumed immediately. As to the outlook for coal mines of value there, Mr. Little did not care to express himself. Work on Nanaimo River is being prosecuted steadily but it will require some time to open up the property there. Two houses have been built there to accommodate workmen.

Edward Baillie has returned to Nelson from a short trip to the Lardeau and says that Poplar camp is looking up a little. Several properties that have been lying idle for the past two or three years are re-starting work and some good finds are being made. Interest, however, chiefly centres in a dredge nearing completion and which should be in operation within the next few weeks. This dredge is the idea of some Philadelphia capitalists and is to be operated on Lardeau River over a stretch of flat river bottom, working its own way along as it removes the gravel.

Elsewhere in this number of the *MINING RECORD* there is printed a copy of the new agreement entered into at the end of September by the Western Fuel Company and its employees. From a press despatch

sent out from Nanaimo shortly afterwards the following has been extracted: A two-year agreement has been made between the mines and men by which the company makes permanent the ten per cent. bonus recently granted by it. Nanaimo mines are now turning out the largest amount of coal in their history and the pay-roll is larger than it had ever before been. Business in all lines is brisk and with the general development on Vancouver Island, prospects for Nanaimo are very bright.

Coal from the Nicola Coal and Coke Company's newly opened coal mine is being delivered to several interior towns along the Canadian Pacific Railway. Although shipments are not yet large, it is gratifying to find that production on a commercial scale is now an accomplished fact. From a recent visitor to the mine competent to express an opinion of value we have assurance that the development work done in opening the mine, and the designing and installation of the surface plant, have been well carried out, and that everything about the property indicates that the enterprise is thoroughly *bona fide* and coal mining here gives abundant promise of eventually developing into an important and profitable industry.

About the middle of September the *Rosland Miner* gave publicity to "street gossip" to the effect that "A. G. Larson, who has been in charge of the practical operation of the Le Roi mine, and under whose direction such good results had been obtained, would not resume his official position." Upon his return from his month's vacation Mr. Larson "positively denied that there was any foundation for the rumour that he had severed his connection with the Le Roi Mining Company, as he was still its mine superintendent and expected to remain as such." It is gratifying to find that once again the attempts of the *Miner* to discredit the management of the Le Roi Mining Company have been ineffectual.

H. N. Galer, manager of the International Coal and Coke Company, has been quoted lately as authority for the statement that 550 men are employed at the company's coal mines at Coleman, southwest Alberta, and that 2,000 to 2,500 tons of coal are being produced daily; further, it is expected the production will soon be increased to 3,000 tons daily. Two seams are being worked and arrangements made to open another seam. Compressed air locomotives are being installed, and other preparations are in hand for increasing production. This colliery's output of coke is, approximately, 250 tons per day. The coke is shipped to the Boundary district, to the smelters of the Dominion Copper Company and British Columbia Copper Company there.

"The movement in capital to this Province is strikingly demonstrated by the activity in connection with coal lands," remarks the *Victoria Colonist*. "The applications for coal licences have been very numer-

ous during the fiscal year just ended and while within the last month the number has somewhat fallen off it is expected that towards the close of the present month it will increase. For coal lands staked in East Kootenay 225 licences were issued; for coal lands in the rest of the Province the number was 183. The revenue to the Province from this source at the rate charged, viz., \$100 per licence, amounted to \$40,800. With the activity in coal lands on Graham and Moresby Islands of the Queen Charlotte group, this amount will be greatly swollen during the present fiscal year."

An Ottawa press despatch says: The members of the staff of experts to take charge of the Canadian mint have arrived from England and are engaged in preparatory work. Coins will be made at or before the end of the year. At least this is the expectation. There will be employed between 70 and 80 men, all of whom, except five members of the staff, will be Canadians. It is understood there are between 400 and 500 applications, the majority probably being from Ottawa. The staff of experts consists of Dr. Bonar, deputy master, of London, England; A. W. Cleave, superintendent, of the Royal Mint, London; Ralph C. P. Pearson, chief assayer, of Melbourne, Australia, who comes from the Royal Mint at Melbourne; John Roe, chief clerk, of the Royal Mint, London; T. Maunsell, foreman melter, of the Royal Mint, London.

In the Big Bend country, north of Revelstoke, the American Mining Company, an organization of Indiana people, has during the season now closing been working about 15 men. The manager, Mr. Vance, has been endeavouring to find the old back channel on French Creek. Coarse gold has been found on bedrock, and the indications of eventual success have been encouraging. On McCullough Creek the hydraulic mining company of that name has been operating with J. D. Sibbald in charge. A slide covered part of the flume and one of the monitors, but notwithstanding the consequent delay, it was hoped it would be practicable to have a clean-up this autumn. The prospects of this company doing well this year have been regarded as promising. There is plenty of gold, but the creek is full of rocks and boulders, and the supply of water has not been sufficient to work to best advantage.

From the *Nelson Daily News* it is learned that the Hewitt Mining Company has purchased from the owners of the Kaslo & Sloean Railway grant about 1,000 acres of land adjoining and surrounding the company's silver-lead mine near Silverton, Sloean Lake district. Its object in purchasing this was to secure for the Hewitt mine timber for mining purposes, also to prevent any trouble arising later about the right of way for the new tramway now being built from the Hewitt No. 6 level to the mill, it has acquired from the Wakefield Mines, Ltd. Mr. Oleott

Payne, treasurer of the company, is now in New York City for the purpose of buying an air compressor which it is expected to install shortly at the mine. It is the intention to put power drills at work immediately on both Nos. 4 and 6 levels so as to connect these with the present faces which are now more than half way through the mountain.

The manager of the *MINING RECORD* requests subscribers to be good enough to read the memorandum printed at the bottom of the subscription bill forms relating to the exchange charge made by banks on cheques not payable in Victoria. A money order for a small amount payable at par in Victoria costs the sender three cents, while a bank cheque on any place outside of that city costs the *MINING RECORD* 15 to 25 cents, according to the locality or place on which it is drawn. Where there are hundreds of \$2 amounts coming in, the exchange charges aggregate an appreciably large amount. This seemingly small matter should have the attention of our numerous United States subscribers particularly, for in their cases we would lose nearly 25 per cent. of our subscription price if bank exchange as well as the recently largely increased postage charge (which, unlike most other mining journals affected, we are not requiring our subscribers to pay) were to be paid by us.

When in Vancouver on September 13, G. McIntyre Gibbs, manager of the Dawson branch of the Canadian Bank of Commerce, informed the *News Advertiser* that the output of gold in the Yukon this year will fall considerably short of that of last year, owing to the purchases of claims made by large operators in order to prepare for dredging, as it will take several years to prepare the ground and install the necessary machinery. The orders have been given to big dredge manufacturers and in filling them they will be busy for six or seven years. From the amount of money already invested by the large firms, it is firmly believed when the machinery shall be in full running order that several hundred million dollars will be taken out in a few years. The Guggenheims alone have 20 miles of creeks in their workings, and more precious metal will be taken out of the district than ever before in the history of the country. This year has been a very dry one, and the small output is to some extent accounted for by this fact.

Speaking generally, the press despatches relating to mining sent out from Vancouver are unreliable, while occasionally they grossly exaggerate the position in connection with mineral claims or mining districts. The following statements, made in a despatch from that city under date October 14, should, therefore, not be accepted without question until after they shall have been confirmed as true: News of the discovery of what may prove to be another Klondike, on an unnamed branch of the Findlay River,

was brought to Vancouver today by inspector A. E. C. McDonnell of the R.N.W.M.P., who arrived from the north on the "Princess Beatrice." The find consists of rich placer ground and was discovered by four Canadian prospectors, headed by Charles Perry, over a year ago. With the melting of the snow and ice last spring, operations were resumed. Free coarse nugget gold, much of it running \$100 to the pan, was being taken out early in the season, when Perry was met by the first outsider he had seen in two years.

In the course of a notice of a recent visit of Rev. Dr. Campbell, convenor of the Presbyterian foreign missions committee for British Columbia, to Cumberland, Vancouver Island, where is situated one of the collieries of the Wellington Colliery Company, Limited, the *Victoria Colonist* said: "As far as his stay in Cumberland for two days would permit, Dr. Campbell enquired in a cursory way into the relations of the coal company to their employees, and was pleased to find that in every way possible the company were doing everything that could reasonably be done in the interest of their men. The white men, Chinese, and Japanese are all well paid; and there would be little trouble at any time were it not for agitators. The Chinese, in whose missionary interest Dr. Campbell visited Cumberland, he found well satisfied, because they had short hours and good pay. He did not hear a word of dissatisfaction among the white men, and such of the company's officers as he saw manifested interest in the safety, health, comfort and wages of the men, both oriental and occidental."

A shipment of two cars of ore from the Hewitt mine near Silvertown, Slovan mining division, to the Consolidated Mining and Smelting Company's smelter at Trail, returned practically four cents per pound net to the shippers. The following figures give details: Gross weight, 80,468 lb.; dry weight, 79,422 lb.; assay, silver 141.90 oz. per ton, lead 6 per cent., zinc 14.7 per cent.; total contents of silver and lead, silver 5,634.99 oz. and lead 4,765 lb.; metal quotations, silver 67 $\frac{3}{4}$ cents per oz. and lead 0.03267 cents per lb.; total value after deduction of 5 per cent. off silver and 10 per cent. off lead, \$3,766.92; freight and treatment charges, \$15.35 per ton (including deduction for excess of zinc 6.7, at 50, equal \$3.55 per ton); net value to shippers, \$3,157.36. In round figures results may be shown thus: 40 tons (dry weight) of ore @ \$80 per ton after payment of freight and treatment charges would bring \$3,200, so that \$80 per ton net was about the value of the shipment here noticed. These values are by no means unusual for Hewitt ore, since only five lots, together 97 tons, out of 37 aggregating 727 tons, shipped by M. S. Davys in 1904-5, averaged under 100 oz. per ton of silver. The remaining 32 lots ranged from 107 to 320 oz. silver ton, with varying lead values as well.

It is stated that as a result of the work of the International boundary survey parties representing Canada and the United States, respectively, a strip of territory 600 ft. wide and several hundred miles long, heretofore regarded as part of the Canadian Yukon, has been shown to properly belong to the United States. The line of demarcation in the north is the 141st meridian, starting from the coast at Mt. St. Elias and crossing the Yukon River at a point about 90 miles below Dawson. The previous location of the line was under the direction of Wm. Ogilvie, a Canadian official, who in 1898 did this work, but accuracy was not then possible. The completion of the telegraph line through the district has facilitated the exact location of the line, which as jointly determined by the first above mentioned survey parties, transfers to the United States the strip of land alluded to. During the field-work season of 1907 the line was determined and a topographical survey made of the country four miles on each side of it, for a distance of about 125 miles south from the Yukon River. It is estimated that it will take three years to complete the work of Mt. St. Elias, after which the delimitation of the line northward from Yukon River will be undertaken and carried as far as it shall be possible for men to proceed with it.

M. & F. Craig, of Brisbin, Pennsylvania, U.S.A., wealthy coal operators in that state, who bought out Capt. Grant's interest in the June group at Quatsino Sound, northwest coast of Vancouver Island, have this season been working the property in conjunction with T. S. Lippy, of Seattle, Washington. It was stated in the summer that there had been placed in the bank \$100,000 for the purpose of developing the property. The plans for work included the construction of about six miles of railway, from the mine to the S. E. arm of the sound. A small (28-ton) narrow-gauge locomotive and 250 tons of 35-lb. steel rails were ordered, and the erection of shipping bunkers had the attention of M. Craig, who was on the ground. At the mine there is on the surface a large quantity of silica-magnetite ore, with a dump of 300 to 400 tons ready for shipment. There can be blasted out from near the surface a large tonnage of ore that will run about 2 $\frac{1}{2}$ per cent. copper and \$2 to \$3 in gold and silver. This can easily be sorted up to average 4 per cent. copper. About 130 ft. under a big open cut, at the end of a 110-ft. tunnel there is about 18 ft. of ore estimated to contain three per cent. copper. Bunches of ore have been met with running up to 18 per cent. copper. With further development this property may be expected to make an excellent showing.

Addressing a large meeting of his constituents at Victoria on September 18, Hon. Wm. Templeman, minister of mines in the Dominion government, said, with respect to the Department of Mines, which had

been organized and placed under his administration, that the premier had been very kind in listening to his representations, and recognized the importance of such a department to this Province—the first mining province in Canada—and had cheerfully assisted him in preparing the act creating the department. That department had been created. It was not yet altogether complete in its organization. They had thus far simply taken those branches formerly of the Interior Department, the Geological Survey and the Mines branch, under a superintendent of mines, and they were going on now and organizing what they believed would be, at an early date, one of the most important departments of the government. There was, he thought, a very great work for a Department of Mines, and particularly in this Province. One of his first acts as minister of mines was to authorize Mr. Lindeman, an expert engineer in iron mining, to come here and explore the known deposits of iron ore on Vancouver Island, for the purpose of making a report to the government, and collecting such information as would be of advantage to those interested in the development of iron to be supplied with, so that, at as early a date as possible, if there be iron deposits of sufficient magnitude, and of the right character, capital may know about them, and be encouraged to come in and develop these great natural resources.

At Cobalt, northern Ontario, on September 5, James McGuire, president of the Cobalt Miners' Union, was charged with violating the "Industrial Disputes Investigation Act" by inciting employees of the Nipissing Mining Company to go out on strike on July 2. T. R. Drummond, manager of the Nipissing mine, gave evidence to the effect that on the date named McGuire went to the mine and addressed the men, whom he told that he (Drummond) had had trouble with men in the West, and that he would work them as hard as he could and give them as little as possible. About 200 of the men went to work at the mine next day, but 100 of them quit, and he had not since had as many men as before the strike. There had not been complaints from the men before the strike, nor had he posted any schedule altering the hours and wages. McGuire was sentenced to six months' imprisonment or a fine of \$500. Notice of appeal was given by counsel for the defence, so judgment in numerous other cases against Miners' Union officials and men was suspended until after the result of the appeal against the magistrate's decision in McGuire's case shall be known. Counsel for the defendants characterized this as the most important law case that had been tried north of Toronto, and stated that in these cases they were going to make the law for the whole of Canada. The chief witness for the prosecution, Mr. Drummond, was formerly general manager for the Dominion Copper Company and resided for some time at Greenwood, in the Boundary district of British Columbia, where he generally got along well with his men.

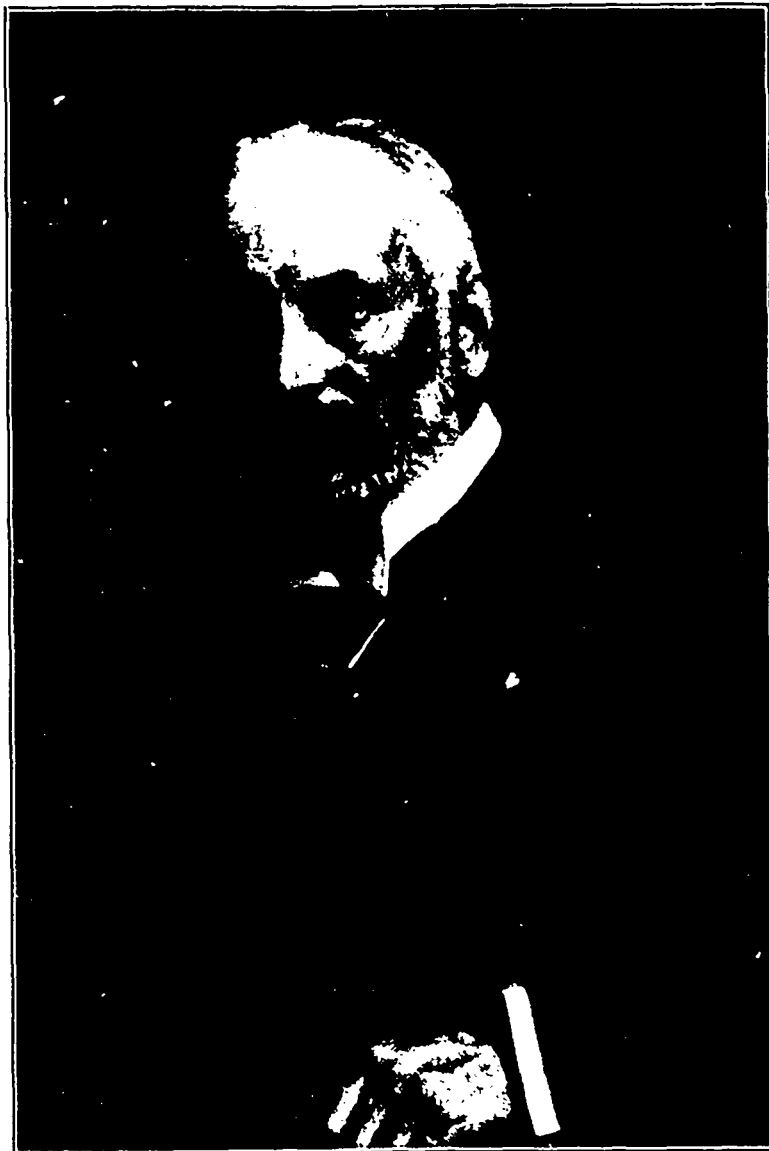
DEATH OF MR. CLERMONT LIVINGSTON.

CLERMONT LIVINGSTON, general manager of the Tyee Copper Company, Limited, died at his home near Duncan, Vancouver Island, on Sunday evening, October 20, aged 57 years. He was born at Stamford Hill, London, England. Although he never visited South Africa, he became interested in Rand mines in his younger days. Later he arrived in British Columbia from London.

After acquiring several mineral claims on Mt. Sicker, Vancouver Island, Mr. Livingston went to England and there, in the early part of 1900, succeeded in getting the Tyee Copper Company, Limited, organized and registered. He has ever since been local director and resident manager of this company, which has proved, from a financial point of view, one of the most successful of the mines in British Columbia owned by an English company. He was also instrumental in getting the Vancouver Island Mining and Development Company, Ltd., formed in London, and for this company, too, he was local director and manager.

He was energetic in promoting *bona fide* mining and smelting enterprises on Vancouver Island, and in this connection his well-known integrity and rectitude in conducting those he established gained for him general confidence. By his death the mining industry of the Island loses one who thoroughly believed in it himself and succeeded in making others do the same.

Dr. Alfred Thompson, representative of the Yukon in the Dominion House of Commons, intends to endeavour to obtain at the ensuing session of Parliament a number of concessions desired by those engaged in mining in Yukon Territory. He will continue his fight against the collection by the government of a royalty on gold recovered, contending that this impost is a burden prospectors and miners should be relieved of. A lower schedule of fees will also be asked for, the official charges in the Canadian Yukon of \$10 to \$13 for making certain records being considered very illiberal in comparison with fees of \$1 and \$2 in Alaska for filing of each instrument. A cash bonus will be sought for the erection of a copper smelter at Whitehorse, southern Yukon, where several copper mines are being opened and which find ore transportation charges to outside smelters almost prohibitory to profitable production. Further subsidies for the encouragement of the prospecting of new placer and quartz fields will also be asked for, and the necessity for establishing a gold purchasing office at Dawson whenever preparations for minting gold at Ottawa shall be forward enough to warrant this step, will be represented. Additional mail facilities, wireless telegraphy, reduction in money order charges, local examinations for land surveyors, appointment of a pure food commissioner, and other needs will be urged upon the government as well.



THE LATE MR. CLERMONT LIVINGSTON.

Clermont Livingston, general manager of the Tye Copper Company, Limited, and the Vancouver Island Mining and Development Company, Limited, died at his home near Duncan, Vancouver Island, on Sunday evening, October 20, aged 57 years. He did much to advance the industry of metalliferous mining on Vancouver Island—probably more than any other individual man connected with it. The material service he rendered has been very generally recognized and appreciated. His untimely death is universally deplored.

THE EXPORT OF BRITISH COLUMBIA
COAL AND COKE TO THE
UNITED STATES.

IT MATTERS NOT in what publication the statements of one of its well-known enemies are printed, the Crow's Nest Pass Coal Company, which is the chief producer of coke in British Columbia, is almost sure to be misrepresented. This time it is in the *Westward Ho! Magazine* (edited by Wm. Blakemore) in which it is stated editorially: "During 1906 more than 50 per cent. of the coal and coke produced in British Columbia was exported to the United States." The following official figures, taken from the "Report of the Minister of Mines" for 1906 will serve to exhibit the actual position in this connection:

	Tons of 2,240 lb.
Output of collieries for year.....	1,899,076
Taken from stock	17,230
Total	1,916,306
Sold for consumption in Canada.....	681,899
Retailed locally	2,389
Used under colliery boilers.....	170,416
Used in making coke.....	381,773
Total	1,236,477
Sold for export to U. S.....	679,829
Total	1,916,306

Allowing for coal made into coke in the proportion of export of the latter to the United States, we find that of the 1,899,076 tons of coal produced in 1906, some 782,143 tons were either exported as coal or used in making coke sent to the United States, while the remaining 1,116,933 tons were used in Canada. The former quantity is by no means 50 per cent. of the total production.

In regard to coke the misrepresentation is much greater. The official figures are:

	Tons of 2,240 lb.
Output of collieries for year.....	199,227
Taken from stock	11,670
Total	210,897

Of this quantity, 149,193 tons were sold for consumption in Canada and 61,704 tons for export to the United States. From the latter must be deducted 8,304 tons sold for export by the Wellington Colliery Company, Vancouver Island, which was taken from stock on hand at the first of the year. The actual position is, then, that of the 199,227 tons of coke produced in the Province last year only 53,400 tons were exported to the United States. It

will thus be seen that instead of 50 per cent. as so recklessly asserted by Mr. Blakemore, only about 27 per cent. of the year's production was thus disposed of.

The Mining Record trusts its readers will excuse its repeated allusions to Wm. Blakemore's statements, or rather misstatements, but they are challenged in the belief that the most effective way to stop his persistent misrepresentations is to show the frequent utter unreliability of his assertions.

THE SULLIVAN MINE, EAST KOOTENAY.

OF THE SULLIVAN MINE, which is situated on Mark Creek, near Kimberley, in the Fort Steele mining division, East Kootenay, James L. Ford, a large stockholder in the Sullivan Group Mining Company, recently said on his return from a visit to the property:

"Working a force of 50 men, both at the smelter and at the mine, the Sullivan is turning out over 100 tons of ore daily, shipping it to the Marysville smelter, and getting gross returns of about \$60,000 monthly for its output.

"The veins opened on the property average 22 ft. in width. Enough ore is in sight and blocked out to keep the smelter and mine running 12 years. Average value of the ore mined runs about 30 per cent. lead. Silver values are not generally prevalent in the ore.

"The third Huntington-Heberlein roaster to be installed at the smelter was completed several days ago. The combined capacity of the roasters is now about 120 tons daily and they are handling an average of 100 tons. After the debt on the bonds shall have been paid, plans will be made for enlarging the smelter plant, installing three additional roasters and other apparatus. A sum of \$100,000 could be easily spent at the smelter and place the company on a dividend-paying basis.

"At the present time the mine is running in the best shape; the work could not be increased at present because of the small capacity of the smelter. The Sweeney interests have been required to hand over their share of the stock, which was secured by the installation of the \$150,000 smelter and to take instead a lien on enough ore to insure payment for the smelter."

At the Spokane Interstate Fair a \$100 silver cup was awarded to the Kootenay district of British Columbia for the best mineral display. The White-water mine in the Slovan district, and the British Columbia Copper Company of Greenwood, Boundary district, were each awarded a cup valued at \$25 for individual mine exhibits. The exhibits of smelter products made by the Consolidated Mining and Smelting Company of Canada, Trail, and the Granby Consolidated Mining, Smelting and Power Company, Grand Forks, obtained diplomas for creditable displays.

THE DUNCAN SECTION OF THE LARDEAU
COUNTRY, NORTH KOOTENAY.

Compiled by E. Jacobs.

IN THE DUNCAN DISTRICT there are known to be a number of mineral claims with big outcrops of mineral, but their extensive development has been delayed year after year by reason of their being without suitable transportation facilities. Ten years ago some of these properties were noticed

following information relative to the part of the district under notice:

"TOPOGRAPHY.

"This district is very mountainous, especially that part drained by the Duncan River, and the divided summits of highly-tilted sedimentary rocks tower from 7,000 to probably 11,000 ft. in height, harbouring in the high basins and on the divides glaciers and perpetual snow, affording scenic effects of great grandeur and beauty probably unsurpassed anywhere in the Province. The mountain-sides are steep,



In the Heart of the Selkirk Mountains, Duncan-Lardeau District, British Columbia.

by the then provincial mineralogist, Wm. A. Carlyle, but comparatively little has been done during the intervening period to make this promising section readily accessible. However, since its valuable timber resources, as well as mineral, have attracted the notice of capitalists, it is not unlikely that the beginning the Provincial Government now in office has made to open up the district by roads and trails will be followed by more energetic efforts to make practicable the utilization of the abundant natural resources above mentioned. In view of this possibility the *MINING RECORD* thinks the time opportune to assist in giving publicity to the promise the district gives as a field for exploration and industrial enterprise.

In his description of the Trout Lake mining division, as printed in the "Annual Report of the Minister of Mines" for 1897, Mr. Carlyle gave the

leading down into deep, narrow valleys, which are heavily and densely timbered, more particularly in the Lardeau basins, to an elevation of 5,000 to 5,500 ft. above sea level, a condition that so far has compelled most prospecting to be done near the summits, where the rock is more exposed, with the result that the mining work now being done ranges in elevation from 5,000 to 8,000 ft., although now, guided by the known trend, some of the leads are being traced down to much lower elevations, where, in the valleys, they should be found as well, and, probably, as strong, as near the rock-bare summits.

"The under-brush, up to an elevation of about 5,000 ft., is heavy, and little or no feed for horses can be found, except near and above timber line, where it is generally excellent. The country is drained by many creeks and strong streams, which will yet prove of great value for milling and power

purposes, although in the autumn and winter months the amount of water must necessarily be of much less volume than during the rest of the year.

"Altogether, the surmounting of the natural conditions that here obtain will be in nowise greater, in the writer's belief, than those that have been so splendidly overcome in the high mountains of the Sloean, where the apparently inaccessible mines are now being made easily accessible by railways, wagon roads, trails, and the far-spanning aerial tramways. If good mines of high-grade ore are developed, the means for transporting ore to the markets will be supplied, but the mines must be first proved up before others can be expected to supply these means.

"GEOLOGY.

"Trending northwest and southeast, southwest of the Trout Lake and the Lardean River valley, is the area of the schists, gneisses, and granites, now proving to be mineral-bearing; but to the northeast of this line is a large area of highly-stratified sedimentary rocks that, for a width of 6 to 10 miles, comprises a great thickness of slates, shales, and calcareous schists, with thin beds of quartzite and limestone, also trending northwest and southeast, standing nearly vertical or dipping southwest up to the great belt of marbled limestone, or 'lime dyke,' as it is locally called, to the northeast of which the dip is to the northeast.

"This limestone formation, evidently both over- and underlain by slates, shales, etc., is evidently the apex of a very steep and acute anticline, of which the sharp crags and peaks of limestone form such a marked feature for miles through this region, or else it has been elevated to its present position along a line of faulting, although at the head of Hall Creek, near the Wagner group of claims, the evidence of a steep anticline seemed conclusive, and the dipping of the formations either way from this apex was most apparent. On the southwest side the line between the lime and slates runs straight for many miles, but more especially on the southwest side, prospectors are at work, although the veins, so far, with some exceptions, have been found in the slate and schist formations, not only near the lime belt but several miles away, as exemplified in the Silver Cup, Great Northern, and other groups, so that a wide extent of country here presents possibilities for the location of veins of pay ore, and already the discoveries so far made have not been localized but widely scattered.

"The limestone that has attracted hither many prospectors and miners who have worked in the great silver mines in the Carboniferous limestones at Leadville, and Aspen, Colorado, and know the great possibility for the deposition of rich orebodies in such a formation, is very solid and highly altered and, as yet known, not traversed and influenced by intrusions of igneous rock, of which very little is seen in the sedimentary rocks of this district, and which in some way was very potent in those parts of Colorado mentioned, in the forming of great orebodies."

THE MINERAL CLAIMS.

From Mr. Carlye's description of the numerous mineral claims in the Trout Lake mining division the following information relating to those on the Duncan slope has been extracted:

"Wagner Group—This group, or the highest mine in the Province, elevation 8,200 ft., lies on the summit between Cariboo and Hall Creeks, and thence extends southeast down the gulley below the glaciers, across the head of Hall Creek gulch to the summit separating this gulch from that one occupied by the Abbott group and drained by a stream into Haley Creek, Hall and Cariboo Creeks flowing into Duncan Lake, or in the other direction.

"The Selkirks here are very grand—the lofty, craggy peaks towering above gigantic glaciers, while the steep mountain-sides are scoured in places by avalanches or snow-slides, yet near these summits have been made discoveries of silver-galena deposits, especially near or at the line of schists and slates



View on Ferguson Slope of Selkirk Range.

with the great tip-tilted band of marbled limestone or 'lime dyke,' that stands up prominently for many miles with towering, precipitous, naked sides and castellated crests.

"On the Duncan claim on the top of the ridge, at an elevation of over 8,000 ft., a small knob or boss of slate or schists rises from the perpetual snow and ice. A zig-zag trail leads from the tents (elevation 6,500 ft.) up to these glaciers, and then across this solid mass to the tunnel, which here enters and passes along a smooth white quartz wall of a large and strong ledge, the outcrop of which runs up and over this knoll. This outcrop consists of a wide mineralized zone of bands of quartz and galena, and irregular bands of slate nearly coincident in strike and dip with that of the country rock. Strike is north 50 deg. west; dip, south 40 deg. west 70 deg.

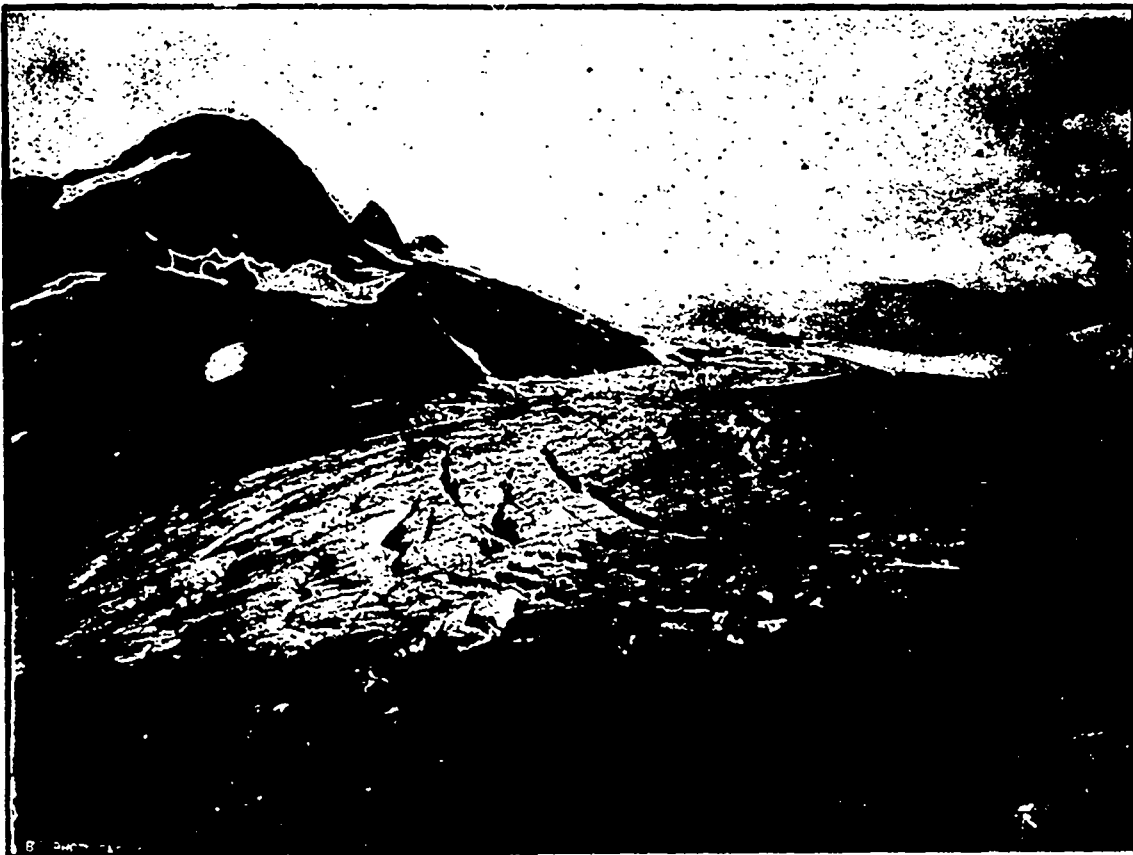
"There is much barren quartz, but there is also much carrying a good percentage of galena with

good silver values that, under the proper circumstances, may prove good concentrating ore. This zone is 30 to 40 ft. wide of mixed rock matter and ore with bands of clean galena 3 in., to 2 or 3 ft. wide.

"The tunnel follows along the smooth quartz wall with a nearly continuous streak, 2 to 20 in. wide, of clean, fine-grained galena showing in the roof, 100 ft. to the face, and two cross-cuts to the left, 8 ft. long, are still in quartz carrying a very good percentage of galena, a little iron pyrites and zinc blende and tetrahedrite, hence the width of this orebody in the tunnel was not disclosed. Since time of visit a winze has been sunk 80 ft. showing, it is stated, about the same conditions.

"The owners think there are indications of this ledge below the lower limits of the glaciers, but no tests have yet been made to verify this.

'Frances Jewell—This claim, Queen Marie, Princess Marie, and Lucille K., lie as the N.E. extension of the Wagner group, and in a 30-ft. tunnel on this claim has been found a vein of quartz, galena (silver-bearing) and grey copper. In the gulch just below the Wagner claims, and on the Queen Marie and Princess Marie, there extends for about 500 ft. a strong vein of banded, coarsely crystalline quartz, 10 to 15 ft. wide, very slightly mineralized with pyrites and galena. Practically no work has been done on this exposure, nor have any values been found, but this may yet prove to be important and



A Glacier in the Selkirk Mountains, Duncan-Lardeau District, British Columbia.

'The method of working this property and the transport of the ore down to a concentrator will present some unique features, as the workings and aerial tramway will have to be located so as to be safe from snowslides; but much more work is necessary to determine the extent and value of this interesting vein before such are considered.

"This ore will, in every probability, have to be exported via Hall Creek and the Duncan River, as the trail from Ferguson, about 24 miles long, is a hard one and climbs over two divides. There is little or no timber upon these mountains except down in the valleys, and fires have burned over a lot of ground.

significant.

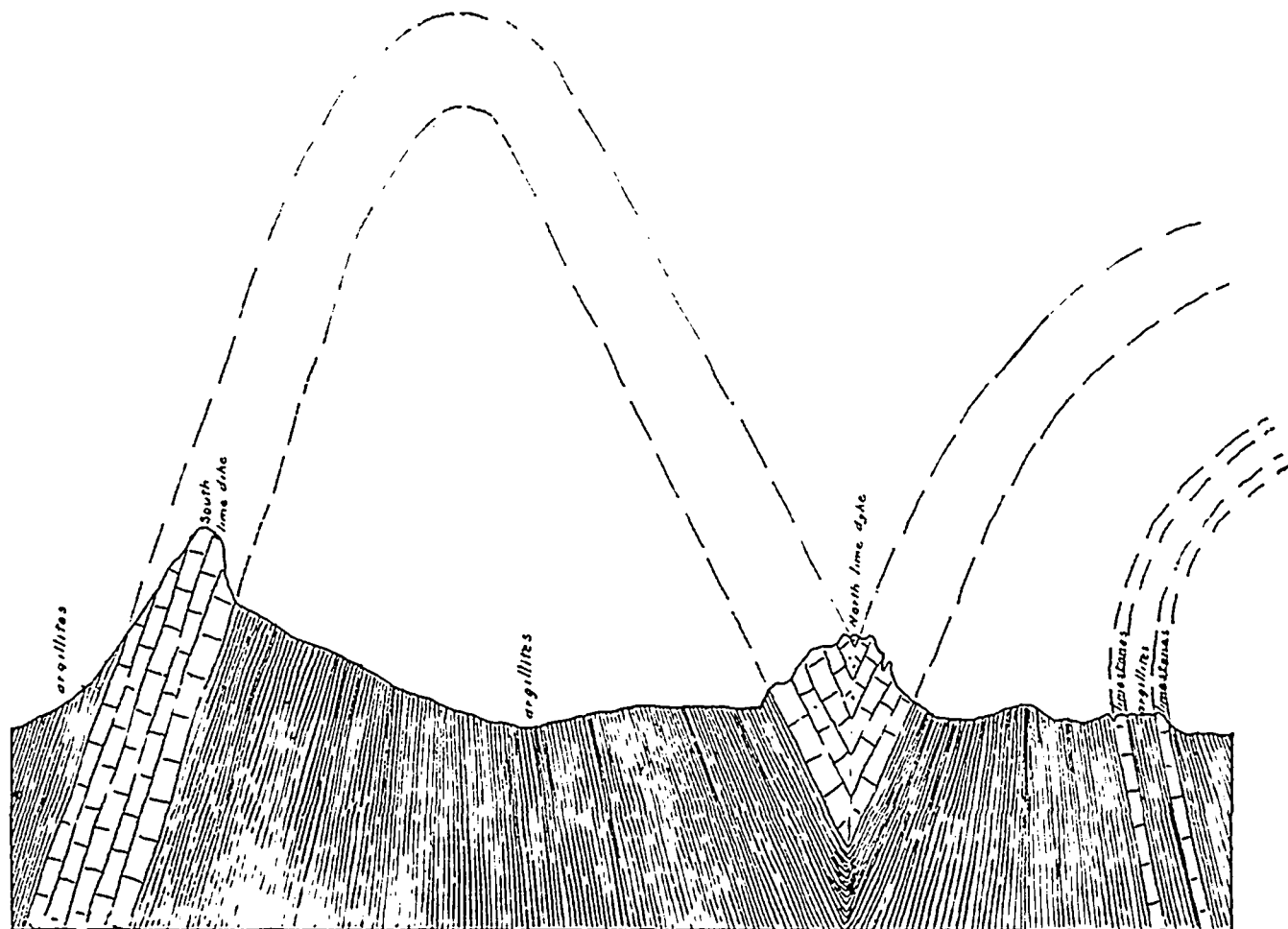
"Other Claims—The Laura J. and the Ward lie along the steep face of the slate cliffs parallel to the Wagner vein, and a narrow vein of silver-bearing galena can be traced for a considerable distance, assessment work on which is said to have given very favourable results. Death-on-the-Trail, Little Tommy, Bell Flower, and others, owned by the Duncan-Lardo Mining Company, were recently located on stringers of galena in the slates underlying the limestone of the 'lime dyke.' Assessment work was being done.

"Abbott Group—The Abbott, King William, and Marion lie southeast of the Frances Jewell, in a

large basin drained by Haley Creek. On the Abbott claim there is said to be a small vein of about 20 in. wide of galena high up on the steep side of the 'lime dyke,' to tap which a tunnel was being driven (now in about 300 ft.) until two men were killed in a snowslide, since when no work has been done.

"Bannockburn Group—This property lies up in the high basin east of the 'lime dyke' to the south

(Note—When at Kaslo last autumn the editor of the *MINING RECORD* was informed by a mining man familiar with the Duncan country that on the Bannockburn group galena had been cut in trenches along a distance of about 175 ft. It had been cut in eight or nine places and varied in width between 2 and 5 ft. Assay values were 60 to 65 per cent. lead, and about 45 oz. silver and \$8 gold to the ton.



Section on Range East of Porcupine Creek, showing Lime Dykes.

"At the head of Gainer Creek the structure is revealed by the lime dykes. The first (most southwesterly) dyke is formed by the outcropping of a limestone band in the southwest limb of an appressed anticline. A subordinate anticline and syncline with the anticlinal arch eroded, the syncline still remaining, forms the second dyke, as shown in the accompanying diagram. A few miles to the southeast, on the ridge east of Cariboo Creek, the minor fold is a syncline and the major anticline is slightly overturned so that the limestone band dips a trifle northward. The northwestern limb of this great fold probably occurs away to the northwest of the West Fork of the Duncan, where a range appears to be composed of limestone."—R. W. Brock in his report on the Lardeau District, *vide* "Summary Report of the Geological Survey Department of Canada for 1903," p. 55.

of about 1,000 ft. above Hall Creek. Three galena veins are reported, but only a few shallow surface cuts have been made to develop. This galena is said to carry medium silver values, one assay returning 35 oz. silver and about \$5 in gold per ton, and 70 per cent. lead.

"Cariboo Creek—Prospectors were busy during the past season up this week, which lies northwesterly from Hall Creek, and important finds were reported on claims staked off on both sides of the 'lime dyke.'"

The lode had been traced fully 4,000 ft., and ore had been encountered wherever a trench had been cut along that distance. It was described as "the biggest surface showing in the country."

The next following paragraphs have been taken from reports made by R. W. Brock, of the Geological Survey Department of Canada, who spent the greater part of the field-work seasons of 1903 and 1904 in

the Lardeau district. In the course of his report for 1903 Mr. Brock observed:

"PHYSIOGRAPHY.

"The district lies in one of the most rugged and picturesque portions of the Selkirk Mountains. Huge, massive mountains, culminating in lofty craggy peaks, supporting numerous glaciers and perpetual snowfields, are separated by steep-walled, narrow valleys. The mountains are in an early stage of their life history, and are therefore thoroughly Alpine in character. The altitude of the mountains gradually increases going northward and eastward from the head of upper Arrow Lake, from rather more than 8,000 to perhaps 11,000 ft., north and east of the Duncan River. . . .

shaped; the larger, steep-walled and U-shaped. The gradient of the lower part of the valley is usually steep for a few miles, trenched into a canyon near its mouth by the occupying stream. The middle portion has a moderate slope, while at the extreme head it rises steeply to a funnel-shaped basin or a park-like amphitheatre. These valleys dissect the district into a number of mountain ridges, having in general a northwest-southeast trend, with offsetting ridges at right angles. These mountains are big, blocky masses terminating in rugged, narrow, serrated ridges whose even sky-line is relieved in detail by numerous pinnacles and spires. This even sky-line, which is a striking feature in a panoramic view from almost any peak, is remarkable in so moun-



Camp on the Empire Group at the Head of Cariboo Creek (in 1899).

"There are two main longitudinal valleys in this part of the country, which have in general a north and south trend. These are the Columbia and Arrow Lake valley in the west, and the Duncan-Kootenay valley in the east. The valleys tributary to these, in the district examined, depend for their direction largely upon the local structural features of the rocks, which are mostly stratified or schistose, folded in general along northwest and southeast axes, with a vertical system of master-joints at right angles to the direction of the folding. Conforming to this structure, the valleys are northwest and southeast, or at right angles to this, except where influenced by local peculiarities. . . .

"The smaller valleys are deep, narrow and V-

tainous a district. It seems to be due to sameness in physical and structural conditions of the rocks over a wide area, with perhaps planation by the Cordillerian ice sheet. Where the country rock is granite or limestone, the mountains are loftier and the sky-line becomes uneven. A thin band of limestone (known locally as the 'lime dyke') is a conspicuous feature in the topography. It forms wedge-shaped ridges which rise precipitously above the surrounding country, and weather into castellated and fantastic forms resembling the famous Dolomites of the Alps. It formerly was the divide between streams draining into the Duncan and Lardeau Rivers, but many of these have now been sawn through it by a headward growth. The ridges do not taper off gradually as

they approach the valley, but run steeply down to the valley level. The ends of the ridges running into the larger valley have all been truncated."

THE STRATIFIED ROCKS.

Under this head Mr. Brock says, in part: "When metamorphosed, the limestone becomes white and crystallized. Some of these bands form pure, white, fine-grained marble, in hand specimens at least, resembling the fine qualities of marble used for artistic purposes. The limestone beds, which vary in thickness from a few inches to several hundred feet, are distributed somewhat sparingly through the slates and phyllites, except in certain zones. They are more abundant along the northeastern portion of the district examined, where the thickest bed forms the well-known lime dykes. The limestone of the lime

and schists are also silicified in places, and have quartz veins, lenses and stringers developed in them. At several points along the mineralized belts, massive quartzites occur."

MINERAL IN THE LIME DYKE SERIES.

In his notes on the mining geology of the Lardeau Mr. Brock says (in Report for 1903, p. 70) of the "lime dyke" mineral belt: "The lime dyke series of rocks forming a belt along the head waters of the tributaries of the Lardeau, and west fork of the Duncan, is well mineralized, but on account of the altitude and distance from transportation, development has necessarily been slow. Were it not for the metamorphism which some of the rocks have undergone, and the prominence of limestone, there is little difference between the rocks and ores of this belt and



A Miner's Summer Quarters in the Duncan-Lardeau District, British Columbia.

dykes is mostly white and crystalline, but some less altered portions are drab or dark-coloured. In some portions it is replaced partly or wholly by white silica, and quartz stringers form a network through it. These outstanding on account of weathering, make it possible to scale the precipitous peaks which would otherwise be quite inaccessible. As is common in limestone, waterways have been dissolved in it, forming caverns, natural bridges, winze and tunnel-like openings in which dog-tooth and nail-head spar, concretionary limonite and large masses of concentric, radiated aragonite are developed. The aragonite is of beautiful shades of honey-yellow, green and bluish green, and can be obtained in masses as large as 18x12 in. The slates, phyllites

those of the central mineral belt of the Lardeau. They contain numerous diabase and porphyrite dykes and sheets; bands of green schist are also met with. The rocks are compressed into folds, so that while the strike is fairly constant, the dip varies from north to south. The possible influence of the folding upon the orebodies should be borne in mind in exploiting the ores of this district. Somewhat auriferous silver-lead ores and siderite-bearing quartz veins are found in this belt also."

Again (in Report for 1904, pp. 87-8), Mr. Brock states that: "Mineralization extends along both sides of the 'lime dyke' or to a limited extent in the lime itself. The Wagner claim is situated on the divide between Haley and Cariboo Creeks, west of

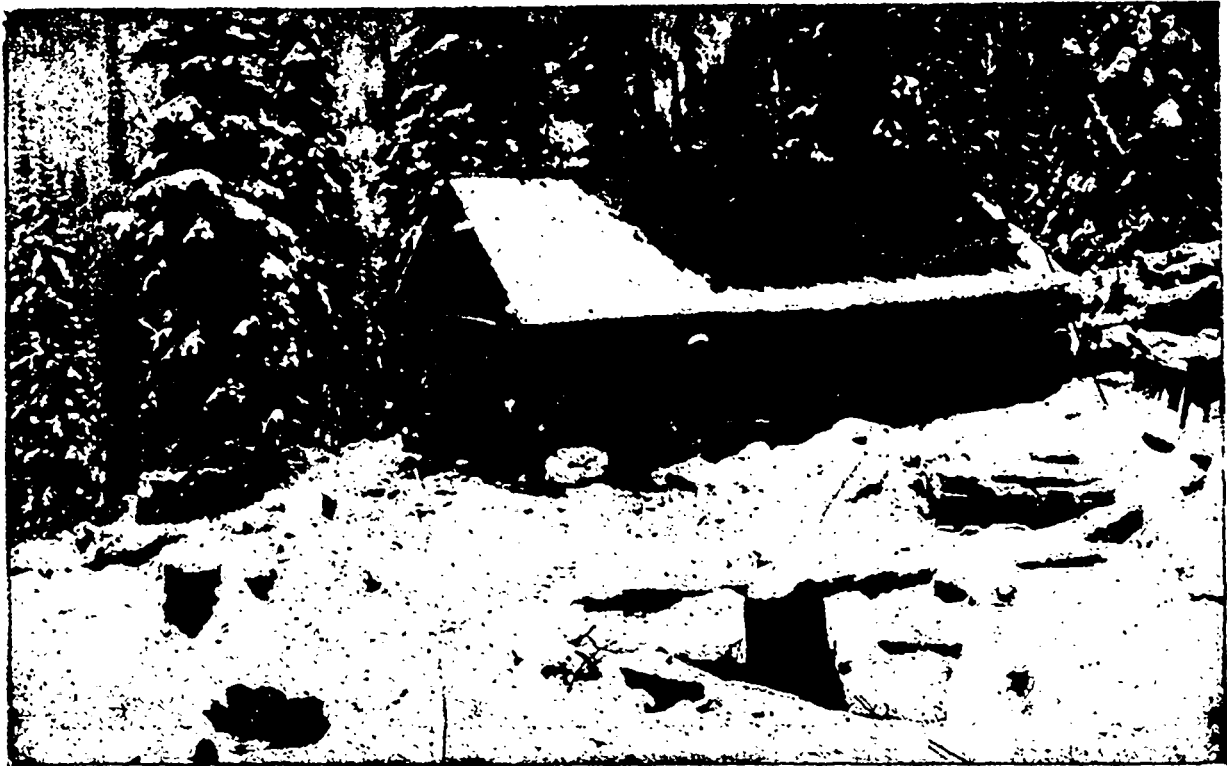
the 'lime dyke,' at an altitude of over 8,000 ft. The workings are on a small knoll above a glacier which has to be crossed to reach the mine. The vein is situated in corrugated slates with diabase schists. A band of lime, filled with an almost microscopic network of quartz stringers, occurs in the slates of the hanging wall which are contorted and faulted by thrusts on a minute scale. The lower body consists of several veins of quartz which unite into one mass several feet wide which splits up into small veins and stringers. The ore consists of galena with some pyrite and grey copper. The galena is cubical, sometimes fine but mostly coarse, and occurs in masses up to a width of 6 in. Blobs of quartz appear in the galena and, in places, crystals of quartz, up to 1 in. thick and 2 in. long, are imbedded in the ore. The

climatic conditions, in the absence of an influx of capital, have discouraged prospecting and development, but until a tonnage has been developed it is scarcely to be hoped that conditions will be materially improved. Gold is reported to have been found during the summer in a large pyrite vein on Hall Creek."

In one of his reports Mr. Brock says: "The 'lime dyke' belt may also be prospected for gold. Numerous quartz veins, similar to those in the gold camps, occur in it under like conditions and it is altogether probable that some of them are gold-bearing."

FROM A DISTRICT NEWSPAPER.

The *Kaslo Kootenai* lately published the following article:



Winter Quarters in the Duncan-Lardeau District.—A Typical Miners' Cabin.

vein quartz is inclined to be drusy and these druses are frequently filled with ore. About 20 ft. to the south is a second vein, 6 in. wide, of massive galena. The workings are said to consist of a tunnel 100 ft. long with a cross-cut and a winze 60 ft. deep. At the time of our visit they were inaccessible on account of snow.

"The Abbott, on the Haley Creek slope, and the Bannockburn, on the Hall Creek side of the 'lime dyke,' have been developed by cross-cuts to tap ore exposed on the surface, but no considerable quantity of ore has been exposed. There are numerous other claims along the southern part of the lime band, but little work more than that required for assessment or Crown-granting has been done. The inaccessibility of this portion of the district and its severe

Col. Ridpath, of Spokane, one of the most prominent mining men in the Pacific Northwest, was a recent visitor to this part of the country. He was amazed at the immense surface showings of the property, and remarked "it is the biggest proposition undeveloped I have ever seen."

The Wagner group is a silver-lead property consisting of the Duncan, Lardo, Princess Marie, Queen Marie, Frances Jewell, and Lucille K. mineral claims and three fractions. They adjoin the Abbott group on the southeast and follow the vein in a northwest direction along the west side of the well-known "great lime dyke."

The work performed on the Wagner before this season, was purely prospective in character. The vein has been exposed by the open cross-cuts, and

small workings on nearly all of the nine claims, and good bodies of ore have been uncovered on each. But most of development was confined to the Duncan claim, which lies near the apex of the range on the north side of Hall Creek.

The principal of this work consisted of driving a 100-ft. tunnel, with a vertical depth at its face of 76 ft. This tunnel is on the southeast slope, and is in and follows the foot-wall of the vein in a northwest course. Two cross-cuts were also driven. No. 1 is at a point 60 ft. from the mouth of the tunnel, and, while only 11 ft. long, shows an ore body 7 ft. wide. A shaft sunk here to depth of 56

could be shipped from the surface showings of the Duncan alone, and all the other claims are reported as equally promising. This is what Col. Ridpath saw during his recent trip through that section.

On the Wagner group, which had been idle for years, operations were resumed some months ago under the management of T. C. Porter of Spokane. In spite of transportation difficulties encountered development is being proceeded with. It is intended to continue work throughout the winter and supplies have been shipped in for this purpose.

Possibly, from the undeveloped mineral point of view, the Hall Creek section is without an equal



Felling Timber in the Duncan-Lardeau District, British Columbia.

ft. exposed a strong body of galena ore 8 ft. in width. At the back of the main tunnel is cross-cut No. 2, which was driven southwest about 45 ft. It also cut into an 8-ft. body of excellent ore in a gangue of quartz and slate. Average assays of the ore taken from different parts of the Wagner during prospect work, gave returns of 132 oz. of silver and 46 per cent. lead, while the average of six tests yielded \$1.50 in gold.

The surface showing of the Duncan from below the mouth of the tunnel to the top of the range is a most remarkable one, and is seldom equalled either in size or regularity. Ore and quartz, and ore in massive bodies have been exposed by erosion to a width of from 20 to 35 ft., containing more clean ore than concentrating. Even with the little work done it has been estimated that 6,000 tons of ore

in Canada. The surface showings are immense, and without tunnelling would yield thousands of tons of ore. The properties known there have been barely opened, the work on the Wagner group being the most extensive so far. Nearby is the Bannockburn group, which for big surface showings almost rivals the Wagner, while in the same locality is the Red Elephant group, similar in abundant surface showings to its neighbours. The big Abbot group is in the same section, and these are only a few of many that might be named.

The principal, and in fact only, cause for the present neglected state of the Hall Creek district, is lack of transportation. This has caused its known valuable mineral resources to be overlooked in the past, and also has been the reason why so little work has been performed on the big veins. It was no use

taking out ore when the cost of getting it to the nearest point and of smelting, would consume the proceeds, consequently little beyond assessment work, to obtain Crown grants, has been done. However, we look for a big change in that locality in the near future. Our policy of publicity is bearing fruit. The district is coming into prominence, and it is this section of the Duncan Valley that will later be one of the most important factors in the upbuilding of Kaslo.

Still more recently the *Kootenaiian*, after a representative had paid a flying visit to Hall Creek, published another article, from which the following excerpts have been taken:

The Wagner group is owned by the Wagner Mines, Limited, of Spokane, Washington. There are 15 Crown-granted claims in the group. On six of these only has work of any account been done, although on nearly all of the claims galena ore can be quarried from the surface without much use of powder. Development work on the Frances Jewell, Princess Marie, Queen Marie, Lardo and Duncan, has put enough ore in sight to show them to be mines in so far as ore is concerned.

On the Duncan claim the greatest amount of development has been accomplished. A drift has been run along the hanging-wall for a distance of 100 feet. Cross-cuts from this have been made and a winze sunk and in these the orebodies are as big and important as on the surface. The ore shoot on this claim averages 12 ft. in width and is made up of clean and concentrating ore. Assays of the former have shown 300 oz. silver and 60 per cent. lead. Some 70 samples taken from across the surface at various places, in order to get an average assay, gave returns of 15 to 19 per cent. lead and 28 to 31 oz. silver. It can be easily seen that concentration will bring this up to a high-grade shipping product. There will be no problem out of the ordinary to deal with in concentrating these ores. It is expected that they will concentrate about 4 to 1.

On the Princess Marie and Queen Marie, the creek has stripped the ledge for a distance of 800 ft., exposing a body of concentrating ore 15 to 25 ft. wide for the whole distance. The ledge matter is the usual white quartz. The ledge lies within the slate dyke. The ore shoots crop out at intervals and in places appear to be almost continuous. It is stated by those who have been over the ground, that the whole of the slate dyke, for a distance of 18 miles, has similar remarkable ore showings.

The Abbot group lies in the green schist formation, while the Bannockburn is in the lime. These two groups run parallel with the Wagner, but at a higher altitude, the erosion of the soft slate leaving the lime and slate as parallel ridges on either side.

The Wagner and St. Eugene were both sampled ten years ago by the late Maurice A. Bucke, M.E., then resident at Kaslo, who was on the lookout for a big silver-lead property for Eastern capitalists. He

reported in favour of the Wagner, but lack of railway transportation to the Duncan and the construction of the Crow's Nest railway a year later, gave the Moyie property the preference. And the St. Eugene is the greatest lead producer in Canada today.

* * * * *

Work on the Wagner this past summer was confined largely to the building of trails and preparation for some active mining next summer, when it is expected enough ore will be shipped to pay all expenses. The head office will be located in Kaslo, supplies bought here and this city made the base of subsequent operations which will shortly assume immense proportions. We have the best of authority for stating that the Great Northern officials will place the SS. Argenta on Howser Lake next fall, which step, so long delayed will go a long way towards solving the transportation problem.

AN ENTHUSIAST'S STATEMENTS.

The Consolidated Mining and Smelting Company of British Columbia has been organized to consolidate the following companies: Old Gold Quartz and Placer Mining Company, Primrose Gold Mining Company, Mountain Lion Mining Company, Treadwell Gold Mines Company of British Columbia, and Lardeau-Duncan Gold, Silver and Copper Mining Company. Judge J. M. Miller of Trout Lake City had long been endeavouring to bring about this consolidation, and when met in Nelson last autumn he informed the editor of the *MINING RECORD* that he was then about completing the consolidation and that the company had done a considerable amount of work on mineral claims situated at the head of the west fork of Duncan River. He expressed the opinion that no part of British Columbia not yet provided with transportation facilities offers so large a tonnage as does the Duncan country. The substance of his further remarks on that occasion is contained in the following:

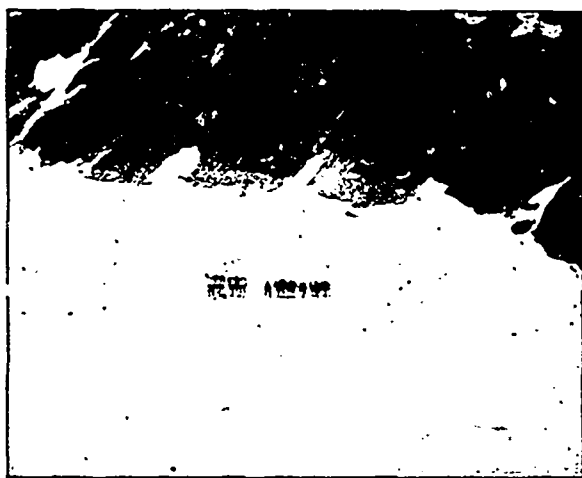
The first need of the Duncan country is transportation. Some years ago the J. J. Hill (Great Northern Railway) interests graded 12½ miles of road bed from the head of Kootenay Lake to the foot of Howser Lake. The latter lake and Duncan River are navigable together about 28 miles from the end of the grading north to Hall's Landing. From the Landing to the west fork of Duncan River, about 18 miles, a one per cent. grade can be obtained for a railway; thence up the west fork for about nine miles the grade would be 2½ per cent.

TIMBER AND MINERALS.

The district has immense natural resources in timber and minerals. Its timber is probably the finest in size and heaviest in growth to be found anywhere in the big Kootenay country. It is practically all taken up and held by McGoldrick & Company (of Minneapolis, Minnesota, and Spokane, Washington) and several others. McGoldrick & Company have "corralled" timber roughly estimated

at 250,000,000 ft. The timber is taken up for 22 miles above the west fork. But before the timber can be turned to commercial account wagon roads or railways must be built to admit of logging and saw-mill plant and machinery being taken in and to provide transportation facilities for shipping lumber. The time seems to be ripe for establishing mills and utilizing these enormous timber resources.

As to the mineral resources of this section—ore could be shipped today from 15 to 20 mines if there were suitable transportation facilities to allow of its being done. There are immense orebodies awaiting development in the parts of the district that have been partly prospected, but only the west side of the Duncan has had any attention, and that has simply been run over. On the east side of the river much of the country has not been prospected at all; what has been examined shows the occurrence of large orebodies carrying good values. Nearly all the properties yet prospected in the Duncan country run well in gold, but the principal values are in silver, lead and zinc, with a fair percentage of copper. Recently there have been reports of discoveries of gold-bearing



Pack Train Crossing a Glacier in the Selkirks.

ore; one in particular was of lode 6 to 23 ft. in width, traced across two claims, assays of ore from which returned \$14 to \$28 in gold.

While considerable work has been done on a number of mining properties only small quantities of ore have been shipped, the expense of "packing" it over the mountain trails having been too great to allow of more being sent out. When suitable transportation shall have been provided, though, the Duncan district will prove one of the finest mineral sections in British Columbia.

A railway survey was made up the west fork of the Duncan some time ago by Minneapolis capitalists and it is understood they are looking into the position with a view to arranging to build a railway there.

Access to the district at present is by trail 18 miles from Hall's Landing to the west fork of the Duncan, or by trail from Ferguson up the north fork of

Lardo Creek and over a divide 4,000 ft. high—a distance of 9 or 10 miles from Ferguson to the top of the divide and thence 8 miles down to the west fork of the Duncan. This trail passes a number of mining properties, including the Old Gold, Guinea Gold, Consolidated, Comstock, and others, all of which have worked, some extensively. The Old Gold has a large quantity of ore ready to be shipped whenever transportation shall be provided. The Guinea Gold also has considerable ore. From three or four of the properties in this camp small trial shipments of ore have been made to a smelter, and from these values ranging from \$64 to \$146 per ton in gold and silver obtained. Most of the claims are held by prospectors, except those on Hall Creek, and much work has been done in past years, but now they are waiting for transportation to be provided. Only for about three months in the year can prospectors depend upon getting pack-horses over the divide from Ferguson and even then snow has to be crossed in places, so the outlet for the west fork country must be down the Duncan River. At Haley's ranch, Hall's Landing, hay and vegetables are grown. A packing "outfit" is kept here and the horses are generally in excellent condition, the rushes, etc., making good feed. The snow on the Duncan slope is not as heavy by one-half as that on the Lardeau side of the divide.

On some of the claims there are good cabins. Everywhere there are fine water powers available; water runs from the many glaciers the year round all the way down the Duncan, particularly from the "lime dyke." There is plenty of timber for mining. It is a fine game country—bear, goat, caribou, timber wolves, grouse, fool hens, ptarmigan, etc.

The Mount Bischoff Tin Mining Company, Tasmania, recently declared another dividend, of five shillings per share, which makes the amount paid since the inception of the company £175 15s. per share, and a total of £2,406,000.

A published comparative statement of copper exports from the United States during seven months to August 1, last, compiled by the secretary of the New York Metal Exchange, shows that there has been a falling off as compared with the corresponding period of 1906, as under:

	In tons of 2,240 lb.	
	1907.	1906.
United Kingdom	10,400	15,867
France	18,409	19,856
Germany	23,346	28,962
Holland	32,982	40,610
Belgium	793	1,268
Austria	4,894	5,976
Italy	4,158	4,465
Russia	746	836
China and Japan	22	1,613
Sundries	1,538	621
Total	97,288	120,074

NEW AGREEMENT BETWEEN WESTERN FUEL COMPANY, LTD., AND ITS MEN.

Satisfactory Outcome of Recent Negotiations.

THE OUTLOOK FOR NANAIMO appears more promising, in regard to its coal mining industry than at any previous period in the history of the important and productive coal mines long worked in the vicinity of that town. During September meetings were held and the situation was carefully considered, with the result that a new agreement was drawn up, voted upon by the company's employees, and, after having received the support of a majority of the men, was signed by representatives of the two parties to it. For a few days the drivers in the mines declined to accept it, contending that they were entitled to higher wages than had been provided for in making up the schedules, but finally they accepted the terms of the agreement and resumed work. The *Nanaimo Herald* published the following on September 29:

Below will be found the new agreement entered into yesterday between the Western Fuel Company and its underground employees to replace the agreement which expires tomorrow, and which will govern conditions in the local mines for the next two years. The agreement was submitted to the men at a mass meeting held on the Green yesterday morning, and was voted on at the court house, with the following result, a two-thirds majority being required to defeat the agreement:

For agreement	461
Against agreement	408
Majority for agreement	53

The main points of difference between the new agreement and the old are that the men are given free transportation to and from Protection Island, and the 10 per cent. bonus they have been receiving for some time is made permanent for the next two years.

In the following table the ten per cent. advance is not added, so to arrive at the correct rate of wages under the new agreement it will be necessary to add ten per cent. to rates as printed herein:

Memorandum of Agreement entered into this thirtieth day of September, A.D., 1907.

Between:

The Western Fuel Company, hereinafter called "The Company," of the first part;

And:

The Employees of the Western Fuel Company, represented by a committee of five elected at a duly called mass meeting held August 24, 1907, hereinafter called "The Men," of the second part.

Witnesseth—That for and in consideration of the several conditions hereinafter mentioned, and the mutual advantages of the parties it is agreed by and between the parties hereto as follows:—

First—The rates, terms and conditions in effect at both Number 1 and Northfield mines, during the

month of September, 1907, shall continue in effect during the term of this agreement, except as herein-after provided.

Second—The company agrees to continue the payment of the present bonus of ten per cent.

Third—The company will absorb the expense of operating the Protection Island ferry.

Fourth—The system of dockage inspection as practised at both Number 1 and Northfield mines shall be continued with penalties for refuse matter as follows:—

No. 1 Mine—Up to and including 50 lb. of refuse per car, double dockage; over 70 lb. and including 100 lb. of refuse per car, confiscation of car; over 100 lb. of refuse per car, dismissal after investigation.

Provided, that any party dismissed may have right of appeal to the superintendent of mines, whose decision shall be final.

Fifth—The company agrees to a minimum rate of three dollars (\$3) per shift for miners in the lower seam workings of Number 1 and Northfield mines.

It being understood that the superintendent of mines shall be the judge as to the ability of the party to earn such minimum.

Sixth—The company agrees that when a miner is taken from the face to perform day work he shall receive the miner's day rate.

Seventh—The schedule for loading coal to be as follows:—

Upper seam, 30 cents per ton.

Lower seam, 35 cents per ton.

And for using buggies and loading roads:

At No. 1 Mine—

First 75 ft. from dump to face line, 5 cents per ton additional.

Second 75 ft. from dump to face line, 10 cents per ton additional.

At Northfield Mine—

First 50 ft. from dump to face line, 5 cents per ton additional.

Second 50 ft. from dump to face line, 10 cents per ton additional.

Third 50 ft. from dump to face line, 15 cents per ton additional.

Eight—The schedule for rock in coal of upper seam to be as follows:

When rock is 1 ft. thick, \$1 per yd.

When rock is 2 ft. thick, \$2.40 per yd.

When rock is 3 ft. thick, \$4 per yd.

Above schedule applies only to solid work with stalls 21 to 27 ft. wide. Skipping pillars take one-half these rates.

Ninth—The schedule for timbers to be as follows: Stringers—

50 cents each when 8 ft. long and under.

\$1 each when over 8 ft. long.

Sets—

\$1.50 each for 9 ft. collars.

\$2 each for 11 ft. 4 in. collars.

Tenth—The mining yardage, and day rates for

No. 1 mine shall be as shown on Schedule A, hereto attached, and which schedule is made part of this agreement.

Eleventh—The mining yardage and day rates for Northfield mine shall be as shown on Schedule B, hereto attached, and which schedule is made part of this agreement.

Twelfth—The company agrees to meet the committee of five, or a sub-committee thereof, on matters relating to this agreement or any new matter changing the status thereof.

Any vacancy on the committee of five to be filled at a duly called mass meeting of the underground employees of the company, or by a pit head ballot at the mine from which the vacancy exists.

The committee of five to have the handling of the check-weighman's and gas committee funds.

Thirteenth—The term and duration of this agreement shall be for a period of two years, beginning October 1, 1907, and terminating September 30, 1909.

Fourteenth—It is agreed to by the committee that all employees working for the company during the month of September, 1907, and who continue to work for the company after the execution of this agreement shall by such action be understood as agreeing to and endorsing the terms and conditions of this agreement.

All new men accepting employment after October 1, 1907, shall endorse this agreement by their signatures in a book containing a copy of this agreement and kept in the company's office.

Fifteenth—This agreement to be effective shall bear the signature of the manager and superintendent of mines for the company, and the committee of five for the men and the approval signature of the president of the company.

SCHEDULE A.

Mining, Yardage and Day Rates.

No. 1 Mine.

Mining—

Upper Seam—68 cents per ton.

Lower Seam—80 cents per ton.

Yardage—Upper Seam—

Levels, \$2.50 per yd. and coal.

Cross-cuts, \$2 per yd. and coal.

Levels when less than one-half of height is in white rock, \$7.50 per yd., coal to company.

Levels, when more than one-half of height is in white rock, \$8 per yd., coal to company.

Turning Stalls—

5 yd. long by 12 ft. wide—\$10 and coal.

Day Rates—

Fire Boss\$3.25

Shotlighters 3.00

Bratticemen 2.60

Timbermen 3.00

Timbermen's helpers 2.60

Tracklayers 2.75

Tracklayers' helpers	2.60
Roadmen	2.60
Drivers—Boss	3.00
" —Double	2.75
" —Single	2.60
" —Boys	\$1.50 to 2.25
Pushers	2.60
Linemen	3.00
Motormen	2.75
Motormen's assistants	\$1.50 to 2.25
Engineers, diagonal slope	2.75
Engineers, endless rope	2.25
Winchers	\$1 to 2.60
Rope inspector	3.00
Endless ropes, boys	\$1.25 to 1.75
Endless ropes, men	\$2.60 and 2.75
Rope riders	\$1.50 to 2.60
Door boys	1.00
Cagers	3.00
Cagers' assistants	2.60
Miners	3.00
Loaders	2.60
Machine runners	\$3, \$3.25, 3.50
Machine helpers	2.60
Drillers	\$3, \$3.25, 3.50
Brushers	2.75
Muckers	2.60
Cogmen	2.60
Labourers	2.60
Pipemen	\$2.60 and 3.00
Pumpmen	2.60
Stablemen	2.60

SCHEDULE B.

Mining Yardage and Day Rates.

Northfield Mine.

Mining—

Upper Seam—68 cents per ton.

Lower Seam—80 cents per ton.

Yardage—Upper Seam—

Same schedule as for No. 1 mine.

Turning Stalls—

Same schedule as for No. 1 mine.

Day Rates—

Fire boss
 \$3.25 |

Shotlighters
 3.00 |

Bratticemen
 2.60 |

Timbermen
 3.00 |

Timbermen's helpers
 2.60 |

Tracklayers
 2.75 |

Tracklayers' helpers
 2.60 |

Roadmen
 2.60 |

Drivers—Boss
 3.00 |

" —Double
 2.75 |

" —Single
 2.60 |

" —Boys
 \$1.50 to 2.25 |

Pushers
 2.60 |

Rope inspector
 3.00 |

Endless ropes
 \$2.25 to 2.75 |

Winchers
 \$1 to 1.50 |

Door boys	1.00
Cagers	2.75
Miners	3.00
Loaders	2.60
Machine runners	\$3, \$3.25, 3.50
Machine helpers	2.60
Drillers	\$3, \$3.25, 3.50
Brushers	2.75
Muckers	2.60
Cogmen	2.60
Labourers	2.60
Pipemen	\$2.60 and 3.00
Pumpmen	2.60

Signed for the Company—

THOS. R. STOCKETT, Manager.
THOS. GRAHAM, Superintendent.

Signed for the Men—

DAVID ROGERS, Jr., Chairman.
JAMES MILLER, Secretary.
THOMAS BOOKER,
JOHN CARR,
E. EDWARDS.

MINERAL EXHIBITS AT NELSON FAIR.

Ores From Nearly 60 Mines Were Exhibited.

NELSON'S MINERAL DISPLAY was the best made in British Columbia at any of the annual exhibitions of this year. Judging, though, by the comments made thereon by the *Nelson Daily News*, it was neither as large nor as good as might reasonably have been expected under the circumstances that Nelson is centrally situated among the mining sections of the Kootenay, is easily accessible from the chief mining camps, and is the distributing point for a considerable area of mining country. However, it is encouraging to find even one of the larger towns of the Kootenay and Boundary mining districts making an effort to induce mine owners to display ores for the information of those interested in the mining industry, and, too, it is gratifying to note that several of the larger mining companies responded to the appeal of the fair management by sending excellent exhibits, some of minerals only and others of ores and smelter products. In addition, it was well that advantage was taken of the unexpected opportunity that presented itself to obtain the services of two visiting experts to judge the mineral exhibits and to offer suggestions for future guidance, when other, and it is earnestly hoped larger and more varied displays of minerals shall be made in competition for the valuable prizes so generously offered.

The report of the *Daily News*, which gave deserved prominence to this section of what was, in other respects as well, a very creditable exhibition, was as under:

The following are the results of the competition for the mineral exhibits at the fair, which were

judged yesterday by Messrs. R. W. Brock and W. H. Boyd of the Geological Survey of Canada:

Best display of gold milling ores: Poorman-Granite mine, near Nelson.

Best display of silver-lead ores: Elkhorn mine, near Sandon, Slocan.

Best display of copper ores: No award.

Best display of zinc ores: Whitewater mine, Slocan.

Best display of dry silver ores: Hewitt mine, near Silverton, Slocan Lake.

Best display from any individual prospect, shewn by *bona fide* owner: No award.

Best display of ores from Rossland district: Cup retained for next year.

Best display of ores from Boundary district: Cup retained for next year.

Best display of ores from Lardeau district: No award.

Best display of ores from Slocan district: Silverton camp mines.

Best display of ores from Nelson and Ymir district: Cup retained for next year.

It will be noted that of eleven prizes offered only five were awarded by the judges. In some cases this was because there were no entries for the prizes and in others the displays were considered not worthy. Of the district displays of ores, which should be the chief feature of the exhibits, there was only one really good entry and that was from a group of mines around Silverton, which won the really fine silver cup donated. There were offered for competition three other cups of even greater intrinsic value, but there were no entries in place for them and the judges properly withheld them for competition next year.

There are more than 200 shipping mines in the district, and they were not at all adequately represented in the exhibit. Much of the ore exhibited was collected by Harry E. Wade personally around Nelson, and, indeed, if it had not been for his exertions the display of ore, which was good considering the very limited time at his disposal, would have been even less representative.

PROPERTIES REPRESENTED BY EXHIBITS.

The mines represented, either by the efforts of Mr. Wade or by the personal sending down of specimens to Nelson were as under:

Copper Ores: Queen Victoria, Red Rock, Eureka, Silver King, Le Roi, Le Roi No. 2, Centre Star, Mayflower, Harris Group, Mother Lode, Oro Denoro, Rawhide and Sunset. Of these the exhibits from the Centre Star and Sunset were very good, while those from the Mother Lode and Oro Denoro deserve especial mention.

Gold Ores: Poorman-Granite, Nevada, Reliance, Fern, Lavina, Summit and Queen. Of these the Poorman-Granite was easily the best.

Silver-Lead Ores: Lightning Peak, Mammoth, Broadview, Vancouver, Emily Edith, Fisher Maiden, Alpha, Noonday, Canadian Group, Galena Farm,

Standard, Elkhorn, Blue Bell, St. Eugene, Krao, New Jerusalem, Spokane, Albion, Highland, Little Donald, United, Hunter V., Arlington, Lucky Boy, La Plata, Maestro, Second Relief, Alice Fraction and North Star. Of these there were good exhibits from the Blue Bell, St. Eugene and Elkhorn.

Dry Silver Ores: Hewitt and Reco; both good.

Zinc Ores: Lucky Jim, Slocan Syndicate, Last Chance and Whitewater. Of these the Whitewater was excellent.

In addition there was an exhibit of copper-lead ore from the Dandy, near Nelson, and a fine exhibit of various iron ores from the Five Metals Company of Crawford Bay. An exhibit of coal from the Galbraith Company's mine, Alberta, attracted much attention.

In all there were not 60 properties represented.

Under the first section of the display there were only three gold milling ores represented, those of the Poorman-Granite, Summit and Queen. For the silver lead ores the entries were the Elkhorn (Sandon), Summit, Standard, Last Chance, Slocan Syndicate and Canadian Group. For the copper ores the exhibits entered were from the Poorman-Granite, Mayflower and Consolidated Company's mines at Rossland, the last-mentioned being a fine exhibit. In zinc ores the entries were from the Bluebird, Whitewater and Last Chance, and in dry ores the only entry was that of the Hewitt. In the competition for prospects there were no entries. In the competition for the ores of the Rossland district the only entry was that of the Consolidated Mining and Smelting Company of Canada, which arrived late. In the Boundary competition the only entry was that of the Dominion Copper Company, which itself was offering the cup. For the Lardeau and Nelson districts, respectively, there were no entries; for the Slocan the only entry was that of the Silverton mines.

A comparison of the entries and the ores actually exhibited showed that there were only 29 mines entered while the ores from 60 were shown. The difference represents a small part of the work which Mr. Wade did in the short ten days at his disposal.

The finest exhibit on the tables was that of the Trail smelter which showed lead pipe of all sizes, antimony, bluestone (sulphate of copper), and the various products of the smelter generally in the way of low and high-grade matte, the products of the Heberlein roasters, slag of differing descriptions, etc. Another noteworthy exhibit was that of the Whitewater concentrating mill which showed the different lead and zinc ores going into the mill with 10 different concentrates—four of zinc and six of lead—as the product of its work. Other good exhibits were those of the Blue Bell on Kootenay Lake and the Arlington of Erie.

VALUABLE SUGGESTIONS FOR FUTURE EXHIBITIONS.

Speaking of the mineral exhibits, Mr. Brock had several excellent suggestions to offer. He is of opinion that the best of all prizes that can be offered

is that of the district prize. The cups offered are such that he thinks any district might well be proud to possess them. But there is another point of view, which is that of the time and money necessary before the prize can be won. It is not everybody who has the requisite time to make a representative display of the mines of his district or can afford the cost. He would, therefore, recommend the offering of a couple of additional money prizes of sufficient value at all events to pay the winner for his trouble and to make up in some degree to the second man.

As to the question of whether the ores are not to be retained by the fair management Mr. Brock was somewhat uncertain. If they are retained by the exhibition society then the possessor of high-grade ore whose exhibit might run up into hundreds of dollars in value would not show at all, for he would not want to have his ores confiscated. On the other hand if the ores were not so retained, then it would be easy to build up an exhibit from year to year which would eventually win the prize. This would be easiest of all for the home district and in a short time there would be no other districts competing. Perhaps a solution of the difficulty would lie in debarring from again competing the rock which had won at any time.

Then as to the point as to how much space should be given to such exhibits, Mr. Brock thinks the management should notify exhibitors beforehand of the amount of space available for such displays, giving each district a like amount of space. As to the collection, the points to be counted should be the display of the sample itself, its characteristics whether or not those of the mine, whether the surface has been fresh faced and cleaned, whether clean or the reverse, whether properly mounted or not, and whether the district is or is not properly represented. For instance if one district has 40 shipping mines and another but 20 it is evident that if the first exhibit 30 ores out of the 40 it would not be nearly as representative as the second if it displayed 18 ores out of the 20. It also follows that ores competing in such displays should be completely labelled with the name of the mine and the character of the ore.

Of course all this refers not to the competition with one district of the different mines of that district but a competition for a grand challenge cup, in which all districts enter, not as mine against mine, but as district against district.

For the mounting of ores Mr. Brock recommends a thin stand of wood with bevelled edges painted a dull black for the larger ores, whereas the smaller pieces could well be shown in cardboard trays with cotton batting behind.

With regard to the district display in which the several mines of each district enter into competition the one against the other, the name of the mine competing should be withheld, but not the characteristic of the ore nor the assay values. In fact the fuller the information afforded the better educational value the display will have to the general public.

In the competition for the various sorts of ores the recommendation given is to have as full a description of the ore given as may well be obtained, withholding only the name of the mine until the award has been given. It would be instructive if the mine were to give samples of the vein from hanging-wall to foot-wall with a specimen at either end of the foot- and hanging-walls and of the gangue generally.

Specimens are not necessarily judged on their size. A specimen weighing half a ton, all other things being equal, would take a prize over another weighing only a few pounds. But if the smaller specimen were the more perfect and showed the characteristics of the ore better, then it and not the larger size would win. Still size takes the public eye.

Another recommendation is that a prize be offered for the best specimen of an ore not enumerated upon the prize list. This, Mr. Brock thinks, would bring the attention of the public more quickly to new finds and would also stimulate the prospector in seeking after such things. Too often the presence of a mineral which is not expected will be passed over because the prospector is hunting gold or copper, silver or lead as the case may be.

Similarly there should be a prize for prospects; properties which are not Crown-granted, have never shipped ore, or which have been recorded under a year or so. This would often attract the attention of visitors at the fair, men who are on the look-out for just such properties.

If the mineral display at this or at any other fair is to be of benefit to the country it must have an educational value and should represent the district so thoroughly that the visitor can learn all about its minerals by thoroughly examining the exhibits. It would then have a value directly to the exhibitor and indirectly to the district exhibited, through the attraction of capital necessarily resulting. The trouble ahead is in the offering of sufficient inducements to the exhibitors and in the financing of the inducements.

ANOTHER ACCOUNT OF THE DISPLAY.

From the account of the *Nelson Canadian* the following extracts have been taken:

The honours of the competition went to Silverton and no one can say that they were not fully earned. The exhibit was prepared by W. H. Brandon and N. F. McNaught of Silverton, and G. Aylard of New Denver. It included specimens of ores from eight mines, viz., the Fisher Maiden, Hewitt, Standard, Canadian Group, Mountain Boomer, Emily Edith, Alpha and Vancouver. The award of the Trail smelter's cup for the best district collection was a foregone conclusion.

A special award was made to the exhibit from the Hewitt mine, which was a splendid collection of specimens of dry silver ore.

The first prize for free milling gold ore was awarded to a collection from the Poorman-Granite mine, operated by J. P. Swedberg.

Three cups were not awarded and will be available for competition next year. The cup offered by the Dominion Copper Company for the best exhibit of Boundary ores was won by an exhibit from its own properties so this trophy was at once returned to the association for a similar competition next year.

There were not enough entries for the competitions for the Rossland and Nelson and Ymir districts, and the cups offered in these classes are held for next year.

There were many splendid exhibits of ore not specially entered for any cup competition, but prizes were awarded to some of them. Among the mines making such entries were the Whitewater and the Elkhorn, the latter operated by W. McClurg, of Sandon.

There were also excellent displays from the Broadview, in the Lardeau; from the Harris Group, on White Grouse Creek; from the Five Metals Company, operating near Crawford Bay. The last-mentioned display included galena, porphyritic silver-lead, and gold-copper.

The North Star at Kimberley, the La Plata and the Blue Bell were all represented by splendid specimens of silver-lead ore.

The Canadian Consolidated Company contributed a splendid display of lead and lead products from its smelter at Trail.

MINING IN THE SLOCAN.

Activity in Mines at and About Sandon.

OF MINING NEAR SANDON the *Slocan Mining Review* recently gave the following particulars, which appeared in that journal on October 10:

Work at the mines is progressing with smoothness. All the well-known properties are maintaining their shipping average and several prospects are entering the shipping list.

From the Majestic an initial car of \$100 ore was brought down this week and the packers have from other prospects as many orders as they can fill.

Excellent reports continue to come from the Reco, and several car loads of rich antimonial silver ore have been sent to the smelter.

The Eureka tramway is being constructed with all speed, and will be in working order in about six weeks. Meanwhile the work of development goes on at the mine with a big crew.

At the Ruth and Hope they are working on ore, and the mill keeps up its steady grind. Two shifts are working at the Slocan Star. At the Elkhorn they have begun a new cross-cut, but a shift is still drifting. Another car of good ore is being got ready.

At the Lone Bachelor Geo. Petty, the owner, is working a full crew with good results. The local syndicate now operating the Goodenough is cross-cutting and confident of tapping the rich Reco-Goodenough vein.

Litigation still debars the Last Chance management from carrying out its programme, but the long cross-cut on undisputed ground is being pushed ahead under contract.

The Canadian group has been a steady shipper all the summer and ore is still coming down. An adjacent property, the Adams group, which is being worked under lease, made a car load shipment a week ago. At the Queen Bess, the parties who recently took a lease on the lower workings are reported to have struck ore.

E. H. Macdonald, consulting engineer for the Anaconda, Butte, made an unofficial visit of inspection of the Ya-Ya this week, and to our representative spoke in glowing terms of Dr. Gomm's prospects. He characterized the ground as a shear zone, and openly expressed his confidence in the ultimate success of the doctor. The same expert whilst here spent several days inspecting the Chicago group, which is now being worked by Milwaukee capital.

They are getting out some very nice ore at the Sovereign, and the same is being done at the McAllister. The Alps and Alturas group is also being successfully worked for antimony, and a large amount of this valuable ore is sacked.

There is every prospect of the Payne resuming some of its old-time activity in the near future. The new company are now arranging their programme of developing this old shipper, and with this end in view Secretary Low and two experts are now inspecting the property.

The mines contiguous to the Silverton camp are all being worked full blast. The resumption of operations at the Hewitt on a large scale has given a fillip to the industry at that end of the district. The Standard, Vancouver, Emily Edith, Buffalo and other mines are all keeping up their reputations and shipping regularly.

Work of leasers around the Sandon camp this year has been productive of good results. In many instances individuals have succeeded where companies with large capital have failed.

LANDSLIDE FEARED BY MINERS AT CROW'S NEST PASS, B.C., COLLIERY.

MINERS employed at the Crow's Nest Pass Coal Company's Coal Creek mines, distant about four miles from Fernie, Southeast Kootenay, fearing that part of the mountain above the entries to the coal mines and the neighbouring town in which they and their families live, telegraphed to the Provincial Department of Mines requesting that official examination into the condition of the mountain be at once made. The local government inspector of mines was immediately instructed to report by telegraph and the provincial mineralogist was sent up from Victoria to make an examination and enquiry, so as to fully satisfy the Government that the fears of the miners were groundless. There has not yet been time for the provincial mineralogist,

Mr. W. F. Robertson, to ascertain the conditions and report to the Government thereon, but in the meantime the fissure in the mountain has been carefully examined, under instructions from Mr. G. G. S. Lindsey, general manager of the Crow's Nest Pass Coal Company, by Mr. James D. Hurd, M.E., C.E., of Illinois, and the following officials of the company: Mr. R. G. Drinnan, general superintendent; Mr. James McEvoy, chief engineer and geologist, and Mr. Andrew Colville, mine superintendent. All concurred in making the following report:

"Acting on instructions we today examined the fissure in the mountain north of Coal Creek. It is simply a widening out of one of the old natural jointage places in the rocks. From its position should any fragments ever be loosened they would fall into the valleys or draws behind or to the west of the colliery and not in the direction of Coal Creek town or plant, but in any case would not come a quarter of the way down the mountain side on account of the slope at this point. But we do not anticipate that even small fragments will so break away.

"The rocks are almost horizontal in the mountain, and even if the crack should at some remote time extend to the bottom, which is not likely, the cut-off portion of the mountain would be just as stable as the rest, as the slope of the mountain is less than the angle of rest.

"In the Rocky Mountains, owing to the wear of nature, small fragments of rock break off occasionally, but never reach the bottom where the slope is as it is in this case.

"In our opinion there is absolutely no danger whatever to life or property at either the mines or the town of Coal Creek from the existing conditions or from any result of these conditions which in our opinion could happen."

In order to allay apprehension among the miners and others employed about or living in the vicinity of the mines, many of whom remember the fearful destruction of property and loss of life caused by the big rock slide that occurred in April, 1903, at Frank, Alberta, distant about 50 miles from the Coal Creek colliery, this report has been printed and distributed among all immediately concerned and, as well, published in the local newspapers.

The Canadian commercial agent at Sydney, New South Wales, in a recently published report stated that: "The production of minerals in New South Wales has steadily increased for ten years, the value of minerals produced having been in 1896, £4,431,643, and in 1906, £7,912,716. There was an increase in all the minerals produced—gold, silver, copper, tin and coal. The increase in gold was only about £5,500, but in silver it was more than £1,000,000, while copper increased four-fold, tin nearly four-fold, and coal nearly double. The increases in copper, tin and coal were largely due to the higher prices of those minerals.

THE EMMA MINE, BOUNDARY DISTRICT.

By Frederic Keffler, Greenwood, B. C.

THE EMMA MINE was the subject of a paper prepared for the "Journal of the Canadian Mining Institute," and submitted at the annual meeting of the institute, held at Toronto, Ontario, last March. The writer, Frederic Keffler, engineer in charge of the mines of the British Columbia Copper Company, has been actively engaged in mining in the Boundary district for 11 years, so is well informed concerning mining in that part of the Province. Of the Emma he wrote:

Among the low-grade mines of the Boundary district the Emma is in a way unique, in that the magnetite, which constitutes the main portion of the ore body, has persisted from the grass roots to at least the 250-ft. level in a practically continuous vein or deposit; also, in that the vein stands vertically so far as explored.

In the other low-grade mines of the district magnetite is a frequent constituent of the ores, but its occurrence is most erratic, the deposits being irregular, varying in size from a few ounces to masses of thousands of tons, and frequently dipping (so far as any dip is observable) entirely at variance with the general dip of the ores with which they are associated.

A characteristic case was that of a body of magnetite of exceptionally good value found on the 300-ft. level of the Mother Lode mine, which lay perfectly flat, being about 20 by 100 ft. in area, but only 7 to 8 ft. thick, and which was encased in barren eruptive rocks.

In the Emma (save in Quarry No. 1, where a slip has thrown the ore about 25 ft. to the southeast) the magnetite continues unbroken to a point some 200 ft. below the surface, where diamond drilling has found what is seemingly another slip, throwing the ore again a short distance to the southeast. Diamond drilling on the 250-ft. level has recently located the ore near the shaft.

The Emma ores are found along the contact of eruptive rocks and limestone, which limestone is here like an extensive "island" surrounded by eruptive flows. These latter rocks are of the general types characteristic of the Boundary district, analyses of which usually lie between the limits of:-

Silica	30 to 40	per cent.
Iron	15 " 25	"
Lime	10 " 20	"
Magnesia	0 " 5	"
Alumina	5 " 15	"
Alkalies	0.5 " 2	"

To the east of this "island" of limestone are several pyrrhotite deposits, the most prominent of which is that occurring on the Mountain Rose mineral claim. This pyrrhotite is extensively mined for use

as sulphur flux, it being sometimes essential in order to reduce the grade of copper matte, thereby avoiding unnecessary slag losses, which accompany matte running over 50 per cent. copper. This sulphur ore consists of pyrrhotite, together with varying proportions of lime, alumina and silica, but with little or often no magnetite, in striking contrast with the Emma ores, which contain little or no pyrrhotite.

On the Emma, to the south of the limestone "island," occurs a body of magnetite, which where mined was some 20 by 100 ft. in area. This ore was followed to a depth of about 25 ft., where it was cut off by a slip, beyond which no further work has been done. But little pyrrhotite was found in this place.

To the west of the limestone "island" occurs the main ore body of the Emma mine, which ore has been developed by quarries and drifts for some 575 ft.

Most of the ore next to the east wall of the deposit (which here runs about 5 deg. east of north) is magnetite, but minor bands of garnetite also occur. Along the northwest wall, however, the magnetite for the most part is next to a garnet zone, which (where cross-cut by diamond drilling on the 150-ft. level) passes into a bluish and very silicious rock, beyond which the drill was not pushed.

In other places the magnetite stands directly against snowy white crystalline limestone, which latter rock, when near the ore, frequently carries masses of magnetite and chalcopyrite embedded within it, this mineralization extending sometimes several feet into the limestone in diminishing ratio. In other cases, however, the line between this limestone and the ore is clear cut. The garnet zone is about 20 to 25 ft. thick and in places carries sufficient copper to pay for mining.

More or less epidote also occurs along both walls of the ore. The magnetite frequently includes masses of crystalline lime spar, which are almost always accompanied by enrichments of copper. The garnet zone includes considerable magnetite scattered through the rock in crystals and little patches.

On the surface to the north of the workings the magnetite gives place to garnet ore well mineralized with copper pyrites. Still further north (about 1,000 ft.) the garnet again crops for several hundred feet carrying good values in copper, but now dipping to the west about 70 deg. The copper and gold contents of the ore show decided increase on the 150-ft. level as compared with the ore mined in the quarries. Following are analyses and assays on two lots of several thousand tons each:

Quarry—Gold, 0.007 oz.; silver, 0.06 oz.; copper, 0.52 per cent.; silica, 16.5 per cent.; iron, 43.6 per cent.; lime, 12.1 per cent.; sulphur, 1.1 per cent.

150-ft Level—Gold, 0.031 oz.; silver, 0.06 oz.; copper, 1.28 per cent.; silica, 14.9 per cent.; iron, 40.7 per cent.; lime, 14.4 per cent.; sulphur, 1.7 per cent.

So that this ore, which was at first mined solely as an iron flux, has, under the conditions obtaining

in the Boundary, become intrinsically valuable as well.

The average thickness of the magnetite deposit in the upper workings is some 18 ft., but on the 150-ft. level the ore widens materially, being in places 40 ft. across, exclusive of the garnet ore zone. A fair average thickness of the workable ores of the mine would be 25 ft. Below are given analyses of the garnet zone, the silicious bluish drill cores beyond the garnet, the general country and also the white crystalline limestones, the rock lying immediately east of the magnetite and an approximate average of the general eruptive rock of the district. Alkalies, magnesia and other constituents present in small quantities are not included:—

	Silica.	Iron.	Lime.	Alumina.	Sulphur.
Garnet zone	26.8	23.5	32.6	12.0	1.5
Bluish drill core beyond garnet	63.6	5.3	4.5	16.9	0.52
Limestone country rocks	18.3	2.3	43.9	5.6	0.00
White crystal. limestone	7.6	0.8	56.0	0.3	0.12
Rock next the magnetite on the east.	38.5	6.5	27.6	19.3	0.47
Eruptives	35.0	20.0	18.0	15.0	

It is evident from these analyses that the limestone and eruptives contain in sufficient measure all the constituents necessary for the formation of the garnet and magnetite zones. That these latter rocks were produced by the hot water gases and water carrying dissolved mineral derived from the eruptives, leaching upon the adjacent limestones through replacement and recombination, can hardly be doubted.

It is seen from the analyses of the ore that the sulphur present is very small, barely more than sufficient to form the copper pyrites present.

Iron sulphides are of rare occurrence, and it seems certain that the magnetite was deposited as such, and did not result from the alteration of sulphides. This view is borne out by the fact that as a rule magnetite crystals and not iron sulphides are found in the garnet zone, however far removed from the main body of magnetite. The crystalline limestone found next the magnetite in the mine is considerably purer than the main portion of the limestone formation.

(Note—Here follow comments on rock sections, four reproductions of photographs of which illustrate the paper. As it is not practicable to here show these illustrations, the comments on them are omitted. —Editor MINING RECORD.)

MINING.

Owing to the vertical position of the deposit, mining here is a much simpler problem than in most of the Boundary mines. The shaft is a two-com-

partment incline, angle 60 deg. Across the drifts are placed heavy stulls supported by posts, the stulls and posts in the widest portions of the drift being often of a diameter of 30 in.

The stulls are placed 5 ft. apart, and are covered with 8 to 12-in. pole lagging. Chutes are provided at convenient intervals, they being at the opening 3½ to 4 ft. wide by 2 to 2½ ft. deep, so as to allow large rocks to pass. The ore is broken down on the timbers to the level above, only the swell being drawn from the chutes, which swell amounts to about 40 per cent. After the level above is reached the stopes can be drawn at will, and, commencing at the point furthest from the shaft, the timbers can be removed if in condition to be used elsewhere. In commencing a stope it of course is necessary to first raise to the level above to secure ventilation. In portions of the work where bodies of crystalline limestone or poor garnet ore are found these are left as pillars to reduce the cost of timbering. The ore is so heavy, averaging from 8 to 8½ cu. ft. to the ton when in place, that timbering must be of the heaviest description to bear the weight above, which weight, owing to the vertical walls, rests almost entirely on the timbers. Power is supplied from the Bonnington Falls electric plant some 85 miles distant, the machinery at the mine consisting of a 12-drill cross compound Rand air compressor driven by a 200-h.p. motor, together with a hoist now driven by compressed air, but which will shortly be replaced by an electric hoist. There is also a steam-driven X Ingersoll straight line Class A air compressor, capacity about 8 drills, which machine is held as a reserve.

There have been shipped from this mine to date some 93,500 tons of ore.

A report sent out from Ottawa a few weeks ago was to the effect that a recent government return shows the value of the smelting industry of Canada to now be \$28,426,328, and that it has quadrupled in five years. In 1901 it was but \$7,082,384. In comparison with the other industries smelting is fifth on the list.

Under date, June 22, the Canadian commercial agent in Newfoundland reported: "Serious complaints are being made on all sides in regard to the exorbitant prices charged here for coal, both anthracite and bituminous, while the quality of the latter is very far from being as good as it should be. In view of the fact of the comparatively short distance of this colony from the source of supply in Cape Breton, and the excellent water facilities that exist for cheap freight, it does appear that there is a just complaint and a reason for investigation into the cause of it. The duty charged on coal entering the port of St. John's which is applied to municipal purposes, at present fixed at \$1 per ton on anthracite and 70 cents on soft coal, is not sufficient to account for the difference in price that exists between the cost here and in Canada generally."

DREDGING FOR GOLD IN AUSTRALIA.

An Official Report on Australian Gold-Dredging.

DREDGING FOR GOLD is being carried on to an increasing extent as its effectiveness in recovering much of the alluvial (or placer) gold becomes more generally recognized. New Zealand has long led in this industry, but on the mainland of Australia operations are now important enough to have led the Canadian commercial agent for several of the Australian states to take note of the results achieved in part of the territory under his official observation. He reports as follows:

DREDGE MINING AND HYDRAULIC SLUICING IN VICTORIA.

Gold mining by means of dredging, hydraulic sluicing and centrifugal pumps has developed, during the last three years, into a most important industry in the State of Victoria. It has resuscitated some old alluvial mining districts—considered to be worked out—from a dormant state to a condition of activity and speculative excitement. The success of mining by means of dredging and hydraulic sluicing rests almost entirely upon the expeditious mode of treatment of large areas, as in most instances the ground operated upon is of a character that had been proved too poor to be made payable by the ordinary methods. Miners accustomed to exploit gold-bearing gravels upon river banks had—before the advent of gold dredging—been compelled to abandon some rich runs of ground on account of their having dipped underneath the stream.

GOLD-DREDGING AND HYDRAULIC PLANTS IN VICTORIA.

It is estimated that there are now in operation in various districts in the State of Victoria some 90 bucket dredges and hydraulic-pump sluices. The cost of a modern dredge, fitted with improved appliances, in a great measure depends upon the nature of the ground to be dealt with, but assuming that the depth does not exceed 35 ft., the machinery, lumber used in construction and cost of building should not—under ordinary transportation facilities—cost more than £5,000—say \$24,333. The engines used are generally 16 h.p. of a similar type to the English makes of Marshall's or Ruston and Proctor. Boilers are chiefly 20 h.p. while the winches require a 4 or 5 h.p. engine. For ground 30 to 35 ft. deep it has been found necessary to have a 20 h.p. engine and a 25 or 30 h.p. boiler. The equipment of some recently built dredges has been made in this state.

OBJECTIONS RAISED AGAINST GOLD DREDGING.

Objections, raised in Victoria, of stream pollution and destruction of agricultural land against bucket dredging are in the main ill-founded. The dredge puts no foreign matter into the stream, and there can, therefore, be no pollution, whilst discolouration of the water is in this country at least—frequently due to natural causes. Bucket dredging consists of

lifting the material from the bow of the dredge and depositing it, after the gold has been extracted, at the stern of the vessel. The value of agricultural land under which deposits of gold-bearing gravel are found has vastly increased in the various dredging districts.

RESULTS OBTAINED BY GOLD DREDGING IN VICTORIA.

The principal gold dredging in Victoria is in the vicinity of Bright—distant nearly 200 miles from Melbourne by railway. The river at one time covered the whole of the flat land between the hills, consequently there is river gravel everywhere and gold is more or less distributed throughout the whole valley. There are no serious difficulties to overcome, as clay is almost entirely absent from the gravel, and most of the bottom is false and soft. The wash, except in the higher reaches of the river, is light and very easily treated. The depth rarely exceeds 25 ft., the average being 16 ft. The valley is considered to be ideal dredging ground, and any property showing a prospect of 2 grains of gold to the cu. yd., by fair prospecting, is good enough for at least 20 per cent. return on the capital invested. The average turnover for each dredge is from 5,000 to 6,000 yd. per week.

A modern dredge recently treated three acres of ground to an average depth of 12 ft. in five weeks, which means some 58,080 yd. total, or an average of 11,616 yd. per week. The cost of treatment amounted to 13½d. (3½ cents) per yd., and the wash averaged in value 4½d. (9 cents). From this result it can easily be seen that a 2-grain proposition can be made highly remunerative under favourable conditions. Chiefly through lack of experience, several pioneer dredging companies failed, but that the industry is now placed upon a firm foundation is unquestioned. In the district of Bright, 22 dredges are operating payable ground and returning handsome dividends. From these 22 dredges, gold valued at £123,000 was obtained in 1906, and, as the average amount of wages, expenses and depreciation of each dredge did not exceed £60 per week, no less a sum than £68,000 would be absolute profit from a capital outlay of about £110,000.

It is estimated that ultimately over £2,000,000 worth of gold will be recovered at Bright which could not have been won by any other process than by dredging. This ground had been abandoned by old gold diggers as unpayable, and at one time over 20,000 Chinamen were upon this field, so that practically very little ground was left untried. While the exact figures are not yet available, the Victorian Mines Department states that in 1906, approximately, over 85,000 oz. of gold were obtained by dredging and sluicing in this state, the value being about £340,000.

HOW TO ACHIEVE SUCCESS IN GOLD DREDGING.

Victorian experience has proved that there is little or no risk in bucket dredging for gold, if the property to be worked has been intelligently prospected and investigated and the local conditions are favour-

able. The work of dredging is simplicity itself, besides which the cost of the plant is comparatively small, but in this state—as well as in New Zealand—some purely speculative dredging enterprises were promoted upon chance, with the result that many thousands of pounds were lost which could have been saved by judicious prospecting at small expense. The nature of the wash, the depth and character of the bottom, the water supply and absence of clay are all important elements in successful gold dredging.

OFFICIAL VISIT TO COAL MINES OF SOUTHWEST ALBERTA.

Minister of Interior in Blairmore-Frank District.

HON. FRANK OLIVER, minister of interior in the Dominion Government, paid a short visit to the coal mines in the Blairmore-Frank district of southwest Alberta on September 24. The purpose of this was understood to have been to allow of the minister obtaining first hand some information relative to local conditions in connection with the coal mining industry of the district. The *Frank Paper* thus tells of the hon. gentleman's doings during the day he spent in that coal-mining locality:

Mr. Oliver arrived Tuesday morning and put in the entire day driving over the district to see the different coal camps and in going thoroughly into the coal situation in all its aspects. In the morning he visited Bellevue, the Maple Leaf and the new town-site of Hamilton. In the afternoon, in company with O. E. S. Whiteside, general manager of the West Canadian Collieries, Ltd., General Manager S. M. Moore of the Canadian-American Coal and Coke Company, and Vice-President H. N. Galer of the International and Alberta companies, made a trip to Lille by special train. In the evening he was driven to Blairmore and Coleman. He left Frank on the evening train for Pincher Creek. It was therefore an exceedingly busy day the minister spent in the district and he did not get to see as many people as he had hoped to, but as the main object of his visit was to familiarize himself thoroughly with the conditions connected with coal mining in the district, as relates to the facilities of the different companies for supplying coal, the output that can be depended upon with adequate transportation facilities and the transportation situation itself, he felt that all other matters must be subordinated to the accomplishment of that purpose, since he had but the one day to devote to the district.

Mr. Oliver held conferences with the general managers of the principal producing companies relative to the points in question and made a sufficient inspection of the plants to enable him to speak with authority when the cases of fuel and transportation in the West shall come before the House at the coming session of Parliament, as is anticipated will be the case.

He was profoundly impressed with the many manifestations of growth and advancement in the district. "You certainly have a wonderful country," said Mr. Oliver to the *Frank Paper* after having gone over the district. "You only require adequate railway facilities to make your community one of the most important in our country."

SHORTAGE OF RAILWAY CARS FOR FUEL.

FUEL CARS are not likely to be short during the ensuing winter, according to A. E. Dillinger, assistant to the chief traffic expert of the Railway Commission. An Ottawa press despatch states that Mr. Dillinger has made a report to that body regarding the alleged shortage of cars for fuel on the Crow's Nest branch of the Canadian Pacific Railway.

He visited Lethbridge, Frank, Lille, Hillcrest, Bellevue, Blairmore, Coleman and Fernie, and found that there was a shortage of cars to some extent during the months of April, May, June and July. Owing to wintry weather continuing well into the spring the equipment was tied up to some extent in April and May. The strike in the coal mines, accidents on the line and the fact that the railway company was directing its energies toward moving the previous season's grain before the new crop came in, accounted for the shortage in June and July, but at the time Mr. Dillinger was there (about August 20) more cars were on hand than were required.

Since July, Mr. Dillinger says, cars for Canadian coal on the Crow's Nest line have given facilities for maintaining the supply. The mines shipping domestic coal have not been short of cars since July, but mines shipping to the United States have been short at times. Owing to a scarcity of men few of the mines are working to full capacity, but with 2,000 cars in continuous service throughout the Crow's Nest district, he thinks there is not likely to be any shortage of cars for handling all the coal the mines can supply.

Mr. Dillinger further states that there was then in store at prairie towns west of Winnipeg 25,000 tons of coal for domestic use, exclusive of what had been delivered to consumers, and a further supply was and is still coming in for use on the railways. The C.P.R. has in store west of Winnipeg 100,000 tons of steam coal for winter use, with not less than 150,000 tons at Fort William and 150,000 tons more booked to arrive before the close of navigation.

The Canadian Northern also has in store, west of Winnipeg, about 20,000 tons of steam coal for winter use, and 160,000 tons at Port Arthur.

The official record of the number of persons employed at mines in British Columbia in 1906 gives the following figures: At metalliferous mines—shipping 3,718, non-shipping 265, total 3,983; at coal mines, 4,805; grand total, 8,788.

COMPANY MEETINGS AND REPORTS.

CANADIAN-AMERICAN COAL AND COKE COMPANY

The annual meeting of the Canadian-American Coal and Coke Company was held at Frank, southwest Alberta, on September 14, when the financial statement and the general manager's report were submitted to the shareholders.

The *Frank Paper* says: The items of chief interest in connection with the meeting arise from the reports referred to. The financial statement shows that during the fiscal year just ended, the company mined and sold 143,605 tons of coal and that the mine was worked 234 days, giving an average of about 614 tons of coal per day. Considering the drawbacks the company laboured under during the year—of being closed down by the strike in the spring and by the cave in the main entry later—and the fact that at no time since the strike was inaugurated last March has the company had anything like a full complement of men, this showing is regarded as highly satisfactory. The statement shows that the company made a good profit on the coal, which profit was put back into the mine in development and new equipment.

The report of General Manager S. M. Moore contains some interesting information. It recites the fact that the mine, which was the reverse when he came to it, is now in first class condition, with the ventilation thorough and the travelling and escape ways for the men in good order and safe.

The report further states that a commencement has been made sinking a slope, that all the rock work and timbering in connection with this are completed, together with the passage of the main haulage around the station, while the slope itself is down 30 ft. All the timber for sinking 800 ft. is on the ground and paid for.

With reference to the opening of the new seam, the report states that the rock tunnel together with the return railway are completed, that the track has been put down, and drifting on the coal in two directions started; that 50 tons of coal are being taken out of the seam daily, and that the output from the seam will be steadily increased as room for raising chutes and breasts is made. It says, further, that with a full complement of men, the mine is now in shape to produce 800 tons of coal a day and that within eight months, the output will equal the full capacity of the handling plant, which is about 1,500 tons.

Officers were appointed for the year as follows: President, H. L. Frank; vice-president, J. F. Silverman; secretary-treasurer, G. S. Rochfort. The directors are: H. L. Frank, J. F. Silverman, H. L. Silverman, S. M. Moore and A. E. Spriggs.

GRANBY CONSOLIDATED MINING, SMELTING AND POWER COMPANY.

The annual meeting of the Granby Consolidated Mining, Smelting and Power Company, Limited, was held in New York on October 1.

The general balance sheet, as at June 30, 1907, is as follows:

ASSETS.	
Cost of land, real estate, machinery, buildings, dwellings, and equipment	\$15,180,914
Stocks, bonds and bills receivable	895,675
Fuel and store supplies	130,537
Cash and copper	853,280
Total	\$17,060,406
LIABILITIES.	
Capital stock issued	\$13,500,000
Dividend collected on liquidated shares	884
Accounts and bills payable	783,765
Surplus	2,775,757
Total	\$17,060,406

INCOME ACCOUNT.

The income account is as under:

Gross earnings	\$ 4,521,549
Working expenses	\$ 2,442,456
Foreign ores purchased	154,156
Total expenses	\$ 2,596,612
Net profit for the year	\$ 1,924,937

Adding the balance brought over from the previous year, gave a total surplus of \$4,472,676. Payments from this were \$76,918 for exploration and bonus to employees; \$1,620,000 for dividends; total, \$1,696,918, leaving a balance of \$2,775,758, as above. There was expended for new construction and equipment, \$317,678, and for additional mining properties, \$68,164. The cost of working was \$3.697 per ton of ore; the net cost per pound of copper, after deducting value of gold and silver, was 10.14c. The average prices realized, with the quantities turned out were: Copper, 16,410,576 lb., 22.21c. per lb.; silver, 257,358 oz., 67.9c. per oz.; gold, 35,083 oz., \$20 per oz.

Mine development was 9,701 lineal ft.; diamond drill development, 7,279 ft. The smelter report shows 665,915 dry tons smelted, 649,022 tons being Granby ore and 16,893 tons foreign ore.

THE PRESIDENT'S REPORT.

President Langeloth's report says: "The operations during the year show a considerable falling off as compared with the previous year, in spite of the fact that the mines were prepared to furnish a very much larger tonnage and the smelter fully equipped to handle the same. This is due to the great shortage of fuel throughout the West in the past year; the railroads were unable to procure sufficient coal to operate their trains and the company sufficient quantities of coke for its furnaces.

"In the British Columbia coalfields, whence our supply of fuel is drawn, there were two strikes, one last fall and the other last spring, resulting in the production of coke being seriously interfered with and the output crippled to such an extent that at no time could the quantities contracted for be delivered. A very severe winter caused blockades of all the railroads, which, irrespective of this, were hardly able to take care of the largely increased traffic. In order to relieve the situation temporarily, contracts were made last October for about 20,000 tons of eastern coke, which entailed an extra expenditure of nearly \$100,000, but later in the season even these supplies were stopped on account of the railroads being unable to make deliveries. All these circumstances interfered seriously with the operations of the plant, and the cost of mining and especially of smelting increased considerably. The eight large furnaces could be operated only intermittently, and during the month of May both mines and smelter had to be closed down for want of fuel. The output suffered heavily, especially at a time when prices for copper were at the highest, and this in turn precluded our receiving as high an average price for the product as would otherwise have been the case. All copper is sold at the current prices ruling as soon as the weight and assays are agreed upon with the refiners, and no stocks are, therefore, on hand.

"It was estimated at the beginning of the year that, due to the greater capacity of the smelter, the production could be increased to about 25,000,000 lb. Instead of this, only 16,403,749 lb. of copper were produced, or about 3,250,000 lb. less than the previous year. In spite of all these adverse conditions the net profits are somewhat higher, but not at all in harmony with what ought to or could have been accomplished if the regular supply of coke could have been secured. The cost per pound of copper produced, after deducting the value of gold and silver, was 10.14c. during the past year, against only 8.35c. in the preceding year. If the mines and

plants are operated to their full capacity, lower costs can again be confidently expected. At the smelter the eight furnaces are now in shape to handle over 1,000,000 tons of ore per year, which should produce in the neighbourhood of 30,000,000 lb. of copper.

"Among the more important new work undertaken and completed at the mines was the sinking of the new Victoria three-compartment shaft, which will be connected with the different ore levels; a complete electric hauling system is being installed on the 400-ft. level. It is estimated to hoist and crush 2,000 tons of ore daily at this shaft alone. The shipping bins are between the tracks of the Canadian Pacific and the Great Northern railroads, giving the advantage of transportation to the smelter by two roads.

"The Gold Drop and Monarch properties, acquired about two years ago, have been developed vigorously, and have proved valuable additions to our holdings. Very large quantities of ore are in sight and shipping facilities have been provided to handle a large tonnage. In a word, the mines are prepared to produce practically any tonnage that can be transported to the smelter, where the entire eight furnaces have been enlarged, and have now a maximum capacity of about 3,500 tons per 24 hours.

"One element of uncertainty in the past—which at times crippled the work—has been eliminated. A contract on favourable terms has been made with the South Kootenay Power Company for the supply of electricity. The plant has been completed, and power in abundance is now being furnished.

"The question of securing regular supplies of coke has been constantly before the board, and after mature deliberation it was decided to acquire a considerable interest in the Crow's Nest Pass Coal Company, Limited, from which our main supply of fuel is secured. The wisdom of this step has already made itself felt, as for the last few weeks a full supply of coke has been furnished, thus overcoming the difficulties which, as already mentioned, were very costly to the company. Vice-president and general manager Jay P. Graves has been elected a director of the Crow's Nest Pass Coal Company.

"The above mentioned expenditures may make it advisable in the near future to issue the treasury stock of 15,000 shares of the par value of \$100 each, in which event the same will be offered to the stockholders *pro rata* to their holdings, on terms still to be decided upon by the board.

"Considering the large quantities of ore which have been developed during the year, the board feels justified in continuing its work of providing a larger smelting capacity, but improvements of this kind take a great deal of time and have to be laid out in a careful way, in order to secure the most economical treatment and best results.

"During the year the shares of the company were converted into \$100 shares par value, by exchanging 10 shares of \$10 each into one share of \$100. The new shares have been listed on the New York and Boston stock exchanges, and the conversion was a success, as on September 13, when the books closed, it showed that 134,009 shares of \$100 each are outstanding and 9,910 shares of \$10 each.

"Four regular quarterly dividends, in all 12 per cent., have been declared during the past year."

SULLIVAN GROUP MINING COMPANY.

The annual meeting of stockholders in the Sullivan Group Mining Company, owning and operating the Sullivan mine and smelter at Marysville, East Kootenay, was held at Spokane, Washington, on September 26. Out of a total of 3,000,000 shares, 2,193,855 were represented at the meeting.

The report of the treasurer showed about \$6,000 in the treasury. The company mined some 8,000 tons of ore during the first part of the year and more than twice that quantity in the latter half.

The operating profit for the year ended August 31, 1907, was \$77,091.94. The bullion account due the company was \$472,624.42. The bonds for which the company is liable

amount to \$400,000, and interest to September 1 amounts to \$6,225.67. The net gain to the company as a result of the year's work, after the payment of all interest was \$45,441.56. The receipts from the sale of bullion for the year were \$374,286.74.

A loan of \$40,000, negotiated by the company shortly after the annual meeting of last year, has been repaid.

The company has purchased the Big Dipper and Euphemia Fraction mineral claims and has taken an option on the Commonwealth.

E. Dedolph, manager of the company's smelter, advised that between \$65,000 and \$75,000 be expended to increase the capacity of the smelter from 100 to 200 tons per diem. He said this would require the addition of three new roasters and 10 converters to the Huntington-Heberlein plant.

This proposition was opposed by James Finlay, manager of the Sullivan mine, who claimed it was unwise to expend that much money in increasing the capacity of the smelter, when the ore reserves were not known. He said the company did not yet know what it had below the 100-ft. level and he believed the company should sink a shaft another 100 ft., so as to find out whether or not the ore continues at depth, before any such increase should be attempted. He estimated there is enough ore in sight to keep the smelter going at its present capacity for ten months or a year. The stockholders decided that the company should sink the shaft to the lower level. The trustees will thereafter deal with the question of an increase in capacity of the smelter.

The meeting elected the following trustees: Judge George Turner, James Finlay, G. W. Van Dyke, George H. Hull, J. M. Armstrong, E. D. Sanders, Mose Oppenheimer, W. H. Shields and Alfred Coolidge. The only change made was in electing Mr. Coolidge in the place of F. J. Finucane.

Subsequently the trustees made the following appointments: President, George Turner; vice-president, J. M. Armstrong; treasurer, Mose Oppenheimer; secretary, D. A. Clement.

COMPANY CABLES AND NOTES.

CABLES.

British Columbia.

Le Roi—September: Shipped from the mine to Northport during the past month 6,855 tons of ore, containing 1,950 oz. gold, 3,200 oz. silver and 160,000 lb. copper. Expenditure on development work during the month, \$9,000. (Office note—As the copper content of the ore is not paid for until several months after the ore is sent to the smelter, it is practically impossible, in the present unsettled state of the copper market, to estimate the profits from month to month with any degree of accuracy. The directors believe it is wise to make a simple statement of the tonnage and contents of the ore such as is done by many other companies, and it is proposed in future to issue the returns in this form.)

Le Roi No. 2—September: Vancouver mine report: Shipped 120 tons concentrates. The net receipts are \$9,270. Net payment for 100 tons concentrates shipped.

Tyce—September: Smelter ran 21 days, treating 453 tons of *Tyce* ore, value, after deducting refining charges, \$3,740; 3,983 tons of custom ore; total, 4,436 tons, producing a total of 501 tons of matte.

U. S. A.

Alaska Treadwell—August: 240-stamp mill ran 30½ days, 300-stamp mill ran 23½ days; crushed 76,548 tons of ore; estimated realizable value of bullion, \$87,617. Saved 1,492 tons sulphurets; estimated realizable value, \$78,818. Working expenses, \$87,372.

Alaska Mexican—September: 120-stamp mill ran 30½ days, crushed 21,218 tons; estimated realizable value of bullion, \$35,810. Saved 424 tons sulphurets, estimated realizable value, \$31,839. Working expenses, \$24,497.

Alaska Treadwell—September: 240-stamp mill ran 30½ days, 300-stamp mill ran 28½ days, crushed 76,552 tons, estimated realizable value of bullion, \$76,815. Saved 1,454 tons

sulphurets; estimated realizable value, \$63,028. Working expenses, \$86,610.

Alaska United—September: Ready Bullion claim. 120-stamp mill ran 30½ days, crushed 21,250 tons; estimated realizable value of bullion, \$21,135. Saved 372 tons sulphurets; estimated realizable value, \$11,290. Working expenses, \$25,828.

DIVIDENDS.

A dividend (No. 48) of 50 cents per share has been declared by the Alaska Mexican Gold Mining Company, payable October 28, amount \$90,000. This will make total of dividends paid by this company to date, \$1,716,381.

A dividend (No. 78) of \$1 per share has been declared by the Alaska Treadwell Gold Mining Company, payable October 28; amount \$200,000. This will make a total of dividends paid by this company to date, \$9,635,000.

On October 7 the directors of the International Coal and Coke Company declared a dividend of 2 per cent., payable November 1. Heretofore the company has paid dividends of 1½ per cent. The dividend declared this month will amount to \$56,000, there being 2,800,000 shares of the company's stock issued, and 200,000 in the treasury. This month's dividend brings the company's total of distributed profits up to \$154,000.

NOTES.

The sixth annual meeting of the Pathfinder Mining Co., Ltd., was called for October 21, at Grand Forks, Boundary district.

In the matter of the Last Chance Mining Company (in liquidation) and the Winding Up Act—at Nelson, A. M. Johnson for Louis Pratt, the liquidator, has obtained an order for the sale of all the assets of the company.

The annual meeting of the stockholders of the Ark Group Mining and Milling Company was held at Ymir on October 1, when the following officers were elected for the ensuing year: J. J. Budd, president; D. E. Grobe, vice-president; O. G. Budd, secretary-treasurer, and N. J. Kneeland, auditor.

Slough Creek, Ltd., is applying for a grant of 500 inches of water to be taken out of Willow River, Cariboo district, about one mile below the mouth of Hardscrabble Creek; also for a grant of 500 inches to be taken from Slough Creek, about 2,000 ft. below the mouth of Nelson Creek. The purpose of these water rights is to furnish electric power for pumping, hoisting, lighting, etc., at Slough Creek mine.

The annual meeting of the Providence Mining Co., Ltd., was held at Greenwood about the middle of the month. At it the old officers were re-elected and a resolution was passed authorizing the directors to issue bonds to the extent of \$50,000, to bear 6 per cent. interest, the money so raised to be used for the purpose of sinking to the 1,000-ft. level of the company's Providence mine, near Greenwood.

The annual meeting of the stockholders of the Alaska Copper Company, owning mine and smelter at Coppermount, southeast Alaska, has been held at Seattle, Washington, U.S.A. Pittsburg shareholders submitted a plan for reorganization, and asked for a new board of trustees to manage the affairs of the company. The proposal was adopted. The new trustees are: A. P. Burchfield, H. W. Armstrong, H. Bryson, F. C. Lane, G. L. Bond, and W. J. Post, of Pittsburg; S. H. Moore, of New York; H. T. Granger, of Seattle; and S. L. Wood, of San Diego.

CERTIFICATES OF INCORPORATION.

Altn Power Company, Limited, with a capital of \$25,000, divided into 5,000 shares of \$5 each.

Comox Valley Power Company, Limited, with a capital of \$10,000, divided into 100 shares of \$100 each.

Fire Valley Gold Mining Company, Limited, with a capital of \$1,000,000, divided into 1,000,000 shares of \$1 each. Objects include the purchase of the Evening Star, Rossland, and Mascot mineral claims, situated on Monashee Mountain, in Vernon mining division, about 50 miles east of the town of Vernon, Okanagan district.

Lytton Copper Mines, Limited, with a capital of \$100,000, divided into 1,000,000 shares of ten cents each.

Nelson Cement Works, Limited, with a capital of \$25,000, divided into 2,500 shares of \$10 each.

Pacific Mine & Timber Company, Limited, with a capital of \$20,000, divided into 2,000,000 shares of one cent each.

Rainy Day Syndicate, Limited, with a capital of \$10,000, divided into 10,000 shares of \$1 each.

South Wellington Coal Mines, Limited, with a capital of \$200,000, divided into 8,000 shares of \$25 each.

Uncouder-Nanaimo Coal Mining Company, Limited, with a capital of \$250,000, divided into 250,000 shares of \$1 each.

COMPANIES REGISTERED IN ENGLAND.

Ymir Trust, Limited.—Registered in London June 27, by Kekewich, Smith & Kaye, 2 Suffolk Lane, E.C., with capital £5,500, in 1s. shares, to carry on the business of financiers, agents, traders, dealers in stocks, shares, and securities, etc. No initial public issue. The directors for the time being of the London & British Columbia Goldfields, Limited, are the first managers. Remuneration, 10 per cent. of the net profit.

Lands & Mines Company of Canada, Ltd.—Registered in London August 9, by Dalziel Fisher & Co., 56 Cannon Street, E.C. Capital £1,000, in £1 shares. Objects: To carry on in Canada and elsewhere the business of land and property owners and agents, miners, millers, smelters, etc. No initial public issue. The first directors (to number not less than two nor more than seven) are to be appointed by the signatories. Qualification, one share. Remuneration, as fixed by the company.

NOTICES IN BRITISH COLUMBIA GAZETTE.

William Manson, of Nanaimo, to be gold commissioner and mining recorder for the Skeena River and Bella Coola mining divisions, with office at Port Simpson, in place of John Flewin, resigned. Appointment to date from October 7, 1907.

Gillespie E. Stephenson, of Quesnel Forks, to be acting mining recorder during the absence of William Stephenson.

Carl Hairsine, of Hedley, to be a deputy mining recorder for the Similkameen and Osoyoos mining divisions, with sub-recording office at Hedley. Appointment to date from September 30, 1907.

Frederick William Valteau, of Hazelton, to be mining recorder for the Omineca mining division.

George A. Shade, of Port Essington, to be deputy mining recorder for the Skeena mining division, with sub-recording office at Port Essington. Appointment to date from November 1, 1907.

Alexander Lucas, of Kaslo, to acting mining recorder for the Ainsworth mining division, during the absence of Robert James Stenson.

Prof. C. R. Corey, formerly of the Montana state school of mines, is now assistant professor of mining at the University of Washington school of mines.

Jay P. Graves, of Spokane, Washington, and associates are reported to be organizing a company to bore for oil in the Rosalia or Rock Creek region, 50 miles south of Spokane.

J. B. Tyrrell, of Toronto, Ontario, who for the past eighteen months has been mining engineer to Maskenzie, Mann & Co., is now prepared to do a general consulting business.

D. James Mackintosh Bell, director of the Geological Survey of New Zealand, has been spending a few weeks in Canada. It is stated that he will deliver a series of lectures at several United States universities before returning to New Zealand.

BOOK REVIEWED.

The Mineral Industry, its Statistics, Technology and Trade During 1906. Volume XV, Supplementing Volumes I to XIV. Edited by Walter Kenton Ingalls. Pp. 954; illustrated. $6\frac{1}{4} \times 9\frac{1}{4}$ in.; cloth, \$5. New York, 1907; Hill Publishing Company.

Contents. Aluminum. Alumina. Ammonia and ammonium sulphate. Antimony. Arsenic. Asbestos. Asphaltum. Barytes. Bauxite. Bismuth. Borax. Bromine. Calcium carbide. Carborundum. Cement. Chromium and chrome ore. Coal and coke. Copper. Copperas. Corundum and emery. Cryolite. Feldspar. Fluorspar. Fuller's earth. Garnet. Glass. Gold and silver. Graphite. Gypsum. Iodine. Iron and steel. Lead. Limestone. Lithia. Magnesite and magnesium. Manganese. Mica. Mineral wool. Molybdenum. Monazite. Nickel and cobalt. Ocher and iron oxide pigments. Petroleum. Phosphate rock. Platinum. Potassium salts. Precious stones. Quicksilver. Salt. Silica. Silicon. Sodium and soda salts. Strontium sulphate. Sulphur and pyrite. Tale and soapstone. Tantalum. Tin. Tungsten. Uranium. Vanadium. Zinc. Literature on ore deposits in 1906. Improvements in sampling and assaying. The advance in ore dressing in the last decade. Progress in ore dressing and coal washing in 1906. Mineral statistics of foreign countries. Index.

The importance of this volume is evident from the great variety of subjects with which it deals. Its value is determined by the fact that not a few of its contributors are among the foremost authorities in America, and, in some instances, in the world, on the subjects with which they have dealt in its pages. The judgment of Dr. R. W. Raymond, the distinguished secretary of the American Institute of Mining Engineers, widely known as especially well-informed on mining and associated subjects, is that "taken as a whole, the contemporary picture of the mining industry, not only of the United States, but also of all other countries, presented in this volume, is unequalled—nay, unapproached—by any other publication in the world."

The editorial work was completed by Mr. Ingalls and his assistants by the end of May; the volume was issued at the end of July. It was, therefore, ready for publication at a comparatively early date. Its comprehensive statistics and summaries of information are more free from omissions and important errors than is usual where many tables and reviews have to be prepared. In the case of several foreign countries reliable statistics were not obtainable in time to be included, but as a rule the information given was brought up to the end of the year covered by the volume, which is, as a result, a great store of interesting and valuable information. As a work of reference it will be found especially useful to all seeking information relative to the great mineral industry of the world.

TRADE NOTES AND CATALOGUES.

The Canada Foundry Company, Limited, of Toronto, Ontario, has issued a 16-page booklet descriptive of the "Blackstone" oil engines, for which it is sole Canadian agent. The special advantages of these engines are stated, specifications and other particulars given, and several types of the engines illustrated. The booklet should be read by all interested in the power question and particularly by those requiring power for estate or farm work. It can be obtained gratis on application at any of the company's offices in Canada.

From the Canadian Westinghouse Company, Limited, of Hamilton, Ontario, have been received several circulars, as follows. No. 1092, "The Westinghouse Multiple Alternating Arc Lamp"; No. 1128, "Small Power Motors for Alternating and Direct-Current Circuits"; No. 1139, "Starting and Field Rheostats"; No. 1143, "Regulating and Reversing Controllers for Direct-Current Motors in Crane, Hoisting, and Similar Service," and No. 1144, "Westinghouse Mill Motors, for Direct-Current Service." These are all well illustrated, and

give descriptions and specifications of the several electrical appliances and apparatus mentioned in their respective titles.

The Jeffrey Manufacturing Company, of Columbus, Ohio, U.S.A., has just published "Catalogue D, Illustrating Coal and Ashes Handling Machinery for Power Plants." This relates only to plant and machinery designed and built by the company. The illustrations show numerous methods of handling ashes and the different styles of plant designed to meet particular conditions and in practical use under varying conditions. Elevators, bucket and belt conveyors, and grab buckets are prominent features in one or other of the many plants concerning which information is given. The catalogue will serve to emphasize the importance of using automatic devices so as to keep down operating costs and thus promote economy in directions frequently overlooked or neglected.

Mussens Limited, of Montreal, Quebec, Canadian sales agents for the machinery and plant dealt with in these publications, have sent out their own "Catalogue No. 11, Metallurgical Machinery," and that of Fraser & Chalmers, Limited, "Series G., Section 1, Copper Smelting Furnaces." The first-mentioned catalogue comprises practically everything connected with metallurgical operations—ore bin fittings, sampling mill machinery, furnaces of various kinds, bessemerizing plants, etc. Gold dredges, mills, gold-saving tables, concentrating and cyaniding plants, and much other machinery is also included. The Fraser & Chalmers catalogue deals comprehensively with different styles of smelting furnaces and their parts and fittings. This old-established manufacturing firm's works at Erith, Kent, England, have been greatly enlarged, and its operations considerably extended to meet the big demands made upon it for high class machinery.

Agents of the Westinghouse Machine Company, of East Pittsburg, Pennsylvania, U.S.A., have been assured by circular letter from the Receivers that there should be no occasion for a preclusion because of the company's application for a receivership. The Westinghouse Machine Company is solvent and is doing a large and profitable business. The Receivers say: "It would appear that The Westinghouse Machine Company has been suffering from nothing more serious than a rapidly-growing and profitable business. This has necessitated the employment of considerable borrowed capital and credit throughout the country, the sudden withdrawal of which would have seriously interfered with the manufacturing operations of the company. There has not been even a momentary pause in the operations of the company, and the personnel remains the same as heretofore. There will be no departure from the general policy that has hitherto obtained in the conduct of the business."

INSPECTION OF INTERNATIONAL BOUNDARY MONUMENTS.

O. H. Tittman, superintendent of the United States coast and geodetic survey; Chas. D. Walcott, secretary of the Smithsonian institute; L. D. Burling, assistant curator of the national museum at Washington, D.C.; and Wm. E. King, chief astronomer in the astronomical branch of the Canadian department of the interior, are examining the boundary monuments placed along the International boundary line between part of the State of Washington, U.S.A., and British Columbia, from the Similkameen district east to the crest of the Rocky Mountains. These gentlemen represent the International Commission which has in charge the work of delimiting the boundary between United States and Canada, and their duty includes the examination of the boundary monuments and determining whether these have been properly placed. The new monuments have replaced old ones, and where necessary additional monuments have been erected. They are of aluminum bronze and bear two brass plates marked "Canada" and "U.S.", respectively. They are placed at all important points, at distances apart varying from one-half mile to two and one-half miles. Each is about 4 ft. 8 in. high, and is a miniature replica of the Washington monument.

COAL MINING NOTES.

MINING MEN AND AFFAIRS.

On October 31 the *Frank Paper* stated that "the Canadian-American Coal and Coke Company, Limited, made a new output record one day last week when it mined and shipped 1,064 tons of coal." This company's mine is at Frank, southwest Alberta.

The International Coal and Coke Company, Limited, operating coal mines and coke ovens at Coleman, southwest Alberta, has commenced the erection of 20 additional cottages for the accommodation of miners employed at its colliery. The company's new wash-house is nearly completed and the work of covering in the larry tracks from the mines to the tipples is in progress.

It is reported that satisfactory progress is being made in opening up the coal mine of the Royal Collieries Company, situated in the vicinity of Lethbridge, Alberta, and that a small quantity of coal is being shipped daily.

The Diamond Vale Coal Company is pushing ahead with development work on its coal property in the Nicola district. It expects to shortly have railway communication.

The *Fernie Free Press* states that 75 men arrived at Michel from Wales. They were brought across the continent in two special cars by the Canadian Pacific Railway. Another contingent was expected to arrive the following week. It keeps the company hustling to provide quarters for so many men temporarily until the new houses shall be finished.

The output of coal at the Crow's Nest Pass Coal Company's Collieries during October was, on an average, about 3,400 tons per day. Allowing for 27 working days this would give a total output for the month of about 92,000 tons.

Arthur Hickling, of London, England, one of the directors of the Vermilion Forks Mining Company, which is opening a coal mine at Princeton, Similkameen, recently said: "When the railway shall have been built to Princeton the marketing of the coal will be commenced. The coal is of an excellent quality, and it is believed it will make a market for itself in the Similkameen. The short haul will enable the sale of the coal at a fairly reasonable price."

The railway spur to the Nicola Valley Coal and Coke Company's mine is now completed. The spur is one mile and a half long from the Nicola branch of the Canadian Pacific Railway, and the cars of the railway company are now under the tipples. About 100 tons per day of coal is being taken out at present; so far the railway company is taking most of the output.

That conditions in the local mines have resumed their normal state, says the *Nanaimo Herald*, is evidenced by the fact that output record was again broken yesterday (October 12), this time no less than 1,826 cars or 1,429 tons of coal having been hoisted to the surface of No. 1 shaft. This is the record hoist for 9 hours in the history of the coal industry in Nanaimo, and is some tons greater than the record made by the Western Fuel Company on January 29, 1903, in two eight-hour shifts. Yesterday's output was only exceeded twice when the mines were under the management of the New Vancouver Coal Company when coal was hoisted during 16 hours of the day. On October 12, 1899, the output for the two shifts was 1,472 tons and on April 11, 1901, was 1,431 tons.

A press despatch from Ravensdale, Washington, dated October 10, said: As a result of a fire in the big mine of the Northwestern Improvement Company, which belongs to the Northern Pacific railway, all work has been abandoned for the time being and it may be a month or six weeks before operations can be resumed. This is the first fire in the Ravensdale mine, and beside curtailing the fuel output for some time it will throw 450 men out of work.

The steamer "Tellus," while on her way to Portland, Oregon, with coal from Nanaimo, Vancouver Island, was wrecked. She was under charter to the Western Fuel Company and carried nearly 4,000 tons of coal, valued at about \$20,000, for the Independent Coal & Ice Company of Portland. Both vessel and cargo were insured.

John B. Hobson, manager of the Cariboo Gold Mining Company, was in New York during October.

Chester Lee of Seattle, Washington, recently examined a mining property in the Cowichan district.

Carl H. Hand, of Butte, Montana, U.S.A., was at the Krao mine, Ainsworth, during the month.

J. T. Green, of Butte, Montana, U.S.A., recently looked over Voigt's group, on Copper Mountain, Similkameen.

H. H. Watters, manager for the Slough Creek, Limited, has gone to London, England, on a visit.

Otto Brenner of Dawson, a well known mining man, came down from the Yukon early in October. From Vancouver he proceeded to Ottawa, en route to New York.

A. N. C. Treadgold, who left Dawson, Yukon, late in September, has gone to London. He took with him to England five malamute dogs.

J. D. Kendall, of London, England, who is consulting engineer for several mining companies operating in British Columbia, arrived in Canada on October 6.

Howard W. DuBois, of Philadelphia, was in San Francisco early in October on his way from the Cariboo district of British Columbia to Nevada.

B. P. Little, superintendent for the Diamond Vale Coal and Iron Mines, Limited, operating in the Nicola Valley district, was in Vancouver last month.

Thos. R. Stockett, of Nanaimo, general manager of the Western Fuel Company, went to Seattle, Washington, on business towards the end of the month.

E. H. Macdonald, of Butte, Montana, U.S.A., has been examining the Chicago group of mineral claims, situated near Cody, Slocan.

W. Stephenson, mining recorder at Quesnel Forks, Cariboo district, has returned home after having spent a vacation on the coast.

James Rutherford has been examining mining properties situated near Barkerville, Cariboo district, for a Scottish syndicate.

John Mitchell, president of the United Mine Workers of America, has been seriously ill, but is now reported to be recovering.

J. W. Bryant, mine superintendent for the Tyeo Copper Company, recently went North, accompanied by W. M. Brewer, to examine some mining property.

H. Harris, late superintendent at the Alaska Smelting and Refining Company's smelter, Hadley, Prince of Wales Island, was in Victoria at the end of October.

F. C. Merry, superintendent for the Ferguson Mines, Limited, owning the Silver Cup and other silver-lead mines in northern Lardeau, was a recent visitor to Kaslo on business.

R. W. Coulthard, of Fernie, East Kootenay, general sales agent for the Crow's Nest Pass Coal Company, Limited, recently made a business trip to the chief towns of West Kootenay and the Boundary.

Signor A. Tealdi, of Florence, Italy, lately completed a tour through the Kootenay and Boundary mining districts. He was reported to be representing Italian capitalists desirous of obtaining suitable mining properties in the West.

R. W. Brock and W. H. Boyd, of the Geological Survey of Canada, left Rossland on October 4 on their return East. Mr. Brock has since resumed his winter duties as professor of geology at the School of Mines, Kingston, Ontario.

Charles Biesel, superintendent of the Snowshoe mine, near Phoenix, Boundary district, being operated by the Consolidated Mining and Smelting Company of Canada, was at Banff, Alberta, about the first of October.

Col. W. S. Thomas, who represents the syndicate which has bonded a number of mineral claims in Whitehorse copper camp, spent a few days in Victoria and Vancouver before returning to the southern Yukon.

D. D. Cairnes, of the Geological Survey of Canada, who last month went East after having spent the summer in the Yukon, was married on October 12 at Kingston, Ontario, to Miss Florence Mary Fenwick of that city.

O. B. Perry, general manager of the Guggenheim companies operating in the Yukon and the Atlin district of British Columbia, was in Vancouver on October 16. He was on his way from the North to New York.

R. P. Williams, of Rossland, western representative of the Canadian Rand Company, Limited, of Montreal and Sherbrooke, Quebec, returned early in October from a business visit to the company's headquarters.

H. W. Turner, of Portland, Oregon, known on Vancouver Island from his professional connection with southeast Alaskan mining properties, was recently in San Francisco, California.

T. Moore Fletcher, an Australian mining engineer, has been visiting the Boundary district. He came to British Columbia from South America, whence he went for an English company.

G. B. Benjamin, manager of the Bull River Power Company, which is preparing to instal a power plant at Bull River, Fort Steele mining division, East Kootenay, recently went to Spokane, Washington, U.S.A., on a business visit.

George Wilkinson, manager of the Western Fuel Company's No. 4 Northfield mine, near Nanaimo, Vancouver Island, was married to Miss H. Harris at Nanaimo on October 23. Mr. and Mrs. Wilkinson will reside at Brechin.

John L. Howard, of San Francisco, California, U.S.A., president of the Western Fuel Company, was at Nanaimo at the beginning of October, when the company's new agreement with its employees went into active effect.

Andrew G. Larson, of Rossland, mining superintendent for the Le Roi Mining Company, returned to Rossland on October 9 from a trip to Colorado and other parts of the United States. Mr. Larson was away about a month.

Capt. Harry Johns, superintendent of the British Columbia Copper Company's Napoleon mine, situated at Boyds, northern Washington, is convalescent after his recent severe illness. He has gone to southern California to recuperate his health.

R. G. McConnell and F. H. Maclaren, of the Geological Survey of Canada, came down from Yukon Territory early in October, the season for field work in that section having ended for the year. They have gone to Ottawa for the winter.

Anthony J. McMillan, managing director of the Le Roi Mining Company, left Rossland for London, England, on October 30. He will probably be absent from the Province about three months, returning after the company's annual general meeting shall have been held in London.

Capt. T. H. Trethewey, formerly manager of the La Plata mines on Kokanee Creek, Nelson mining division, has resumed charge for a few weeks during the temporary absence of his son, W. J. Trethewey, who succeeded him as manager and is now away on sick leave.

J. R. Bottroff, secretary-treasurer of the Elwood Tinworkers Gold Mining Company, of Elwood, Indiana, U.S.A., reached Camborne, northern Lardeau, about the middle of the month, with the object of ascertaining what progress had been made at the company's Silver Dollar mine since his last visit.

C. J. Seymour Baker has returned to Barkerville, Cariboo, to spend a short time in that vicinity in which he is interested in gold-quartz claims. During the summer he visited the west coast of Vancouver Island, southern Yukon, and southern Oregon, to examine mines in those districts, respectively.

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H. DARLING, 28 Powell St., Vancouver.

Alfred Frank and W. B. Orem, two Montana mining men stated to have been representing F. August Heinze, have returned to Montana after having spent several weeks examining mineral claims in the Telkwa River country, Skeena mining division.

W. F. Copeland and John F. Newsom reached Ashcroft from Bullion, Quesnel Forks, Cariboo district, early in October. Professor Newsom went south, on his return to Stanford University, California, and Mr. Copeland shortly afterwards went back to Bullion, where he is in charge of the property of the Cariboo Gold Mining Company.

R. J. McPhee, formerly manager of the Ottawa mine, in Sloean City mining division, is stated to be recovering from a long illness. When his condition became serious he was taken to Spokane, Washington, so that he might have the benefit of skilled treatment and nursing in that city.

J. F. Robertson, for some months assistant to Frederic Keffer, engineer in charge of the mines of the British Columbia Copper Company, has removed from Greenwood, Boundary district, to Victoria Mines, Ontario, where he is on the staff of the Mond Nickel Company.

W. W. Leach, of the Geological Survey of Canada, at the close of his season's work in the Telkwa district and adjacent parts of the Skeena country, spent a few days at Vancouver and Victoria, and then proceeded to Ottawa, visiting the Crow's Nest Pass coal mining districts *en route*.

W. Fleet Robertson, provincial mineralogist, left Victoria on October 31 for Fernie to proceed thence to examine the mountain above the Coal Creek colliery, which had been reported in a condition regarded as threatening to life and property at and about the coal mines in its vicinity.

R. A. C. McNally, well known in the West Kootenay and Boundary districts, where he was provincial representative

of the James Cooper Manufacturing Company six or seven years ago, and then sold much machinery to district mines, was a recent visitor to the coast cities and several mining camps in the Province.

Wm. Anderson, of Cascade, Boundary district, for about nine years superintendent of the Cascade Water, Power, and Light Company, Ltd., has been appointed hydraulic engineer of the West Kootenay Power and Light Company, Ltd., and has removed to Rossland. The latter company has acquired all the property of the former.

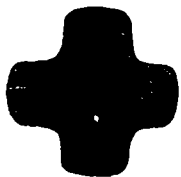
Thomas Kiddie arrived in Victoria from Hadley, southeast Alaska, on October 14 to meet A. J. McMillan, managing director of the Le Roi Mining Company. Later Mr. McMillan engaged Mr. Kiddie as manager of the Northport Smelting and Refining Company's smelting works at Northport, Washington, to succeed Albert I. Goodell who had resigned after several years' successful management of that establishment and its associated business.

W. J. Elmendorf, manager of the Arctic Chief mine, near Whitehorse, southern Yukon, left Whitehorse on October 23 for Portland Canal to examine the property of the Portland Canal Mining and Development Company on Glacier Creek.

On October 3 the *Kaslo Kootenaiian* stated that a Colorado mining expert was inspecting the Argenta mine, which is situated on Hamill Creek, Ainsworth mining division.

Capt. John Hampson has returned to Nelson after having been superintendent of the Brown Alaska Company's Mamie mine, near Hadley, southeast Alaska, for nearly two years. Upon the company's affairs being placed in the hands of a receiver its several mines were closed. At the time of the suspension some shoots of good ore Captain Hampson had found in the lower levels of the Mamie were being opened up.

A. H. Kelly, of Nelson, has been visiting the Similkameen district.



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(1) At least six months' residence upon and cultivation of the land in each year for three years.

(2) If the father (or mother, if the father is deceased), of the homesteader resides upon a farm in the vicinity of the land entered for, the requirements as to residence may be satisfied by such person residing with the father or mother.

(3) If the settler has his permanent residence upon farming land owned by him in the vicinity of his homestead, the requirements as to residence may be satisfied by residence upon the said land.

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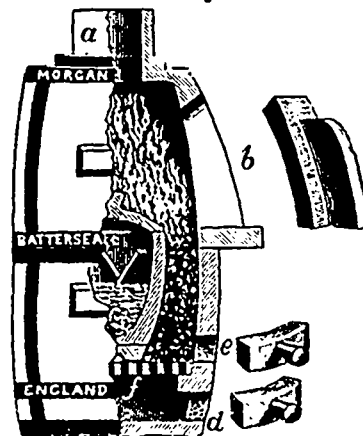
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