

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12X	16X	20X	24X	28X	32X



MINING RECORD

ESTABLISHED 1895

VOL. XIII.

NOVEMBER, 1906.

No. 11

BRITISH COLUMBIA MINING RECORD

E. JACOBS,.....Managing Editor

Devoted to the Mining Interests of the Pacific Northwest.

PUBLISHED MONTHLY BY

THE BRITISH COLUMBIA RECORD, LIMITED

VICTORIA, B. C.

Office—Province Building. Telephone 243. P. O. Drawer 645.

ADVERTISING AGENCIES:

London, England : E. Henderson & Co., Billiter Square Buildings.
 Denver, Colorado : National Advertising Co., 423-424 Quinney Building.
 San Francisco, California : E. C. Duke's Advertising Agency, 1001 Masonic Avenue.

SUBSCRIPTIONS PAYABLE IN ADVANCE:

Canada and the United States, per year - - \$2.00
 Great Britain and Foreign, per year - - - \$3.50

Advertising copy should reach Victoria office by 5th of each month
 Rates on application.

Correspondence to be addressed to the Managing Editor.

CONTENTS.

	PAGE.
Notes and Comments.....	421
Provincial Mineralogist at Peace River.....	424
Outlook for British Columbia's Zinc Industry...	425
The Copper Mines of Alaska.....	427
History and Present Position of Le Roi Mine...	428
American Mining Congress.....	438
Bear Hydraulic Co.'s Operations in Cariboo....	441
Promising Future for Yukon Territory.....	444
Mining in the Southeast Kootenay District.....	445
Company Meetings and Reports—	
Cariboo Consolidated, Ltd.....	446
Con. Mining & Smelting Co. of Canada, Ltd..	447
Hall Mining & Smelting Company, Ltd.....	448
Le Roi Mining Company, Ltd.....	454
Company Cables and Notes.....	459
Certificates of Incorporation.....	460
Coal Mining Notes.....	460
Trade Catalogues	460
Mining Recorders Gazetted.....	460
Mining Men and Affairs.....	461

NOTES AND COMMENTS.

Says the Kaslo Kootenayan: Reports from the Whitewater are to the effect that the mine is looking excellent and has abundance of ore in sight.

During twelve months ended June 30 last, ore was received at the Nelson smelter from 127 mines. The increase in purchases of custom ore as compared with the year to June 30, 1905, was about 100 per cent.

Work has been resumed on the Morning Star, situated on Springer Creek, Slocan City mining division. This property, considered one of the most promising on Springer Creek, had been idle for several years.

The staff of the Daly Reduction Company at Hedley, Similkameen, are reported to be busily engaged in putting things in shape for the winter, and getting the work of the various departments reduced to a system.

An exchange states that some 130 men are employed at the Sullivan Group Company's smelter at Marysville, Southeast Kootenay, of which Ed. Dedolph, formerly with the Kootenay Ore Company of Kaslo, is superintendent.

According to the *Ashcroft Journal*, the manager of the Fraser River Dredge Company, of Lytton, spent a recent week at Lillooet, looking over the property of the Trustees Dredging Company. His company contemplates putting in a bid for it.

The business manager of the Hall Mining and Smelting Company, operating the lead smelter at Nelson, B. C., has informed his company's directors that he has no doubt there is now a much larger tonnage of lead ore in sight in the Kootenay mines than for a number of years past.

The slate quarries at Jervis Inlet, about 75 miles up the coast, which were opened about 16 years ago, but which have been idle for several years, says the *Nanaimo Herald*, are now being reopened by T. F. Sinclair for himself and associates. A complete modern plant is being installed, and half a dozen expert splitters from Pennsylvania have been engaged.

During the last financial year of the Hall Mining and Smelting Company the two blast furnaces at the company's smelter at Nelson were operated a number of days equivalent to 85 per cent of their total capacity. This was nearly nine per cent better than during the year immediately preceding.

From the *Vernon News* it is learned that H. P. Lee, who is interested in the Cotton Belt mineral claim, situated near Sicamous, is well pleased with recent assays he has received from three different sources. These tests show an average value of about \$49 in silver and lead, with a trace of gold.

New plant, to be driven by electricity, has been installed at the Emma mine, in the Boundary district. This includes a 200-h. p. 2,200-volt Canadian Westinghouse induction motor, 8 by 10 hoist, and a compound belt-driven Canadian Rand air compressor with Corliss valve gear, capacity 1,400 ft. of air per minute.

From the *Hedley Gazette* it is learned that the Vermillion Forks Mining Company has entered into a contract with the Great Northern railway to supply 50 tons of coal per day as soon as the railway tracks reach Princeton. Preparations are being made to get the property in shape to supply this quantity.

A correspondent of the *Hedley Gazette*, writing from Camp McKinney, says: The unwatering of the Cariboo mine goes on merrily, the water in the shaft being lowered 6 or 7 ft. in 24 hours. Tenders are called for hauling about 500 cords of wood from the old Aberdeen claim to the hoist.

As a result of the visit of F. W. Guernsey, of the Trail smelter, to the Hall Creek section, above Howser Lake, in the Duncan district, West Kootenay, a few weeks ago, says the *Kaslo Kootenaiian*, we have it on good authority that the big smelting and mining company is likely to devote considerable attention to that most promising district in the near future.

The *Atlin Claim* states, "on good authority," that, if arrangements now pending be completed, a steam shovel—and probably two—will be working on O'Donnell River next summer. The property has been bonded by J. S. Templin, representing a Seattle company, who, on his last visit, said he would have machinery in the camp early in June.

In its issue of November 8 the *Kootenaiian* mentioned that the Kootenay Ore Company's sampling works at Kaslo had been running for several days upon Silver Cup and Ruth ore. The whole plant is now operated by electricity, everything working smoothly and satisfactorily.

According to the *Daily News*, James Cronin, late mine manager for the Consolidated Mining and Smelting Company of Canada, when in Nelson early in November declared that the company's St. Eugene mine never looked better, the lower workings showing

up splendidly at the present time, in excess of anything anticipated by the management some time ago.

"Interest in Poplar Creek will revive in the spring," observes the *Kootenaiian*. "The salvation of that camp lies in erection of small stamp mills, and we understand that several will be erected there next spring. They will work on the small, rich veins of free milling gold with which the district abounds, and possibly the rich showings on the surface may lead to something more substantial underneath."

According to the report of the commissioner of the general land office for the year ending June 30, 1906, mining surveys in Alaska covering 239 locations were received and examined, and 149 were approved. Coal land surveys to the number of 61 were also received, of which 43 were approved. Twenty-six non-mineral surveys of public land were filed by deputies and examined, and 22 of these were forwarded to the commissioner for approval.

It would appear that in the lower Similkameen, under existing conditions, coal is expensive. The *Hedley Gazette* said last month: It is noticed that Princeton coal for the coming winter's fuel supply is commencing to come into town. The cost of freighting it from Princeton makes it \$13 per ton laid down in Hedley, but if a ton of it is equal to 2 1-2 cords of wood, as it is claimed, it would leave it still cheaper than wood at \$7 per cord.

It is evident, says the *Wilmer Outcrop*, that the Paradise mine, which is in the Windermere mining division, East Kootenay, is to be worked on a much larger scale through the coming winter than it has been for the past two years. During the past week a large quantity of supplies has been sent to the mine and the bunk house, are being overhauled. It is stated that all the local miners who wish to go to work there will be given employment.

On November 30 the *Fernie Free Press* announced that the output of the mines at Coal Creek and Michel collieries on Wednesday, 28th inst., amounted to more than 2,500 tons. The coke ovens are working on the old basis once more, all the ovens in use before the strike being fired. With the exception of No. 2 at Coal Creek and No. 5, Michel, all the mines are now back to something like their old output. There are 800 men now employed at Coal Creek and 400 at Michel, and men are coming in daily from outside places to find work at these collieries.

In its "Market Gossip" the *London Critic* said on November 10: "Judging from the statements made to the shareholders on Tuesday, Cariboo Consolidated shares will soon come into market favour. After fighting against difficulties for years the company is at last getting regular returns from the 'wash,' and for more than two months the property has actually been self-supporting. The shareholders are to be

congratulated upon the results achieved, and still more so upon the bright prospects of the undertaking."

In the course of a speech he made at the banquet given at Dawson on November 7 to Hon. W. W. B. McInnes, commissioner of Yukon Territory, Dr. Alfred Thompson, M. P. for Yukon, said: "Last session the Dominion Parliament gave Yukon its present mining code and several other things that we wanted. At the coming session among the most important things to settle will be the concession question. If we are to have these lands thrown open, now is the time."

"What is the matter with the Cariboo Gold Fields, Ltd., reorganized last spring as the Williams Creek Dredging and Transportation Company?" asks the Barkerville correspondent of the *Ashcroft Journal*. Continuing, he observes: "It seems that the company is without a head. The only work done by the concern this year was a little in the way of maintenance; that little was imperatively needed, but was far less than required to put the property in good order. The waste flume and drain tunnel need extensive repairs, and the collapse of either would mean a serious money loss if the owners intend to utilize any of the existing improvements in the valley."

That mining properties in Nicola mining division are attracting the attention of capitalists is quite evident from the number of men representing capital visiting the Nicola Valley during the past few weeks, remarks the *Nicola Herald*. Now that Nicola district has transportation facilities it will only be a short time until some of the promising mineral claims will be developed and in shipping condition. There are numbers of properties close to the railway awaiting capital and it is confidently expected that next year will see the Nicola Valley with many mines in operation.

The recently-published report of the Consolidated Mining and Smelting Company of Canada, Ltd., for six months to June 30 last shows that during that period the company made an "operating profit," after writing off expenses of incorporation and \$45,905 as depreciation of plant and equipment, of \$325,854.93. Two dividends were paid, amounting together to \$234,940, and \$20,000 was passed to a special reserve fund, leaving a balance to credit of Profit and Loss of \$70,914.93. The total value of the metals extracted from the ore smelted at the company's smelting works at Trail was \$2,994,927. The value of lead and silver extracted from ore from its St. Eugene mine was \$798,660, and that of gold, silver and copper from its Centre Star and War Eagle mines, \$823,790; a total of \$1,622,450.

"Many of the Canadian papers estimate the cost of the recent strike as having been in the neighborhood of \$500,000," remarks the *Fernie Free Press*. "The figures given by the *Vancouver Province* are: Loss to the Crow's Nest Pass Coal Company in profits,

\$100,000; cost of putting the mines in good condition, \$50,000; wages lost by the men, \$300,000; loss to the Government in royalties, \$20,000; total, \$470,000. The company declines to either affirm or deny the correctness of the figures, but the loss of wages must be correct, based on previous pay rolls. This seems an appalling loss of money to the company and men, irrespective of the indirect loss to other industries, to be occasioned all because President Mitchell was wrongly advised before he sent his memorable telegram. This furnishes a good illustration of the necessity of having careful and reliable men at the head of union affairs."

The Crow's Nest Pass Coal Company is reported to be opening up two more mines at its Coal Creek colliery. According to the *Fernie Free Press*, the general manager of the company (G. G. S. Lindsey) lately said, in reply to enquiries made:

"There is a force of men driving a tunnel on a new seam at the rock cut. This coal now looks like a good domestic variety, more lumpy than in other seams, and if it continues as the tunnel proceeds it will find a ready demand in the domestic market. The seam is now 5 ft. thick, but the outcroppings higher up show a width of 10 ft. We are also proceeding with the development of No. 6 mine, which is located on the south side of the valley and about 1,000 ft. west of No. 2 mine. This seam has been tunnelled for 100 ft. The seam is about 8 ft. wide, and the coal is of an excellent steaming and coking variety."

The settlement of the recent labour difficulties at the collieries of the Crow's Nest Pass Coal Company was undoubtedly hastened by the timely intervention of the Provincial Government represented, in the capacity of acting premier, by Hon. R. G. Tatlow, who, upon satisfying himself that President Mitchell of the United Mine Workers of America had been misled as to the precise conditions, and had so ordered a strike, communicated with Mr. Mitchell. Thereupon a committee representing the U. M. W. A. was sent to Fernie, with the eventual good result of the actual position being placed before those empowered to arrange a settlement and a speedy decision that the men should return to work. For its judicious action in this matter the Provincial Government is entitled to the thanks of the community.

The Barkerville correspondent of the *Ashcroft Journal* makes the following comment: "When the Cariboo Consolidated, Ltd., struck pay diggings at La Fontaine the same was hailed with satisfaction and a chorus of congratulations; everyone was pleased seemingly, and if anyone was displeased he is not making the fact apparent. But the best pleased men in Cariboo were the local shareholders, Manager Bailey and the workmen at the mine, who bought shares early and held on. I note in a London paper, the *Mining World and Engineering Record* of October 20, that the 2s. preference shares which cost the local

holders 37 1-2 cents, are quoted at the equivalent of \$3.63, while the ordinary £1 shares which cost the same men \$1.25 are quoted at par. This is a tempting rise and if local men sell out no one should be surprised. The fact that they are holding on is significant. The mine is not yet in shape for the payment of dividends and the men who are taking out the gold know this, but are also the best judges of the mine's future. They are not excited by soaring prices and are calmly withstanding the temptation to take profits. Some of the workmen-shareholders stand to win tidy sums; for instance, Jack Roddick would now quit winner to the extent of about \$4,000."

The City of Rossland is urging upon the Provincial Government what it believes to be its just claims to special treatment under conditions that do not appear to have a parallel elsewhere in the Province. The mines at Rossland are within the city limits and are exempt from municipal taxation; they pay to the Provincial treasury a tax upon the ore they produce and by law are not taxable in any other way. Rossland has submitted for the consideration of the Government that it has to make heavy expenditures for the benefit of these mines yet can derive no revenue from them as the law now stands. It requests legislation to give it such relief as shall be found on enquiry to be equitable, the direction indicated in which relief is desired being a payment to the city of a portion of the mineral tax moneys collected by the Government from the mines. The representations made to the Government have met with a sympathetic response. Probably the matter will be brought before the Provincial Legislature at its next session, when opportunity will no doubt be afforded the member for Rossland to submit a measure to meet the views of his constituents.

The London correspondent of the *Engineering and Mining Journal*, writing on November 24, made the following comment on Le Roi affairs:

"The first general report on Le Roi mine since the control was captured a year ago by A. J. McMillan has been issued this week. It covers the year ended June 30, 1906, so that only half of it deals with Mr. McMillan's regime. It shows, however, that considerable advantage has been derived from adopting a fixed policy. During the five previous years the mine was the sport of contending factions, and rival smelters and railway companies were vying with each other for its capture. The consolidation policy advocated a year ago might have been more advantageous than the present isolation, and the professional men connected with the properties with which it was proposed to amalgamate may have been more brilliant mining engineers and metallurgists than Mr. McMillan. That is not the point. The advantage of Mr. McMillan's policy has been to stope this internecine strife and the continual choppings and changings. Anyhow Le Roi can now pay dividends, having made a profit of £37,000 during the year, after having paid nothing for five years."

PROVINCIAL MINERALOGIST'S RECENT TRIP TO PEACE RIVER COUNTRY.

PEACE RIVER DISTRICT is not likely to attract such large numbers of gold-seekers as was thought probable a few weeks ago, now that it is known the reported recent discovery of an extensive gold-bearing area by a Dominion exploration party has not been confirmed, neither by assay of samples of the supposed gold ore taken to Ottawa by A. J. Macdonell, leader of the party, nor by Wm. Fleet Robertson, provincial mineralogist of British Columbia, whose conclusions after having visited the district since Mr. Macdonnell's report was made public are that the value and extent of the latter's discoveries have been greatly exaggerated, so far as they relate to gold.

While the results of the provincial mineralogist's enquiries in the district are disappointing in this particular, they are satisfactory in other ways, for he obtained much information concerning the Peace River country that will be of considerable value to numbers who are carefully noting developments in connection with that section of the Province, and to whom his account of his trip, the publication of which it is hoped will not be long delayed, will be of especial interest.

The following summary of Mr. Robertson's trip, taken from the *Victoria Times* of October 9, is, the B. C. MINING RECORD has been officially assured, a dependable one. The *Times* says:

"The provincial mineralogist returned last night (October 8,) to Victoria, having left the city on July 12. From that date until about the 2nd inst., when he arrived at Edmonton, and thus came in touch with railroad communication, he travelled approximately 2,000 miles by steamer, pack train and canoe. The route covered was as follows: He left Vancouver on the S. S. "Princess Beatrice" on July 14, going thence to Port Simpson, then up Skeena River to Hazelton and down Babine, Fraser, and Stuart Lakes to Fort St. James, which he reached on July 28. From there he went to Fort McLeod, and thence via the Pack, Parsnip and Peace Rivers to Rocky Mountain Portage, arriving there on August 14. The last named place is the western boundary of the agricultural land within the Province, east of the Rockies, and it will thus be seen that it is possible to make this trip within a month.

"From Babine Portage, Babine Lake is navigable by any class of vessel. From its head to the foot of Stuart Lake there is a good road, over which the Hudson's Bay Company runs heavy wagons. The provincial mineralogist took his canoe and about 1,200 lb. of baggage across without any trouble and, traversing Stuart Lake, arrived at Fort St. James, at its head, on the date mentioned. Around the head of Stuart Lake and for a considerable distance along the wagon road to Fort Macleod there are many areas of good arable land, although no large acreage exists in one block. The trip from Fort St. James to Fort Macleod, 90

miles, was made over a good wagon road and another canoe was procured to take the party to Fort St. John, on the Peace River, near the eastern boundary of the Province. The journey is not at all difficult. The Pack River flows out of Macleod Lake, at the foot of that name, and enters the Parsnip, which at its confluence with the Finlay forms the Peace River. From Fort Macleod to this confluence is 120 miles. Seventy miles down the Peace River is the canyon, which is known as Rocky Mountain Portage, where a detour by trail of 15 miles has to be made. At the end of the canyon is Hudson's Hope, and from there to the east stretches an unbroken range of prairie sloping gently from the foothills. The 130 miles between that point and the 120th meridian are within the confines of British Columbia and constitute, in Mr. Robertson's opinion, one of its most valuable assets. Even the bench land, sloping down from the mountains, he considers suitable for all agricultural purposes. Coal is known to exist, largely merchantable. There is an ample supply of timber, but, as far as Mr. Robertson could see, the mineral discoveries reported to have been made are greatly exaggerated. Accompanied by an Indian, he made side trips south to Moberly Lake, thence to the South Pine River, which he followed to its junction with the Peace near Fort St. John. The Peace River, from Hudson's Hope, eastward, is navigable for many hundreds of miles. This summer a large Hudson's Bay steamer traversed the 550 miles, approximately, from Vermillion to Hudson's Hope. The river is wide, at least as wide as the Fraser before it is joined by the Thompson, the only difficulty being the current, which flows between four and five miles an hour. This renders navigation in small boats against the stream very hard without tracking.

"From Fort St. John Mr. Robertson took another canoe to Peace River landing, a distance of 180 miles, being accompanied from the first mentioned point to Dunvegan by the Hudson's Bay factor. From Peace River landing he struck south, a distance of 90 miles by trail, to the Hudson's Bay post at the head of Lesser Slave Lake. There he fell into good hands. Major Constantine, of the Northwest Mounted Police, was good enough to provide a large Peterborough canoe, in which the journey of 200 miles down Lesser Slave Lake, Lesser Slave River and Athabasca River was made to Athabasca Landing. There the canoe was left. The only accident that occurred during the whole trip was about 60 miles down the Lesser Slave River. The canoe struck a sunken rock and, as it was loaded with four men and about 800 lb. of baggage, the party had a very hard time in reaching the shore. It was, however, patched up and the landing made without any further trouble. From Athabasca Landing about 100 miles due south there is a splendid wagon road to Edmonton.

"The trail to Peace River from Lesser Slave Lake shown on many maps does not exist, and Mr. Robertson considers the route followed by himself the best for those entering the country from Edmonton.

"One interesting thing he noticed is the great ac-

tivity displayed by Grand Trunk Pacific railway survey parties eastward from Fort St. James. A line from St. James to Macleod has been located, and thence eastward to the Pine River pass. In his opinion the new transcontinental railway has definitely decided on that point at which to cross the mountains.

"Regarding game, Mr. Robertson did not see very much small game, but says that bear, both black and grizzly, are plentiful to the north and south of the Peace from Hudson's Hope east to Mud River. He saw no less than nine in one day. Lynx are also present in large numbers. One man trapped 260 in that vicinity last year.

"The distances from British Columbia points to Fort St. John* have been frequently published. Those from that point to Edmonton have not been given in the press before. They are as follows: St. John to Peace River landing, down that river, 180 miles; trail to Lesser Slave Lake, 90 miles; down Lesser Slave Lake, Lesser Slave River and Athabasca River to Athabasca Landing, 200 miles; wagon road to Edmonton, 100; total, 570 (190 by trail and 380 by water). With the exception of 90 miles up to the lake mentioned a canoe cannot ascend the rivers without tracking.

OUTLOOK FOR BRITISH COLUMBIA'S ZINC INDUSTRY.

THE ZINC RESOURCES of British Columbia have had much attention during the two years last past, but the problem of their profitable utilization has not yet been solved. The "Report of the Commission Appointed to Investigate the Zinc Resources of British Columbia and the Conditions Affecting Their Exploitation," made under the direction of the Canadian Department of the Interior and recently published, has attracted widespread notice and one result will probably be that more capital will eventually be available for opening up the zinc mines of the Province than might otherwise have been so employed. The practical closing of the United States market against British Columbia zinc ores or concentrates has, however, given a set-back to what had commenced to be a steadily-developing industry. The situation is being met, though, by efforts towards securing the smelting of the zinc ores in Canada. Application has been made to the Dominion Government for similar aid to that which has during recent years quite rehabilitated the previously almost dead lead-mining industry in the Province. In connection with this movement the following interview with one well informed on the subject has been taken from the *Nelson Daily News*:

T. W. Jones, manager of the zinc smelter at Frank, who is in the city for the purpose of consulting with S. S. Fowler with regard to certain improvements that are to be made in the smelter under his charge, has given the *Daily News* some interesting particulars as to the plant, the zinc situation in the country, and the pressing need for legislation to foster its growth.

*See B. C. MINING RECORD for August, 1906, pp. 318-324.

Referring first to the plant Mr. Jones declared that it was substantial, well built and would, when the new improvements contemplated were completed, certainly be as good as any plant to be found in the United States. The smelter was shut down for the present pending alterations. It had shipped last month its first consignment of spelter, consisting of about 46 tons, which went to Montreal. Beside this there had been manufactured about two tons which had been sent away, principally as samples. There were still in the smelter bins about 600 tons of ore purchased under the old management of the concern. The ore smelted had amounted to between 125 and 150 tons. This ore had been procured from various mines, the Grey Copper, Jackson, Ruth and Payne, in the Slocan, and a new property near Golden, Northeast Kootenay.

The trouble with the plant as at first designed was with the roasters. These were of the Merton type and were found unsatisfactory. In fact, they were entirely unable to keep up the supply of ore and in consequence of this a shut down had been forced. It was now determined to put in a straight-line roaster, probably either a Jacklin or a Brown, which were much of the same type. When the type had been settled upon to recommend to the directorate the recommendation would be forwarded to Paris and there acted upon. In the meantime a force of men was working at the smelter getting out brick for the furnaces. With the installation of the new roasters, he had no anticipation of further trouble, but, on the other hand, expected to be able to smelt much more cheaply than the cost of the first run.

Referring to the general aspect of the zinc business, with especial reference to a zinc bounty, Mr. Jones said:

"I do not think there is any part of the mining industry which more deserves help than does zinc mining and reduction. When I first came into the country many of the Slocan mines having mills were letting the zinc tailings go to waste down the streams. Under my earnest representations this custom ceased, and the mills have since mostly followed the example afforded them by the Slocan Star, and are saving their zinc and storing it for a market. The Slocan Star, within five months of altering its mill, sold its zinc savings for \$25,000, a sum very well worth having. Owing to litigation this mine is not now running its mill and in consequence a similar output is not being maintained.

"There is no doubt that there is plenty of zinc in the country. Many a lead mine owner will tell you that he has four tons of zinc to one ton of lead ore. The question is to get a market for it. The situation is critical. There is a consumption in Canada of about 2,000 tons per annum, Japan needs from 3,500 to 4,000 tons yearly, and China about half as much. As to the market in the United States, from that Canadians are entirely excluded, as it is perfectly protected by the import duty. Hence, although it is the highest market in the world, we cannot get access to it because of that duty. Now, the Frank smelter, as renovated, will be able to handle about 30 to 40 tons of zinc ore daily, from which will be obtained about 10 to 15 tons

of spelter, averaging 12 tons probably upon the present basis. This means a production of about 4,000 tons a year, or twice the requirements of the present Canadian market. But were we bounty-fostered we could then enter upon the markets of the Orient and compete successfully with the United States and probably be able to market the whole of our product.

"But the first thing is to get the control of our own market. Just now that market is in the hands of the United States. The biggest consumer of spelter in Canada is a firm near Buffalo, just on the Canadian side of the border. It is a manufacturer of galvanized iron, a manufacture into which spelter enters largely. There is no duty on spelter coming in from the United States. In consequence this firm gets all its spelter from the United States. The point of supply is nearer than British Columbia and the freight is much less. If there were a duty upon spelter, then Frank could compete. As it is it cannot, so the United States has a pull upon Canada in two ways; it keeps its own market free from Canadian spelter and at the same time pours upon our unprotected market American spelter. Any spelter that does enter the States does so as zinc ore and is purchased by zinc smelters, made into spelter and then possibly used to supply the Canadian market, while at the same time this method of action operates not only against the Canadian smelter by cutting in upon both its supplies and its market, but at the same time militates against the zinc mine owner, as he is absolutely at the mercy of the United States smelters, which may take his ore at one time and reject it at another. Under such conditions no sane man wants to invest his capital in zinc properties.

"Then there is another thing in connection with this buying from the United States. Every now and again when the United States smelters are short of ore, they wire to their buyers here to buy short. That is to say, they are willing to give a price for zinc higher than the real market value in order to prevent their stocks being depleted. This cuts off our supply. For the zinc mine owner will naturally say that he is getting, say, \$1 a ton better price from the United States than the local plant is willing, or able to afford, to give. Hence he ships to the United States, and the regularity of our supply is trenced upon, and without the assurance of a regular supply no zinc, or any other smelter, can be run economically, which means profitably.

"How would I recommend a bounty to be given?" replied Mr. Jones to a query; "Well, that is hardly my business, seeing that although born an Englishman, I am an American citizen and have no right to butt into the management of your affairs. But from a business point of view I would like to say that in my idea the bounty should be so adjusted as to prevent either smelter or miner getting an undue advantage the one over the other. I don't think it much matters how the bounty is given as long as it is provided that it shall not be given if the zinc is not smelted in Canada. If given directly to the mine that mine would see it would lose more in bounty by selling its product to the United States than it would gain from that country by taking its advanced price over

the figures current in the local market. On the other hand, if given to the smelter, the buyer from the mine would be able to give a better price because of the bounty. The cutting in upon our supplies would be thus prevented in either case. Besides, by doing this there would be created a stable set of conditions. A smelter would be able to go ahead, and as long as the mine-owners knew that a reduction works was willing to take ores regularly they would go into the business of producing. Now there is neither certainty as to price, as that can be set arbitrarily, to a great extent, by the United States smelters, nor as to market, for the United States concerns cannot be said to be regular buyers and in fact only do buy either when they are short or when they might wish to hamper possible Canadian competition.

"And that brings us back to the other set of conditions, the preying upon the Canadian smelter market," concluded Mr. Jones. "Unless there is a duty as well as a bounty we cannot keep that market. With the duty we can hold the Canadian market; with the bounty we can successfully compete with the United States in the Orient and share in that market, thus obtaining assured conditions both for mining and smelting. Those assured conditions are today entirely lacking, and so long as they continue to be we shall suffer from lack of capital and skilled labour to place the zinc industry upon a permanent footing."

THE COPPER MINES OF ALASKA.

ALASKA'S COPPER MINES are as yet comparatively undeveloped. There are known to occur in different parts of that extensive but little-explored country showings of copper ore that give promise of production, after adequate development, to an important extent. The following information, though not up to date, is of interest, being official. It is from Bulletin No. 285 of the United States Geological Survey, "Contributions to Economic Geology, 1905," by S. F. Emmons and E. C. Eckel, geologists in charge. This bulletin is one of a series prepared primarily with a view to securing as prompt publication as is practicable of the economic results of investigations made by the Survey, and "designed to meet the wants of the busy man, being so condensed that he will be able to obtain results and conclusions with a minimum expenditure of time and energy." The particular reference to Alaska's copper mines is as under:

The first commercial shipments of copper from Alaska were made in 1903, forming, it is hoped, the beginning of a great industry. At the present time the known mines of Alaska do not warrant definite estimates of future production.

On Prince of Wales Island two properties have been brought to a producing stage and are now reducing their own ores. The first is the Mamie mine at Hadley, operated by the Alaska Smelting and Refining Co. The ore is chalcopyrite, with pyrite, a very small amount of calcite, and much amphibole. The ore oc-

curs in lenticular masses surrounded by black slickensided surfaces. It is understood that an arrangement has been made by which the company exchanges ore with the Britannia Co., near Vancouver, British Columbia, sending it the basic ore and receiving in exchange the highly siliceous ores of the Britannia mine. The Coppermount smelter was also in operation in the latter part of 1905 and promises to be a steady producer in the future.

One mine on Prince William Sound was a steady producer during 1904, shipping ore to the Puget Sound smelter.

The Nikolai greenstone forms a remarkable body of igneous rock, extending along the Alaska Range for nearly 300 miles, lifted and upturned with the Carboniferous limestone about its borders, but not breaking through the rock or sending out dykes or arms into it. This great body of rocks, which consists mainly of intrusive masses, but in part contains amygdaloidal surface lavas, is cupriferous over a very extensive area, and in places, as at Bonanza Creek (Copper River) carries disseminated bornite and veins of glance in what appears to be fresh rock, together with associated magnetite and pyrrhotite.* According to Schrader and Spencer the Nikolai greenstone consists of volcanic flows varying laterally and vertically and constituting a unit compared with adjacent rocks. It is composed of green to red feldspar, with augite, a less amount of chlorite, a little serpentine, and some accessory magnetite. The rocks are mainly altered basalts. Locally they contain metallic copper, which is secondary. Both the greenstone and the adjacent sedimentaries are fractured and the fissures become veins. The copper occurs in the fissures in the greenstone or in the sedimentaries only near the contact with the greenstone.

The best-known mines of the Prince William Sound or Copper River district are in the Bonanza Creek basin, which lies across the range from the coast and is reached by a two weeks' journey with saddle and pack mules. The ore occurs in a vein which crosses at 90 deg. the contact between the Nikolai greenstone and Carboniferous limestones upturned about it. The vein shows a paystreak of 4 ft. of 40 to 50 per cent ore, consisting of bornite and glance, the vein itself being about 11 ft. wide, if the parallel fissuring is included. The fracture is distinctly traceable into the limestone, where, however, it is barren and filled with limestone fragments cemented by calcite. The vein was traced by H. V. Winchell for over half a mile into the limestone and, being above timber line, it is well exposed, particularly where it crosses a 70-ft. cliff. Although carefully examined and sampled it does not show even a trace of copper throughout this extent in the limestone. The ore occurs only where the vein is incased in the greenstone, and a 40-ft. shaft sunk in the greenstone shows this ore to be a surface enrichment.

*For a description of the Nikolai greenstone see Schrader, F.C., and Spencer, A.C., Geology and mineral resources of a portion of the Copper River district, Alaska: House Doc. No. 546, 56th Cong., 2d sess., 1901.

THE LE ROI MINE—ITS PAST HISTORY AND PRESENT CONDITION.

By E. Jacobs.*

THE LE ROI MINE, after having been for years an unprofitable enterprise, has at length been placed on a profit-earning basis. No mine in British Columbia, save possibly the Ymir, had so influenced British mining investors and speculators against mining enterprises in this Province as had this one. That the blame for this very regrettable state of affairs is not properly chargeable to the property itself appears manifest now that it is being managed along strictly economic lines.

The reports and statements of accounts printed elsewhere in this number of the *MINING RECORD* give information as to the position at the close of the company's last financial year. There is no need to here recapitulate at length the main features of this official



Le Roi Co.'s Power Houses, Mechanical Shops, Reservoir, etc., on Black Bear Flat.

information prepared for submission to the shareholders; they can readily be ascertained by perusing the printed reports. The position may be stated in a few words. The accounts show a surplus of liquid assets over liabilities of between \$500,000 and \$600,000; instead of being in debt to the bank there was at the close of the year about \$450,000 in cash at credit of the company at its bankers; a dividend had been paid during the year; liberal deductions had been made on account of depreciation of property; development of the mine had been extensively carried on with very gratifying success; and the position generally was more promising than at any other time since the property passed into the possession of the present company. The time would therefore appear opportune to review the past history of the company and to again publish information relative to its property and the development of its mine.

The following particulars have been taken largely from a paper contributed in 1902 to the Canadian

Mining Institute by Bernard MacDonald, M. E., who was general manager for the company at the time the extensive additions to plant, machinery, buildings, etc., were made, and who designed these and initiated a far more vigorous policy of development and production than had previously been carried out. Such revision as was necessary was made during a recent visit to Rossland.

HISTORY OF THE LE ROI.

The Le Roi was located in the summer of 1890, and in November of the same year it was bonded to a syndicate of Spokane (Washington, U. S. A.) business men. This syndicate completed the purchase of the mine, and on June 23, 1891, conveyed it to the *Le Roi Gold Mining Company* (nominal capital, \$2,500,000 in 500,000 shares of \$5 each), which they organized for the purpose of operating it. Under the auspices of this company the mine was developed into a paying property, and the company realized from its operations \$975,000 in dividends before selling it in 1898.



Le Roi Hotel—One of the First Buildings Erected by Original Operators of the Le Roi Mine, Rossland.

The ore which yielded these dividends was extracted from workings comparatively near the surface, where, owing to the concentrating action of meteoric agencies, the values, originally existing in the entire vein, were concentrated into a streak of varying width. The ore mined was sold to custom smelters, which made a direct charge of \$11 per ton for freight and treatment, beside making certain deductions from the metal values, amounting to approximately \$5 per ton. Thus, the aggregate of the direct and indirect smelting charges was \$16 per ton.

But as depth was attained on the vein, it was found that the values were becoming uniformly disseminated throughout the great width of vein matter, instead of being, as near the surface, concentrated into a comparatively narrow streak. Thus, as the work of mining progressed in depth, the ore became too low-grade to stand the cost of freight and treatment formerly paid to the smelters and leave a satisfactory margin of profit.

This change in the character of the ore induced the company to build its own smelter, so that the profit

*Editor *BRITISH COLUMBIA MINING RECORD*.

of smelting the ore might be added to that of mining it. A favourable site was selected at Northport, in the State of Washington, and a smelting plant of a capacity of 250 tons per day was built there in the autumn of 1897.

In this enterprise the company associated with it to the extent of one-quarter interest, James Breen, a man of extensive experience in copper smelting. Mr. Breen's ownership of this interest made it necessary to conduct the mine and smelter as separate concerns, the latter being known as the Northport Smelting and Refining Company.

The smelter was operated under terms of an agreement made between Mr. Breen and the Le Roi Mining

smelter, the profits earned being distributed, three-quarters to the company and one-quarter to Mr. Breen.

About this time the president of the Le Roi Gold Mining Co. (Col. I. N. Peyton) went to London with the object of selling the mining and smelting property of the company. The negotiations which he began finally resulted in the purchase of all the assets of the company by the British America Corporation, Ltd. This corporation conveyed the property to the Le Roi Mining Company, Limited, a new company, organized in London to take over and operate the mining and smelting property of the old Le Roi Company.

The mining and smelting operations of the new company were then conducted under the management



(1) Le Roi Head Works over Combination Shaft.—(2) Le Roi Surface Works on Black Bear Flat.—(3) Le Roi No. 2 Co.'s Concentrating Mill.—(4) Le Roi No. 2 Co.'s Josie Surface Works.—(5) Le Roi No. 2 Co.'s No. 1 Mine Shaft House.—(6) War Eagle Mine Head Works.

Company, which provided that all the ores produced by the Le Roi mine for a period of five years should be sold to the smelter on the following terms:—The gross values of the metals contained in the ore were to be paid for at New York market quotations, less \$8.75 per ton as direct charge for freight and treatment, and certain specified deductions from the gross metal values in the ore, which amounted to \$5 per ton additional. The total charges, direct and indirect, for smelting the ore at the Northport smelter therefore amounted to \$13.75 per ton, a reduction of \$2.25 per ton under the price charged by outside smelters. This contract was, nevertheless, very profitable for the

of the new (London) company. Mr. W. A. Carlyle being local manager until December, 1899, when that gentleman severed his connection with the company to accept the management of the Rio Tinto Copper Mines, in Spain. On December 10, 1899, Mr. Bernard Macdonald was appointed general manager. He was informed by the directors that no profit had been made by the company's operations and was instructed to examine the company's property and report as to what would be the probable results of future operation.

The mine records showed that for the eight months ended June 30, 1899 (the first eight months after the

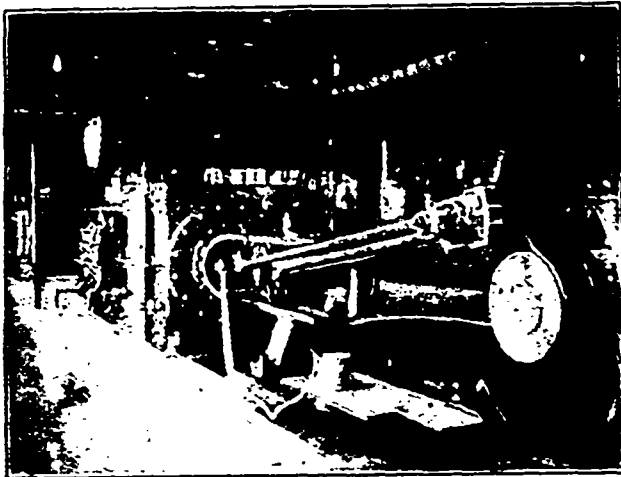
mine was taken over from the old company) there were 45,167 tons of ore shipped, having an average gross value of \$17.33 per ton; and that for the subsequent six months ended December 31, 1899, there were 51,448 tons of ore shipped, having an average gross value of \$13.66 per ton; making a total of 96,615 tons of ore shipped during this period, having a total gross value of \$1,485,423.19. This made the average daily shipment about 250 tons, which was found the maximum possible to be obtained from the mine with the equipment and facilities it then possessed.

The general details of the costs of realization of the gross values per ton of ore for the period under review showed, without making deduction for depreciation of mine or plant, as follows: Costs of mining and development, \$5.55; railway transportation to smelter, \$0.75; cost of smelting to matte, \$5.50; refining tolls and charges, and freight, \$1.25; Breen's profit on smelting contract, \$2; total, \$15.14. Subtracting the costs of realization from the average gross value of the ore, the first eight months' operations showed a profit of \$2.10 per ton on the production for that period, or a total of \$98,915.73, while the last six

compartment incline shaft, sunk near the easterly end of the property on the variable dips of the vein, to a depth of 940 ft. In this shaft, at approximately 100 ft. distant from each other, stations were cut and level drives run easterly and westerly in the vein. Along these drives stopes were opened and worked upwards in the ore bodies. The ore was stoped by drilling with machines run by compressed air, and by blasting with dynamite. The ore when blasted was loaded on push-cars and pushed by trammers, in one-ton cars, to the shaft stations; hoisted to the surface by a double-drum direct-acting 20 by 42 hoisting engine running skips in counter balance; hand-sorted at the surface; trammed to receiving bins; sent thence in four-ton cars down a gravity tram, 700 ft. long and having a fall of 250 ft. to the railway bins, and there loaded on railway cars for conveyance to the smelter.

Under these conditions, and with the facilities and equipment briefly described above, the average output (250 tons per day) for the 14 months under review, was hoisted from the mine, sorted and loaded on the railway cars.

Mr. MacDonald quickly realized that the prospect for the profitable operation of the mine under then



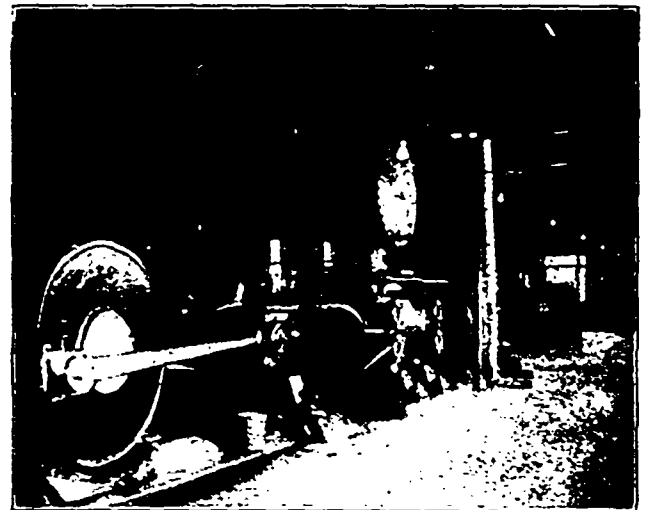
Le Roi Co.'s Big Canadian Rand Air Compressor.

months showed a deficit of \$1.48 per ton, or a total deficit of \$76,202.24 on the production of that period, which brought the profits for the 14 months down to \$22,713.49.

It should be noted as of particular significance, the general lowering of the average grade of the ore produced, and further, that the production of the last three months of the period under review had an average gross value of only \$12.50 per ton, which made a working deficit to the company of \$2.64 per ton for the ore produced during these months, notwithstanding the profits derived from the three-quarters interest in the smelter.

Such were the statistics furnished by the company's records for the first 14 months of its existence. From these it was quite apparent that no profit could be earned unless the conditions under which operations were carried on were modified.

At this time the mine was worked through a three-



Le Roi Mining Co.'s Canadian Rand Air Compressors.

existing conditions was a gloomy one. The experience of the previous 14 months, wherein 96,000 tons of ore were mined and smelted, leaving practically no profit, showed how futile it would have been to continue operations on the same scale in the face of a lower average grade of ore than was dealt with during that time. Could existing conditions be modified so as to make operations profitable? This problem had to be solved affirmatively or the mine abandoned. Of the numerous factors required for the solution of this problem, the main one was the determination of the quantity and grade of the ore in the mine, and the probability of its downward continuation. In due course it was ascertained that there were approximately 1,000,000 tons of ore in sight in the mine, having an average gross assay value of \$12.50 per ton, and it was considered probable that the ore bodies would extend indefinitely downward. Careful cal-

culations showed that the costs of realization might be reduced to \$8 per ton providing an expenditure of about \$1,250,000 was made on new development and equipment of the mine, and increase of the capacity of the smelting plant. This expenditure provided for:

1. Freedom of the company from dictation of the Miners' Union so that, by re-establishment of the contract system, the company could contract its work to the best workmen, and would have to pay only for the work actually done, instead of the time spent in doing it.

2. The purchase of Mr. Breen's one-fourth interest in the smelter, and his contract for smelting the ore.

done: (1) A two-compartment winze sunk on the vein from the Black Bear tunnel to the mine workings on the 700-ft. level was equipped with a 150-h.p. electric hoist and pressed into service as an auxiliary shaft. This relieved the congestion at the old shaft so that it was soon possible to almost double the ore production. The output was immediately increased to an average of 433 tons per day, and later on to 600 tons per day, which gave the desired margin of unincumbered ore available for security for the funds required for the proposed improvements, which could now proceed as rapidly as desirable. (2) The option previously obtained to purchase Mr. Breen's interest



Le Roi No. 2 Co.'s Josie Mine Surface Works and Dumps.—Le Roi Head Works over Combination Shaft in Background.

3. The sinking of a five-compartment shaft on the mine, and the erection of a modern plant of hoisting machinery and handling facilities at its head, of adequate capacity for an output of 1,000 tons per day of 10 hours.

4. To enlarge the Northport smelter so as to have a marginal capacity of from 400 to 500 tons daily for custom ore, in addition to that required for smelting the increased product of the Le Roi, viz., a total capacity of 1,500 tons per day.

The directors authorized the carrying out of these plans conditionally on the necessary financial arrangements being provided for from the operation of the property. The following is a summary of what was

in the smelter for \$300,000 was exercised, this sum having been borrowed from the bank. (3) The proposition to introduce the contract system in the mine was next tackled. This was vigorously opposed by the Miners' Union, who refused to allow their members to work by contract. The mine was, in consequence, closed down for a period of 60 days, at the end of which time the union yielded and the mine was reopened under freedom to utilize this system. (4) A suitable location for the five-compartment shaft was selected and its construction commenced. Simultaneously, the excavation for the foundations of the several units of the proposed new plant was begun, also the preliminary work for increasing the capacity of the

smelter. During the latter part of March, or the early part of April, 1900, all the necessary preparations were made, and the work of construction commenced.

GENERAL DESCRIPTION.

A brief description of the enlarged plant, machinery, buildings, etc., follows:

Boiler Plant.—This plant consists of nine horizontal return tubular, steel shell, high pressure boilers, set in three batteries of three boilers each; and two Heine safety water tube boilers set in one battery. In the aggregate, this plant has about 2,000 nominal horse power—sufficient to supply the steam necessary to operate all the machinery connected with the mine and have one of the four batteries out of service. The spare battery is always held ready for steaming when any of the others in service require cleaning or repairs. This plant is modern and complete in all its details, and is equipped with all the most improved devices (except mechanical stokers), to provide for



Le Roi Mining Co.'s Hoisting Engines.

safety and continuity of operation at the lowest cost for attendance and maintenance.

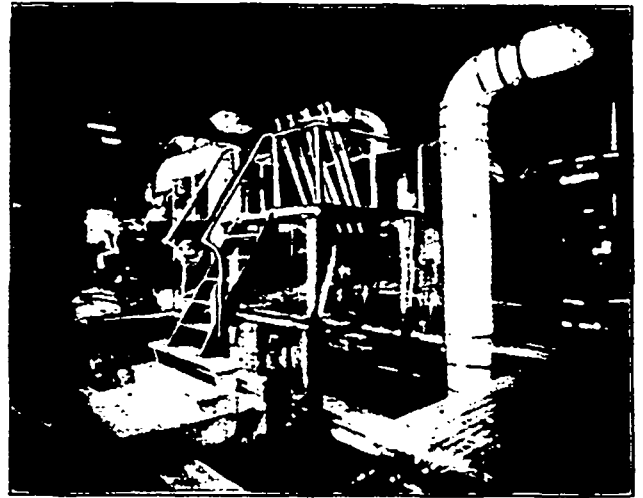
Steam is transmitted from this plant to all the steam engines through a series of insulated steam lines. A 9-in. steam line, carrying steam at 140 lb. pressure, connects with the two air compressors. Two additional steam lines run through the Black Bear tunnel and connect with the hoisting engines at the head of works of the Combination shaft. One of these is an 8-in. and the other a 6-in., the former line being the one generally used, the latter being held in reserve in case of accident to the other. Each of these lines is insulated by two layers of cellular asbestos covering, and provided with the requisite number of steam traps and expansion joints.

Air Compressing Plant.—This plant consists of two compressors, one having 22 by 36 by 48-in. cross compound condensing steam cylinders, with 22 by 36 by 48-in. two-stage air cylinders, the other, 22 by 36 by 48-in., with cross compound condensing steam cylinders, with 22 by 38 by 48-in. two-stage air cylinders. The combined capacity of these two machines is 8,000 cu. ft. of free air per minute at sea level, compressed

to 95 lb. gauge pressure. These compressors were built by the Canadian Rand Drill Co., and both have given entire satisfaction.

The operation of this plant has proven very economical. A working test extending over a period of 30 days during ordinary working conditions showed a coal consumption of 1.9 lb. per horse power per hour, and that air was being compressed to 95 lb. per sq. in. at the low cost of \$1.59 per each 100,000 cu. ft. of free air compressed. This calculation did not include the interest on the investment or depreciation, but all other costs.

The air compressed by this machinery is transmitted into the mine workings through a series of air receivers and two pipe lines. The pipe lines lead from the receivers to the mine workings; they consist one of 8-in. and the other of 6-in. pipe, with branch lines leading off, carrying the compressed air to the workings on the various levels.



Le Roi Mining Co.'s 1,000-h.p. Hoisting Engine.

Hoisting Plant.—This plant, installed at the head works of the Combination shaft, consists of two modern types of first motion winding engines, one of 1,000 and the other 500 nominal horse power, housed in a building 60 by 90 ft. and 20 ft. high. The larger hoist is the standard Fraser & Chalmers design, with some special features incorporated according to arrangement. It is a 24 by 60-in. engine, and has seven auxiliary vertical engine, all reversing gear, links, frictions and brakes being handled by means of these auxiliaries. Two crank discs are fitted with emergency brakes. The first motion drums are 10 ft. diameter and 5 ft. face and are fitted with very powerful post brakes. The valve movement is all Corliss. The speed—the engine runs 1,400 ft. per min. average hoisting speed handling two 4-ton skips in balance—is controlled by a fly ball governor. This engine is used exclusively for hoisting ore.

The smaller engine consists of a pair of 20 by 30-in. high pressure engines. It is equipped with four auxiliary horizontal engines with which the clutches, reversing gear and brakes are operated. This engine was especially designed for the rapid and safe hoist-

ing and lowering of men, and the general traffic incidental to the mining operations, and is exclusively used for these purposes.

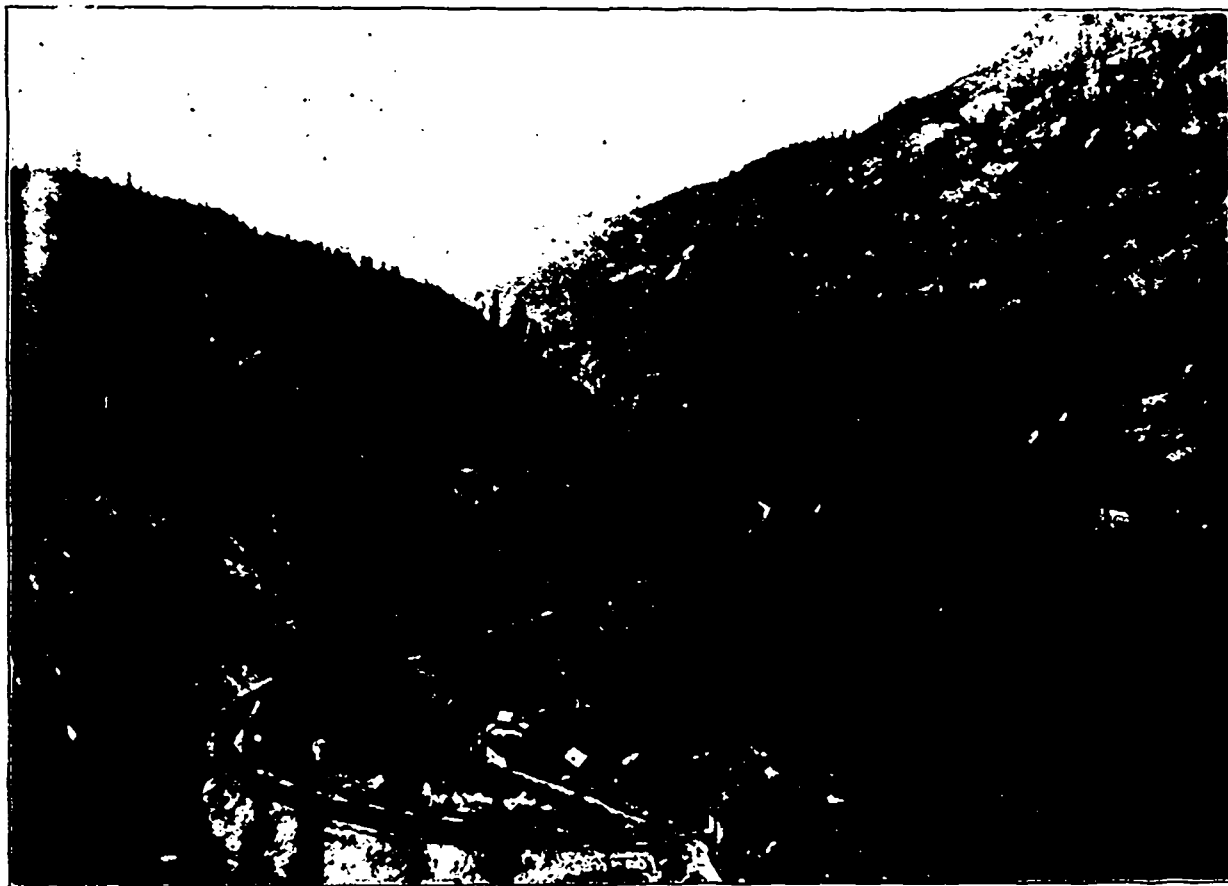
Heating Plant.—This consists of a Sturtevant fan heater, and heats the headworks and sorting room by heat generated from the exhaust steam of the hoisting engines.

Combination Shaft.—This shaft, having dimensions of 27 1/2 by 6 ft. clear of outside timbers, is sunk on the average dip of vein 69° from the horizontal, to a depth of about 1,390 ft. (September, 1906). It is divided into five compartments. Two of these are used exclusively as roadways through which the ore is hoisted from the pockets at the stations on the

holding capacity of about 500 tons each. These pockets are used to receive and store the ore trammed from the stopes until it is suitable to hoist it.

At the 900-ft. level a large catch basin or water tank having a holding capacity of 50,000 gallons, has been excavated out of the solid rock in the footwall side of the shaft. This tank receives all the water flowing from the various parts of the mine. Over it the mine pumping plant is installed, and the accumulated water is lifted a height of 600 ft. to the Black Bear tunnel, through which it flows to the surface.

The shaft is being deepened and may be carried down to 2,000 ft. depth. The main object of deepening this shaft is to ensure the more economical hand-



Red Mountain Railway from Rossland to Northport—Switchback down Sheep Creek.

various mine levels and delivered to the crushing machinery at the headworks; the two adjoining ones for hoisting and lowering men, timber, tools and mining supplies; and the fifth compartment as a manway and for the compressed air and water pipes, and electric wires.

The four hoisting compartments in the shaft are tracked with 36-lb. T rails and provided with timber guides, to prevent the hoisting skips from leaving the track.

From the hanging wall side of the shaft at the various levels, stations have been cut to accommodate the general traffic of the mine. Underneath the floor of these stations, pockets are excavated having a

holding of the considerable tonnage of ore discovered in sinking the winze to the 1,750-ft. level—400 ft. deeper than the level down to which the main shaft has heretofore been used in operating the mine. A tank similar to that at the 900-ft. has been excavated in solid rock at the 1,350-ft. level. This will catch all water draining from between the 900 and 1,350-ft. levels and thus leave the shaft below the latter practically dry while sinking to greater depth. The winze above referred to has been sunk from the 1,350-ft. level, starting from a point about 800 ft. south of the main shaft. Stations have been cut at each 100 ft. depth reached by this winze and drifts run therefrom to explore the ground it passed through.

The various levels driven in the mine are as under: Starting with the Black Bear level, which has an outlet to the surface at Black Bear flat and which is 300 ft. below the collar of the shaft, and taking them in their following order, they comprise those at 350, 450, 500, 600, 700, 800, 900, 1,050, 1,200 and 1,350 ft. depth.

Head Frame at Shaft.—This is 85 ft. high from the collar of shaft to the bearings of the sheaves, and is built of Douglas fir in a very substantial manner, calculated to withstand the strains due to the rapid lifting of heavy loads from a state of rest by the two hoisting engines.

The ore hoisted is dumped automatically on grizzlies set in the head frame at a height 65 ft. above the collar of the shaft. The delivery of the ore at this height provides sufficient elevation for its automatic passage by gravity over the grizzlies and through the crusher into the storage bins beneath, from which it is delivered, by automatic feeders, to the sorting tables.

Crushing, Sorting and Sampling Plant.—This plant occupies in part the building enclosing the head frame at the Combination shaft, and continues into a wing extending from it 100 ft. in length by 30 ft. in width and three stories high.

The machinery of this plant was especially designed for the crushing, sampling and sorting of ore in continuous operation as it comes from the mine, completely preparing it for smelting operations.

The transportation and handling of the ore from the time it is broken in the stopes to its delivery in the smelter yards, is briefly described as follows:

The ore, when blasted down in the stopes, is broken into pieces of suitable size, say 10 in. in diameter, shovelled into chutes, and from them trammed to the storage pockets at the Combination shaft.

From these pockets it is drawn off into the hoisting skips through chutes opened and closed by steel gates, actuated by compressed air cylinders. By these means the ore is loaded rapidly and cheaply, it only requiring a few seconds to fill a 4-ton skip.

The loaded skips, holding 4 tons, are hoisted to the surface and dumped automatically over the grizzlies, which are arranged to divide the ore into three classifications. The size too large to fall through the grizzly bars, gravitates over them to a No. 5 Comet crusher, set to crush to 4-in., the largest size suitable for the subsequent sampling and the smelting furnaces. The fines falling through the grizzly bars pass directly to the "fines" receiving bin, from which it is automatically fed to a 30-in. conveying belt and carried to the sampling machinery without sorting.

The ore passing through the Comet crusher falls into the "coarse" receiving bin, from which it is fed automatically by a shaking-movement contrivance to two endless 40-in. conveying belts. These belts and that carrying the fine ore, all made by the Link-Belt Company of Chicago, are each 100 ft. in length between centres, and adjusted to travel at the rate of 45 ft. per min. On either side of the two belts carrying the coarse ore are stationed the sorters, who pick

out the waste and second-class ore, allowing the shipping ore to be conveyed past them to the sampling machinery.

On falling from the conveying belts, the ore passes through the sampling machinery, consisting of three Constandt cone samplers, a Blake crusher, Cornish rolls, Bridgeman sampler, small Comet crusher and small Bridgeman sampler, where a uniformly proportional sample for assay is "cut out" and quartered, ready for the assay office.

The sorted ore, after passing through the sampling machinery, falls into a storage bin, having a holding capacity of 1,000 tons. This bin was intended to hold in storage the production of the mine for 24 hours, in case of accident or repairs needed for the aerial tramway, which could be stopped for 24 hours without interfering with the mining operations.

All the operations of hoisting, screening, crushing, conveying and sampling the ore in its passage from the pockets at the shaft stations in the mine to the railway cars, are automatically conducted, and the cost of this work reduced to a very low figure.

Electricity is the motive power used for driving this plant, one 150-h.p. induction motor driving the Comet crusher and one 125-h.p. synchronous motor all the rest of the machinery. This power is supplemented by a 250-h.p. Corliss engine, to be used in case of accident to the electric motors. The electric motive power has given very satisfactory and economical results.

Ore Bins and Aerial Tramway.—When the ore is crushed, sorted and sampled, it falls into a bin having a holding capacity of 1,000 tons. This bin is situated under the sampling mill, and is equipped with a delivery chute, which is opened and closed by a steel gate attached to the piston of an air cylinder, embodying the same principle of construction as the chutes from the pockets in the Combination shaft.

The ore is fed through this chute into an automatic loading device, which loads the buckets of the aerial tramway while in motion. The device is operated by one man, who easily loads and controls the travel speed of the tramway, so as to deliver 120 tons per hour at the terminal bin at the railway, distant nearly 1,000 ft.

The aerial tramway is of the two-rope system—one stationary, carrying the sheave wheels from which the buckets are suspended; the other hauling them and controlling their speed. It was built by B. C. Riblet, and has numerous patent devices. There are 26 buckets attached on the moving rope and spaced on it 65 ft. apart. This rope has a speed travel of 268 ft. per min. The buckets have a holding capacity of 10 cu. ft. or 1,000 lb. of crushed ore, and are arranged to dump automatically at the railway terminal bin.

As the ore dumps in the terminal bin at the railway, it falls on grizzlies, the bars of which are spaced 1 1/2 in. apart, and set at an angle of 40° over the centre compartment of the bin. In passing over the grizzlies, the ore is screened into two classes, coarse and fines. This separation gives the classification desirable for building the heaps for roasting at the smelter.

This bin has a holding capacity of 1,600 tons of crushed ore.

The ore from these compartments is loaded into the railway cars through triple chutes, one triple-mouthed chute leading from each compartment. These chutes are opened and closed by compressed air lifts, and operated by one man.

The ore is hauled to the smelter in bottom dump cars, which empty their contents into the ore bins set under the spur track recently built. This spur track and the ore bins built under it are part of the construction undertaken to increase the smelter's capacity and cheapen the handling of the ore there.

Construction and Repair Shops.—These include a carpenter shop, timber-framing shed, blacksmith shop, machine shop, etc., all well equipped with power and hand tools and other necessary appliances for doing much new construction work; for nearly all necessary

Office and Residence Buildings, Etc.—The general and mine office buildings are both commodious and conveniently arranged. Residences for officials and cottages for foremen, machinists, and other employees afford requisite house accommodation. There are stores, stables, and other necessary buildings about the property. The old hotel and boarding house also serve useful purposes.

Assay Office and Concentrator.—The former is supplied with appliances and chemicals for mine assay purposes. An assayer and assistant are employed. The concentrating plant was installed to experiment on low-grade ores with a view to determining whether these can be profitably treated. The present mine superintendent is of opinion that, if certain alterations be made, the plant can be advantageously used in treating ore of too low a grade to ship to the smelter, a large tonnage of this being on hand.



Head Frame, 85 ft. high, and Hoist House, at Combination Shaft about 1,400 ft. deep.

Part of Le Roi Mining Co.'s Surface Works at Rosslund.

Head Works over Old Shaft.

repairs to plant, machinery, buildings, etc., and for framing mine timbers.

Powder Magazine and Thawing House.—A stone and brick fire-proof building for storing explosives has been erected at a convenient though safe distance from the works. The thawing house, for thawing dynamite, is steam-heated. Both these buildings are alongside a railway track, so that the delivery of explosives is economically made. When thawed the dynamite and powder are conveyed directly from the thawing house into the mine on tram cars.

Water Supply and Fire Protection Systems.—A complete system of water supply for the machinery and for protection against fire has been installed, and, as a consequence, a very material reduction in the rates of insurance has been effected. The system is a combination of gravity and pumping, each supplementing the other. The gravity system operates under a head of 300 ft., and the pumping is done by two pumps having a capacity of 500 gal. per minute each against a 400-ft. head. The arrangement of these systems, which includes 31 hydrants strategically located around the various buildings, is such that a very efficient fire service can be maintained with little cost to the company.

THE SMELTER AT NORTHPORT.

In the spring of 1898 smelting was commenced at Northport, which is situated in the Columbia River, about 10 miles south of the International Boundary, and near the junction of the Nelson & Fort Sheppard and Red Mountain branches of the Great Northern Railway Company's Spokane Falls & Northern Railway. Spokane lies 129 miles south from Northport. At Marcus, 28 miles southward, the Grand Forks-Republic branch leaves the S. F. & N. line, this branch giving railway connection with the Boundary and Republic mining camps. From Marcus to Grand Forks the railway distance is 41 miles, while Phoenix, to which ore-producing locality the railway has also been extended, is about 20 miles farther. From Northport to Nelson the distance by rail is 71 miles, passing through the Ymir mining camp at 43 miles, en route. From Northport to Rosslund, which is the main source of ore supply for this smelter, the distance by the Red Mountain railway is 18 miles. Custom ores come from various points along these several railway lines. Coke is obtained from the Crow's Nest Pass Coal Company's collieries. If hauled from the ovens at Morrissey via Jennings and Spokane, over Great Northern tracks all the way, the distance is 405 miles, but if

brought by C. P. R. to Nelson (194 miles) and thence over the Nelson & Fort Sheppard line, the distance is 265 miles. Other sources of coke supply are still farther away.

Custom or other ores requiring sampling are delivered into the lower ore bins, near the sampling mill, which have a capacity of about 900 tons. Other bins conveniently arranged on three sides of the sampler, provide a storage capacity of about 1,500 tons of ore discarded in sampling. Ample storage for lime-rock flux and coke is also provided. The lime bins will hold about 1,000 tons, and they are arranged around the lime crusher similarly to the bins about the sampling mill.

The dimensions of the sampling mill building are 98 by 70 ft. The machinery and plant includes a No. 6 Comet crusher; two Blake crushers (one 10 by 20 in. and one 7 by 10 in.); Reliance rolls 12 by 20 in.; Bridgman automatic sampler, size A; Constandt sampler, 26 in., and three belt elevators. The Comet crusher crushes to a size not exceeding 4 in. at the rate of about 100 tons per hour, and the rolls crush still smaller. The Constandt sampler retains 20 per cent of the ore, discarding the remainder, which passes into the swinging spout and thence through the chutes into the discard bins. The Bridgman sampler is not now used, having been superseded by a Vezin sampler.

The lime rock for fluxing comes from the company's own quarry, stated to be the best in the district and situated about a mile below Northport and along the Spokane Falls & Northern Railway. It is quarried by contract, is a very pure lime, and is brought by rail.

The blast furnace building proper is 240 by 69 ft.; the oil and clay room, at its southern end, is 55 by 69 ft., while the engine and blower room and machine shop, at the northern end, is 100 by 69 ft. There are six water-jacketed blast furnaces. The two installed by the Le Roi Mining & Smelting Company when the smelter was built are 38 by 120 in. at the tuyeres, one put in later is 40 by 160 in. and three are 42 by 160 in. Each furnace has its own separate blower. The larger furnaces will smelt 350 to 400 tons of ore and lime per day. (Note.—Mr. Goodell smelts practically all the ore raw, thus dispensing with heap roasting.) The slag is granulated and washed into the Columbia River.

The power plant consists of 5 Heine boilers, each nominally 250 h.p. (together giving a maximum of about 1,500 h.p.), run at a steam pressure of 125 lb. to the sq. in.; a Bates cross compound condensing engine, high pressure cylinder 16 by 42 in., low pressure cylinder 30 by 42, estimated at 550 h.p., an E. P. Allis Co. compound condensing Corliss engine of about 400 h.p., and a Hamilton-Corliss engine, 16 by 36 in., about 175 h.p. The larger engines drive, by means of rope transmission, the two No. 7 and four No. 8 Connorsville blowers and a 56 1-4 k.w. Westinghouse dynamo of 500 lights capacity, while the Hamilton engine runs the sampling mill, matte crusher and matte granulator, also by a rope drive. The boiler room and blacksmith shop, 69 by 55 ft., is about 50 ft. away from the engine room. The machine shop,

etc., are well equipped to do all necessary repair and renewal work for the smelter except casting.

The calcine furnace building is 350 by 72 ft. In it are two single-decked Holtzoff-Wethey furnaces, 10 ft. wide by 100 ft. long, and one double-decked furnace by same makers and having hearths of similar size. These are for roasting matte or concentrates. The daily capacity of the single-decked furnaces is between 30 and 40 tons of granulated matte, roasting this down to about 3 per cent sulphur. A 24-in. Pelton waterwheel operates the two single-decked furnaces and an 18 in. the double-decked furnace. Wood is used for fuel in these furnaces. The two briquetting machines in the same building are improved White mineral presses, which make 72 briquettes per minute, each briquette weighing about 3 1-2 lb. All fine material from the calciners and the flue dust are briquetted for charging in the blast furnace.

The water supply is obtained from Deep Creek, which runs east and north of Northport. The water is conveyed in a box flume 4 by 5 ft. and 3 miles long. It is discharged into two tanks, each having a holding capacity of 125,000 gallons, built a short distance behind the smelter at an elevation of 145 ft. above the works. A pumping station on the Columbia River provides for an alternative supply of water to the smelter should the other at any time fail through accident to flume line or from other cause.

THE REHABILITATION OF THE LE ROI.

Space limitations prevent narration in much detail of the more important events in the history of the Le Roi that have taken place during the five years since Mr. Bernard MacDonald was removed from the position of general manager (on November 2, 1901,) and the immediately following appointment of Mr. J. H. Mackenzie of San Francisco in his stead. The report of Mr. R. J. Frechville, issued early in 1902, contained a sweeping condemnation of the past management of the property. A concluding sentence was: "My investigation shows that there has been very great extravagance and looseness of management, resulting in unwarranted expenditure and high working costs; also that under proper control your property would have paid dividends from the start." But under Mr. Mackenzie's management the earnestly desired rehabilitation of the Le Roi enterprise did not take place, for when in, early in 1903, he gave place to Mr. S. F. Parrish he informed that gentleman, the latter has asserted, that "the mine was worked out, and its life would continue not to exceed six months." Mr. Parrish succeeded in finding bodies of merchantable ore in place on the then bottom or 1,350-ft. level of the mine ere ill health compelled his relinquishment of the management. Mr. A. J. McMillan, by this time managing director, placed Mr. J. W. Astley in charge and he had the loyal and capable assistance of the late Mr. J. H. Trevor as mine superintendent. Then came the troublous times connected with the proposed amalgamation of the Le Roi with other mining and smelting properties, which occurred so recently as to need no more than passing mention. Finally Mr. McMillan won out in the contest that for a

time went against him. Now, with large bodies of ore proved to occur down to about 1,800 ft. depth, higher prices for silver and copper, freedom to smelt the ore at the company's own works, where the smelter manager, Mr. A. I. Goodell, is positive he can smelt at a lower cost than the mine has been paying; and the loyal and zealous co-operation of a staff of officials of proved ability and merit, the outlook is decidedly favourable for Mr. McMillan to prove his



Le Roi Mining Co.—Mine Superintendent's Residence.

past abundant faith in the Le Roi as capable of returning dividends to the stockholders to be fully justified. Developments during the year now drawing to a close have opened up what is practically a new mine in the company's Black Bear claim, in which an important ore body has been proved to occur on the 700, 800 and 900-ft levels, with reasonable prospect of both upward and downward extension, so that



Columbia Avenue, Rosslund.—Mines on Hill in Background.

a large tonnage of ore from this source may be looked for.

A few words addressed by the managing director to a general meeting of stockholders may be quoted

in conclusion. He said: "I certainly think the property is worth much more today than it was known to be at the time the company was formed. If the Le Roi had not been one of the great mines of the world it could never have withstood the buffeting it has received during all these years. Since it passed into the hands of an English company in 1898 it has produced over 1,100,000 tons of ore, yielding approximately, 615,000 oz. gold, 720,000 oz. silver, and nearly 32,000,000 lb., or 10,000 tons, of copper. During those years, the shareholders have received but little return upon their investment; but at last we have made a start, and I trust that the dividend that you receive this year may prove to be the forerunner of others and the harbinger of better days; I also hope, and I am sure you will join me in this, that after all the distracting and tempestuous times through which the company has passed, we may now for a few years experience something of that tranquillity one has a right to expect in times of peace and prosperity."

A *Reuter* despatch from Australia to London conveys the information that the New South Wales Legislative Assembly has passed the Mining Bill, which consolidates, simplifies, and liberalizes the mining laws, and enlarges the opportunities for mining on Crown and private lands, making available big areas hitherto closed against mining. The procedure to be followed in connection with mining enterprise will be further simplified by the regulations to be framed under the new law. Special conditions are laid down for the exploration of the mineral country, including the award of areas for new discoveries, the conditions of mining leases are made more liberal, and additional powers are given to the warden to suspend the labour conditions and to grant statutory exemption for excess labour.

From correspondence to the *London Mining Journal* it is learned that the methods of copper production at Wallaroo and Moonta mines in South Australia are regarded as forming an interesting object lesson. The deposits in both mines are of a low grade character, bulking little more than 2 per cent. copper. The general manager is the inventor of the Kangaroo (Hancock) jig, or mechanical concentrator, and this machine is utilised largely at both mines. A comprehensive system of hand-picking and jigging produced from the low grade bulk ore yielding 8.82 per cent. copper at Wallaroo; a similar system at Moonta enabled ore yielding 15.63 per cent. copper to be smelted. The waste ore, too poor to be smelted, was placed on the dumps; those at Wallaroo enabling a limited quantity of metallic copper to be recovered. The Moonta dumps, however, produced 391 tons of metallic copper, the wet method, known as natural cementation, acting perfectly. Thus 411 tons of metallic copper was the product of ore too poor to be smelted. Yet the net profit per ton of metallic copper produced was far higher than the net profit per ton of metallic copper produced by the smelter direct. Lixiviation being the cheapest method known of production of copper is the explanation. It needs no fuel and very little labour.

THE AMERICAN MINING CONGRESS.

An Influential Gathering Which Discussed Important Mining Topics.

BENEFICIAL RESULTS are expected to follow the discussion of matters of vital interest to the mining industry that took place during the four-day convention which constituted the ninth annual meeting of the American Mining Congress, held at Denver, Colorado, U. S. A., on October 16 to 19, inclusive, with Judge James H. Richards of Boise, Idaho (who has been president of the Congress for the past four years), in the chair. The proceedings were reported for the London *Mining Journal* by its special correspondent at Denver, Thomas Tonge, as follows:

At the commencement of the first sitting, addresses of welcome were delivered by the Governor of Colorado and the Mayor of Denver, and responded to by representatives of the visiting delegates.

The following 23 States and Territories were represented. Arizona, Missouri, Montana, Nebraska, New Mexico, Nevada, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming.

Among those present were: Hon. George E. Pardee, Governor of California; Hon. Jesse F. McDonald, Governor of Colorado; Hon. John C. Cutler, Governor of Utah; Hon. W. R. Brooks, Governor of Wyoming; Hon. L. B. Prince, ex-Governor of New Mexico; Dr. Waldemar Lindgren, U. S. Geological Survey, Washington, D. C.; Dr. J. A. Holmes, U. S. Geological Survey, St. Louis, Missouri; Professor Victor Alderson, President, Colorado State School of Mines; Professor Regis Chauvenet, ex-President of the Colorado School of Mines; Professor E. R. Buckley, President of the Missouri School of Mines; Lewis E. Aubury, State Mineralogist of California; Lyman A. White, Colorado State Commissioner of Mines; G. Thomas, Utah State Inspector of Mines; W. R. Ingalls, M. E., editor of *The Engineering and Mining Journal* New York; T. A. Rickard, M. E., editor of *The Mining and Scientific Press*, Berkeley, California; Phillip Argall, M. E., Denver; George E. Collins, M. E., Denver; David W. Brunton, M. E., Denver; numerous other Western mining engineers, and many mine-owners and others interested in the mining industry.

The writer was appointed delegate to the convention by the Mayor of Denver.

THE PRESIDENT'S ADDRESS.

President Richards' address was a masterly and effective presentation of the objects, aims, possibilities, and high ideals of the Congress. After referring briefly to its past history, when for some years it had somewhat of a struggle for continued existence, he augured from recent annual meetings, but more especially from the present meeting, that the Congress was now firmly established and entering upon a field of vast and ever-increasing usefulness for the mining industry, thereby meriting not merely the moral, but the active support of everyone connected with the industry. That field embraced the purging of the

industry from the too frequent fraud, which had undeservedly brought legitimate mining into disrepute; better relations between ore producers and ore buyers; amendments of a number of laws, both State and National, relating to mining matters; the representation of the mining industry in the Cabinet of the President of the United States, as the agricultural industry was now represented; and the ultimate building of a mining temple, in connection with the permanent headquarters of the Congress in Denver, the eastern gateway of the great mining regions of the Rocky Mountains. Such mining temple should contain the finest reference library possible of books, etc., relating to the mining industry, and also the finest mineral collection possible, the object being that both library and mineral collection should be of the highest educational type and of the greatest possible benefit to the mining industry. Donations had already been promised by wealthy mining men towards the cost of such mining temple, and others were confidently anticipated. To meet the expenses of the increased future work of the Mining Congress the membership admission fee had been increased to \$15, the annual subscription to \$10, and the life membership to \$100. The importance to the mining industry of the mission of the Mining Congress warranted the belief that the membership would be largely augmented from the numerous mining and other States.

The earnest and telling character of the President's address elicited much commendation on the part of the delegates.

Among the many topics dealt with by the convention, possibly those which excited the greatest interest were (in the order in which they came up): (1) Mine drainage districts; (2) the prevention of mining frauds by State legislation; (3) the mutual relations and grievances of the Smelter Trust and Ore Producer.

MINE DRAINAGE DISTRICTS.

On this subject a general bill had been prepared by a special committee appointed some time ago, of which D. W. Brunton, M. E., of Denver, was the chairman. Copies of the bill recommended by the committee for adoption by the Congress and for recommendation by the Congress to the Legislatures of the various mining States, for enactment by them as a law, were printed and widely circulated among the delegates, that they might have every opportunity beforehand to study its provisions. Mr. Brunton opened the discussion by explaining the necessity for, and objects of, the measure. An interesting debate ensued, in which many delegates of practical experience in mine drainage took part. It was finally decided that all suggested amendments should be handed to the secretary of the convention, in writing, and referred to the committee who had prepared the bill, to see whether and to what extent such amendments could be adopted. This was done, and at a subsequent session the committee again reported the proposed measure, in which some of the amendments had been incorporated. As so amended, the bill was adopted by the Congress and recom-

mended for adoption by the Legislatures of the various mining States.

THE PREVENTION OF MINING FRAUDS.

On this subject, Governor Pardee, of California, in introducing the draft of a bill, with a view to its becoming a law in all the various States of the Union not already having a similar statute, said that there is not a meaner, dirtier business on earth than that of the man who swindles others out of their savings by some fake mining scheme. The bill was intended to make the dishonest promoter fear the law. A similar law enacted several years ago in California had done much good in that State. It was not intended to provide a remedy for all the existing unsatisfactory methods of promoting and operating so-called mining enterprises. It was impossible to protect all the fools all the time, but they could protect some of the fools some of the time. The bill is as follows:

"An act to prohibit the making or publishing of false or exaggerated statements or publications of or concerning the affairs, pecuniary condition, or property of any corporation, joint stock association, co-partnership, or individual, which said statements or publications are intended to give, or shall have a tendency to give, a less or greater apparent value to the shares, bonds, or property, or any part thereof, of said corporation, joint stock association, co-partnership, or individual, than the said shares, bonds, or property shall really and in fact possess, and providing a penalty therefor.

"Section 1. (Enacting Clause.) Any person who knowingly makes or publishes in any way whatever, or permits to be so made or published, any book, prospectus, notice, report, statement, exhibit, or other publication of or concerning the affairs, financial condition, or property of any corporation, joint stock association, co-partnership, or individual which said book, prospectus, notice, report, statement, exhibit, or other publication shall contain any statement which is false or wilfully exaggerated, or which is intended to give, or which shall have a tendency to give, a less or greater apparent value to the shares, bonds, or property of said corporation, joint stock association, co-partnership, or individual, or any part of said shares, bonds, or property, than said shares, bonds, or property, or any part thereof, shall really and in fact possess, shall be deemed guilty of a felony, and upon conviction thereof shall be imprisoned for not more than 10 years, or fined not more than \$10,000, or shall suffer both said fine and imprisonment.

"Section 2. Repeals all conflicting acts.

"Section 3. Takes effect immediately."

The Congress unanimously adopted the bill, and the following resolution:

"That the officers of the American Mining Congress respectfully suggest to Governors of States and Territories that when in any State which has adopted the law, known as the Pardee resolution, charges of its violation are made, the Governor of the State in which alleged mining properties are claimed to exist, at his discretion may, upon request, authorize the Commissioner of Mines, or other appropriate officials,

to examine such alleged mining properties sufficiently to determine and report on their approximate reality, and the State may charge a reasonable fee, to cover the cost of such examination and report, this fee to be paid by the parties requesting such examination."

The following resolution was also adopted:

"That a committee of five members be appointed by the President of this Congress, for the purpose of devising and demonstrating methods for preventing fraudulent mining schemes, and report the same to the Secretary of this Congress eight weeks before the meeting of its next session, who shall mail such report to each member of this Congress at least three weeks before its next session."

ORE PRODUCERS v. SMELTERS.

The subject of the mutual relations and grievances of the Smelter Trust and ore producers was introduced in the morning session on the 18th inst. by E. M. De La Vergne, of Cripple Creek, a Senator in the Colorado Legislature. His address called attention to many matters which have developed since the organization of the Smelter Trust, and has practically eliminated smelter competition in Colorado. He said that while he was utterly opposed to anything savouring of Socialism, the ore shippers had five weapons for their protection, viz., (1) State legislation, (2) National legislation, (3) encouragement of competition, (4) amicable agreement, and (5) Government operation of the smelters. If all else failed, the mining industry could and must exert sufficient influence on the United States Government to have it do the smelting of the whole country, for the benefit of the country.

Franklin Guiterman, general manager in Denver of the smelter trust, replied, quoting figures as to the reduced smelting charges since the formation of the smelter trust on ores from various Colorado mining districts, all operating favourably to the ore shipper. Mr. Guiterman was followed by delegates covering such points as the advantages that Utah enjoyed in having smelting competition; the fact that the smelter trust paid for ore on the basis of the metal quotations published in the *Engineering and Mining Journal* of New York; the basis of such quotations; the discrepancy between such quotations and those sent out by the *Associated Press*; whether members of the smelter trust were part owners in the *Engineering and Mining Journal*. Other delegates raised points as to the illusive character of the alleged reduction of smelting charges by the smelter trust; the temporary cut in smelting rates by which the smelter trust crushed out an independent smelter at Golden, near Denver; the fact that the "common stock" of the smelter trust is wholly "water," but receives big dividends; and other matters.

Finally, a lunch recess was taken until 2 p.m., at which time there was a crowded attendance expecting the continuance of the debate. Mr. Guiterman not appearing, he was sent for, but returned the reply that he could not again attend the congress, as he had to leave that afternoon for Salt Lake City. He certainly escaped an embarrassing "heckling," and the dissatisfaction with smelter trust methods has not been heard the last of.

The following resolution, introduced by Judge E. A. Colburn, president of the Colorado Mine Owners' Association, was adopted: "Resolved, that the American Mining Congress, in its ninth annual session assembled, recommends that the legislatures of the several precious metals States shall enact laws making it a criminal offence for any smelter, mill, sampler, or any person or persons handling, dealing in or buying ore, to mix, discolour, disguise, or in any way to destroy the identity of a lot of ore before its value has been determined and settlement agreed upon between the seller and the buyer."

THE APEX LAW.

Governor John C. Cutler, of Utah, introduced this subject on the first day of the convention.

Subsequently, the following resolution, introduced by W. R. Ingalls, M.E., New York, was adopted:

"Whereas, the existing federal law governing the location of lode claims, commonly known as the law of the apex, has been proved to be inadequate, and conducive to wasteful litigation;

"Resolved, that the American Mining Congress exert its efforts to secure the repeal of the existing laws and the substitute therefor a law giving mineral rights within vertical lines.

"Resolved, that this American Mining Congress appoint a committee of five mining engineers and mine operators to draft a side line law, to be presented to the Federal Congress; this committee to report at the next annual meeting of the American Mining Congress; or if the committee of mining engineers and operators appointed by the public lands commission at the request of the American Mining Congress, is provided such a law, the president of the American Mining Congress is authorized to co-operate with that committee, and place the results of its action before the congress at its next session."

PREVENTION OF MINE ACCIDENTS.

The following resolution, introduced by W. R. Ingalls, M. E., New York, was adopted:

"We, the committee on resolutions, do respectfully report, that we recommend that resolution No. 3, by W. R. Ingalls, of New York, be passed. Said resolution is as follows:

"Whereas, the best interests of the mining industry demand that all possible precautions be exercised to preserve the safety of the men engaged in it, and,

"Whereas, the state laws controlling mining operations are in many cases defective, and there is a frequent disregard of them both by miners and operators.

"Resolved, That the American Mining Congress place itself on record as advocating measures which will insure the maximum safety in mines.

"Resolved, That a committee of five mining engineers and operators be appointed by the American Mining Congress to draft a uniform law governing metaliferous mining and quarrying in the various States, with the view toward securing its general adoption as a substitute for existing laws, said committee to report at the next session of the American Mining Congress.

"Resolved, That a committee of five mining engin-

ers and operators be appointed to urge upon the States in which coal mining is conducted the appointment of a commission to investigate the conditions affecting safety in coal mining and secure the co-operation of a national government in such an investigation with a view toward the formulation and enforcement of adequate laws governing this branch of the mining industry."

FOR A UNITED STATES DEPARTMENT OF MINING.

The following resolution, introduced by Governor Pardee, of California, was adopted:

"Believing that the co-operation of our government with the American farmer, through the department of agriculture, has demonstrated the wisdom of this co-operation in giving direction to American industrial forces: and

"Believing that the co-operation of our government with the American miner, through a department of mining, will give an additional and conclusive proof that American industrial progress can be most permanently advanced through this method of co-operation between the government and the people: therefore, be it

"Resolved, That the American Mining Congress, in convention assembled, most earnestly urged upon our Federal Congress the importance of creating a department of mining, co-ordinate with the department of agriculture."

Other resolutions were adopted on various subjects directly or indirectly affecting the mining industry.

CONCLUDING BUSINESS.

A committee of five, with John Dern, of Salt Lake City, as chairman, was appointed to expend \$5,000, pledged by the Congress, in travelling expenses, etc., in urging various State legislatures to pass bills (beneficial to mine operators) indorsed by the Mining Congress in its resolutions.

Joplin, Missouri, was selected as the place for the next annual convention.

Judge James H. Richards, Boise, Idaho, was re-elected president of the Congress, the other officers being: First vice president, Colonel Thomas Ewing, San Francisco; second vice president, Professor E. R. Buckley, Rolla, Missouri; third vice president, Judge E. A. Colburn, Denver; secretary, J. F. Callbreath, Jr., Denver; directors, Colonel George W. E. Dorsey, Fremont, Nebraska; C. M. Shannon, Clifton, Arizona; John Dern, Salt Lake City; James W. Malcolmson, El Paso, Texas, and W. F. R. Mills, Denver.

On the conclusion of the convention many of the delegates went by special train to Cripple Creek, where they were entertained by local committees.

Dr. J. A. Holmes, of the United States Geological Survey, stated at the American Mining Congress held at Denver, Colorado, in October, that "America, with the recklessness of human life which is so characteristic of our people, has a death rate for mining accidents three times as great as that of Belgium, nearly three times as great as that of Germany, and two and one-half times as great as that of England, and nearly equal to all the European records and the great empire of Russia."

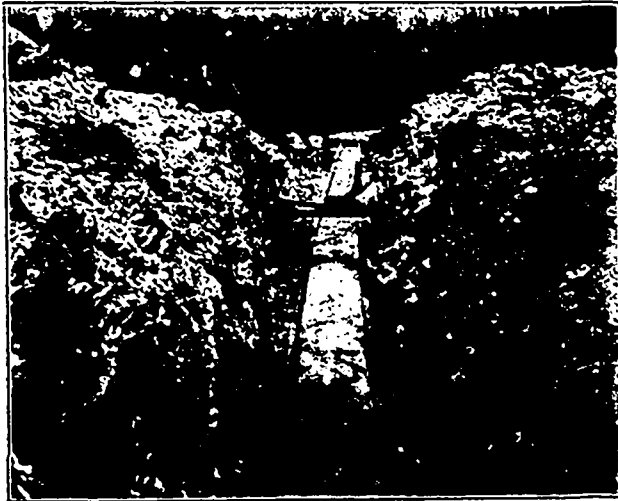
BEAR HYDRAULIC CO.'S GOLD-MINING OPERATIONS IN CARIBOO.

IN CARIBOO DISTRICT hydraulic gold-mining is carried on by a number of companies and partnerships, in some instances with profitable results. Among those who have been successful is the Bear Hydraulic Company, operating on Cunningham Creek. Recently the *Mining and Scientific Press* of San Francisco, California, U. S. A., published a short illustrated article, written for it by Etienne A. Ritter, mining and consulting engineer of Colorado Springs, Colorado, as follows:

"In the operation of a hydraulic placer mine it is often found necessary to drive a long cut through solid rock, in order to bring the head of the sluice-box at the lowest point of the bedrock.

"This summer it was found necessary to make a cut of this nature at the Bear mine, Cariboo district, British Columbia. The cut was to be 800 ft. long and 27 ft. deep at the deepest point; it was to be 10 ft. wide at the bottom. The cut had to be driven through partly disintegrated crystalline schist. The schist dipped at 30 deg. toward the upper end of the cut, breaking into layers from 1-4 to 3 in. thick.

"B. A. Laselle and Joseph Wendle, who manage the property, decided to use the power of the water from their monitors to make that cut, taking advantage of the dip of the schist and of the stratification to accomplish his work. One No. 6 monitor was set at the low end on stulls 6 ft. above the ground, so as to leave room for the gravel, as it was washed away, to



Bear Hydraulic Co.'s 800-ft. Cut through Schist.—Looking down the Flume.

pass below it. Another monitor, No. 4, was used to wash away the schist as it was broken up.

"From the elevation of the penstock, the water leaves the monitors with a pressure of 80 lb. per sq. in. The work was done in a series of cuts 100 ft. long, both monitors being advanced that distance and set again before starting to make the next cut.

"The lower monitor literally lifted the schist, breaking the rock into fragments, while the upper giant was

washing it away, offering continuously a new surface to the action of the lower monitor.

"The minimum amount of powder was used in blasting and bulldozing, and only as a last resort to straighten the sides of the cut and to square the bottom. The shots were used mainly to loosen the ground so as to give the stream of water from the monitors a chance to be effective.

"The 800 ft. of cut were driven between June 14 and August 20, at the rate of 5.88 ft. per shift, including all the delays, such as the moving of the monitors, the relaying of the pipes, etc. At times, when



Bear Hydraulic Co.'s 800-ft. Cut through Schist.—Looking up the Flume.

the cut was already more than 20 ft. deep, the advance reached 8 ft. per shift for a week at a time. One monitor man and two Chinese for bulldozing and for working in the ground-sluice with rock-hooks, were employed on each shift.

"The total cost of the work, without putting in the sluice-box, but graded and ready to lay the sills in place, was \$3.30 per running foot. That same cut made by drilling, blasting, and mucking would have cost at least three times as much and taken twice as long."

When at Ashcroft, on his return journey to Colorado Springs after having visited a number of mining properties in Cariboo district, Mr. Ritter was reported to have said, in the course of an interview with a representative of the *Ashcroft Journal*:

"All that has been claimed by the Bear Hydraulic people regarding the value of their property is in my opinion well within the mark. I was deeply impressed with the property after examination, and while dumping facilities are not of the best, still this will be overcome by lengthening the flume and as the grade of the creek is greater than the grade of the flume they will get more and more dumping ground as the flume is extended. Beside, they will be helped greatly by the spring freshets and because they have installed an overhead inclined cable-way which will handle all the

big boulders leaving only the gravel and lighter stones to be sluiced through the flume.

"Another favourable point to be considered is the water. The company can provide a large quantity, in fact they will be able to place on their ground water sufficient to move from 500,000 to 750,000 yd. of gravel per year.

"The tests of the gravel I have made have convinced me that the estimate of the company of 10 1-2 cents per yd. is as near the mark as it is possible to get without knowing the actual value of future clean-ups. The results of the clean-ups of previous years confirm this."

Speaking of the management, Mr. Ritter said: "In my opinion Mr. Laselle and Mr. Wendle are two of the best mining men I have met in all my experience.

"Let me give you an instance of their resourcefulness. They have a rock cut on Cunningham Creek property 20 ft. or so deep, about the same in width and extending between 800 and 900 ft. Instead of blasting this out in the ordinary way with drill and powder they have used the two monitors, the ground in the cut is slaty and one giant throws its column of water against the edge of the formation, loosening it up, while the other takes the loosened stuff and hurries it on through the flume, a very striking illustration of the tremendous force exercised by hydraulic appliances. It is certain that they have by using this novel device cut the time for making the cut in half and cheapened the cost fully four times.

"They are cleaning up now and within the next three weeks the cut will be finished and the flume laid down in the upper end and everything will be in readiness for a successful season next year."

The progress made on this property during three years, 1903-5, is shown in the following extracts from the "Annual Report of the Minister of Mines" for those years, respectively.

For 1903, the gold commissioner for the district reported B. A. Laselle, the company's manager, as having said:

"This property, which is situated on Cunningham Creek, was purchased by an American syndicate some six years ago. After working it a part of a season with a small plant using about 400 in. of water, and not being able to make it pay dividends from the start, as had been anticipated by the shareholders, the company decided that it had been swindled, so refused to continue operations longer, and let the mine lie idle until last season, when it was purchased by two of its present owners, who prospected it by putting on a small hydraulic plant (the old one having been previously removed) and found, after making a clean-up, that the property was worthy of more than passing attention. During the early spring of the present year arrangements were completed for the installation of a moderately large hydraulic plant, which would be capable of handling 1,500 cu. yd. and upwards of material per day.

"The old ditch which brought in water from Cunningham Creek was, after a careful examination, considered to be too costly to maintain as a ditch capable of supplying the water required; therefore, to insure a

sufficient and steady supply of water for the entire season, it was decided to dig a ditch, with a carrying capacity of at least 1,500 miner's in. of water, from Antler Creek, running down and through Cunningham Pass, and thence across Cunningham Creek by pipe-line to the mine, being a total distance of a little over four miles from the ditch-head to the pit. The work was started on June 18, and included the erection of suitable camp buildings, the construction of 4-ft. sluice flumes, and the laying of a 20-in. steel pipe-line 1,300 ft. long, as well as the digging of the ditch, all of which work was completed on August 15. The water was turned through the ditches and pipe-line on the latter date, and the actual work of hydraulicking commenced in less than two months from the time of starting, which, for the equipment and installation of a plant of this size, is considered exceptionally quick time. Continuous piping was carried on until October 12, when the season's clean-up was made, the result of which shows another dividend-paying mine to Cariboo's credit. As the gravel deposit is a very extensive one, this mine has a long working life ahead of it."

For 1904, the gold commissioner quoted J. Wendle, then manager for the company, as under:

"This mine is situated on what is supposed to be an ancient channel. It is located on the southerly side of Cunningham Creek about one-half mile below its confluence with Pass Creek, and, as is frequently the case, it is very difficult to locate the general position of the ancient channel until a certain amount of work has been done.

"The equipment of this mine was finished late last season, and it was possible to do only a small amount of work in the mine before the winter set in. This season's work was, therefore, principally of a prospecting nature.

"The sluice-flume was placed at a point carrying about 10 ft. of bedrock, and work was continued, as was supposed, directly across the channel. After going ahead a distance of 250 ft., a shaft was sunk, and it was found that the sluice-flume would be 20 ft. above the bedrock at that point. The sluice was then moved and placed 20 ft. lower. As this necessitated a rock cut and other changes, it was close to the end of the season before the work was resumed.

"The deposit in this channel is about 110 ft. deep, and possibly 400 to 500 ft. wide, only one rim being exposed, and, with the exception of a small amount of surface silt and mud, is gravel carrying values, although the principal pay-streak is from 5 to 20 ft. thick and lies on bedrock. The gravel is of a reddish-brown colour and is easily washed. The gold obtained varies in size from fine flour gold to pieces worth \$5, and is easily amalgamated. The mine is equipped with 48-in. sluice, 4 miles of 5-ft. ditch, 2 1-2 miles of 3-ft. ditch, 2,000 ft. of 30 to 15-in. pipe, No. 6 giant, and it has all necessary camp buildings. During the 1904 season 15 men were employed."

For the 1905 season Mr. Wendle reported to the gold commissioner:

"At the beginning of this season's work a great deal of further prospecting was done, to determine fully

the extent of this ancient deposit, and proved to be most satisfactory, in view of the extremely low cost of placing the water supply which is available on the property. These conditions caused the management to recommend the enlargement of the plant then at the mine, as it was inadequate to work this extensive gravel deposit expeditiously and economically. Work was therefore not begun until after the spring freshet. The main ditch to Antler Creek was enlarged to a carrying capacity of 3,000 miner's in. On the completion of this the water was turned on to the giants and a cut was made through the rim into the channel. To take this water the new flume was begun, but could not be completed before the cold weather set in.

the dam embankment, and for this purpose a ditch was dug, which carries the water from the headwaters of Beaver River through a pass and drops it in Nine-Mile Creek. From here a ditch takes it to the dam site. On the completion of the dam this water will be stored with Antler and Cunningham Creek waters in the reservoir. There will be used at the mine two No. 6 giants, with pipe-lines, flumes, etc., to match, one overhead cable-way, operated by water power, for handling boulders, and a steam saw-mill outfit complete. During the progress of this season's work an average of more than 30 men was employed."

Note.—Since the foregoing was printed a report by Mr. Ritter on the Bear Hydraulic Company's prop-



Hydrauliclicking at Bear Hydraulic Co.'s Placer Gold Mine.

"The returns for this work were considerably above expectations and showed a good profit. Although the channel was not reached and a great deal of rim and slide rock was washed, still, taken altogether, it was most satisfactory. A ditch of 3,000 miner's in. capacity was also dug from Cunningham Creek. This delivers the water on top of the bank and will be used as a ground-slucce head. It sometimes happens that in extremely dry seasons the water drops low in these streams, and to overcome this possibility, a foundation has been started in Cunningham Pass, on which a dam will be built, so that hydrauliclicking can be continued uninterruptedly at such times. In considering the construction of this dam, it was decided to install a small hydraulic plant, to be used in tearing down the bank and depositing the material through a flume into

erty has been received. Space can only be found now for the following extracts therefrom:

"1. The average values of the gravel to be washed are fairly large, with a probable continuous increase in future years, as the company washes the gravel farther and farther up the old channels of Cunningham and Antler Creeks and enters richer ground. It is well known in placer mining that the heads of the creeks are the richest parts, as the gold is much coarser and the nuggets larger. The amount of gravel to be washed is undoubtedly larger.

"2. The available dumping facilities are certainly better than those of several dividend-paying hydraulic mines in the district.

"3. The amount of water available today is very large. The plans laid out for increasing that supply

will give the mine one of the best water supplies of any hydraulic mine in America, for the amount of money spent in developing it.

"The value of the gravel has been demonstrated by several years' washings. In 1902, 2,000 yd. of gravel were washed from the bottom layer, bringing a return of 30 cents per cu. yd. The next year 10,000 yd. were washed from the whole height of the bank, and the gold recovered in the different clean-ups. In one case the gravel ran 12 1-2 cents per yd; in the other 6 1-2 cents; average 9 1-2 cents per yd. The largest test was made in 1904, when 100,000 yd. were washed, giving an average value of 10 1-2 cents per yd. In 1905, 30,000 yd. were washed, giving an average per yd. of a small fraction above 10 cents. The washing for 1906 is just finished, but it will be some time yet before the clean-up is made and the returns from it known. I panned a great deal of the gravel, and the results I have obtained check up very well with the amount of gold obtained from the previous clean-ups.

"This company owns a vast area of ground ahead of its present working pit. Taking the entire length of both channels as being more than 20,000 ft., the average width of the channels at 300 ft., and an average height of 100 ft., it is easy to see that this property has more than 30,000,000 cu. yds. of gravel ahead to be washed.

"The property is equipped to work on a large scale; besides, several new improvements are contemplated, as can be seen in my report. The equipment as it stands today would be sufficient for the operation of the mine at a large profit, but the added improvements will vastly facilitate the work and will add materially to the profits to be derived."

FUTURE OF YUKON TERRITORY REGARD- ED AS PROMISING.

YUKON TERRITORY will, at the close of the current year, show a further considerable decrease in its production of gold, the estimated value of the total recovery in 1906 being placed at about \$5,500,000 as compared with \$8,327,200 in 1905, and \$10,500,000 in 1904. The prospects are, though, that next year will see an increase in the gold yield, preparations for working on a large scale being in hand in connection with some of the gold-bearing creeks on which little or no work was done during the season just closed. In other respects, too, the outlook is encouraging, according to a lately published report of an interview with Hon. W. W. B. McInnes, Governor of the Yukon, published lately in the *Victoria Times*, as follows:

Governor McInnes, of the Yukon, is spending a few days in Victoria before leaving for Ottawa. He will take up with the Government at the capital some departmental matters, which will likely occupy his time until February.

The governor has the greatest faith in the Yukon, and seems to enjoy life in the North. He says he has found things very congenial, and praises the residents of Dawson and the district.

The coming season promises to be an exceptionally good one in the North, he says. There has been a new interest aroused among those in the territory, and the last four months of the year saw tremendous activity in prospecting. There were three times as many claims prospected in the last four months as compared with previous seasons.

This is due in a large measure to the fact that the new mining code came into effect four months ago. This code, which was approved at Ottawa last year, has met the popular demand in the North. It gives an absolute assurance as to title and removes other restrictions which were formerly complained of. The completion of this code by the governor and council of the Yukon and the sanctioning of it by the Dominion Government has been very acceptable to the prospectors, as evidenced by their activity since it came into effect.

The output of the gold during the past season is placed generally at \$5,500,000. This is a remarkably good showing in view of the fact that three of the best producing creeks were locked up during the season by passing over to the possession of the Guggenheims. The latter corporation, by entering the field of operations in the North, will have a decidedly beneficial effect. The company have three large dredges ready to begin operations next year, and have spent, it is estimated, about \$3,000,000 in preparatory work. They will make a still larger expenditure during the next few months, and next season will employ 1,700 men probably. This will insure employment to all in the district who are seeking work, and, according to the rates paid during the time they have been operating, there should be satisfaction in this respect.

Governor McInnes will not visit Seattle before his return from Ottawa. He has been requested by the managers of the Alaska-Yukon-Pacific exposition to pay that city a visit and discuss questions with them affecting that event in 1909. The governor has shown his hearty sympathy with the object aimed at in giving publicity to all pertaining to the Yukon. He will not have the time, however, to go to Seattle until his return from the East, and then he expects to spend a few days conferring with them.

Altogether the past season in the Yukon, Governor McInnes says, has been a good one, but next year promises to be a "bumper" one.

From Lillooet comes the information that the second carload of hydraulic piping, for H. M. Babb, Alexander Creek, arrived at Lytton late in October. The first carload had already been delivered at Seaton Lake.

A *Reuter* despatch dated November 9 stated that the Government statistics published at Johannesburg, Transvaal, shows that the whites employed in the producing mines on the Rand in August, 1906, numbered 14,927, against 10,122 in May, 1904, an increase of 47 per cent., while in the non-producing mines the figures are, for August, 1906, 1,985 employed against 2,292 in May, 1904, a decrease of 13 per cent.

MINING IN THE SOUTHEAST KOOTENAY DISTRICT.

Notes of Progress on Several Properties.

SOUTHEAST KOOTENAY has other metalliferous mines than the St. Eugene, though none are so productive nor important as that, the largest lead-producing mine in Canada. For years the *Prospector* (formerly published at Fort Steele but now at Cranbrook) persistently printed information relative to progress in mining in the district, both in times of prosperity and through the period of depression caused by the low price and very restricted market for lead. Happily there is now good reason for satisfaction, for in large measure the obstacles to profitable mining of the lead-silver ores occurring in considerable quantity in Southeast Kootenay have disappeared and today the mining camps are active, with a reasonable prospect of enlarged production and consequent increased prosperity under existing favourable conditions of high prices for both silver and lead.

The following account of metal mining in the district, which does not include the much larger operations of the St. Eugene mine, appeared in the *Prospector* last month:

Considerable attention is now directed toward the mineral development of Southeast Kootenay. This district has produced enormous wealth from its mines in the past, and it is very certain there are great undeveloped resources at the present time. This district has vast areas of coal, and coke is manufactured in quantities sufficient to supply a larger number of smelters and refineries than are at present in operation in British Columbia. It is altogether likely that these resources, including the big silver-lead mines, the copper mines of the St. Mary's district, and the iron deposits of Bull River will continue to attract the attention of the promoter, and that English and American capital will find it convenient and profitable to come into this nearby mining district.

North Star Mine.

The North Star mine has been worked extensively in years past, and at one time was the largest silver-lead producing mine, also the largest dividend paying mine in British Columbia.

The faith in the intrinsic worth of the property and the tenacity displayed by N. McLeod Curran, its manager, have been about all that the stockholders have had to sustain them in working the property. It looks now as if the owners are to receive their reward. A small amount of ore having been discovered up the hill from the old Kellogg shaft, the management decided to drift from the 60-ft. level of that shaft and cross-cut the new discovery at this depth. It is reported that the ore body will be cut within 60 ft. It is the knowledge of this discovery that has caused North Star stock to rise in price from four to thirty cents.

Stemwinder Mine.

The Stemwinder Company is now working a considerable force of miners on a recently discovered body of ore. The drift for more than 30 ft. is in ore. The extent of the ore body as revealed by the diamond

drill is about 60 ft. wide and has a depth of nearly 100 ft. The ore is similar to that found in the Sullivan group of mines.

The discovery was made near the water level of Mark Creek, and the lead has a trend northeast. From present indications it seems to extend northerly under Sullivan Mountain, and southerly under Huckleberry Hill. As the new discovery and its openings are at water level and are located several thousand feet below two of the big silver-lead mines of the district, it is expected that future developments will reveal one of the most extensive ore bodies in the Province.

Sullivan Group of Mines.

That the Kimberley district will become one of the richest and most productive silver-lead sections in British Columbia is the opinion of mining men who own property in this vicinity.

The Sullivan Company is working 40 to 50 miners, and taking out about 600 tons of ore per week. Development work is being continued and a large amount of ore has been blocked out. The aerial tramway has been improved, a new cable having been installed, and from now on the output of the mine will be increased. All in all, the Sullivan is in splendid condition.

The Sullivan Company's smelter at Marysville will not be troubled by a shortage of coal and coke caused by the labour troubles at Fernie. The works continues to smelt about 125 tons daily.

On Maus Creek.

Encouraging reports come from the Maus Creek district, east of Fort Steele, where W. Van Arsdalen is said to have uncovered three ft. of galena, on a claim formerly known as the Keystone. The ore is concentrating, and carries high values in silver, lead and gold.

Placer Mining.

No mining region embraced in the Rocky Mountains is possessed of more interest, historical or otherwise, than that of the placer fields of Wild Horse and Perry Creeks. Gold was discovered in the early sixties on Wild Horse, and for 45 years the historic old creek has contributed its quota of gold to enrich the world. Placer mining on Perry Creek has also been a paying investment. It is on this creek that a steam shovel was at work, which machine, although an experimental one, while in operation proved successful. The recent installation of the large plant of the Perry Creek Hydraulic Company and the company's success for the past two years have demonstrated that the placer gold of this district is derived from the gold-bearing rocks of the Selkirk Mountains.

The *Los Angeles Mining Review* is of the opinion that: "The great mining movement is on and there is good reason to believe it is on to stay, at least for a considerable time. It is a speculative movement, of course, and to its life success is necessary. If there is one thing, however, that may be looked forward to with confidence, it is that during the next score of years success in mining will be widespread and notable, even sensational. Mining is an industry—not a game. The net result will be stupendous."

COMPANY MEETINGS AND REPORTS.

CARIBOO CONSOLIDATED, LTD.

In accordance with the promise given at the general meeting of the company held in May last, an informal meeting of shareholders in the Cariboo Consolidated, Ltd., was held at the offices of the company, London, England, on November 6, for the purpose of receiving a statement as to the progress of the company's affairs since the last meeting. Lieutenant-General Sir J. Bevan Edwards, chairman of the company, presided, and there was a good attendance of shareholders.

The chairman said the meeting had been called in order that the directors might meet the shareholders, and tell them what had been done during the last six months, and to give them an opportunity of asking any questions. Mr. Melbourne Bailey, their manager, had sent the board a report and also the sketch plan which they saw hanging in that room, giving details of the work that had been accomplished. To understand what had been done during the period between this and the last general meeting it would be necessary for him to explain this plan of their property on Lightning Creek, which they were now opening up. With the aid of a pointer the chairman then proceeded to refer in detail to the operations that were in progress with the view of draining the workings and of effecting a secure line of communication with all parts of the property. The tunnel, he said, was driven in solid rock, so that it was perfectly safe. At every 200 ft., roughly speaking, cross-cuts were put in, and the chairman indicated points where miners, working with crude appliances 30 years ago, took out a large amount of gold, but were compelled to abandon operations on account of the water. Having further explained the sketch plan, the chairman said he should like to read Mr. Bailey's report, because he would rather than have the information from the manager on the spot than second-hand from him. Mr. Bailey, in the course of his report, dated October 8, 1906, said:

"The results of our breasting work through the upper end of Block C and the entire Block D show that the values recovered gave very little average improvement over the gravel from the lower blocks, and were most disappointing. In sampling the gravel at the different points in the old workings very good prospects were obtained, but development work soon proved that the old miners had simply left a narrow strip of pay gravel on the sides of their workings. At the upper end of these old workings we found quite a block of unworked ground on the south side (called right breast on plan), which we mined out by running a temporary track through the old workings. The values recovered from this block, while showing considerable improvement over the previous values, were still far from what we desired. The bedrock at this upper end of the workings was of a very soft, clayey nature, most unfavourable for the retention of the gold. The whole formation of the ground and the character of the gold recovered, however, was of a most encouraging nature, showing that there was a decided change for the better, and it was simply a question of getting past this soft bedrock before the pay lead would be encountered.

"At a distance of 50 ft. from where the old miners abandoned their furthest drive up-stream we struck hard bedrock on the left-hand side in running ahead of the No. 2 E gangway, and good values were found on it. After continuing the drive ahead for a distance of about 50 ft., in order to drain the gravel at the point where the hard bedrock was struck, we opened out a breast to prospect the gravel (Drive A). The results obtained, namely, 19 1-8 oz. of gold from only 16.8 cu. yd. of gravel washed—showed that at last we had struck good values. This was on August 31. Since this date gangway No. 2 E has been extended 150 ft. beyond where the first rich strike was made, and the values obtained from the small amount of gravel it has been possible to take

out show very high values this entire distance. In the Drive C from this gangway No. 2 E, shown on the accompanying plan, gravels yielding values to the amount of \$25.17 per cu. yd. have been obtained, with good prospects of even higher values.

"Work on the gangway E, which was suspended for a time until the conditions were known in gangway No. 2 E, was resumed on August 17, and is now being carried steadily ahead. The object of this drive is to assist the draining of the gravel, and also it will be used as the main gangway in working out the gravels now being blocked out by the No. 2 E gangway.

"Both of these gangways are being pushed ahead under great difficulties, owing to the amount of water encountered, especially the No. 2 E gangway. An average weekly progress of 21 ft. is all that can be made in running these drain drives. As the grade or direction of the deep channel is absolutely unknown ahead, they have to be driven in the dark, as it were, and they are not in the most advantageous location, as a rule, for the economical working out of the gravel.

"The cost of running the main east tunnel in the solid rock is about the same as running these drain drives, and, in my opinion, in the long run the rock tunnel is by far the most economical method of working these deep Cariboo channels. Already we are finding it most difficult to maintain these gravel drain drives, owing to the swelling bedrock, and re-timbering stretches of them will soon be necessary. The average weekly progress we can make in the solid rock is about double the progress that can be made with these drain drives. By blocking out and draining the gravel by means of upraises and cross-cuts, as has heretofore been done, it allows us to work out the entire section of the channel as we advance most economically. As soon as we have a little more information as to the value and continuity of the pay lead just being opened the question of running ahead our main east tunnel should be seriously considered.

"Substantial repairs have been made to the top of the old upper Eleven of England shaft, but we have been unable to complete the work of making use of this shaft as a timber shaft, outlined in my last report, owing to the scarcity of labour in this country. This most important work will be proceeded with as soon as labour can be obtained.

"The amount of water being pumped at the La Fontaine shaft remains at a most constant figure—viz., 560 gal. per min.—derived about equally from the up-stream workings and west drives. In these west drives no further work has been attempted since my last report.

"In working through Block D we struck a dyke of very hard rock, running almost at right angles with the course of the channel. Its width was 24 ft., and the up-stream face raised to a height of 5 ft. above the level of the average bedrock. In my opinion, this dyke throws great light on the comparative absence of pay gravel through the stretch of channel that we have opened below this point. This dyke of rock, acting as a restraining dam, kept the original deposit of gold-bearing gravels and underlying bedrock in the channel above the dam from sluicing down the heavy grade in the channel below the dyke.

"I feel confident that very large pay will be encountered below our workings in the deep channel when the bedrock again assumes a normal grade, and that the gold originally deposited through the stretch of the channel we have opened will be found deposited again on this normal grade of bedrock. As you are aware, better values were recovered the further we advanced the down-stream drives. While it is difficult to say, without further development down-stream, where this normal grade may again be found, I feel convinced that it is not a great distance below the end of our down-stream workings.

"In my opinion, this company has a most valuable property in its holdings below La Fontaine mine to Reaver Pass, a distance of more than five miles, and should begin the

work of opening this ground by means of a shaft and bed-rock tunnel at the line of boreholes, two miles below La Fontaine as soon as this mine is on a good paying basis.

"Too short a period has elapsed between the striking of the pay lead, at the upper end of our workings, and at this writing to ascertain with any degree of certainty the width and direction of the lead; therefore, the position of the channel and the proposed development of same, as shown upon the accompanying plan, is only an approximation.

"Between the No 2 E gangway and the old Warren shaft, at the mouth of Anderson Creek, there should be a very rich stretch of channel. Whether this channel will not be on a higher level than our present drives is a question that can be only proved by future development work.

"There is little question but that the pay lead we are now opening up is the regular lead of Lightning Creek, and not a break from the Anderson Creek lead, and that the values will remain good as we proceed up the channel to Davis Creek.

"Some time must necessarily elapse before we shall be in a position to commence breasting out the gravels on a large scale, as the drain drives must be carried well forward and cross-cuts run from them to dry out the gravel below, and put it in a proper shape for working.

"The excellent result obtained last month in washing the small amount of gravel from this pay lead—242 1-16 oz. of gold from 5365 cu. yd. of gravel—shows that the outlook is, indeed, bright for the success of this company."

That, continued the chairman, was Mr. Bailey's report. Of course, the amount of gold already obtained from the mine was only an indication of what they might expect to get when they got into good pay-ground higher up and lower down. Still, the last two or three months showed considerable signs of improvement. In April they got 47 oz. of gold from 360 cu. yd. of gravel. In May the return was 109 oz. from 981 cu. yd. In June 112 oz. of gold were obtained from 1,200 cu. yd., working in poor stuff. In July 209 oz. of gold were produced from 1,358 cu. yd. In August the manager met with a good deal of water, and was more or less unable to do any breasting work, but 87 oz. of gold were obtained from 537 cu. yd. For September there was a much better return—viz., 242 oz. of gold from 537 cu. yd.—and yesterday morning the manager sent them the result for October in the following cablegram, dated November 4:

"During the month of October washed 513 cu. yd. of gravel, yielding 343 oz. of gold. Paystreak exceedingly wet. Cannot be further worked until we have drained. Have commenced drifting low-grade gravel between drives 2 and 4 E. Everything looks most favourable."

Referring to this last cablegram, the chairman explained that the manager was drifting this low-grade gravel simply to keep his men together. He thought that was all he had to tell them. It was no use expressing his own opinion, or even that of the board, because they were entirely in the hands of their manager. They had a most admirable manager, however, and could not do better than leave him to work the matter out for them. He might say that, speaking for himself and the board, they were fully satisfied with what had been done, and had every confidence in the future success of their undertaking. It would be some months before they got to work on a big scale, but he thought by their next annual meeting, in six months' time, they ought to be in very different circumstances to what they were that day. He might add that during the last two months they had practically paid all expenses at the mine. (Hear, hear, and a voice: "That is very satisfactory.")

Mr. L. P. Swinborne said he congratulated his fellow-shareholders upon having listened to a very satisfactory statement. He should like to ask how the last call was coming in, and also he would like the board to call the remaining 6d., so as to have plenty of funds to push on with.

The chairman, in reply, said the call was coming in satisfactorily. Only the previous day the board were discussing

the very question of making a final call which would provide them with funds to push ahead faster. Also, it would be much better to have their shares fully paid, because there was a better chance of making a market for fully-paid than in partly-paid shares.

Mr. John Girdwood, managing director, said, with reference to the calls, he would like to emphasize what had been said. Since July the mine had been self-supporting. The call was coming in, not rapidly, because they had not been pushing it, but it was coming in well, and to-day they had £1,200 in credit at the bank on deposit. £2,878 was coming in in calls, and the bulk of this could be got in at once. At the present time they had, with calls still to be made, £9,000 to go on with. All that might not be required if the mine continued to do as it was at present. He thought they had ample funds for the present, anyway. Mr. Girdwood added that certain transactions were taking place on the Stock Exchange, and applications had been made by stock brokers, asking them to make the last call, so that the shares could be dealt in fully paid. Of course, the money need not all be collected at once. Whether the directors would think it well to divide the call into two portions he could not say, but they might leave it to the board to do the best and wisest thing under the circumstances.

A shareholder asked why work was not pushed on faster. Was it owing to a difficulty in getting labour?

The chairman replied that that was the real difficulty. Mr. Bailey had gone into that subject, and no doubt, if he had the labour, he would be going on with the tunnel now. He had, however, got 12 or 14 extra men, who during the summer were engaged in hydraulic mining on their own account. These men were first-class miners, and he should say that they had even more men at work now.

Replying to further questions, the chairman said he hoped the £9,000 they had available would be ample to put the mine in a dividend-paying position.

A shareholder. I think financially we are in a good position.

The chairman said he thought they might like to know that their pumping plant was equal to all requirements. They were pumping 700,000 gal. per day, and the plant had a capacity of 3,000,000 gal.

Mr. F. W. P. Swinborne then proposed a vote of thanks to the chairman and directors, which was seconded by Colonel Byrne, and carried unanimously. The chairman, in acknowledging the compliment, said the board would feel greatly strengthened by this meeting, and would be encouraged to go forward and do the best they could.

The proceedings then terminated.

CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA, LTD.

Owing to the MINING RECORD not having been supplied with a copy of the report of the directors of the Consolidated Mining and Smelting Company of Canada, Ltd., for the six months ended June 30, 1906, it is not practicable to publish it in these columns in full. The following extracts from the report are reprinted from the Nelson Daily News:

Managing Director Aldridge's report, in part, says:

After writing off expenses of incorporation and \$45,905 as depreciation upon plant and equipment, the operating profit shown is \$325,854.93. From this profit a special reserve of \$20,000 has been provided, and two dividends amounting to \$234,940 have been paid, leaving a balance at credit of profit and loss account of \$70,914.93. In determining the values of the metals and products on hand, quotations considerably lower than the market prices of June 30, 1906, have been used, to provide against a possible decline in the metal market.

The productions of the different properties controlled by the company for the first six months of the year 1906 are given as follows: Centre Star and War Eagle: tons of ore

mined, 81,267; values extracted, 30,669 oz. gold, 26,938 oz. silver, 976,528 lb. copper, total value, \$823,790. St. Eugene ore mined, 84,066 tons (concentrates 15,497 tons), values extracted, 418,084 oz. silver, 17,288,649 lb. lead, total value, \$798,660.

Trail smelter: Ore smelted, 157,640 tons; values extracted, 64,590 oz. gold; 1,074,255 oz. silver; 15,133,683 lb. lead; 2,399,161 lb. copper; total value. \$2,994,927.

During the six months 8,573 ft. have been driven in the Centre Star and War Eagle and 6,888 ft. in the St. Eugene.

In the Centre Star most encouraging results have been obtained on the 11th or lowest level, 1,388 ft. below the collar of the shaft, and measured on the dip of vein 70 deg.

In the War Eagle a fair tonnage of ore has been found on the fourth, fifth and sixth levels, while good ore is being developed on the bottom of the 11th level, 1,582 ft. below the collar of the shaft, and measured on the dip of the vein 64 deg.

On the St. Eugene the discovery of a new cross shoot, known as Fourth Avenue, connecting the main and south veins, will probably prove to be the most valuable find made during the six months at that property.

A small shoot of high grade ore has been found in the Richmond-Eureka group at Sandon, formerly owned by the War Eagle Company, and a few carloads will be shipped as soon as rawhiding starts.

The ore reserves have been increased in the War Eagle and Centre Star. Owing to a lack of compressor capacity, and drills development in the St. Eugene has fallen behind somewhat, but the sinking of the main shaft and other important work is now well under way.

Due to lack of skilled labour the new construction and improvements have not been completed. During the six months \$130,979.28 have been expended upon these accounts, which expenditure will not only reduce the cost, but will increase the tonnage which can be economically handled at the mines, smelter and refinery. The main enlargements and improvements are as follows: An increase in the electrolytic lead refinery from a capacity of 50 tons pig lead per day to 75 tons per day; the installation of an electric crane and the introduction of a new process for the treatment of silver slimes.

The addition of a new copper furnace, 22 ft. long by 42 in. at the tuyeres having a capacity of over 400 tons of Rosslund ore daily.

The patent rights and installation of the Huntington-Herberlein process for the treatment of lead sulphides, which process is reducing the costs of treating the St. Eugene lead product, copper matte and other sulphides.

The building of additional large flues for catching dust from the copper furnaces.

Additional transformers and other electrical machinery incidental to the increasing of the capacity at the smelter and refinery.

The principal installation at the mines consists of a new Nordberg hoist at the Centre Star, of a capacity of 1,350 tons per ten hours from a depth of 3,000 ft. (cylinders 28 by 60 in., drums 10 ft., skips 4½ tons) which will permit of the handling of all the Centre Star, War Eagle and Iron Mask ore through the one shaft, in place of operating three separate shafts. In this connection the head works of the War Eagle will be abandoned, the War Eagle compressor removed to the Centre Star compressor house, where both will be electrically driven. In the Centre Star hoist house a complete sorting and sampling plant is being installed.

In order to secure a regular supply of desirable ore, an agreement has been made with the Snowshoe Gold and Copper Mines, Limited, by which the Consolidated Company will operate that property under a lease. Reports by Professor Brock of the Canadian Geological Survey indicate that there are about 100,000 tons of ore which can be profitably mined, and it is believed that development work may materially in-

crease that tonnage. In consideration of this lease the Consolidated Company has guaranteed an overdraft of the Snowshoe Company of \$78,000. The proceeds from ore shipments will be applied by the Snowshoe Gold and Copper Mines, Ltd., to this overdraft so that it should be entirely repaid in about one year.

Negotiations for the purchase of the Iron Mask mine, Rosslund, have been concluded since the close of the fiscal year. The property adjoins the War Eagle on the east and the Centre Star on the north. The Iron Mask mine shipped 19,405 tons of ore at a gross assay value of \$25 per ton, (nearly \$500,000), and has 11,850 tons of probable ore containing \$20.46 gross assay value (\$242,451). The War Eagle east drift will be connected with the Iron Mask workings. There was expensive litigation between the Centre Star and Iron Mask which was concluded in 1901 by a somewhat indefinite agreement. The purchase of the Iron Mask removes all chance of further difficulties between the properties.

Engineers are kept in the field looking up new properties, and it is hoped that other promising properties in the district will be secured.

HALL MINING AND SMELTING COMPANY, LTD.

The seventh ordinary general meeting of shareholders of the Hall Mining and Smelting Company, Ltd., was held in London, England, on October 29, Lord Ernest Hamilton, chairman of the company, presiding.

CHAIRMAN'S ADDRESS.

The secretary having read the notice convening the meeting and report of the auditor, the chairman said: It has been a matter of considerable disappointment to the directors that the balance-sheet this year does not show up better. Last year it showed an improved profit on the previous year, and the previous year again, showed an increased profit on the year preceding that, and we had every reason to hope that that improvement in our profits would be permanently maintained. However, that has not proved to be the case. This year the profit on the Silver King mine account is £1,162, and on the working of the Emma group £1,342, but there has been a loss on the smelting account of £1,030. Owing to that loss the balance-sheet does not show better. However, the causes are easily explained, and when I have made clear to you what those causes are you will understand that though the results this year are disappointing, still they are not in the least discouraging from the point of view of the future prospects of the company.

The primary cause of the loss which the smelting account shows this year is undoubtedly the extreme caution which the board in London and the management in British Columbia have shown with regard to the installation of an improved process at our works at Nelson for smelting ores. I have told you on previous occasions that we had in contemplation the installation of a plant for facilitating and cheapening smelting and the improvement of extraction. There were in the field three rival processes, all of which claimed our attention. These three were ultimately reduced to two, and the balance appeared to be very evenly divided between the merits of those two. You will understand how disastrous it would have been for a company situated as we were to make the colossal mistake of installing the plant of a new process which, when installed might have turned out to be, not by any means a failure, but other than absolutely the best process known in existence. The board, therefore, deliberately came to the conclusion that the best and safest policy was to face the probable loss which might ensue from being at a disadvantage with other competing smelters for a short period rather than to run the risk of making such a disastrous mistake as installing a plant which was not absolutely the best procurable. I should like to make it quite clear why this has resulted in a loss. In the district in which our smelter is situated there are several

rial smelters, and between these the competition is extremely keen for the acquisition of certain very desirable ores, and the form this competition takes is in the underbidding of several smelters down to the very lowest calculable margin of profit. The effect, therefore, in the past year has been that smelters which were better equipped than we were—that is to say, had had these newer methods installed in connection with their plants—were able to bring down rates to such a low level that for a smelter which had not the advantage of the new process there was a very slight margin of profit, if any at all. The very existence of a smelter depends upon a continuous supply of ores, and therefore we have been in the position this year of having to bid at very low rates for ores in order to maintain our existence, even though we knew that on those ores with our then equipment there was practically no profit. In this connection I may say that we have now installed the process known as the Huntington-Heberlein. I went in the winter over to Germany and saw the inventor and patentee of one of these processes, and I also inspected his smelting works and saw the process in operation there. In the spring I went to British Columbia and saw the rival process in operation at a neighbouring smelter, and as the result of this and other negotiations we finally decided to install the Huntington-Heberlein process. In addition to this process we have put in during the past year very considerable improvements and alterations in our smelting plant. The plant was originally very badly designed, and in a way which entailed a great deal of unnecessary handling and consequent manual labour and expense, and as the labour situation is one of the greatest difficulties that smelting managers have now to contend with in British Columbia it became quite clear to us that it was absolutely necessary, even at considerable expense, to install a plant which would have the effect of doing away with this double handling and replacing manual labour by mechanical appliances. The result of all this is that we have spent a good deal of money on the plant in the past year, and we are now as fully and efficiently equipped as any other smelter in British Columbia. Those of you who have read the reports of our general manager and smelting manager will see that they both express the utmost confidence that with the plant we now have they will in the future be able to make out of the smelting business a very substantial profit.

There is not much to be said with regard to the Emma mine except this, that from the first it has turned out a successful enterprise, and though the profit is not by any means a sensational one, still that does not in the least represent the value of our interest in this mine. When I was over there I went down the mine in company with the general manager, and I was greatly impressed with the size and solidity of the ore body and also by the indications which undoubtedly exist there that as we drive further into the hill the value of the ore will materially increase. There is every reason to believe that in course of time our quarter interest in the Emma mine may prove a very important asset to the company.

With regard to the Silver King mine, you remember that at the termination of his lease of the mine we entered into a partnership agreement with Mr. Davys. The terms of the partnership arrangement were that Mr. Davys should act as manager, with entire control, and without salary; that he should find half the capital which was required for further development, the company finding the other half, and that the profits should be equally divided between Mr. Davys and the company. The main object of this arrangement—which I may tell you was suggested to the company by Mr. Davys himself—was the ultimate unwatering of the mine down to the seventh level. Mr. Davys expressed the greatest confidence in the existence of a strong body of ore between the fifth and seventh levels, and it was in order to unwater the mine and get at that ore body that this arrangement was entered into. Unfortunately, however, the

unwatering of the mine has not yet taken place. We have from time to time represented to Mr. Davys the desirability of taking active measures in that direction, and when I was over there I had an interview with him on the subject and he quite agreed with me as to the desirability of immediate action. We have had quite recently a very candid, frank and straightforward letter from Mr. Davys on the subject, in which he says that he confidently expected to be able to extract so much ore from the upper levels as would furnish him with the necessary capital to find his part of the money for the unwatering of the lower levels. I must say that this was not in our minds when we made the arrangement with Mr. Davys, and we did not at that time understand that his finding half the capital for unwatering the mine was dependent upon his being able to get sufficient ore from the upper levels to provide him with funds; but he now states frankly that having been disappointed with regard to the ore in the upper levels, he is not in a position to help the company in unwatering the mine. It must be apparent to every shareholder, as it is to the directors, how extremely desirable it is that with copper at its present unprecedented high price, immediate action should, if possible, be taken in order to ascertain whether or not there is a considerable body of copper ore below the fifth level.

Our agreement with Mr. Davys terminates on June 30, next year, and we have now written to Mr. Campbell asking whether Mr. Davys would release us from our partnership arrangement and allow us to work the mine ourselves. The letter has been crossed by a cable containing a proposition from Mr. Davys himself to transfer his partnership agreement to a powerful and substantial company, which would take his place and which expresses its anxiety to at once start unwatering the mine and to get at the ore. The matter is now in negotiation, and on that subject I can give you no further information at present, but we are quite alive to the fact that we must leave no stone unturned to unwater the mine and get at the ore if it does exist. I have already alluded once or twice to my visit to British Columbia this year. I was at Nelson and the neighbourhood for a week in company with our two managers, Messrs. Campbell and Hedley and I must say I was struck with their enthusiasm and the determination they both displayed to make the affairs of the company a success; and not only this, but by the confidence they both expressed in their ability to bring this about. I had ample opportunity of seeing the working of our smelter, and also visited the smelters of Trail and of Granby and went down the Emma mine, and it will, no doubt, be a source of gratification to the shareholders to know that my visit was not made at the expense of the company.

On motion of the chairman the directors' report and the statements of accounts were unanimously adopted. The retiring director, Mr. G. Freeman, was re-elected, and Mr. Harry Baker was re-appointed auditor. The proceedings then terminated.

DIRECTORS' REPORT.

The directors herewith submit Statement of Accounts and Balance Sheet for the year ended June 30, 1906, duly certified by the auditor:

Property.—The property consists of the following mineral claims: Silver King, 20 acres; Kootenay Bonanza, 20 acres; American Flag, 6 acres; Koh-i-noor, 11 acres. Lake Side, 41 acres; Daylight, 40 acres; Britannia, 25 acres; Rose, Thistle, Shamrock, National Emblem and Horse Shoe, each 50 acres; together with the Eureka, J. M. B., Bid, Grand, Jessie, Red Star, etc., in all about 500 acres; the smelter site, about 40 acres; right-of-way over the tramway track of about 4½ miles, and a fourth interest in the Emma group of about 182 acres, comprising the Emma, Jumbo, Minnie Moor, and Mountain Rose claims.

Mining.—Following the course indicated in the directors' last report, Mr. Davys has continued to mine from the upper

levels of the Silver King and has extracted in the course of the year 1,499 tons of ore, which realized a profit of \$8,123.56, our share of which, \$4,061.78 (£835 15s. 2d.), appears in the accounts.

Most of the ore shipped this year has been obtained from that part of the mine in which the 5-ft. vein, referred to in the last report, was found, in reference to which Mr. Davys writes: "The ore so far mined has yielded a profit over working expenses with every prospect of yielding a still further tonnage."

At the Kootenay Bonanza Mr. Davys found there was too much water in the early part of the winter to sink the shaft as he had intended, and so far he has not had a favourable opportunity of proceeding with this work.

An interesting discovery has just been made by the Dandy Mining Company on the Dandy claim adjoining our Silver King, whence about 60 tons of ore taken from an open cut on the boundary line of the two properties assayed 5 per cent copper, 15 per cent lead, and 20 oz. silver, and steps will be at once taken to prove the vein from the point where it enters our property.

This discovery has suggested the possibility of a cheaper method of unwatering our Silver King mine by connecting with the tunnel on the Dandy, which is low enough to drain our workings on the Silver King to the No. 7 level. Mr. Davys thinks that the ore he would extract would pay for the work, and that this will in the end therefore be the cheaper way of unwatering the mine and do away with the heavy cost of power. Negotiations are in progress with the owner of the Dandy for this purpose.

Emma Mine.—Attention has been mainly directed during the past year to systematically opening up and developing this property with most satisfactory results, the value of the property being now far in excess of the expenditure on purchase and development. In spite of the fact that the efforts of the management have been directed to development rather than the extraction of ore, it will be seen from the accounts that our share of the year's profit amounts to £1,342 18s. 7d.

Smelting.—In this department also the main business of the year has been that of extending and improving the company's works, so as to be better able to cope with the growing competition which has been keener than ever during the past year, particularly on the part of smelters in Germany, who are purchasing lead ores in British Columbia. As mentioned by our smelter manager, Mr. Hedley, in his report, which follows, the board, after very careful and extended investigation, decided to adopt the Huntington-Heberlein process, which has been in successful operation at a neighbouring smelter for some little time, and from which and the labour-saving appliances lately introduced, there is good reason to expect satisfactory results in the future, in which connection our business manager, Mr. Campbell, in a recent letter, says "as soon as the estimated working costs with the plant now so nearly ready are being realized, our business should be very profitable."

BUSINESS MANAGER'S REPORT.

Mining Department.—Work was continued on the Silver King and Kootenay Bonanza, under our partnership agreement with M. S. Davys.

On the Kootenay Bonanza, a prospect shaft was sunk 35 ft. in ore assaying about 18 oz. silver and 2 per cent copper.

During the year 1,197 tons, averaging 25½ oz. silver and 4.3 per cent copper were shipped, in addition to 302 tons of similar grade shipped in September, 1905, part of which was mined in the financial year now ended. We have also just shipped (in November, 1906,) 594 tons assaying about 26 oz. silver and 4½ per cent copper, part of which was mined in May and June, 1906.

On the Silver King a stope has been carried in under No. 1 tunnel about 50 ft., and open face work carried on between No. 1 and No. 2 tunnels up to the surface, and from

these two points most of the ore shipped this year has been mined.

The Dandy Mining Company has made an open cut on the Dandy vein which we formerly did some work on from our No. 5 tunnel, and has exposed at our boundary line a face of ore 3 ft. wide and 15 ft. in height, carrying silver, lead, and copper, from which some 60 tons of sorted ore assaying about 5 per cent copper, 15 per cent lead and 20 oz. silver have been shipped.

Emma Mine.—The British Columbia Copper Company, which owns a three-quarter interest in this property, has continued in charge of the operations under its agreement with us.

There has been much disappointment in getting electrical power for operating this mine, and it is not now expected until November 1, the power company not being able to secure delivery of the necessary copper wire for transmission. Operations have been consequently hampered, and it was found necessary to install a temporary steam-driven compressor plant to supplement the power from the Oro Denoro plant. This temporary plant was provided by the British Columbia Copper Company from its Mother Lode mine and smelter, and the cost of installation has been charged to working expenses.

The new plant has been installed ready for the electrical power. It consists of a 200-h.p. 2,200-volt Westinghouse motor, 8 by 10 Lidgerwood hoist, and a compound belt-driven Rand air compressor with Corliss valve-gear, capacity 1,400 ft. of air per min.

The policy has been to use as much as possible of the limited available power upon development work, at the same time shipping enough ore to supply the needs of the British Columbia Copper Company's smelter and our own. Much of the ore so shipped was from No. 1 tunnel, which entered the ore body a short distance from the shaft and has been driven altogether in ore since, to a distance of 387 ft. from the shaft. As the tunnel was driven the ore was extracted for the full width of the vein excepting for about 50 ft., where, on account of the ore containing a higher percentage of lime than usual, it was desirable to leave it until shipments were increased. The vein is about 20 ft. wide until it reaches this point, then for about 50 ft. the width has not been determined, and for the last 60 ft. of the tunnel it has been from 30 to 35 ft. wide, the whole width of the vein being magnetite carrying about 1 per cent copper, gold and silver to the value of about \$1.45 per cent metallic iron, 15 per cent lime, and 12 per cent silica, and worth at the mine at present about \$5 per ton. Some ore has been taken from the upper stopes, and about 8,000 tons are broken in the stopes ready to be drawn off into the tunnel when required. The sinking of the shaft has been continued, and it is now 272 ft. from the collar to the bottom. No. 2 tunnel will soon be started from a point 250 ft. below the collar, giving about 90 ft. vertical depth between the two tunnels.

The ground under No. 1 tunnel has been prospected by three diamond drill holes from the bottom of that tunnel. One at an angle of 70 deg. West passed out of the ore at about 20 ft., a vertical hole did the same, and a hole at an angle of 70 deg. East continued in ore for 40 ft., indicating that the vein had again faulted to the East.

No. 1 tunnel has to be driven about 300 ft. further to get under the most northerly point where we uncovered the vein on the surface, at which point we found the highest grade copper ore.

The shipments during the year have been:

- 2,079 tons to the British Columbia Copper Company, Ltd.
- 1,025 tons to the Granby Consolidated Mining, Smelting and Power Company, Ltd.
- 8,060 tons to the Hall Mining and Smelting Company, Ltd.

11,164 tons, with a value of \$53,229, or an average value of \$4.77 per ton.

The British Columbia Copper Company has nearly finished extensive additions to its smelting plant, which will give it a capacity of about 1,500 tons daily, so that its requirements of Emma ore will be much increased, though the extent to which this will be the case will depend upon the analyses of the ores received from its other mines. The new plant will admit of an output of about 400 tons daily, and I think it probable that 50,000 tons will be disposed of during the current financial year. The past year has been one of development and equipment, and during it the mine has very greatly increased in value, and we may now look for regular profits from it.

Owing to various causes the proposed prospecting work on the Jumbo claim in the Emma group has not been done, but it is hoped that it will not be much longer deferred.

Mountain Rose.—Our co-owner in this claim, the Dominion Copper Company, shipped to its smelter during the year 846 tons of this ore, and has now finished driving a tunnel cutting the vein 50 ft. below the tunnel driven by us. The ore there is the same as above and the vein is about 15 ft. wide.

Smelting Department.—The revival in mining in the lead producing districts has continued, but the resultant increase in tonnage is slow in coming, notwithstanding the high prices for lead and silver and further reductions made in smelting charges. Important development work has been carried on, however, and there is no doubt that there is a much larger tonnage of lead ore in sight in the mines than for a number of years past.

After investigating several new processes for desulphurization of galena ores, it was decided to adopt the Huntington-Heberlein system, and, in connection with the installation of the necessary plant, to make other improvements and changes. This work has been carried on while still continuing the sampling and smelting of ore. This, combined with the difficulty in getting orders for machinery filled promptly and scarcity of labour, delayed the completion of installation, and we must wait for the current year for the benefits from the changes, while our earnings have been reduced by the reductions in treatment rates made in anticipation of the reduction in costs, and to meet the competition of foreign smelters for the most desirable lead ore.

Our ore receipts during the year were from 127 mines:

Emma	8,060 tons
B. C. Standard Company's mines.....	5,422 tons
Silver King	1,544 tons
Lead and dry ores.....	24,872 tons

39,898 tons

showing an increase of purchases of custom ore of about 100 per cent over last year.

We have continued to operate the Hunter V. and Double Standard mines under lease from the B. C. Standard Mining Company, and, in addition to supplying our own requirements, have shipped 1,218 tons to the Trail smelter.

Though the improvement in the results of our business has not been realized during the year, owing to the causes referred to, I think that during the last half of the current year, when the output from the Emma shall have been increased, and the changes at the smelter have been completed and the expected reduction in cost attained, the profits should be reasonably good.

SMELTER MANAGER'S REPORT.

No. 1 blast furnace has been in operation 259 days, and No. 2 345 days, equivalent on their respective capacities to 85 per cent of the total, nearly 9 per cent better than in 1905.

We have smelted a total of 37,767 tons of ore made up as follows: 8,279 roasted and converted, 8,794 raw galena, 7,702 dry ore, 4,582 B. C. Standard and 8,410 Emma.

This has produced 7,630 tons of lead bullion carrying 116,500 oz. of silver, and 8,163 oz. of gold, and valued at \$1,215,943.

During the year about 10,000 tons of matte were roasted and re-smelted.

Again we may look back on good metallurgical work, with recoveries somewhat higher than the previous year, especially during the last six months. It is fortunate that we have been enabled to show good recoveries, as our average treatment rates have been very materially reduced for the whole year, and our total costs are reduced only 2 per cent. Indeed, the cost for the latter half of the year has been higher than in 1905, and may be explained, first, by the fact that we have been obliged to continue all operations while remodelling the plant, and second, in the scarcity of labour.

My last report indicated the probability of the installation of one of the various lead-roasting plants, known respectively as the Huntington-Heberlein, Carmichael-Bradford, and Savelsberg. After investigating as far as possible the relative merits of these various processes, we started construction in October, planning our plant to be efficient for any one of the three processes, and have as a result a very complete and efficient crushing, conveying, mixing and converting plant suitable for operations on the Savelsberg lines. After considerable experiment we came to the conclusion that, while the Savelsberg process was doubtless a satisfactory one under certain conditions, it would not give the same satisfaction to us as the Huntington-Heberlein. We have therefore decided, as we are called upon to treat ores of a very great variety in composition, that it is necessary to equip for Huntington-Heberlein, and a circular roasting furnace is now in process of construction, which, with the Merton and hand roaster No. 3, both of which have been altered to suit the different conditions necessary for Huntington-Heberlein, will, we expect, give us sufficient capacity for the outlook at present.

The sampling mill and crushing plant, with its conveying accessories, has been a very costly undertaking, especially so, as many alterations had to be made in the first design. As it is today, we may consider it a very satisfactory up-to-date crushing plant. The ore arrives in railway box-cars, from which it is shovelled or wheeled into a large Gates gyratory crusher, thence elevated to the top of a high building, where it is automatically sampled by means of Vezin samplers, afterwards passing through chutes to four large sets of crushing rolls connected with vibratory screens to remove the oversize, which is returned. The final product falls on to a series of conveyor belts with automatic trippers, which distributes it into the bedding bins of new construction. Thus one handling is all that is necessary for sampling, disintegration and bedding.

In these bedding bins the ore gets its first mix, being shovelled from the floor into cars which convey it by an automatic switch-back tramway to a system of elevated bins at the roasting and converting plant. The empty car returns, by gravity and without attention, to the bedding bins.

The new roasting plant includes a large blower, six hemispherical converters, which may be used either for the Savelsberg or Huntington-Heberlein process, a powerful platform elevator, together with an efficient mixing apparatus, all covered by a new and substantial building to the west of the old reverberatory building. Also, new bins at the railroad track have been provided for holding the product of the converters, which product may be conveyed by way of these bins and the railway spur through the sample mill No. 2, and by conveyor belt to a new set of gravity bins, or by way of elevator and a level tram to smaller gravity bins, or to what is known as the calcine floor at the feed floor level. All bedding bins have now been raised to the feed floor level, eliminating the objectionable grade from bins to furnaces. In all this construction, care has been taken as far as possible to provide labour-saving apparatus and devices, which is justified by the situation today throughout the country.

There has been, especially in the last six months of the year, a very great scarcity of labour, and our operations have

been very much hampered and costs increased thereby. This limited number of capable, experienced men who have been condition has been especially severe on the foremen, and the obliged to handle the furnaces without competent help.

BALANCE SHEET AS AT JUNE 30, 1906.

<i>Dr.</i>							
		£	s.	d.	£	s.	d.
To Share Capital—							
Authorized—325,000 shares of £1 each.....		325,000	0	0			..
Issued— 25,000 shares of £1 each, issued as fully paid.....		25,000	0	0			
250,000 shares of £1 each, issued as 15s. paid, 5s. per share called up, making £1 fully paid.....		250,000	0	0			
<hr/>							
275,000		275,000	0	0			
<hr/>							
Deduct calls in arrear.....		3	0	0			
					274,997	0	0
<hr/>							
To Debenture Loan—							
Series of £50,000 6 per cent First Mortgage Debentures, secured by a mortgage on the company's mines, lands, buildings, plant, machinery, etc., as specified in the Trust Deed, to be paid off at 105 per cent (by the operation of a Redemption Fund) within a period of 13 years from March 31, 1900, or at any earlier time after March 31, 1903, at the option of the company on six months' no- tice.							
Issued— 66 debentures of £ 5 each.....		330	0	0			
138 debentures of £ 10 each.....		1,380	0	0			
69 debentures of £ 50 each.....		3,450	0	0			
194 debentures of £100 each.....		19,400	0	0			
							24,560 0 0
<hr/>							
To Creditors—							
Bank—On Loan Notes, secured by a charge on the company's stock of supplies, fuels, fluxes, ores and metallurgical products, bullion in shipment, bank bal- ances in British Columbia and interest in the Emma group of mines		71,886	12	2			
Sundry Creditors—		£	s.	d.			
In London		446	19	7			
In British Columbia.....		7,398	2	5			
(For wages, supplies, etc.)					7,845	2	0
							79,731 14 2
<hr/>							
					£379,288	14	2
<hr/>							
<i>Cr.</i>							
By Expenditure on Capital Account—		£	s.	d.	£	s.	d.
Expenditure to June 30, 1905—							
As per last balance sheet.....					267,250	2	11
Further expenditure to June 30, 1906—							
Further payments to complete purchase of one-fourth interest in the Emma group of mines (fluxing ore).....		2,689	7	6			
Additional expenditure on buildings, new plant and machinery		12,181	8	9			
					14,870	16	3
							282,120 19 2
<hr/>							
By Expenditure on patenting Harris Distributing Spout, in which the company owns a one-third interest—							
Expenditure to June 30, 1905, as per last balance sheet.....		124	14	8			
Further expenditure to June 30, 1906.....		10	15	8			
							135 10 4
<hr/>							
By Development Account—							
Expenditure on development of B. C. Standard properties (lime fluxing ore) in ex- cess of the value of ore extracted.....							1,233 19 9
<hr/>							
By Office Furniture in London—							
As per last balance sheet.....		88	11	6			
Deduct—Depreciation written off.....		8	17	2			
							79 14 4
<hr/>							
By Stock of General Supplies on hand, per manager's valuation—							
At the mine.....		1,573	12	3			
At the smelter.....		6,062	5	8			
							7,635 17 11
<hr/>							
By Stock of Fuels and Fluxes—							
At the smelter.....					1,939	10	7
By Stock of Ores and Metallurgical Products.....					42,459	1	7
By Open Shipments of Bullion.....					18,152	13	8
By Unexpired Insurance and Taxes.....					773	1	6

By Debtors—					
In British Columbia.....				2,384	16 2
By Cash at Bankers, in Hand, and on Loan—					
In London	1,049	14	3		
In British Columbia.....	4,586	14	6		
By Profit and Loss Account—				5,636	8 9
Debit balance at June 30, 1905.....	16,649	11	10		
Add—Loss for the year ending June 30, 1906, as per account.....	28	11	5		
Depreciation of furniture in London.....	8	17	2		
				37	8 7
				16,687	0 5
				<u>£379,288.</u>	<u>14 2</u>

PROFIT AND LOSS ACCOUNT.

Dr.			Cr.		
	£	s. d.		£	s. d.
Mine Account:					
To Expenditure—			By Profit on working in partnership with		
Safeguarding of property, insurance,	79	15 0	M. S. Davys.....	835	15 2
taxes, etc.			By Sundry Receipts, including interest....	406	0 6
To Balance, being Profit—					
Carried down to General Account.....	1,162	0 8			
	<u>£1,241</u>	<u>15 8</u>		<u>£1,241</u>	<u>15 8</u>
	£	s. d.		£	s. d.
Smelter Account:			By Value of Bullion, etc.,		
To Purchase of Custom Ore 200,345	10	9	produced	263,947	5 6
Add—Freight, expenses			Deduct Expenses on same	383	5 7
and interest	13,853	14 4		268,563	19 11
	214,199	5 1	By Balance, being Loss—		
To Administration Expenses	2,233	7 0	Carried down to General		
To Smelting Expenses	45,923	7 6	Account	1,030	6 10
To Outside Expenses	1,821	3 10			
	49,977	18 4			
To Maintenance of Build-					
ings, Plant and Machinery	5,417	3 4			
	<u>£269,594</u>	<u>6 9</u>		<u>£269,594</u>	<u>6 9</u>
General Account:			By Profit on Mine Account—Brought down	1,162	0 8
To Loss on Smelter Account			By Profit on Working Emma group of		
—Brought down	1,030	6 10	mines	1,342	18 7
To General Expenses of the			By Sundry Receipts in British Columbia, and		
Company—			profit on sundry transactions.....	1,954	1 4
In British Columbia.....	318	3 9	By Sundry Receipts in London.....	49	16 6
In London—			By Balance, being Loss—		
Directors' fees	700	0 0	Carried to Balance Sheet.....	28	11 5
Office rent and salaries.	664	18 9			
Remuneration of debenture-					
holders, trustees,					
auditor's fee, law					
charges, printing, sta-					
tionery, postages, ca-					
bles and office and					
general expenses	290	8 0			
	1,973	10 6			
To Income Tax	45	16 3			
To Debenture Interest	1,473	12 0			
To Exchange	14	2 11			
	<u>£4,537</u>	<u>8 6</u>		<u>£4,537</u>	<u>8 6</u>

LE ROI MINING COMPANY, LTD.

The following are the reports and statements of accounts for the financial year ended June 30, 1906, prepared for submission to the Seventh Ordinary General Meeting of the Shareholders of the Le Roi Mining Company, Ltd., held in London, England, on November 27. A detailed report of the proceedings has not yet been received, but cabled advices state that Mr. Grimke-Drayton was re-elected a director, and that the recommendation of the board of directors of payment of a final dividend for the year of two shillings per share was adopted. The reports and statements of accounts follow:

DIRECTORS' REPORT.

The directors herewith submit their report, together with the audited accounts of the company for the year ended June 30, 1906, and also the annual report by A. J. McMillan, managing director, dated September 20, 1906, and extract from the report of A. G. Larson, mine superintendent, dated August 31, 1906.

At the commencement of the financial year—July 1, 1905—there were three directors on the board, viz.,—Sir H. W. Tyler, A. J. McMillan, and G. S. Waterlow. On August 15, 1905, Sir Henry Tyler and Mr. Waterlow added another director to the board in the person of F. W. Rolt, and these three directors on August 30, 1905, removed the managing director (A. J. McMillan) from the board on account of his opposition to the Amalgamation Scheme they were bringing forward. At the annual meeting of shareholders held on December 8, 1905, the retiring director, G. S. Waterlow, who offered himself for re-election, was rejected by the shareholders, who appointed A. J. McMillan as a director in his stead.

T. D. Grimke-Drayton, G. W. Wilson and Charles Dunderdale were also at that meeting elected directors. The shareholders also rejected the Amalgamation Scheme recommended for their acceptance by the late directors, who, however, questioned the decision of the meeting, and proposed to take a further vote of the shareholders by means of polling papers. Mr. McMillan took the case into court, and it was tried before Mr. Justice Joyce in the Chancery Division of the High Court of Justice, who declared this method of proceeding to be illegal, and granted an injunction restraining the officials of the company from acting upon the result of any vote so taken. Ultimately, on December 27, the late directors gave effect to the action of the shareholders' meeting of December 8, 1905, by co-opting Messrs. Drayton, McMillan, Wilson and Dunderdale, they themselves resigning from the board. Owing to the disinclination of the old board to accept the verdict of the meeting of shareholders the present directors were unable to enter upon the active discharge of their duties until several weeks later. The directors re-appointed Mr. McMillan as managing director on December 28 last, and that gentleman has since spent the greater part of his time in Canada looking after the interests of the company.

The accounts show a balance in favour of Profit and Loss of £37,138 7s. 10d. on the operations of the company for the year under review, which, added to £150,539 1s. 10d. brought forward from last year, gives a total of £187,677 9s. 8d. Out of this an interim dividend of 1s. 6d. per share was paid on February 28, 1906, absorbing the sum of £15,750. The directors recommend a final distribution of 2s. per share, less income tax, making 3½ per cent for the year, leaving the sum of £150,927 9s. 8d. to be carried forward. It may be of interest to point out that this is the first year in which a Le Roi dividend has been paid since 1899.

As will be seen by reference to the accounts, the profit of £37,138 7s. 10d. for the year is arrived at after writing off £28,628 10s. 5d. in respect of exploration and development; £18,163 19s. 0d. on account of depreciation of machinery and plant, surface improvements, etc., at the mine and smelter;

£3,727 os. 10d. on account of special expenses incurred during the year in connection with the Amalgamation Scheme brought forward by the late directors; paying £3,464 4s. 2d. to the British Columbia Government in full settlement of a claim made by them in connection with a revision of taxes, covering the period between July 1, 1900, and October 17, 1905; and deducting other sundry items of expense, amounting to £6,315 1s. 10d.

From the accounts it will be seen that the liabilities of the company at June 30, 1906, amounted to £15,282 7s., and the liquid assets, as exhibited in detail on the Balance Sheet, amounted to £126,966 10s. 7d., showing a surplus of liquid assets over liabilities of £111,684 3s. 7d. It will be noticed that for the first time since the year 1900 there is no indebtedness to the bank. On the contrary, the cash at bankers and in hand at London and Rossland on June 30 last amounted to £90,097 1s. 7d.

Reference to the attached reports shows that during the fiscal year 110,042 tons of ore of an average value of \$12.37 per ton were mined and shipped to the smelters at Northport and Trail. Of this tonnage, 26,850 tons were smelted at the Northport smelter and 83,192 tons at Trail.

As already mentioned, the late directors brought forward and recommended the shareholders to adopt a scheme for amalgamating the Le Roi with other mining and smelting interests in British Columbia. This scheme was fully considered and discussed at the largely attended meeting of shareholders held on December 8, 1905, and was rejected by a great majority.

On August 30, 1905, the day on which the late directors removed Mr. McMillan from the board, and after he was removed, without seeking the advice of any of the Le Roi officials, they entered into a contract with the owners of the Trail smelter, whose manager was then in London, under which the whole output of the Le Roi mine was to be shipped to Trail for three years. The policy of shipping Le Roi ore to Trail involved the closing down of the Le Roi smelter at Northport and the rapid deterioration of that valuable asset. In support of this action it was alleged by the late directors that a great saving would be effected. This, however, proved to be fallacious, the cost to the Le Roi Company under this arrangement being greater than formerly. The present directors, after looking carefully into the matter, decided that this state of affairs could not be allowed to continue, and authorized the managing director to take steps to cancel the contract, in which he was successful. It was agreed that a total of 170,000 tons of ore in all should be delivered to the Trail smelter in full settlement of the contract, instead of the total output of the mine for three years. At the end of September this left about 50,000 tons still to deliver to Trail. Shipment of ore to the Northport smelter has already been commenced.

J. H. Mackenzie, of San Francisco, was in charge of the business of the company in British Columbia from September to December, 1905, when his services were dispensed with by the present board. J. W. Astley, general superintendent, whose health necessitated rest and change of climate, during the year left the service of the company. J. H. Trevorror, mine superintendent, had to leave Rossland last January on account of failing health, and he died in California shortly afterwards. A. G. Larson was appointed mine superintendent, and has been in charge of the mining operations of the company since January last.

The chairman left England for British Columbia at the end of last July, and spent much time at Rossland and Northport inspecting the property and looking into the affairs of the company. He returned to England again about the middle of last month.

T. D. Grimke-Drayton retires from the board in conformity with the Articles of Association, and, being eligible, offers himself for re-election.

<i>Dr.</i>		BALANCE SHEET AS AT JUNE 30 1906.					
		£	s.	d.	£	s.	d.
To Capital Authorized—							
200,000 shares of £5 each.....		1,000,000	0	0			
Less—Calls in arrear.....		38	0	0			
					999,952	0	0
To Sundry Creditors—							
London		2,970	14	2			
Rosslund		9,753	18	7			
					12,724	12	9
To Unclaimed Dividends, etc.....					114	12	11
To Reserve against Sundry Claims.....					2,443	1	4
To Profit and Loss Account—							
Balance brought forward from last year.....		150,539	1	10			
Add Profit for year ended June 30, 1906, as per account.....		37,138	7	10			
					187,677	9	8
Less Interim Dividend paid February 28, 1906.....	£15,000	0	0				
Directors' percentage on dividends.....	750	0	0				
					15,750	0	0
					171,927	9	8
Subject upon distribution to the percentage payable to the Directors under Special Resolution of December 2, 1898.							
					£1,187,171 16 8		
<i>Cr.</i>							
		£	s.	d.	£	s.	d.
By Property Account—							
Balance at June 30, 1905.....		977,924	0	0			
Add—Expenditure during year.....	£66	16	1				
Amount transferred from surface improvements and buildings...	202	9	1				
					269	5	2
					978,193	5	2
Less Sale	£225	4	2				
Amount transferred to furniture, fixtures, etc., account.....	371	2	8				
					596	6	10
					977,596	18	4
By Machinery and Plant at June 30, 1905.....		23,624	14	6			
Add—Expenditure during year.....		660	0	4			
					24,284	14	10
Less—Machinery sold	£172	16	1				
Depreciation	4,845	1	9				
					5,017	17	10
					19,266	17	0
By Mine Equipment, at June 30, 1905.....		5,153	17	6			
Add—Expenditure during year.....		362	6	6			
					6,016	4	0
Less—Sales	£66	5	4				
Depreciation	594	19	11				
					661	5	3
					5,354	18	9
By Surface Improvements and Buildings, at June 30, 1905.....		12,346	8	8			
Add—Expenditure during year.....		165	6	8			
					12,511	15	4
Less—Depreciation	£2,595	17	6				
Transferred to Property Account.....	202	9	1				
					2,798	6	7
					9,713	8	9
By Smelter Plant and Buildings, at June 30, 1905.....		30,357	15	5			
Add—Expenditure during year.....		274	7	5			
					30,632	2	10
Less—Depreciation		9,966	17	2			
					20,665	5	8
By Mine Exploration and Development, at June 30, 1905.....		27,309	16	0			
Add—Expenditure during year.....		26,492	14	8			
					53,802	10	8
Less—Amount written off.....		28,628	10	5			
					25,174	0	3

By Furniture, Fixtures, etc., at London and Rossland, at June 30, 1905.....	1,543	0	8			
Add—Expenditure during year.....	97	9	10			
Transferred from Property Account.....	371	2	8			
				2,011	13	2
Less Depreciation—						
London	£69	19	1			
Rossland	126	0	10			
				195	19	11
						1,815 13 3
By Horses, Vehicle and Harness.....	96	18	11			
Less—Depreciation	35	1	10			
						61 17 1
By Stores in Hand at Mine and Smelter.....						14,079 13 11
By Ores on Dump at Mine.....						18,180 2 11
By Unexpired Insurance						556 7 0
By Sundry Debtors—						
London	251	5	0			
Rossland	4,358	7	2			
						4,609 12 2
By Cash at Bankers and in Hand—						
London	1,510	0	9			
Rossland	88,587	0	10			
						90,097 1 7
						£1,187,171 16 8

PROFIT AND LOSS ACCOUNT.

<i>Dr.</i>	£	s.	d.	£	s.	d.
To Ores and Matte at smelter, in hand and in transit, at July 1, 1905, as estimated by the company's officials.....				90,524	6	11
To Ore Production—						
Mining, including management and general expenditure in Rossland	65,215	8	8			
Amount written off mine development.....	28,628	10	5			
Depreciation on machinery and plant, surface improvements and buildings, mine equipment, and furniture, fixtures, etc., at Rossland.....	8,162	8	6			
Claim of Provincial Government for additional taxes for period from July 1, 1900, to October 17, 1905.....	3,464	4	2			
						105,470 11 9
To Smelting—						
Working expenses at smelter, including freight, and cost of ores purchased from public	45,069	14	11			
Depreciation on smelter plant and buildings.....	10,001	10	6			
Reserve against sundry claims.....	2,443	1	4			
						57,514 6 9
To Concentration Experiments	2,150	12	5			
Less Proceeds from concentrates sold.....	1,112	2	7			
						1,038 9 10
To London Expenditure—						
Office rent, lighting, etc.....	£1,096	18	0			
Office salaries	1,054	8	0			
	2,151	6	0			
Less Rents received for providing office accommodation and clerical assistance to other companies.....	780	0	0			
				1,371	6	0
Printing and stationery.....	134	16	8			
Postages, telegrams and cables.....	193	7	10			
Legal expenses	43	13	6			
Expenses of general meeting.....	213	10	10			
General expenses	125	5	7			
				710	14	5
Depreciation on office furniture.....		69	19	1		
						2,151 19 6
To Expenses on Account of Proposed Amalgamation—						
Special mine examination.....	1,399	17	8			
Other expenses, including part of costs of opposition.....	1,827	3	2			
						3,727 0 10
To Income Tax						370 0 0
To Audit Fees in London and Rossland.....						185 19 11

To Exchange	125	11	3
To Balance carried to Balance Sheet.....	37,138	7	10
	<u>£298,246</u>	<u>14</u>	<u>7</u>
<i>Cr.</i>	£	s.	d.
By Matte and Ore Sales (net proceeds).....	296,956	11	3
By Rents received from Rossland properties.....	681	8	3
By Interest	143	12	9
By Transfer fees	129	18	6
By Dividends received upon claim against the British America Corporation, Ltd. (in liquidation) ...	243	0	7
By Sundry receipts	92	3	3
	<u>£298,246</u>	<u>14</u>	<u>7</u>

MANAGING DIRECTOR'S REPORT.

Introductory.—The financial year to June 30 last was one of the most eventful in the history of the company. During this period the question of amalgamating the Le Roi with other interests in British Columbia was discussed by the shareholders at a meeting held in London on December 8 last, and it was decided to reject the proposals for amalgamation put forward by the late directors.

Unfortunately the constant uncertainty in regard to the outcome of the policy of amalgamation, together with the changes in management, and the closing down of the Northport smelter, led to serious dislocation of the local business of the company. This was especially noticeable during the first six months of the fiscal year. Through the last six months of the period under review more settled conditions prevailed and better results have been achieved.

On account of my opposition to amalgamation I was removed from the Le Roi board on August 30 of last year by the then remaining directors. This necessarily removed me from official participation in the management of the affairs of the company until the month of December last, when, as the result of an overwhelmingly hostile vote of the shareholders, the late directors retired, and I was on December 28 again elected a member of the board, since when I have been actively engaged in looking after the business of the company.

On my removal from the board, the remaining directors placed J. H. Mackenzie, of San Francisco, in charge of the local affairs of the company, and he forthwith prepared a report in favour of the Amalgamation Scheme, at that time being put forward by the directors who appointed him. Shortly after Mr. Mackenzie's appointment, J. W. Astley, who up to that time had been general superintendent, and who had done excellent work, left the service of the company, the state of his health necessitating change of climate and a period of rest. In January last, J. H. Trevor, the mine superintendent, had to leave Rossland on account of failing health, and in February he died in California. Devotion to duty, coupled with worry and overwork arising out of the amalgamation business, it is feared, hastened his end.

A. G. Larson, who has had long experience in mining matters in British Columbia and in various parts of the United States, has been in charge of the mining operations of the company since January last. He has done, and is still doing, good work.

As will be seen by reference to the accounts, the finances of the company are now in a satisfactory condition.

General Review.—The mining and other properties owned by the company remain the same as at June 30, 1905.

Mr. Larson's report, which is appended hereto, deals in detail with the mining operations of the company.

The following table gives the comparative costs for operating expenses at mine and smelter, realization charges, and depreciation, for the last three years:

	1904.	1905.	1906.
Tons of ore shipped.....	Tons.	Tons.	Tons.
	160,110	114,960	110,042
	Cost	Cost	Cost
	per Ton.	per Ton.	per Ton.
Ore production	\$2.65	\$2.78	\$2.84
Exploration and development (amount written off).....	0.94	0.90	1.26
Depreciation on mine account.	0.21	0.34	0.36
Smelting and realization charges (direct and indirect), including freight, interest, depreciation, etc.	6.77	6.06	6.04
	<u>\$10.57</u>	<u>\$10.08</u>	<u>\$10.50</u>

During the year \$128,489.75 was expended on the exploration and development of the mine, whilst \$138,848.31 was written off capital on account of expenditure incurred during 1906 and previous years.

Northport Smelting Works.—On August 30, 1905, the day on which the late directors removed me from the board, they entered into a three years' contract to ship the output of Le Roi mine to the Trail smelter, owned at that time by the Canadian Pacific Railway Company, and since sold by it to other parties. This involved closing down the Northport smelter, which ceased operations about the middle of October, 1905. Notwithstanding that I was managing director of the company, the question of shutting down our own smelter at Northport and of shipping the ore to a custom smelter was not discussed in my presence, nor was I aware that it was even under consideration. I may add that Mr. Astley, the then general superintendent, and Mr. Goodell, our smelter superintendent, were not consulted in regard to the matter. Mr. Goodell, during the nine months he had been at Northport, effected considerable economies and greatly reduced the cost of smelting there. On June 30, 1905, two months prior to entering into this Trail smelter contract the late directors authorized an arrangement to be made with Mr. Goodell, securing his services as superintendent at the Northport smelter for twelve months from that date.

We have been losing considerably by shipping ore to the Trail smelter; in addition, the continuance of this policy would be likely to result in the almost total loss of our Northport plant. Last spring, therefore, I asked Mr. Goodell, the smelter superintendent, to look carefully into this question, and he reported to me fully upon the situation, stating that, if the smelter remained idle for three years there would at the end of that time be little left but some rusty, heavy machinery, boilers and engines, and some yards and buildings requiring very heavy repairs. In other words, Mr. Goodell expressed the opinion that at the end of three years the present plant would be almost useless, and would practically have to be rebuilt.

The gravity of the situation led me during this year to devote much time, and give my best attention, to efforts look-

ing to a solution of this important question. For some months past I have been carrying on negotiations with the present owners of the Trail smelter, with a view to terminating the contract entered into last year for the treatment of Le Roi ores at that place, and within the last few days I have been able to arrange for its cancellation. It is my intention to re-open the Northport smelter about the middle of next month.

The smelter was operated continuously from July 1 to October 17, 1905, or a total of 109 days, when it was closed down indefinitely. During the time the smelter was running only two furnaces were in operation, though arrangements had been made to start up a third furnace just at the time that orders were received to close down the works.

The ores smelted at Northport during the year under review amounted to 36,851 dry tons. The matte and "clean-up" shipped was 1,498 tons, of the net value of \$505,002.13, equal to \$337.10 per ton.

The company's holdings in the name of the Northport Smelting and Refining Company remain the same as on June 30, 1905.

General Remarks.—In my last annual report reference was made to the fact that the British Columbia Government had made a claim against this company for alleged unpaid taxes upon ore shipments during the period dating back to 1901. After investigation of the accounts as far back as July 1, 1900, I concluded that we owed something to the Government, though not nearly the amount claimed by them. I went fully into the matter with the finance minister, with the result that it was arranged last April that all outstanding questions of ore taxation from July 1, 1900, to October 17, 1905, should be settled by the payment to the Government by this company of the sum of \$18,000. This amount was smaller than that originally claimed by the Government, whilst the period of time covered by the settlement was longer than that originally under review.

Reference has been made in this report to the good work done by Mr. Goodell and Mr. Larson, and I should like also to acknowledge the constant and untiring work of Mr. Rugh, our accountant at Rossland. To the loyal co-operation of these and other members of the staff is due in no small degree the present improved position in the affairs of the company.

The mine looks better than at any previous time since I have been connected with the company, and, provided nothing unusual or unforeseen occurs, I look forward to more prosperous times than heretofore.

EXTRACT FROM REPORT OF MINE SUPERINTENDENT.

Upon receipt of your cable, dated January 3, 1906, asking me to take charge of the Le Roi mine during the absence of your superintendent, James H. Trevorrow, on account of his illness (which a few days later caused his death), I carefully examined the mine, and at once turned my attention to the development work, keeping the output of ore as nearly as possible at the same figure as in previous months. In carrying on development work I was in many instances almost immediately successful in locating ore, and was thus able to increase shipments without drawing on reserves already on hand. The results of our exploration and development work have been so satisfactory that I feel safe in saying that the ore reserves have been more than doubled since January last.

Review of Mining Operations.—During the year under review, ore was extracted from the Main, North and South veins, the tonnage being made up as follows:

	Tons
Main vein	23,220
North vein	10,083
South vein	76,739
	<hr/>
	110,042

The ore extracted from the Main vein came chiefly from the 100-ft. level, and has proved to be ore of excellent ship-

ping grade. I feel confident that further development work will prove up other important ore bodies on this vein.

On the North vein, ore continues to be extracted from two separate shoots above the 450-ft. level, and development work is now under way to further prove the continuation of these ore bodies.

The principal part of the tonnage mined during the year was extracted from the South vein, on which several important discoveries were made. Development has shown up an independent ore shoot on this vein which has proved to be continuous from the 300-ft. down to the 800-ft. level, and exploration is now vigorously under way to encounter, if possible, the continuation of this ore body on the levels below.

The downward continuation of the Black Bear ore shoot has been encountered on the 1,050-ft. level, a discovery which adds considerably to the ore reserves.

Development work on the 1,200-ft. level has met with satisfactory results. An ore body of considerable length has been encountered, but further work will be required to demonstrate the full extent of this discovery.

At the time of writing the winze from the 1,350-ft. level is down to a depth of 442.5 ft., and has proved the existence of a large ore body. Preparations are now being made to deepen the main shaft in order to facilitate the further development of this body of ore, and to permit of its more economical extraction. The deepening of the shaft will also enable us to explore the ground with a view to proving the continuation at depth of other ore bodies already known to exist in the levels above.

In the month of February development work was started on the 800-ft. level with the object of exploring the Black Bear claim west of the Josie dyke, and the result was very gratifying. A shoot of ore of good grade was encountered, and the ore body gives promise of yielding a large tonnage. The Black Bear mineral claim covers an area of about 50 acres, and as this is the first discovery of ore on this property it is one of great importance.

Ore Production.—The ore mined and shipped to the smelters at Northport and Trail during the year amounted to 110,042 dry tons, its metal values averaging: Gold, 0.39 oz. per ton; silver, 0.54 oz.; and copper, 1.76 per cent; equal to an average value of \$12.37 per ton.

The cost of mining and delivering this ore on the railroad cars was \$312,615.29, equal to \$2.84 per ton; and the total cost of mining, including development, for the year was \$4.01 per ton.

Development.—During the year 7,180 ft. of development was done at a cost of \$127,616.38. The details of the work and the costs are as follows:

Work	Feet.	Total Cost.	Cost per Ft.
Raising	261.5	\$8,826.29	\$33.75
Winzing	152	6,970.50	45.85
Cross-cutting	2,245	36,320.49	16.18
Drifting	4,521.5	71,279.88	15.76
Station-cutting	3,178.95
Pocket-cutting	595.99
Miscellaneous	444.23
	<hr/>	<hr/>	<hr/>
	7,180	\$127,616.38	
Diamond-drilling ..	303	873.37	2.88
		<hr/>	<hr/>
		\$128,489.75	

Diamond Drilling.—During the year only 303 ft. of diamond drilling was done. After carefully studying the situation I came to the conclusion that the diamond drill could be used with advantage to enable us to prospect new ground, and in the month of June I commenced work on the 800-ft. level. Up to date the results have been very valuable.

Concentration.—When I entered upon my duties as superintendent, I found that the experimental concentrator erected

on the property had been closed down. I am of opinion that with certain alterations it can be made to do useful work, treating there some of the low-grade ores of the mine, of which we have a large tonnage available on the dumps and elsewhere.

COMPANY CABLES AND NOTES.

CABLES.

British Columbia—

Cariboo Consolidated.—October: During the month washed 513 cu. yd. of gravel, yielding 343 oz. of gold. Pay streak exceedingly wet. Cannot be further worked until we have drained. Have commenced drifting low-grade gravel between drives 2 and 4 E. Everything looks most favourable.

Le Roi.—October: Shipments amount to 12,720 tons, containing 4,415 oz. gold, 5,400 oz. silver, 244,400 lb. copper. Estimated profit on this ore, after deducting cost of mining, smelting, realization and depreciation, \$30,000. Expenditure on development work during the month, \$15,000. (Office note—The Trail smelter has closed down on account of a strike at the coalfields, and this has caused a cessation of shipments from the other Rossland mines; but owing to the fact that the directors are restarting the Northport smelter, shipments from the Le Roi mine have not been affected.)

Le Roi No. 2.—The company's manager has cabled from Rossland: "Coal strike settled. Trail smelter not able to receive ore for short time."

Tyce.—October: Smelter ran 12 days, and smelted: Tyce ore, 1,851 tons; custom ore, 441 tons; total, 2,292 tons. Matte produced from same, 186 tons. Gross value of contents (copper, silver, and gold), after deducting costs of refining and purchase of custom ore, \$24,886.

Ymir.—October: 20 stamps ran 31 days, crushing 1,750 tons of ore, producing 363 oz. bullion, having estimated gross value of \$4,000. Have on hand on account this month 205 tons of concentrates, having a gross estimated value of \$5,330.

U. S. A.

Alaska Mexican.—October: 120-stamp mill ran 29½ days; crushed 21,316 tons ore; estimated realizable value of bullion, \$35,453. Saved 345 tons sulphurets; estimated realizable value, \$27,276. Working expenses, \$38,306.

Alaska Treadwell.—October: 240-stamp mill ran 29½ days, 300-stamp mill ran 29½ days; crushed 86,044 tons ore; estimated realizable value of bullion, \$100,000. Saved 1,680 tons sulphurets; estimated realizable value, \$89,272. Working expenses, \$84,247.

Alaska United.—October. Ready Bullion claim. 120-stamp mill ran 29½ days; crushed 21,010 tons ore; estimated realizable value of bullion, \$22,014. Saved 315 tons sulphurets; estimated realizable value, \$13,113. Working expenses, \$27,017.

DIVIDENDS.

On October 28 the Alaska Mexican Gold Mining Company paid a dividend (No. 45) of 30 cents per share on its 180,000 issued \$5 shares. Total of dividends paid to date is \$1,482,381.

The Alaska Treadwell Gold Mining Company paid a dividend (No. 75) of \$1.50 per share on its 200,000 issued \$25 shares on October 28, bringing its total of dividends paid to date up to \$9,035,000.

The Le Roi Mining Company, which on February 28 last paid an interim dividend of 1s. 6d. per share on its 200,000 £5 shares (the first since the 5s. dividend paid in November, 1893, has now declared another dividend of 2s. per share, equal to \$100,000 plus \$5,000 percentage payable to the directors of the company upon distribution of dividend. Total of dividends paid to date is \$1,480,000.

NOTES.

At a meeting of shareholders of the Reliance Gold Mining and Milling Company, Ltd., held at Nelson on November

4, T. A. Noble of Pittsburg, Pennsylvania, U. S. A., was elected president, and R. J. McPhee, manager of the Ottawa mine in Slocan mining division, vice-president and manager. The other directors of the company were re-elected. It is understood that work at the company's mine and mill near Nelson will be resumed shortly.

An extraordinary general meeting of shareholders of the Sandon Mining and Milling Company, Ltd., has been called, to be held at Sandon on December 10, for the purpose of executing a lease and bond upon the company's mineral claims and for other business.

A correspondent of the *United States Investor* recently asked that journal to "publish a full report on the condition of the Metropolitan Gold and Silver Mining Co., of Lardeau, B. C., and what action did it take at the special meeting held in May, as it did not give any information to its stockholders, and we would be pleased to know." The published reply was as follows: "Inquiries by our correspondents have failed to disclose just what occurred at the special meeting in regard to financial matters. The following directors were elected: D. D. Forbes, St. Paul, Minn.; Geo. Fox, Eulenton, Pa.; C. F. Massey, Rochester, Minn.; T. N. Weaver, Albert Lea, Minn.; John Morton, Havana, Minn.; N. H. Winchell, Minneapolis, Minn.; C. P. Lanning, Winnipeg, Man.; William White, Duluth, Minn., and D. N. Richards, Pittsburg, Pa. The company's headquarters are at 809 Sykes Building, Minneapolis. Stockholders' enquiries addressed there should receive attention. At Trout Lake, B. C., the company affairs are reported to be in good shape, and the property is regarded as having good prospects to develop into a profitable producing silver-lead mine."

The Denoro Mines, Ltd., which sold the Oro Denoro mine in Summit camp, to the British Columbia Copper Company last summer, recently announced the basis on which the sale was made and on which the shareholders will receive stock in the purchasing company. The consideration of the sale was 15,000 British Columbia Copper Company's shares. The shareholders in the Denoro Mines, Ltd., will receive one of these shares for about 100 Denoro shares. The Denoro Company is to be reorganized on a smaller scale, to operate other mineral properties. It already possesses a half interest in the Hungry Man mineral claim, near Nelson.

A general meeting of the shareholders of the Horsefly Hydraulic Mining Company, Ltd., was convened, to be held at Vancouver on October 29, to consider the affairs of the company and the question of the threatened sale of the company's property by the trustees for debenture holders, under the Mortgage Trust Deed of November 15, 1896.

On the petition of Maurice Quain, a contributor of the said company, a Supreme Court order for the winding up of the Pay Roll Gold Mining and Milling Company, Ltd., was granted at Cranbrook, East Kootenay, on November 5.

In the *B. C. Gazette* of November 29 there is published a lengthy notice relating to the Pine Creek Power Company, Ltd., and its undertakings in the Atlin district, including the company's right to construct and maintain a dam at the foot of Surprise Lake, to divert water from Surprise Lake and Pine Creek, and to convey water through pipe lines, flumes, etc.

COAL MINING NOTES.

C. P. Hill, managing director of the Hillcrest Coal Company, which is opening up a coal mine in the Blairmore-Frank district, southwest Alberta, is reported by the *Nelson Daily News* to have said, when at Nelson on November 30: "Our total payroll to date amounts to \$267,000, and we are now installing machinery of the most modern type, that will have cost us by the time we shall have it in place, more than \$200,000. In order that we may do something towards relieving the present fuel famine, the Canadian Pacific Railway Company has released us from our contract to supply some of its engines with steam coal. At present we are taking

out about 200 tons daily in the course of development."

It is stated that the syndicate which recently acquired the coal lands of the Nicola Valley Coal and Iron Company intends to at once commence the erection of mine buildings and bunkers, and that the Canadian Pacific Railway Company will construct a spur from its Nicola Railway to this property as soon as there are 500 tons of coal in the bunkers. Later on, coke ovens may be erected.

The Diamond Vale Coal and Iron Company, which has been drilling on the Garcia ranch near Forkdale, Nicola, has removed its drill to a location on the Charteris ranch. While not giving out any information as to the result of its operations, says the *Nicola Herald*, it is generally known that success has been met with.

W. R. Wilson, general manager of the Imperial Coal Co., has gone to Toronto. The survey men employed by this company, states the *Fernie Free Press*, are finished for the season, and most of the development work at the property on Fording River has been discontinued. A force of men will, however, be retained to complete the buildings now under construction.

The *Nanaimo Herald* says that a deal has been practically completed whereby about 2,000 acres of valuable coal lands in Cedar district were sold to A. C. Flumerfelt, president of the International Coal & Coke Company, who has also lately made purchases of coal lands in Alberta. The price agreed upon is about \$200,000. There is known to be good coal on the properties which are situated about two miles west of Boat Harbour, 12 miles distant from Nanaimo, and six miles from Ladysmith. Should they prove equal to expectations, the coal measures will be developed. The shipping port will be at Boat Harbour.

CERTIFICATES OF INCORPORATION.

Provincial—

- Five Metals Mining, Concentrating and Smelting Company, Ltd.*, with a capital of \$1,000,000, divided into 1,000,000 shares of \$1 each.
- Vancouver Island Building Resource Company, Ltd.*, with a capital of \$100,000, divided into 1,000 shares of \$100 each.
- Wallace Mountain Mining Company, Ltd.*, with a capital of \$250,000, divided into 250,000 shares of \$1 each.
- Ohio Mines Development Company, Ltd.*, with a capital of \$1,000,000, divided into 200,000 shares of \$5 each.
- Vancouver Island Copper Company, Ltd.*, with a capital of \$100,000 in 100,000 shares of \$1 each.
- Skeena River Gold Cr. Mining Co., Ltd.*, with a capital of \$50,000 divided into 100,000 shares of 50 cents each.
- Victor Cement Block and Machine Company, Ltd.*, with a capital of \$20,000, divided into 200 shares of \$100 each.
- Silica Brick and Lime Company, Ltd.*, with a capital of \$150,000, divided into 15,000 shares of \$10 each.
- Canadian Concentrating and Smelting Company, Ltd.*, with a capital of \$750,000, divided into 75,000 shares of \$10 each.
- Nootka Marble Quarries, Ltd.*, with a capital of \$150,000, divided into 15,000 shares of \$10 each.
- Nicola Valley Coal and Coke Company, Ltd.*, with a capital of \$1,500,000 shares, divided into 15,000 shares of \$100 each.
- Steger Sand-Lime Brick Company, Ltd.*, with a capital of \$100,000, divided into 100,000 shares of \$1 each.

Dominion—

- Canadian Refining Company, Ltd.*, with a capital of \$2,000,000. Head office at Ottawa, Ontario. The incorporators are Henry Roy, Ottawa; F. W. Rolt, Rossland, B. C.; W. B. Gosselin, Notre Dame de Stanbridge, Que.; Edward Hoffman, New York; Richard Dieffenbach, M.D., Newark, N. J., and J. J. Fleutot, Frank, Alberta. The purpose is to carry on a smelting, refining, milling and mining business.

The Dolphin group of mineral claims, situated between Keremcos and Olalla, southern Similkameen, has been bonded.

LICENCES TO EXTRA-PROVINCIAL COMPANIES.

- Little Valley Exploration Syndicate, Ltd.* Head office in England. Capital, £3,500, divided into 3,500 shares of £1 each. Head office in British Columbia, at Vancouver. Attorney, David Stevenson Wallbridge, barrister, Vancouver.
- Western Oil and Coal Consolidated.* Capital, \$2,000,000, divided into 200,000 shares of \$10 each. Head office in British Columbia at 635 Hastings Street, Vancouver. Attorney, John B. Ferguson, broker, Vancouver.

TRADE CATALOGUES.

The Canadian Westinghouse Company of Hamilton, Ontario, has sent the following circulars: No. 1068, "Westinghouse Type S Dynamo and Motors, Direct-Current;" No. 1136, "Automatic Controllers for Direct-Current Motors." No. 1138, "Direct-Current Motors." These are well printed, in the customary good style of this well-known manufacturing company, freely illustrated with high-class half-tones, and give valuable detailed information relative to the respective subjects they deal with.

From the Westinghouse Companies' Publishing Department, Pittsburg, Pennsylvania, U.S.A., have been received the following publications: Westinghouse Electric and Manufacturing Company's Circular No. 1139, "Starting and Field Rheostats," illustrating and describing a number of forms of apparatus; Westinghouse Traction Brake Company's "Straight-Air-Brake Equipments, Schedule SM," containing particulars of the Straight-Air-Brake, the simplest form of air brake in use, and which was introduced by the Westinghouse Air Brake Company in 1869; and "The New Pennsylvania Terminal, New York City," giving a brief account of its architecture, and of its lighting by the Nernst System of the Nernst Lamp Company of Pittsburg, Pa.

The Jeffrey Manufacturing Company of Columbus, Ohio, U.S.A., has published its Catalogue No. 31, "Jeffrey Pulverizers," with full particulars and illustrations of this company's crushing and pulverizing machinery, to which has been added a few pages of half-tones, showing elevating, conveying and power-transmitting machinery, coal and rock drills, electric locomotives, larries for coal and coke, etc. This catalogue of 70 pages, as well as any of a number of others the company has published, will be sent free upon application.

MINING RECORDERS GAZETTED.

Cory Menhenick of Lardeau, acting mining recorder, at Camborne, for the Lardeau mining division.

William Fox of Fort Grahame, deputy mining recorder for the Omineca mining division, with sub-recording office at Fort Grahame.

Herbert C. Rayson of Ashcroft, mining recorder for the Cariboo mining division, with recording office at Barkerville.

John Conway of Bear River, deputy mining recorder for the Skeena mining division, with sub-recording office at Bear River.

John Mahony of New Westminster, mining recorder for the New Westminster mining division.

Arrastras or drag-stone mills were worked all last summer at the Lorne mine, Cadwallader Creek, Lillooet mining division.

George J. Walker of Barkerville has been appointed gold commissioner for the Cariboo and Quesnel mining divisions in place of James McKen, resigned.

Alexander Faulds, well known on Vancouver Island as a coal mine manager, has been engaged as superintendent and mine manager for the Nicola Valley Coal and Coke Company, which lately acquired coal lands in the Nicola district.

MINING MEN AND AFFAIRS.

Carlton H. Hand of Butte, Montana, has been examining several Slocan mining properties.

L. C. Wynne and A. L. Oke of Princeton, Similkameen, recently examined the United Empire mining property, near Princeton, for W. C. McDougall.

Lewis Hind, who is directing mining operations on two or three mining properties in the Slocan, is on a short visit to Victoria.

Robert Smart, Dominion Government assayer at Whitehorse, Yukon Territory, left that town on a visit to "the outside" about the end of November.

W. J. Robertson, late superintendent for the Dominion Iron and Steel Company at Sydney, Cape Breton, is visiting relatives at Nelson, B. C.

J. Laing Stocks of Nelson, formerly manager in British Columbia for the Duncan United Mines Company, Ltd., will shortly pay a visit to England.

J. B. Tyrrell has returned to Toronto, Ontario, from the Windy Arm section of Yukon Territory, where he had charge of Wm. Mackenzie's interest in the several Conrad mines.

T. M. Dalton, manager of the Anglo-American Consolidated Mines Company operating in Southern Yukon, is down from the North.

James Breen of Spokane, well known in connection with the Northport, Wash., and Crofton, V. I., copper smelters, was again in Victoria during November.

W. N. Musgrave has returned to Victoria after having spent the open season of this year at Windy Arm, Yukon Territory, where he was assayer for the Conrad mining companies and others.

R. Gilman Brown of San Francisco, California, U. S. A., recently made his periodical examination of the Ymir mine, in his capacity of consulting engineer to the Ymir Gold Mines, Ltd.

O. B. Perry, general manager of the Guggenheim mining properties, came down from Cariboo at the end of October from a visit to the company's mines in the Quesnel Forks section.

Lawrence Harris, late mine manager for the Canadian-American Coal and Coke Company at Frank, Southwest Alberta, is leaving for the coast. W. G. Pearson of Chestnut, Montana, has been appointed to succeed him at Frank.

John Rogers, for years manager of the Pathfinder Mine Company, Ltd., of Grand Forks, is leaving the Boundary district for Goldfields, Nevada, where he will remain several months, probably returning to British Columbia next spring.

H. N. Galer, general manager of the International Coal and Coke Company, operating coal mines and coke ovens at Coleman, Southwest Alberta, accompanied by D. M. Rogers of Victoria, attorney for the company, has gone East on a business trip.

Walter E. Segsworth, formerly of Greenwood, Boundary district, has been appointed assistant engineer with the Centennial Mining Company at Calumet, Michigan, after hav-

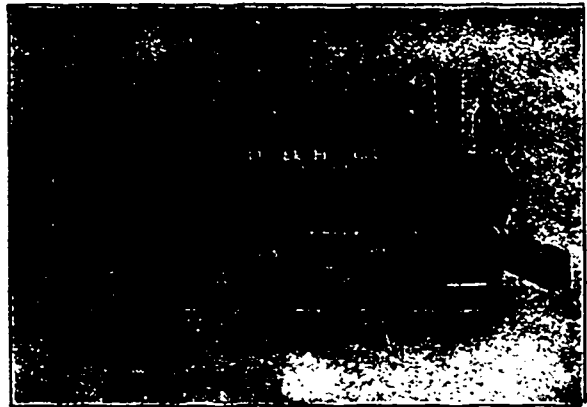
VULCAN

Locomotives

For all kinds of Mining Work.

All Gauges

For Inside and Outside Service.



Compressors
Winding Engines
Ore Crushers
Stamp Mills
Gold Dredges

Concentrators
Mining Steel
Safety Fuse
Belt Conveyors
Cableways

Mine Cars
Copper Furnaces
Converters
Cyanide Plants
Sinking Pumps

W. H. C. MUSSEN & CO.

Head Office, Montreal.

Branches: Toronto, Winnipeg, Vancouver.

Vancouver Office, 359 Water St.

ing graduated as a mining engineer at the Michigan School of Mines, Houghton, Michigan, U. S. A.

Melbourne Bailey, manager of the Cariboo Consolidated, Ltd.'s deep-drift gold mine at La Fontaine, Cariboo, will shortly spend a month at the coast. During his temporary absence Laurent Muller, late manager for the Willow River Mining Company, will have charge at La Fontaine.

W. E. Zwicky, manager of the Rambler-Cariboo, American Boy and Krao mines, has been appointed to take charge of the work ordered by the Supreme Court to be done at the Slocan Star mine in connection with the extra-lateral rights dispute.

Norman Fraser of Roche Percee, Saskatchewan, has been appointed chief mine inspector for Alberta. He lately paid his first official visit to the eastern part of the Crow's Nest Pass, and was accompanied by Elijah Heathcote, inspector for that district.

Geo. H. Barnhart of Nelson, who is operating the Spokane, Trickett and Libby mining properties at Ainsworth, has entered into a contract with the owners of the Highlander, Ainsworth, to extend the long tunnel in that mine another 1,000 ft.

The *London Mining Journal* states that the death occurred on November 17, at Achenkirch, in the Tyrol, of Johann Carl Ludwig Loeffler, of the Abbey, Campden Hill Road, W. Mr. Loeffler, who was seventy-five years of age, was a director of the Tye Copper Company, Limited.

Robert W. Coulthard of Fernie, general sales agent for the Crow's Nest Pass Coal Company, Ltd., was married recently to Miss Alice M. Dodd of Winnipeg, Manitoba. Before leaving Fernie for Winnipeg Mr. Coulthard was the recipient of a purse of gold presented by the company's office staffs at Fernie, Coal Creek and Michel.

Douglas Lay of Nelson has been examining the Monarch and New Victor groups of mineral claims at Ymir for, it is stated, the Hall Mining and Smelting Company, Ltd. Mr. Lay has since been appointed superintendent of the Vancouver group mine, near Silverton. Slocan, now being operated in connection with the Le Roi No. 2, Rossland.

The *Kaslo Kootenaiian* states that D. H. Nellis, manager of the King Solomon Mining Company is making application for a Crown grant to the Apex, Black Fox, Evening Star, Jumbo, King Fraction, King Solomon, Moonlight, Red Fox and Silver Cup mineral claims, at the head of Woodberry Creek.

Oliver Wetherhed, chairman of the Ymir Gold Mines, Ltd., has left London, England, for New York, to meet in the latter city R. Gilman Brown, of San Francisco, California. It is understood that the purpose of this meeting is to discuss the situation at the Ymir mine and matters connected with its being financed until the expected time of its becoming self-supporting shall be reached.

L. C. Wynne, of Claudet & Wynne, assayers and mining engineer, Rossland and Princeton, after having been in charge for a short time of the Daly Reduction Company's assay office at Hedley, Similkameen, has been succeeded by A. L. Oke, an assayer licensed to practise in British Columbia, and previously in charge of mining properties in Portugal and North Burma, respectively.

R. F. Collinge of England, a director of the Monitor-Ajax Mining Company, who has been looking over the company's properties—the Monitor and Bosum mines, and the Rosebery concentrating mill—has left on his return to the old country. The *Nelson Daily News* says that it is understood Mr. Collinge is satisfied with the situation and intimated that work will be resumed in the spring.

Malthoid Success Built On Merit

In less than five years' time Malthoid Roofing has become an established success among builders, architects and contractors throughout the civilised world.

THE REASON

Twenty-three years' experience and practical tests in the manufacture of durable weather and water proof roofings by The Paraffine Paint Company has enabled this Company to put into Malthoid the necessary materials and quality to withstand all the destructive agencies which a practical roofing must overcome to give proper protection to a building.

Malthoid is the standard of quality and is so considered by all competent judges.

Booklets free for the asking.

"We have just issued a special booklet showing the re-building of San Francisco, together with views of the ruins and will mail this book to you free if you mention this paper."

The Paraffine Paint Co.

405 Union Savings Bank Bldg., Oakland, Cal.

408 Occidental Avenue, Seattle, Wash.