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**This Month:**

THE LARDEAU DISTRICT.—Illustrated.

CAMP HEDLEY, SIMILKAMEEN DISTRICT.—Illustrated.

INVESTIGATION INTO WAGES AGREEMENT AT ST. EUGENE MINE, MOYIE.

622



# MINING RECORD

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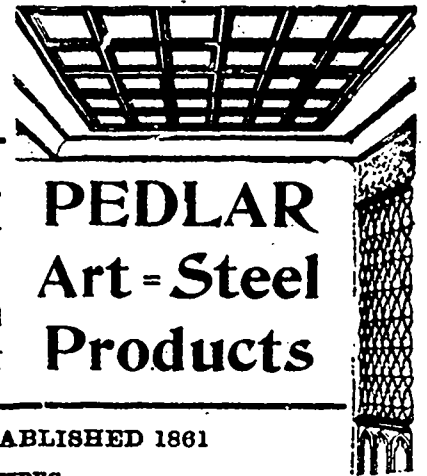
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JANUARY, 1908

No. 1

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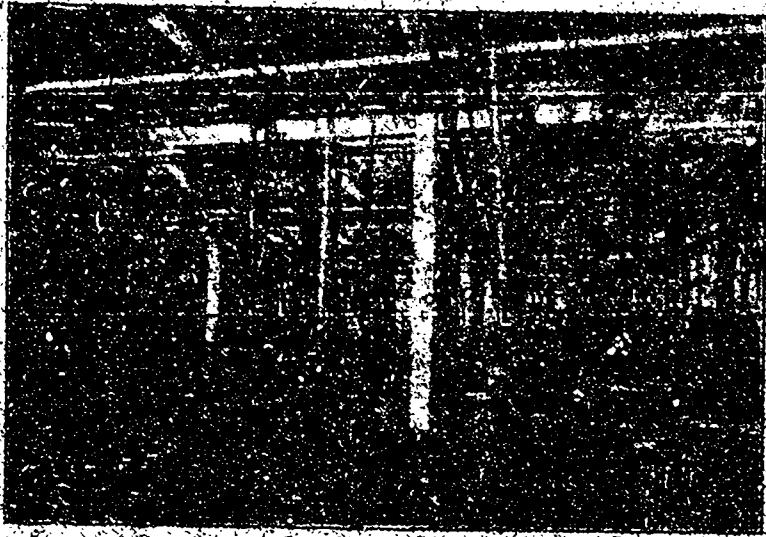
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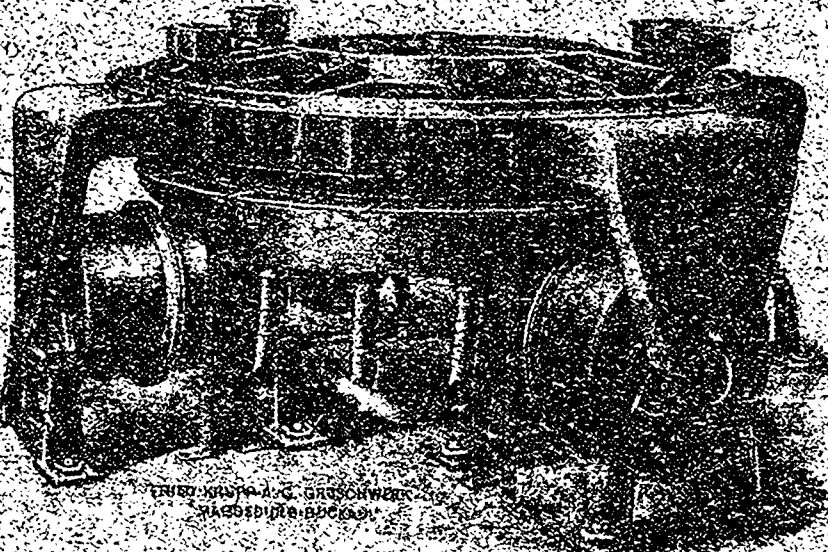
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# MINING RECORD

ESTABLISHED 1895

VOL. XV.

JANUARY, 1908.

No. 1

## BRITISH COLUMBIA MINING RECORD

E. JACOBS,.....Manager and 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 Quincey Building.  
San Francisco, California: E. C. Dake's Advertising Agency, 1004 Masonic Avenue.

### SUBSCRIPTIONS PAYABLE IN ADVANCE:

Canada and the United States, per year - - \$3.00  
Great Britain and Foreign, per year - - - \$2.50

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

Correspondence to be addressed to the Manager or Editor.

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## NOTES AND COMMENTS.

To the end of 1906 the Nickel Plate mine, near Hedley, had produced about 77,000 tons of ore.

The total lead receipts at the Consolidated Company's smelter, Trail, in January were 3,682,594 lb.

In 1907 the British Columbia Copper Company produced about 8,120,000 lb. of copper at Greenwood.

British Columbia's production of coal in 1907 was approximately, gross 2,220,000 tons, net 1,800,000 tons.

The International Coal and Coke Company during 1907 mined 372,000 tons of coal at Coleman, Alberta.

The British Columbia Copper Company's balance sheet to November 30, 1907, shows a surplus of \$176,041.31.

In 1907 British Columbia's production of lead was about 47,564,000 lb., as compared with 52,408,000 lb. in 1906.

The monthly average price of silver for 1907, *Engineering and Mining Journal* quotations, was 65.327 cents per fine oz.

The monthly average price of electrolytic copper for 1907, *Engineering and Mining Journal* quotations, was 20.004 cents per lb.

The Granby Consolidated was the only Boundary district copper mining company that mined and smelted ore during January.

The net smelter returns received from 100 tons of ore from the Venus mine, Windy Arm, Yukon, were rather more than \$60 per ton.

In the summer of 1906 the Tantalus mine, Yukon, shipped 5,173 tons of coal. The estimate for 1907 shows an output of about 9,000 tons.

In 1907 British Columbia coal mines exported to other countries 673,000 tons of coal.

The total amount of dividends paid by the Bunker Hill & Sullivan Mining and Concentrating Company up to the end of 1907 was \$9,816,000.

The first coal sent from the Diamond Vale company's mine at Coutlee, Nicola Valley, to Vancouver was shipped towards the end of January.

Last season officials of the Geological Survey of Canada ascertained that enormous quantities of bituminous coal are available in the Yukon.

Of 222,900 tons of coke made in British Columbia in 1907, 155,600 tons were used in Canada, 60,000 tons exported to the United States, and 7,300 tons added to stock.

At the Dominion Copper Company's Rawhide mine in Phoenix camp, Boundary district, a daily output of about 800 tons of ore can be regularly maintained for an indefinite period.

The Dominion Copper Company's mining, smelting and freight costs, when the works are dealing with 1,000 tons of ore per day, says M. M. Johnson, consulting engineer, should not exceed \$2.75 per ton of ore treated.

Says the *Whitehorse (Yukon) Star*: Members of all Seattle labour unions are boycotting the Seattle fair which is billed to happen, on account of alleged bad treatment of the unions. The unions need not worry. By 1909 that little real estate boom will have died a-bornin'.

The annual meeting of the Canadian Society of Civil Engineers was opened at Montreal on January 28, and was continued over three days. The membership of this society in number now exceeds 2,000, and includes members resident in one or other of the various provinces from the Atlantic to the Pacific.

A hopeful sign is noted by the *San Francisco Commercial News*, which says the local trade in Australia coal has fallen off so sharply that there is every prospect of a goodly supply of unchartered tonnage on the coast. This would indicate that the importing of coal from Australia to California in large quantity is being discontinued.

In 1907 Mr. W. W. Leach, while engaged in Geological Survey work, collected from two localities in the Bulkley Valley district of British Columbia 35 fossils from rocks that Dr. Whiteaves says are evidently of Lower Cretaceous age. These fossils were sent to the Geological Survey, Palaeontology and Zoology department, for examination by Dr. Whiteaves, who is the officer in charge.

The *Daily News*, Nelson, states that the Krao mine, at Ainsworth, has been closed down owing to the quantity of water encountered in sinking the new shaft. A Butte mining engineer has been looking over the ground with a view to ascertaining the commercial practicability of reaching the workings by a drift upon the vein from the west, giving a depth of about 900 ft. from the outcrop.

During January some 1,300 tons of zinc-concentrate has been shipped from the Vancouver mine, near Silverton, Sloean, being operated under lease by the Le Roi No. 2, Limited, of Rossland. Of this quantity nearly 280 tons were produced in January; the remainder was accumulated during several prior months. The net receipts of the company on this account are stated to be less than \$10 per ton shipped.

The output of the Crow's Nest Pass Coal Company's collieries in 1907 was about 876,700 tons (2,240 lb.). This was disposed of as follows: Made into coke, 322,800 tons; sold for consumption in Canada, 215,500 tons; used locally, 47,000 tons; exported to United States, 291,400 tons. The quantity of coke made was about 206,500 tons. In 1906 the coal production was 720,449 tons, of which 304,045 tons was made into 189,385 tons of coke.

The *Moyie Leader* lately reported that at a meeting of those who have a bond on the Aurora, situated on the west side of Moyie Lake, and located on what is thought to be a continuation of the St. Eugene lead, Manager Feltham submitted his report, which covered the work done up to the end of 1907. This report was very satisfactory and showed that the work done had opened up some good orebodies.

It is gratifying to note that there is increasing activity in mining operations in the Salmo-Eric section of Nelson mining division. The Arlington continues to ship ore to the smelter in moderate quantity, the Kootenay Belle is milling at the rate of 200 to 300 tons per month, the installation of ten additional stamps at the Queen mill is about completed, the Mother Lode is expected to maintain a fair output, and the Nugget and several others are contributing to the total of the ore production of the district.

The enlargements in the lead plant at Trail, states the *Nelson Daily News*, have now reached a point which will make it unnecessary for the Consolidated Company to make any further shipments of St. Eugene lead concentrates to Europe. In future these concentrates will all be smelted and refined locally. During the past several years contracts for many thousands of tons of concentrates have been made with European firms for shipment to Antwerp and Hamburg, where the concentrates have always found

a ready market in competition with Australian lead concentrates.

A *Reuter* despatch sent from Ottawa to London, England, a few weeks ago said: "Hon. Sydney A. Fisher, Dominion minister of agriculture, states that Canada is preparing to take a prominent part in the Anglo-French Exhibition to be held in London next summer. The combination of the races to be represented, Mr. Fisher says, appeals especially to Canada, where the French and British races are working hand in hand in empire-building under the aegis of the British Crown." Doubtless the department of mines will make an effort to have the mining industry of Canada adequately represented.

From an obituary notice of the late Clermont Livingston, of Duncan, Vancouver Island, published in the January *Bi-Monthly Bulletin of the American Institute of Mining Engineers*, we quote the following kindly appreciation: "Mr. Livingston's hospitable reception, in 1905, of the Institute party which visited the Tye Copper Company's mines, made friends of all his guests; and the loss which the mining industry of Vancouver Island has suffered through his death is felt also by many who had learned to regard him as an honest, ardent and successful pioneer, as well as an accomplished and genial host."

A press despatch from Edmonton, Alberta, states that as a result of a conference between representatives of the miners and mine-owners of Edmonton district, which was concluded on January 16, a scale of wages for miners in that district has been fixed. The new scale is a lengthy one and gives in detail the wages for the different phases of mining. Roughly speaking, the wages for miners will be \$1 per ton at the face of the mine. It is estimated by the mine-owners that it costs the mine operators another \$1 per ton to deliver the coal at the mine mouth, and still another \$1 for hauling the coal. This makes the aggregate cost of coal to the owner, \$3 per ton. The present market price of coal is \$3.25 and \$3.50 per ton.

The Pay Roll claim, on Nigger Creek, a tributary of upper Moyie River, in the southwestern section of East Kootenay, is again being worked after a long period of inactivity. In the "Annual Report" for 1898 the provincial mineralogist gave information concerning this property. From this it is learned that while at that time only a surface exposure had been made, and the permanence of the vein had not been established, the showing gave good grounds for the hope that further development might lead to the finding of an extension of the vein. Assays of picked samples of ore at that time were stated by disinterested parties to have given values in gold at the rate of up to \$300 to the ton. Lately grey copper has been found to occur freely in the ore.

The *Victoria Times* recently made the following comment on the question of fuel supply: The *Seattle Post-Intelligencer* says the people of Canada are worried over the coal supply of the future. The people of western Canada are not worried at all about the fuel supply. There is sufficient coal in British Columbia to serve our turn and the turn of all the western states besides. And, what is more, the people of the western states cannot do without our coal. It is as superior in quality to the fuel taken from the Washington mines as the electric light is superior to the penny dip of the fathers of the American republic. If the United States navy remains upon the Pacific coast, the furnaces of the great armada will have to be fed with British Columbia coal.

We have to acknowledge receipt of a copy of the American Institute of Mining Engineers' Year Book, containing officers, members, rules, etc., as at January 1, 1908. We note that a total membership of 4,191 is shown, made up thus:

Honorary members .....	12
Life members .....	381
Members .....	3,634
Life associates .....	9
Associates .....	155
Total .....	4,191

In British Columbia there were 61 members, and in Alberta 4. The total number of members in Canada was about 150.

During 1907 collections of Canadian minerals, each a full collection of 145 specimens, were supplied by the Section of Mineralogy of the Geological Survey of Canada to high schools in western Provinces, as follows: In Saskatchewan—Moosomin. In Alberta—Lethbridge and Medicine Hat. In British Columbia—Armstrong, Revelstoke, Vancouver and Victoria. The acting director, in his annual report, observes: "The improved educational collections of minerals enclosed in suitable cabinets, the distribution of which to the high schools of the country was begun last year, have been highly appreciated by the communities into which they have gone and their educational value will be very great. The arrangement and distribution of similar collections will be continued in the coming year."

According to a return brought down in the Dominion House of Commons on January 13, the total cost of the Canadian branch of the Royal Mint up to November 30 was \$402,953. The site cost \$21,150; building proper, \$286,836, and equipment, \$94,967. It is estimated that a further sum of \$94,000 will be required to complete the establishment, making the cost nearly \$500,000. The staff of the establishment numbers 72. All the appointments have been made by the Imperial authorities. No gold coin has

yet been coined in the Dominion. The profit on copper and silver coinage made at the Royal Mint in England for Canada during the past ten years was \$3,607,973. It is estimated that for the current year Canada will require copper coinage to a value of about \$50,000 and silver \$700,000. The branch mint at Ottawa was opened early in January.

The Kaslo *Kootenai* reports that "a mining deal that has been pending for some time has been consummated. The principals are Louis Pratt and J. A. Whittier, who have taken a three years' lease and bond on the Province group and bought outright H. Giegerich's interest in the Cork and Dublin properties, up the south fork of Kaslo Creek. It is the intention to organize a syndicate without delay to work the properties, and be ready to commence operations early next April. The Province is a large low grade property which has been worked for some years by H. Giegerich and associates. Much development has been done, but in order to work the property economically, Cork ground must be traversed. Whether an understanding to this effect can be arranged remains to be seen, but certain it is, that work will be commenced as early as possible."

The published abstract of Provincial revenue and expenditure for six months ended December 31, 1907, shows that the revenue derived from mining sources was as follows:

Free miners' certificates .....	\$ 9,257.82
Mining receipts, general .....	52,240.80
Mineral tax .....	55,404.82
Tax on unworked Crown-granted mineral claims .....	19,444.75
Bureau of mines .....	342.50
Royalty and tax on coal .....	57,237.74

Total .....

As there are other revenues not particularized, it may be assumed that the mining industry in the last six months contributed between \$200,000 and \$250,000 to the revenue of the Province. For the fiscal year ended June 30, 1907, the receipts from sources shown in above table totalled \$465,795.

Friends in British Columbia of Mr. H. Harris, who for several years was with the Hall Mining and Smelting Company, Limited, at Nelson, will doubtless be pleased to learn that he has been appointed manager for the Tasmanian Smelting Company, Limited, with works at Zeehan, Tasmania. He left British Columbia for Australia towards the end of 1907, and during the first week of this year signed a contract with the company to act as its manager. A few days later he left Melbourne for Zeehan to there enter upon his new duties. The report of the Tasmanian Smelting Company for the year ended June 30, 1907, states that the Zeehan working account shows a gross profit of £6,160 for the year, as compared with £10,152 for the fiscal year immediately preceding.

During the year the capital expenditure on plant and machinery amounted to £11,193, this including the completion of the second roasting plant of four kettles, and the installation of electrical and ore-conveying plants.

Several journals having made reference to the alleged failure of the efforts of the Board of Conciliation and Investigation to bring about a settlement of the difference between the Consolidated Mining and Smelting Company of Canada, Limited, and the men employed at its St. Eugene mine and concentrating mill at Moyie, East Kootenay, regarding rates of wages to be paid by the former, the *MINING RECORD* has pleasure in directing attention to the following press despatch sent out from Moyie on January 13: "By a vote of 156 to 85 the members of Moyie Miners' Union last night voted to return to work under the wage scale submitted by the Board of Arbitration. The St. Eugene mine was closed down on January 10, but it is expected that it will be re-opened immediately." On January 15 the *Prospector*, published at Cranbrook, distant only 20 miles from Moyie, said: "A compromise has happily been effected at Moyie, and the men are now all working in the St. Eugene mine."

Regarding the financial difficulties in which the Hall Mining and Smelting Company has become involved, it is understood that the principal creditors, after having consulted together concerning the situation and taken legal advice thereon, have agreed that they will not lose anything, rather will gain, by giving the company ample time in which to raise money to discharge its pressing liabilities, so that it will be their best policy not to take any action calculated to further embarrass the management in its efforts in that direction. An arrangement had been made for giving a lease and option on the company's Silver King mine, situated near Nelson; also for payment in cash of a sufficient amount to provide for overdue wages and debenture interest, but with an action of workmen for liens pending it was found impracticable to carry out this arrangement, and the debenture holders accordingly took possession of the property secured to them by mortgage, this including the Silver King mine, and other claims on Toad mountain, mine plant and aerial tramway to the smelter at Nelson, smelting works, other real estate, timber limits, etc. There is also a large liability to the Bank of Montreal, secured by mortgages of mining property in the Boundary district, smelter and mine supplies and plant, outstanding shipments, etc. The smaller liabilities are about \$8,000 for salaries and wages, and \$9,000 for other accounts. The assets are stated to be, at a reasonable valuation, considerably more than the liabilities, so it is anticipated the shareholders in the company will make provision to discharge the pressing liabilities and so protect themselves from the loss a hurried forced sale of the property might be expected to involve.

MUCH MORE GEOLOGICAL WORK IS REQUIRED.

IT IS NOTEWORTHY that in his annual report for 1907, the acting director of the Geological Survey branch of the Dominion Department of Mines states that various parts of Canada are now calling for a large amount of geological investigation, and mentions, among others, the central portion of British Columbia. In this connection he observes: "This rapid opening up of the country, and growth of the mineral industry, must be met by a corresponding increase in the activity of the Geological Survey. To meet this growing demand for geological information, an increase in the appropriation for the Survey and an addition to the strength of the technical staff are urgently needed."

It would seem that the Dominion Government has to some extent anticipated this need, since in a published list of the main estimates for the next fiscal year the sum of \$230,500 appears for Mines and Geological Survey, as against \$125,050 for this year.

It may be permissible to here direct attention to the two resolutions, printed on another page of this number of the MINING RECORD, passed at the recent meeting in Nelson of the Western Branch of the Canadian Mining Institute, copies of which have been sent to the respective departments immediately concerned. It seems likely that that addressed to the Dominion Government department will meet with a satisfactory response, and it is earnestly hoped the Provincial Government will hereafter similarly keep pace with the growing demands for more detailed information relative to the mineral-bearing areas of the Province. It is evident that the development of the mining industry is not receiving anything like as much assistance from the Provincial Government as is agriculture, especially fruit-growing, yet no other provincial industry would provide so large a market for agricultural and horticultural products as would the mining industry if adequately fostered and encouraged. The statistics showing the number of men employed in the mines of British Columbia in 1907 are not yet published, so they cannot be here quoted, but the official figures for 1906, taken from the "Annual Report of the Minister of Mines" for that year are as under:

In metalliferous mines (shipping).....	3,718
In metalliferous mines (non-shipping)...	265
In coal mines .....	4,805
<b>Total .....</b>	<b>8,788</b>

One writer, well known in the Province, not long ago stated the position in this respect as follows: "At least one-fifth of the total population of British Columbia is directly dependent upon mining. Reckoning the miners employed at 12,000, if we multiply by three—not five, as is ordinarily the case in census-taking, because so many miners are nomadic and unmarried—we have 36,000 people out of a total popu-

lation of 178,000, depending for their livelihood upon this most important industry." This is probably a rather exaggerated view of the position, but taking the official figures and multiplying them by three, after deducting the number of Japanese, Chinese, boys, etc., from the total, we have in British Columbia at least 23,000 people "depending for their livelihood upon this most important industry." These figures may well have the careful attention of the Provincial Government and of those members of the Provincial Legislature who represent constituencies in which mining is carried on to an appreciably large extent, and if they have due consideration the western members of the Canadian Mining Institute or any other body of men interested in mining will not find much difficulty in convincing the "powers that be" that mining is as fully deserving of whatever assistance can reasonably be given by the Government and Legislature as is agriculture, which certainly has been, and is being, more liberally treated at the expense of the Province than mining.

In this connection the conclusions of the director of the United States Geological Survey, with which he closed his address to the American Mining Congress at Joplin, Missouri, last November, are of direct interest. He said:

"The lines along which I propose to have the United States Survey advance to a position of greater usefulness to the mining industry are these:

"1. The fuller recognition of its duty in the classification of the mineral lands of the public domain.

"2. The rapid extension of systematic field study of all mineral deposits, so that geological exploration may keep in advance of economic development.

"3. The further development of the Survey, as a source of authoritative and disinterested information, for the benefit of the prospector or the land-owner.

"4. The broadening and improvement of the methods of collecting mineral statistics, with the purpose of securing more accurate returns and of expediting their compilation and publication.

"5. The investigation of processes relating to the mining and later treatment of fuels, ores, and other mineral products, in so far as such investigation may be fundamental to the best utilization of the nation's mineral wealth.

"6. The preparation of reports that will better meet the needs of the mining industry, and the distribution of these publications more promptly and effectually.

"These are not radical departures, for the Survey is at present making progress along each of these lines of public service, and we mean to continue that progress; yet the rate of our advance, and that is what you are most interested in, will be largely accelerated by the more generous support which you are able to ask for us."

There is much in these conclusions that may well be applied to the present position and requirements of the mining industry of British Columbia."



## HONEST CO-OPERATION OF EMPLOYEES ABSOLUTELY NECESSARY.

**L**ABOUR CONDITIONS would appear to be in part responsible for continued suspension of operations at the mines and smelting works of the British Columbia Copper Company. That such is the case the editor of the *MINING RECORD* has had positive assurance from more than one resident at Greenwood, and it is evident that members of the Greenwood board of trade have recognized that such is the case or they would scarcely have deemed it necessary to pass the resolution printed below. A newspaper report says:

With a view to improving the conditions of the industry upon which Greenwood depends for its prosperity, the following resolution was introduced and, after discussion, adopted:

"That this board of trade regrets the closing of the mines and smelter of the British Columbia Copper Company, Limited.

"That this board desires to do all in its power towards the building up of loyal, prosperous and stable communities in this district, as in it each member of the board is deeply interested.

"That this board assures the British Columbia Copper Company that it is friendly to the company; and that the company can rely on the hearty support of this board and its co-operation in any action taken by the company in securing loyal, stable mining conditions at its mines and smelter.

"And that a copy of this resolution be forwarded to Mr. J. E. McAllister, general manager of the company."

Mr. McAllister was sent for and the resolution was read to him. On being asked to address the board, he said that on behalf of the British Columbia Copper Company it gave him great pleasure to receive the resolution, and as he expected to shortly be in conference with the board of directors he would place it before them. The resolution was the more acceptable as it stood in brief for the condition the company proposed to acquire, viz., the establishment of a loyal, prosperous and stable mining and smelting industry, and towards this end it was in everyone's interest to pull together. Towards the attainment of stability the British Columbia Copper Company now had assurance of adequate transportation facilities and ample fuel supply, the lack of which had so seriously handicapped them in the past, but in addition to this was required the honest co-operation of the employees.

He reminded the board that when the expenses of production increased in other industries, such increase was usually met with an increased price to the consumer, but in the case of his company the return was limited by the value they could extract from the ore, and that they had no control over what they received for their product. They had shown their faith in the industry by large expenditures to reduce the cost of production, and were heartily in

sympathy with any move toward stable conditions, being convinced that in addition to what had already been assured, the honesty of endeavour which constituted loyal and efficient help was absolutely necessary.

## ANOTHER VIEW OF THE LEAD BOUNTY EXTENSION PROPOSAL.

Opinions of Editor of a Slocan Newspaper.

**L**EAD BOUNTY EXTENSION proposals, as favoured by district boards of trade and numerous individual mining men resident in the Kootenay districts, do not seem to have the unqualified approval of the editor of the *Slocan Mining Review*, published at New Denver, Slocan Lake, judging by recent editorials that have appeared in that journal. The *MINING RECORD* now reprints these for the information of those of its readers to whose notice they would not otherwise be brought, but it must not be regarded as being of the opinion that a Government-owned smelter would be either a commercial success from a profit-earning point of view, or an unmixed benefit to producers of silver-lead or other ores. As a matter of fact, it has very grave doubts upon these points. Still, since it is always well to give some attention to opposite views, the following may be of interest:

### "A GOVERNMENT SMELTER NEEDED.

"We are of the opinion that the British Columbia Government should build, own and operate a smelter. Some day this will come to pass just as sure as Canada now owns and operates a mint. A Government which has enough originality and backbone to accomplish this will have the solid backing and sympathy of the interior, and there are no reasons other than ones of sentiment why the remainder of the Province should not fall in line. The Government would have the solid support of labour, for that would be the first step towards a more comprehensive public ownership. They would have the backing of the mine-owners and managers, for it would eliminate the ever-existing company-owned smelter problem, and give a fillip to a permanent industry which is ever *crying for succor*. Why this is so we are not prepared to deal with in this article, but it is nevertheless a fact and a standing reproach to this glorious Province and its much-flaunted mineral wealth. The present system is rotten, for the smelter now playing a lone hand can dictate its own terms, and the minor owners are gradually being frozen out; therefore the Government would have the undivided sympathy and support of the Slocan for these reasons and others which are obvious.

"With the opening of the Ottawa mint there comes to us all a longing that reciprocity between the broad Dominion and British Columbia, with its known mineral wealth, will one day be established, but this

much-to-be-desired state will never be if private corporations continue to control and regulate the output of metals from our Province.

"With its many developed and partly developed mines, the 'Silvery Sloean' offers to such a project a prolific yield, and by reason of its central location in this banner district, Sloean Lake is the one spot for a Government smelter. The many large producing mines of Silverton are now proving a big factor in the silver output of the Province. With all these mines, which include the Vancouver, Hewitt, Wakefield, Standard, Emily Edith, Canadian and Buffalo, steadily shipping, they alone warrant the suggestion.

"Then all the mines contiguous to the Sloean City camp, including the Arlington, Ottawa, Enterprise, Westmont and Hampton, would send their quota, add to which regular shipments from the Molly Hughes, Neepawa, and other lakeside properties already opened up, and exploiting on a large scale many mines with known bodies of ore of a grade which by reason of a present existing high freight and treatment rate cannot be touched with profit. We do not anticipate the Bosum, Mountain Chief or the Hartney to remain idle for ever. These and many other mines in the district are not lying dormant for the fun of the thing. Nor must it be supposed that they have petered out and that the owners have lost faith in them. Far from it, as the prohibitive prices put upon these dormant mines imply otherwise. Then there is a reason for this stagnation, and it is up to the Government to authorize a Royal Commission or work out the salvation of a district which will play a prominent part in the future mineral supply of the world.

"From Three Forks by wagon road could be brought the ore from the Lone Bachelor, McAllister, Cinderella, Idaho, Alamo, Queen Bess, Alps and Alturas, and it would require no great feat to connect with a good road Jackson Basin and Whitewater. The trunk road between New Denver and Sandon could be fixed up at a nominal cost, and all the latter's big mines would have an economical and more satisfactory market for their ores. With the properties we have mentioned, supplemented by such steady shippers as the Sunset, Last Chance, Rambler-Cariboo, Ruth, Lucky Jim, Eureka, Sovereign, Star, Mountain Con, Elkhorn, and all the big producers at Whitewater and the mines contiguous to the south fork of Kaslo Creek, we feel that the venture would be a financial success. In fact, the mine owners of the Province would hail the advent of a Government-run smelter with joy.

"We commend the suggestion to the serious consideration of the Legislature now about to go into session."

On January 30 the *Mining Review* said:

"The majority of those who signed the petition for the renewal of the lead bounty are now kicking themselves. Not because they have changed in their

views as to the need of it, but simply because on second thoughts they have 'taken a tumble.' Who got the money when the bounty was last distributed? Who are the only purchasers of lead ores in the Dominion? Who own and operate the largest lead mines in the Dominion, and who will rake in the greatest percentage of the bounty? Who is supplying funds for Messrs. Pratt and Retallack to go lobbying at Ottawa? Whose system transports your ore to the only lead smelter in Canada? Answer these questions yourself, and we shall be greatly surprised if you do not feel like kicking yourself, too, that is, if you signed the petition. It is a pretty little game played swift.

"But the bounty is not yet! Two and a half million dollars was the sum appropriated for a lead bounty last time, and by reason of a sliding scale based on current market prices, only \$600,000 of the amount appropriated was distributed, and G. O. Buchanan's books will show what company raked in \$300,000 of that. Small wonder that a lead bounty is needed in their business.

"We wish again to emphasize as strongly as possible the contention that a Government which has \$2,500,000 to dole out for a lead bounty, has \$2,500,000 to expend on a Government-owned smelter and refinery."

#### COAL MINING IN NICOLA VALLEY.

**A**NOTHER COAL MINE has been opened in Nicola Valley, the Diamond Vale Coal and Iron Mines Company having reached the seam of coal it has been sinking for. The Vancouver *News-Advertiser* has published the following particulars of the striking of coal in this company's Coutlee property:

Diamond Vale's shareholders are jubilant over the very encouraging reports received from B. P. Little, superintendent of the operations on the company's property in Nicola Valley. Referring to the strike of coal made at a depth of 70 ft., Mr. Little says it is the best in the valley, and the samples which are now on exhibition at the office of T. J. Smith, president of the company, would appear to bear out that assertion. One indication of good quality is that no straight grain is apparent, the heavy pressure eliminating this feature, which predominates in coal near the surface. This greater pressure makes a better product. In 60 days, Mr. Little declares, he will be able to pay operating expenses.

What is also encouraging is that no water has been found in the seam. This was half anticipated, but none comes from anywhere, which will make the operations much cheaper.

A surprise awaited the superintendent, who found that the thickness of the seam was double that expected, there being 40 in., instead of 18 in the upper half of the seam, which is 6 ft. through. Coal for consumption will be taken out from now on, while progress will be made with the shaft to the second

seam, which is 190 ft. from the surface, and is the seam which outcrops on the property of the Nicola Valley Coal and Coke Company adjoining, and which is now being worked by that company.

The indications are that the residents of the valley will have an abundance of good coal for domestic use, and this excellent fuel will be supplied to not only the interior towns but also any mining industries requiring it.

#### NOTES ON ROSSLAND CAMP IN 1907.

Comments of a Dominion Official.

**R**OSSLAND MINES have been very closely examined by Mr. R. W. Brock, of the Geological Survey Department of Canada, during the last three years, so that the following brief notes of progress during 1907 possess the value of being the observations of one fully qualified to give accurate information. Mr. Brock's "Preliminary Report on the Rossland Mining District," published in 1906 by the Geological Survey, has been widely read and is of particular value as being the only comprehensive official review of Rossland camp published during recent years. The publication of the completed report, together with the 1,200-ft. map of the area so thoroughly examined, is awaited with more than ordinary interest. Meanwhile, it is useful to have the benefit of Mr. Brock's observations concerning progress in 1907, (*vide* "Summary Report for 1907," pp. 89-90), as under:

"Among the more important developments in this camp during the year may be mentioned the sinking of the Le Roi and Centre Star shafts to deeper levels, the Centre Star bottom level (14th) having an elevation of 1,932 ft., about 1,750 ft. vertically below the collar of the shaft, or little more than 500 ft. above the Columbia at Trail. The 11th level of the Centre Star has been extensively developed and gives promise of being about the best level in the mine. The 12th level has not been as promising, but it is not yet thoroughly prospected. The 13th and 14th levels are still in an embryonic stage.

"The Iron Mask and Idaho claims have been taken over by the Consolidated Mining and Smelting Company of Canada, and are being developed largely from War Eagle and Centre Star workings. A shaft is also being sunk on the Idaho. While not very far advanced in development, and while, as in all the mines, ore is not always where it might have been expected, or hoped for, some good ore has been encountered.

"A number of dykes and faults converge about the line between the War Eagle and Iron Mask, and as several veins are present, the result is rather a perplexing number of vein sections, and it is as yet impossible to say just how many or what veins are represented.

"The War Eagle is now being operated largely from the Centre Star shaft, electric locomotives

being used underground for haulage. Some new ore bodies of good grade have been located in this mine as a result of the development work.

"The large new Nordberg hoist and the other improvements at the Centre Star headworks, mentioned in last year's 'Summary Report,' have been installed and are working satisfactorily.

"On both the Le Roi and Le Roi No. 2, the continued development work has demonstrated greater regularity and continuity in the veins and ore bodies than the earlier work suggested.

"West of the Josie dyke, in the Black Bear workings of the Le Roi, the extension of the biotite rich porphyritic monzonite has been encountered. This rock is exposed on the Red Mountain railway in a cut just west of the Josie ore veins. It is certain that it does not extend northward far above the track neither on the surface, nor, in all probability, underground. Its southern limit is not known, the surface being wash-covered and no underground workings or drill holes having entered this area. But, from its abrupt northern termination and its contacts with the ordinary country rock, the probability is that it may have the form of a plug, intrusive in the country rock, rather than that of an extended dyke. On the west side of this mass, the White Bear Mining Company has located a body of ore about 12 ft. wide, consisting of almost solid pyrrhotite and chalcopyrite, running 1 to 1.5 per cent. copper and \$2 to \$3 in gold per ton.

"Some work is being done on the Spitzee, under bond to the Le Roi Mining Company, and diamond drilling has been undertaken to prospect the ground between the Spitzee and the Le Roi, which was recommended in last year's 'Summary Report' as promising ground for exploration.

"Work has been resumed on the California and Giant, the most important line of development being the sinking of a shaft from the old California tunnel to pierce the overlying stratified rocks and from which the (presumably) underlying porphyrite may be prospected for the continuation of lodes developed in the adjoining Le Roi No. 2 mine, whose workings in porphyrite extend beyond the surface contact of the porphyrite and stratified rocks.

"Work was also being started on the Jumbo, and, too, several of the smaller properties were having some work done on them by lessees.

"Scarcity of fuel and coke in the early part of the year, a scarcity of labour, an advance in wages, and then the sharp drop in the price of copper, have all contributed to retard production, which will probably show a falling off as compared with last year. It is unfortunate that while the prices of metals were high, the production had to be restricted.

"At the time of writing a despatch from Rossland states that the Miners' Union has voluntarily consented to a reduction of wages, to the scale obtaining prior to July 1, which, it is expected, will cause some improvement in the situation."

## THE LARDEAU DISTRICT OF BRITISH COLUMBIA.

Official Report by R. W. Brock.

**L**ARDEAU DISTRICT is again receiving the active attention of the Geological Survey Department of Canada. In 1903-4 Mr. R. W. Brock, now acting director, accompanied by Mr. W. H. Boyd as topographer, did much work, particulars of which were printed in the "Summary Report" for 1903 and 1904, respectively. The field-work seasons of 1905 and 1906 were spent at Rossland, making a structural survey of that camp, which work was re-

trict, and was joined at Brandon by Mr. Shirley King, my assistant for the season.

"The first two weeks in the field were spent in occupying camera stations on some of the lower ridges and in selecting a suitable locality for the measurement of a base line to check the triangulation of the district, brought down from a base at Revelstoke, 80 miles distant. After the work in the Lardeau was fairly started, I left on June 21 for the Similkameen, returning, after starting the topography there, to the Lardeau on July 1.

"The topographical work in the Lardeau was carried on by the photographic method, and although the season, especially during the months of August



View of Mountains in the Lardeau District of British Columbia.

garded as of more immediate necessity than the further survey of the Lardeau. Mr. Brock's official report of the work done in the Lardeau in 1907, contained in the "Summary Report" for this year, is as follows:

"The instructions for the past season were to proceed to the Lardeau District and complete the work necessary for the publication of a map of the strip of country adjacent to the Columbia and Lardeau Valleys from Revelstoke to Kootenay Lake. Similar work had been completed, in 1904, as far as Poplar Creek, so that the surveys to be accomplished this season lay between that point and Kootenay Lake. Mr. W. H. Boyd, as in previous years, was associated with me as topographer of the party.

"Concerning his work, Mr. Boyd reports as follows:

"I left Ottawa on June 4, for the Lardeau Dis-

trict, and was joined at Brandon by Mr. Shirley King, my assistant for the season. After the work in the Lardeau was fairly started, I left on June 21 for the Similkameen, returning, after starting the topography there, to the Lardeau on July 1.

"The topographical work in the Lardeau was carried on by the photographic method, and although the season, especially during the months of August

and September, was very unfavourable for work on account of the almost continuous rain, yet enough information was obtained to map the strip of country lying between Poplar Creek and the north end of Kootenay Lake. This strip, which has an average width of about 20 miles, is an extension, in a south-westerly direction, of the country mapped during the seasons of 1903-4.

"The triangulation was carried down Kootenay Lake to Kaslo in order to connect with the West Kootenay map sheet.

"The work in the Lardeau was brought to a close on September 19, owing to the unfavourable weather conditions.

"I joined Mr. Boyd at Poplar Creek the first week in August. After looking over some of the claims about Poplar we proceeded to examine the basin of Cooper Creek, after which we carried the survey

down Kootenay Lake to Kaslo. We were joined on September by Dr. A. P. Low, director of the Survey, and went with him up the Duncan River to Haleys. From Haleys, after Dr. Low's return, we proceeded to Hall Creek, but weather conditions continued so unfavourable that it was considered advisable to remove to Rossland, having obtained enough information to proceed with the publication of the Lardeau map.

"The country explored this season, like all the Lardeau, is extremely rugged. The mountains are lofty, some of them, as Cooper Mountain and that at the head of Hamill Creek, exceeding 10,000 ft. in elevation. They are usually studded with glaciers and snow-fields. The streams entering the head of

All but the higher peaks show strong evidences of glaciation.

"Land suitable for ranching occurs in the Lardeau and Duncan Valleys, but only a limited acreage is as yet under cultivation.

"Timber suitable for local purposes is to be found almost everywhere except, of course, at the higher elevations. Up the Duncan Valley fine timber occurs, a number of companies having secured timber berths and preparations for lumbering operations are being made. The high-altitude tamarack, a comparatively rare tree, is abundant in this district about timber-line.

"The geology of Poplar Creek was described in the 'Summary Report' for 1904. Very little develop-



At the Badshot Mine, Lardeau District of British Columbia.

Kootenay Lake and the Lardeau and Duncan are rapid torrents, debouching from picturesque canyons, even in the rapidly disintegrating phyllites. Frequently they have their sources in glacier-fed tarns.

"Some of the cirques are cut in stratified rocks whose beds are of varying hardness. The result is a ridged cirque, the parallel lines of ridges traversing the cirque marking the strike of the rocks which in most cases happens to be across the cirques.

"The northern faces of the mountains are usually precipitous; the southern, being exposed to the sun and consequent temperature changes, more frequently have slopes corresponding to the angle of rest of the disintegrated fragments.

"A frequent phenomenon on these slopes is the snow 'moraines.' These are usually crescentic mounds about 5 ft. high, of small rock fragments and soil, which seem to form at the foot of snowbanks.

ment work has been done there since that time, so that it has not yet been satisfactorily demonstrated whether there is pay ore in that camp or not. Some rich, but so far small, pockets of gold-bearing material have been found.

"On the Hecla claim on Rapid Creek a shaft 40 ft. deep has been sunk on a quartz vein which has a width of about 3 ft. at the bottom of the shaft. The quartz is rusty, with decomposing siderite. A tunnel, which was in about 253 ft. at the time of our visit (September 9), had not intercepted the vein. Later in the season rich samples of auriferous quartz were found on a claim south of Poplar Creek.

"The arsenopyrite-bearing country rock which in places at least is auriferous, has not yet been systematically prospected, so there is still a possibility that somewhere it may be found to be of pay grade.

"The rocks south of Poplar were also described in

a general way in the 'Summary Report' for 1904. They consist of a sedimentary series made up of slates, limestones and quartzites usually somewhat metamorphosed, invaded by dykes of gabbro, metamorphosed to greenstone-schists. At a few points more recent basic dykes are seen cutting these formations. Still younger granite intrusions break through and greatly disturb and metamorphose those older formations, sending out dykes of aplite and pegmatite between the beds and across the formations. Where highly altered, the sedimentary rocks and older intrusives become micaceous, chloritic, garnetiferous and calcareous schists, crystalline limestone or marble, micaceous quartzite, etc.

Just at the head of Kootenay Lake the rocks form

rocks are much contorted, crinkled on both a large and a small scale, and frequently faulted. Quartz is developed, especially as bedded veins and often in the saddles or inserted saddles of rock folds.

On the Great Britain claim at the head of the south fork of Meadow Creek and at the north branch of Cooper Creek, a considerable amount of work has been done, one tunnel having a length of 300 ft. run in to prospect quartz 'veins' exposed on the cliff a short distance above the tunnel mouth. Some good ore has been obtained from the 'veins'—grey copper in kidneys in a quartz gangue.

The relationship of the quartz to the rocks is suggestive of a saddle reef, but complications are introduced by faulting, so that following the ore is



Prospecting in the Lardeau District of British Columbia.

a low anticlinal arch with a slight plunge northward. The almost horizontal dip in the centre of the valley rapidly changes to steeper angles on the limits of the antiferline on either side, and in a short distance from the valley becomes highly inclined, overturned, squeezed into tight S folds and faulted. On the Cooper Creek slope the prevailing dip will be, therefore, westward; on the Hamill Creek slope, eastward.

The sedimentary series, with included greenstone schists, and, especially near the head of the creek, granite dykes, extends to the head of Cooper Creek, where the granite massive, which forms the divide between the Lardeau and Columbia River, is encountered. Approaching the granite the sedimentary

difficult. On the opposite side of the gulch, another tunnel has been run in 150 ft. to develop a quartz lead mineralized with pyrite, siderite and sericite. Above this tunnel on the summit of the hill, bedded veinlets of quartz are abundant in the phyllites.

Up the south branch of Cooper Creek, above the second fork, is an outcrop of acid granite strikingly porous (miarolitic). The sedimentary rocks invaded by this granite include some black limestone bands, some of which are altered to white marble, and some are beautifully interbanded with fine slaty layers.

A little farther up the south branch, on the west slope of the valley, is the Copper Cliff group of claims, on which some work was being done. On the

sides of a little gulch the exposed rocks are rust-covered from decomposing sulphides. The country rocks consists of greenstone and banded sedimentary rocks, which are upturned to an almost vertical position, with intruded sheets or dykes of granite-porphry. Some of these are about, if not quite, parallel to the strike of the sedimentary rocks. (If they have been intruded between the strata they should be called sheets, but as it is not certain that this is the case, for any great distance, the commoner term dyke may be employed.) Near the dykes, and parallel to the strike of the rocks, are several bands of ore. One band, about 2 ft. wide, is exposed on the trail to the main exposure. The second, on which a cross-cut tunnel was being run, has a width of 3 ft., then a

"The work done was insufficient to enable an opinion to be formed as to the percentage of copper the ore was likely to carry and the amount of ore that might be developed. The deposit is interesting, being a unique type in the Lardeau, where practically all the known lodes are either auriferous or silver-lead quartz deposits, in which chalcopyrite is inconspicuous and tetrahedrite is the only abundant copper-bearing mineral. The Copper Cliff ore, on the other hand, is more like some of the ores in the southern part of West Kootenay, such as the Rossland camp. This resemblance consists not only in the association and dominance of pyrrhotite and chalcopyrite, but in the biotitization and silicification of the associated country rock.



The "Lime Dyke" in the Hall Creek Section of Lardeau District, B.C.

horse of dyke was run through, with ore again on the other side. The face of the tunnel was still in ore, several feet beyond the dyke. Across the gulch, near a little canyon, a couple more small bands of ore were exposed. The ore, which could not be traced for any great distance up the mountain (and below its outcrops the slopes are wash covered), seems to be confined to the neighbourhood of the dykes. It consists of pyrrhotite, chalcopyrite, often interbanded with the pyrrhotite, a little zinc-blende, with, in places, a considerable amount of calcite gangue. Most of the gangue is, however, silicified rock (jasperoid) and biotite-schist. On the north side of the canyon some pyroxene-like mineral is also developed in the gangue.

"The ore is said to run low in gold but to carry some silver; the main value is in the copper, which, however, is variable.

"The main difference between this and the other Lardeau deposits, outside the ores, is the number of granite-porphry dykes occurring here and the metamorphism of the sedimentary rocks adjacent to them. There is a strong probability of a genetic relationship between these dykes and the ore deposits.

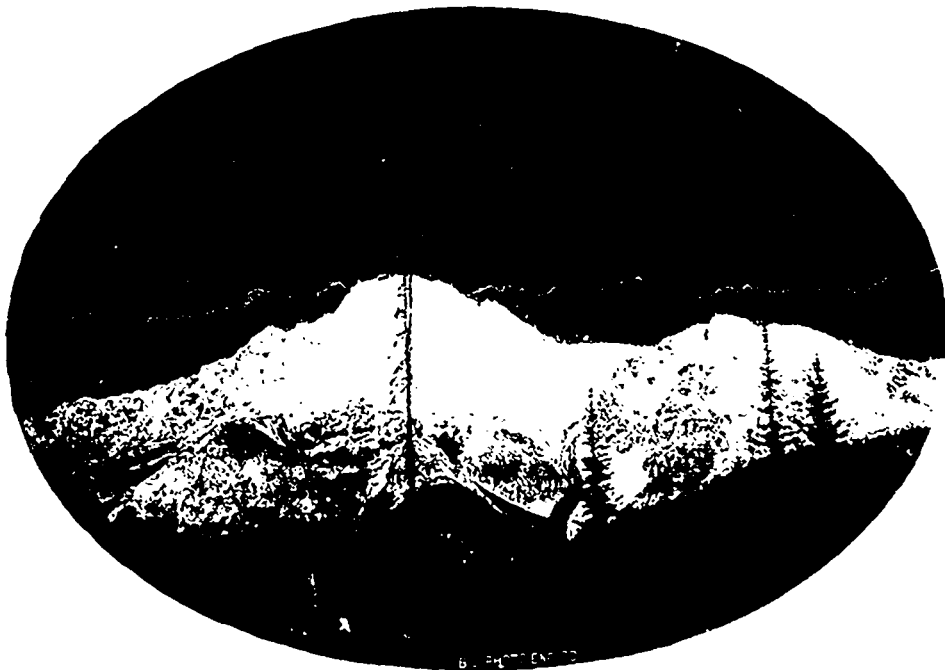
"The rocks of the Duncan River to Hall Creek are phyllites, hornblende and mica schists and gneisses, with a few limestone and quartzite bands.

"The rocks up Hall Creek are somewhat similar but less metamorphosed. A heavy band of quartzite, several hundred feet thick, constricts the creek into a canyon. Above this to the 'lime dyke,' near the head of Hall Creek, the rocks are graphitic phyllites, with occasional bands of limestone and green chloritic schists. Small quartz veins cut these rocks in an intricate way and silicify them in the neighbourhood of the veins.

"The Bannockburn claim on the south side of Hall Creek, just below the 'lime dyke,' was once worked, but has been neglected the last few years. The work consists of numerous open cuts along a vein exposed on a rock bench, and a tunnel run in to cross-cut this vein from below. The vein can be traced for several hundred feet and seems to occupy the contact between a rusty, thinly fissile schist (west wall) and a limestone band (east wall). It varies greatly in width from a mere streak to, at one point, several feet of solid ore. The ore consists of galena, zinc blende and chalcopryrite, weathered on the surface to rusty oxides and carbonates. The tunnel has been driven in 90 ft. to a silicified and slightly mineralized band of

mary Report' for 1904. The tunnel is now said to be in 100 ft., with a 40-ft. cross-cut. From the tunnel a winze 65 ft. deep has been sunk and from the winze a 20-ft. cross-cut has been run. The upper cross-cut is said to have encountered an 8-ft. ledge which in the lower cross-cut is said to have widened to 10 ft. The property was being closed down for the winter at the time of our work on Hall Creek, and as it had been examined in 1904, and was now snow-covered, it was not revisited.

"On the Red Elephant claim, on the north side of Hall Creek, near Porcupine Flat, is a ledge of silicious material holding pyrite and chalcopryrite, which crosses the strike of the graphitic phyllite country



The Great "Lime Dyke" in the Lardeau District when Snow-covered.

rock which has been followed about 100 ft. without encountering any ore. It is doubtful if this tunnel has been driven far enough, as a cross-cut, to catch the vein, and there is as yet no proof that the vein is only superficial.

"In this part of the country, where the rocks are so badly folded and the veins show a tendency to be bedded (*i.e.*, conform to the bedding planes of the rock) it is very risky undertaking expensive work to cross-cut them at depth, without first having followed them down, and thus accurately determined their position. On account of its topographical character, most of the work so far done in this part of the country consists of cross-cut tunnels that have rarely encountered the veins. So that although there are some good surface showings, it is in most cases still uncertain whether they extend downwards, and if they do, whether the values hold.

"Some work was being done on the Wagner claim, mostly in the nature of preparations for serious exploration. This prospect was described in the 'Sum-

mary Report' for 1904. The tunnel is now said to be in 100 ft., with a 40-ft. cross-cut. From the tunnel a winze 65 ft. deep has been sunk and from the winze a 20-ft. cross-cut has been run. The upper cross-cut is said to have encountered an 8-ft. ledge which in the lower cross-cut is said to have widened to 10 ft. The sulphides are oxidized and leached out on the surface, leaving the pitted, honeycombed quartz. This material, on panning, shows very minute colours of gold and is said, by the prospectors working the claim, to assay \$20 to \$30 a ton in gold.

"There are a number of claims up the Duncan River, but very little development work is being done. The natural difficulties, due to the rugged nature of the country and the lack of transportation facilities, make such work arduous and expensive. Now that lumbering is to be started in this valley, it will be made more accessible, which no doubt will result in increased attention to this district on the part of prospectors.

"Hamill Creek enters the Duncan River from the east, a little above the head of Kootenay Lake,



through a picturesque narrow box canyon, one of the finest in this part of the country.

"The grade built in 1899 by the Great Northern Railway Company from Argenta on Kootenay Lake to Howser Lake is used as a wagon road, and from it a wagon road about three miles long has been built at considerable expense through the Hamill Creek canyon to the concentrator of the Argenta mines. The fine rock section exposed on the walls of the canyon is thus easily accessible. Small landslips have blocked the road in places, so that it can now be used only by saddle and pack horses, and unless it is looked after will soon be impassable even for pedestrians.

"From the Argenta concentrator a trail extends to the head of Hamill Creek across the divide and down Toby Creek to a wagon road into the Windermere district.

#### "ROCKS OF HAMILL CREEK.

"Along the Duncan the rocks are schist with a low easterly dip. In the canyon the first rock exposure is limestone, and black argillites with interbanded aplite sheets. The altitude of the beds has become more steeply inclined to the east; crystalline limestone, slates, phyllites, with occasional green chlorite-schists and quartzites are the principal rocks seen in this section. Some of the lime bands are very heavy, but the thickness of the individual rock members is much exaggerated by the crumpling and folding which becomes pronounced a short distance up the canyon. Above the Argenta concentrator a band of quartzite 75 ft. or more thick is exposed, and beyond this the rocks are more metamorphosed, being of pronounced schists, of which one studded with garnets is abundant.

"The Argenta mine is situated on the north flank of the gorge of Hamill Creek just above the canyon, about 1,500 ft. above the level of the creek. There are two veins on the property of this company, the Clinton vein which strikes N. 10 deg. W., with a dip of 55 deg. west, and the Mabel-Nora vein striking about N. 8 deg. W., 450 to 500 ft. east of the Clinton vein.

"The Clinton is a quartz vein carrying chalcopyrite, some gold, and silver to the extent of about 1 oz. of silver to each per cent. of copper present in the ore. The vein occurs in a fissured zone about 10 to 25 ft. in width, with a well-marked slickensided hanging wall. The shattered material of this zone forms the ledge material, in which the ore, generally about 1 ft. in width, though widening to 30 in., is developed, more frequently probably along the foot-wall of the fissured zone. The Mabel-Nora vein is a silver-lead vein. The country rocks are limestone phyllites and chlorite schist. Most of the work has been done on the Clinton vein.

"No. 1 tunnel starts from a small gulch as a cross-cut to strike the ledge, which was encountered in about 40 ft. and then drifted on. No. 2 tunnel, about 100 ft. below, also starts as a cross-cut from the gulch and taps the ledge at 150 ft., which is then drifted on for several hundred feet. A rise from No.

2 tunnel has been put through on an ore shoot to No. 1 tunnel and the surface.

"No. 4 tunnel about 250 ft. below No. 2, and 1,500 ft. in length, is the longest in the mine. It is driven 1,000 ft. along the hanging-wall slip and then turns as a diagonal cross-cut for the Mabel-Nora vein.

"No. 6 tunnel is a short one, also on the hanging wall slip. Nos. 3 and 5 are mere open cuts.

"No satisfactory ore bodies have been located below No. 2 tunnel.

"In the creek bottom below the mine, the compressor plant is located. It is operated by water-power, furnished by a flume, half a mile long, supplied by water from Hamill Creek, with a small wing dam at the intake. It discharges its water under a 115-ft. head to a Pelton wheel, directly connected to the shaft of a one-half 10-drill Canadian Rand compressor.

"The mine was not being operated at the time of visit, having been shut down early in the summer. The manager, Mr. A. C. Garde, was still in charge of the property.

"No ore can be shipped until a tram shall connect the mine with the wagon road, and it is doubtful if this will be installed unless a greater tonnage of ore shall be developed."

A correspondent of the *Engineering and Mining Journal*, of New York, N.Y., writes thus concerning "Amalgamation of Platinum": "The fact that Dr. Day discovered that platinum will amalgamate if sodium is used in the mercury recalls an experience I had in Borneo about three years ago. I had cleaned up in an amalgamating barrel, as usual, nearly 50 per cent. of the gold being foul. Having used sodium to prevent the mercury from sickening, on this occasion, I found on smelting the retorted cake, which was very dirty, that it was very pale. Thinking that some lead or other impurities had perhaps become amalgamated, I melted the bar four different times, adding nitre each melt. To my disgust, however, it remained pale. I sent it to the Chinese merchant who purchased our gold. He reported that he could do nothing with it, that it was 'too hard' and brittle. One of the Chinamen suggested that I had dropped a few dollars in and made 'Maas Putti,' white gold (Malay). Since I alone had handled the clean up I suspected platinum. I later found it in the residue."

The business and property of the Hall Mining and Smelting Company, Limited, of Nelson, are in the hands of a receiver. It is probable the company's Silver King mine will shortly be operated by M. S. Davys and associates, under an arrangement with those now in charge of affairs.

## THE CANADIAN MINING INSTITUTE.

## A Western Branch Organized.

CANADIAN MINING INSTITUTE affairs seem to be making satisfactory progress in the West. When the last-published list of members was printed—as at June 1, 1906—there were less than 70 western members. Now there are fully twice that number, and there is good reason to look for a further increase within a few months.

The proposal to form a Western Branch of the Institute was taken up with enthusiasm by a number of members resident in the Province, conspicuous among them, Frederic Keffer, of Greenwood, engineer in charge of the several mines of the British Columbia Copper Company, who in March of 1907 was elected president of the Institute for the year 1907-8, and A. B. W. Hodges, of Grand Forks, general superintendent of the mines and smelters of the Granby Consolidated Mining, Smelting and Power Company. The movement received a decided stimulus as the direct outcome of the visit to the West last autumn of H. Mortimer Lamb, of Montreal, secretary of the Institute, who stirred up general interest in the proposal to organize a Western Branch. The result of the efforts of these several gentlemen and of other members who heartily supported them, is seen in the successful organization of the branch at Nelson on Wednesday, January 15, on which day and that following a satisfactory and successful meeting of members was held.

## PROCEEDINGS ON THE FIRST DAY.

The Courtroom at Nelson having been kindly placed at their disposal, the members first met there on Wednesday morning.

Frederic Keffer, as president, made an address in which he stated the object of the meeting, which was primarily the formation of a Western Branch of the Institute.

It was then moved by S. S. Fowler, and seconded by C. P. Hill, that "we now constitute ourselves a Western Branch of the Canadian Mining Institute." This was carried unanimously.

The next order of business was the election of permanent officers, with the following result: President, A. B. W. Hodges; secretary, E. Jacobs; executive council, P. S. Couldrey, R. H. Stewart, L. Hill, O. E. S. Whiteside, W. M. Brewer, J. C. Haas, E. C. Musgrave, J. McEvoy and S. G. Blaylock, and the western members of the Council of the Institute, ex-officio.

While the scrutineers were examining the ballot papers, E. Jacobs stated that the provincial mineralogist had requested him to express his regret that his official duties just now prevented him from leaving Victoria, so that he was unable to attend the meeting. He also apologized for the unavoidable absence of John Hopp, of Cariboo, who had intended

being present, but had been prevented by business engagements.

After announcement of the result of the ballot, the president of the branch, A. B. W. Hodges took the chair and in his opening address thanked his fellow members for the honour they had done him. He said: "I have belonged to the Institute many years, but have been so busy that I have never had time to attend a meeting in the East. When the Council of the Institute suggested this plan, I was heartily in favour of a branch out here, and I know all the gentlemen present are interested enough to endorse my sentiments. But an endeavour should be made to increase the membership as soon as possible. It will require hearty co-operation to make a success of this branch. The whole reason of the formation of the Western Branch is that the busy members out West cannot attend the meetings of the Institute held in the East.

"I think we should have a committee of three appointed to look into the by-laws of the Canadian Mining Institute and report to-morrow on such changes as they shall consider it advisable to make. I appoint on that committee, S. S. Fowler, L. Hill and J. C. Haas."

E. Jacobs, the newly elected secretary, thanked the members for his election, and went on to say that there were already nearly 150 western members of the Institute, including those resident in Alberta, British Columbia, Yukon Territory, and the State of Washington, and he thought it probable that within a year there would be a membership of at least 200. He then pointed out that the Government of the Province was paying a great deal of attention to agriculture, but not so much to mining. The new branch of the Institute might induce it to make a difference in this regard.

The president next stated that it was not the intention that afternoon to proceed with the reading of technical papers, but rather to have an informal discussion as to the best method of carrying on the newly formed branch of the Institute.

F. Keffer thought it would be well to have small local branches of the Institute in the different mining centres, to meet every month or so.

S. S. Fowler thought that there would be hardly a sufficient membership present in any one of these centres, with the possible exception of the Boundary, to make such meetings interesting. He was of opinion that there should be quarterly or semi-annual meetings. This suggestion led to some discussion, and finally the general opinion seemed to be that the meetings of the Western Branch of the Institute should be thrice yearly.

Mr. Keffer agreed with Mr. Fowler that the oftener meetings could be held the better the members could get together.

J. C. Haas suggested the reading of papers at such meetings, but thought the procedure of the meetings should be, as far as possible, informal.

T. Kiddie agreed as to the non-formality of the meetings, and thought that meetings three times a year would be ample.

E. Jacobs called attention to the fact that the annual meeting of the Institute would be held this year in Ottawa, opening on March 4, and that it would be in order for the Western Branch to prepare for that annual meeting anything that the West particularly thought desirable for discussion. He next read, for the information of the meeting, the by-laws of the Institute as to membership and associate membership. Continuing, he remarked: "In view of the fact that a Dominion Department of Mines had been organized, it would be politic for the meeting to pass a resolution congratulating the Dominion Government upon its establishment, and expressing appreciation of the useful work done in the West by the Geological Survey Department and, as well, with reference to the exhaustive labours of the Zinc Commission, and the work of Robert R. Hedley in gathering for the Department of Mines, for publication, statistics and other data relative to the mining and smelting industries of the West. Further, he called attention to a statement published in the press to the effect that the Canadian branch of the Royal Mint would not be able to use for coinage purposes metals smelted in Canada until after these shall have been further refined. He thought the Institute should call attention to the fact that such a statement is quite erroneous, since at the refinery at Trail, owned and operated by the Consolidated Mining and Smelting Company of Canada, the silver produced is of a fineness averaging over .999 and the gold about .995.

The secretary was requested to prepare resolutions along the lines suggested, for consideration the following day.

Mr. Fowler, on behalf of the Nelson members, invited the visiting members together with their lady friends to be present at a complimentary dance arranged to take place at the Hume hotel that night.

At five o'clock adjournment was made until the following morning at 11 o'clock.

#### PROCEEDINGS ON SECOND DAY.

The first business taken up on Thursday morning was consideration of the following two resolutions, which were unanimously adopted:

Proposed by E. Jacobs and seconded by Thomas Kiddie: "That the Western Branch of the Canadian Mining Institute hereby expresses its satisfaction at the establishment of a Dominion Department of Mines, with its 'Geological' and 'Mines' branches, under the control of a minister of mines and directed by his several chief officials, the deputy minister of mines, director of the Geological Branch and director of the Mines Branch, respectively. It also expresses its appreciation of the valuable work heretofore done in western Canada by the Geological Survey, particularly in the Crow's Nest Pass coal fields, and later in Kootenay, Boundary, Similkameen and Skeena districts and the comparatively large amount

of geological and topographical work done in Yukon Territory. Further it places on record its recognition of the systematic and thorough work of the Zinc Commission and that of the more recent efforts of the Mines Branch to collect and compile for publication statistics and other useful information concerning the mining and smelting industries of Western Canada. Finally, it notes with satisfaction the considerable increase in the amount placed by the Dominion Government on the estimates for the ensuing fiscal year for the purposes of continuing and extending the valuable work of the respective branches of the Department of Mines, and it respectfully commends to the favourable consideration of the hon. the minister of mines and his chief officials the great need existing for field work operations in Western Canada on an adequate scale, so that the development of the enormous mineral resources of this very important part of the Dominion may be further encouraged and facilitated."

It was further resolved that the secretary forward copies of the foregoing resolution to the right hon. the prime minister, the hon. the minister of mines, the deputy minister of mines and the directors of the Geological and Mines branches, respectively.

Proposed by S. S. Fowler and seconded by Frederic Keffer: "That in the opinion of the Western Branch of the Canadian Mining Institute the mining industry of British Columbia has attained to such comparatively large proportions in regard to annual total value of its mineral products and gives such promise of continued steady increase in activity and productive results as to call for larger annual appropriations for the practical purposes of the Provincial Bureau of Mines so that the examination of mining districts and the dissemination of useful information relative to their mineral resources, may be on a scale more in keeping with the fast growing importance of the mining industry than has been reasonably practicable during recent years. It is therefore respectfully urged that, while much good work has already been done, the great benefit the adequate development of the mining industry will be to the Province at large, as well as to the districts more directly interested, be fully recognized, and that the Provincial Government make more liberal provision for the work of the Bureau of Mines, so that this serviceable department may be enabled to considerably extend its effective work, thereby ensuring that the mining industry shall enjoy the benefit of similar liberal treatment by the Government as has been, and is being, given to the agricultural and fruit-growing industries of the Province."

The secretary was directed to send copies of this resolution to the hon. the premier and the officials of the Provincial Bureau of Mines.

The secretary suggested that the various mining districts of the Province should make an effort to communicate notes on the progress of mining in their districts to the secretary of the Canadian Mining Institute for reading at the annual meeting to be held

in Ottawa next March, so that the development of the mining industry of the Province may be made known on that occasion.

The committee on by-laws appointed the previous day made a verbal report to the effect that the by-laws of the parent Institute must govern the conduct of this branch, though such modification as shall be considered necessary may be recommended by the local council to the council of the Canadian Mining Institute.

S. S. Fowler here extended to the members, on behalf of that company, a cordial invitation to visit the reduction works of the Canada Zinc Company now in course of construction within a short distance of the city. The invitation was accepted with thanks.

This completed the general business of the morning. W. A. Davidson, engineer of the West Canadian Collieries, Limited, Blairmore, Alberta, read some notes on the "Utilization of Waste at Lille Colliery, and How it is Accomplished." An interesting discussion followed, which occupied the attention of the meeting until the session was adjourned for luncheon.

At two o'clock some 20 members left by electric car for the Canada Zinc Company's works, over which they were shown by the resident officials. Upon return to the city the afternoon session was opened at half-past three o'clock. The several papers read and discussed were as follows: "Notes on Cost of Diamond Drilling in the Boundary District," by Frederic Keffer; "Handling 3,000 Tons of Ore Per Day at the Granby Mines and Smelter," by A. B. W. Hodges; "Mineral Production of British Columbia in 1907," by E. Jacobs.

Other papers were read by title. All will be presented at the annual meeting of the Canadian Mining Institute in March and will be incorporated in the "Transactions" of the year.

This concluded the business, whereupon hearty votes of thanks were tendered F. Keffer and A. B. W. Hodges for having been largely instrumental in bringing about the holding of the meeting and the resultant organization of the new branch; to the committee of Nelson members of the Institute, particularly J. J. Campbell and S. S. Fowler, for having made arrangements for the convention, carrying out of the local arrangements for holding the meeting, and for the entertainment and hospitality provided for the enjoyment of the visiting members and the ladies accompanying some of them; to the Canada Zinc Company for the opportunity to inspect its works, and to the *Daily News* and *Canadian* newspapers for the publicity they had given the proceedings.

In conclusion it may be said that the meeting was decidedly successful, both in point of attendance and as regards its representative nature. Nine signed applications for membership were received and others were promised. The attendance of members was as follows: W. B. Bishop, A. B. W. Hodges, C. T. Mitchell and W. St. John Miller, Grand Forks; F.

Keffer and C. Varcoe, Greenwood; C. Rundberg, Phoenix; W. E. Zwicky, Kaslo; A. W. Davis, Sandon; Jas. Buchanan, Trail; E. C. Brown-Cave, Vancouver; E. Jacobs, Victoria; W. A. Davidson, Blairmore, and C. P. Hill, Frank, Alta.; J. C. Haas, Spokane, T. Kiddie, Northport, Wash. The Nelson members in attendance were: G. H. Barnhart, S. G. Blaylock, J. J. Campbell, S. S. Fowler, A. C.



Robert R. Hedley, formerly Manager of the Hall Mining and Smelting Company's Smelting Works at Nelson, B.C.; now on the staff of the Department of Mines of Canada, Mines Branch.

Garde, A. H. Gracey, Leslie Hill, B. A. Isaac, A. L. McKillop, G. A. Revell and E. W. Widdowson. The non-members present were: A. D. Wheeler, Ainsworth; J. A. Whittier, Kaslo; L. Pratt, Sandon; F. W. Guernsey, Trail; Thos. Brown, L. Crawford, Frank Fletcher, E. F. Miltenberger, A. Bruce Ritchie and C. H. Rowlands, Nelson.

It is probable the next general meeting of the Western Branch will be held at Rossland next May.

About 530,000 acres of coal lands in British Columbia have been alienated.

Good progress is being made in driving a 1,000-ft. cross-cut tunnel at the Ottawa mine, in Slocom City mining division.

## CAMP HEDLEY, SIMILKAMEEN DISTRICT.

Official Report by Charles Camsell.

**C**AMP HEDLEY, although in the Similkameen District, is within the boundaries of what is officially designated the Osoyoos Mining Division. In 1906 Mr. Camsell's field-work for the Geological Survey Department of Canada was chiefly in the mineralized areas of Roche River, and Copper and Kennedy Mountain camps of the Similkameen. That work was described in the "Summary Report" for 1906, pp. 43-55. In 1907 the work was done in what is known as Camp Hedley, and Mr. Camsell's report of this, in the "Summary Report" for 1907, is here given:

The important mining camp of Hedley is situated on the north side of the Similkameen River, at the mouth of Twenty-mile Creek, in the Osoyoos Mining Division of British Columbia. It comprises about 100 surveyed and Crown-granted mineral claims, and many others on which the annual assessment work is still being done, all covering a sheet of about 12 sq. miles. It was discovered in the year 1896, when nine claims were staked on the ground overlooking Twenty-mile Creek. Each succeeding year found more and more prospectors impressed with the possibilities of the camp, and more claims were taken up, until in 1900 virtually all the ground now included in Camp Hedley was staked out. The largest property owners in the camp, the Yale Mining Company, were early on the ground and commenced the work of prospecting their most important claims in the first part of 1899. The preliminary work undoubtedly proved satisfactory, for they shortly after showed their faith in their prospects by beginning the building of a tram-line, flume and stamp and cyanide mill, a work entailing the outlay of hundreds of thousands of dollars. Though it is a little more than three years from the time the first ton was milled, and the ore is extracted from only two claims, the camp has since justified their faith in it by becoming the largest producer of gold alone of any camp in British Columbia. It is very probable as development goes on and transportation difficulties are overcome, new ore bodies will be discovered, and other known ore bodies of lower grade will be worked, for the history of mining is only now beginning in this portion of the Similkameen district.

As the only previous geological work done in this neighbourhood was the reconnaissance of Dr. Dawson in 1877, when there was not the slightest suspicion of such valuable ore occurring, it will be readily seen how urgent was the need of the work of a Geological Survey party.

The field work of the season was in part devoted to the acquiring of data for a topographic map of the camp, which will cover, when completed, three miles from east to west, and four miles from north to south. The scale on which this is being prepared is 1,000 ft. to the inch, with a contour interval of 100 ft.

Geological studies were carried on at the same time in conjunction with the topographic work, and special attention was paid to the occurrence of the ore deposits, their origin and history; but the attempt to do both simultaneously and with the same party was responsible for neither being finished at the close of the season. Much credit is due for their zeal and co-operation to my two assistants, Messrs. J. A. Allan and A. O. Hayes, who beside assisting in the geological work, are to be credited with a great deal of the topographical.

The method employed in mapping the district was that suggested by Mr. W. H. Boyd as likely to give the greatest accuracy for the time and means at hand. Triangulation on signals from an accurately measured base gave a number of fixed points on the sheet. Traverses were run with transit and stadia of all the wagon roads in the district, as well as most of the trails, the tram lines and flume; and the detail was filled in with the plane table and stadia-readings. Elevations were obtained from a Canadian Pacific Railway bench mark corrected to sea-level. This gave the town of Hedley as 1,620 ft., and the highest point in the sheet as 6,600 ft. above sea-level. The unfinished portion, which covers the northwest quarter of the sheet, is much too rough and steep to be done in this way, and will have to be done by photographic surveying.

The work was also considerably facilitated by the interest taken in it by many of the people of the district. The Daly Reduction Company, through their manager, Mr. Ross, placed every convenience in our way, and the use of the gravity tram saved much time and hard labour. And of those to whom I am particularly indebted for information, I may mention Messrs. F. M. Wells, C. E. Oliver, J. Gladden, A. Megraw; as well as the officials of the Yale Mining Company and the Daly Reduction Company.

## TOPOGRAPHIC FEATURES.

Camp Hedley lies on the western side of the Okanagan Range of mountains, the highest points of which here reach an elevation of a little more than 7,000 ft. above sea-level. The neighbouring country is characterized by comparatively rounded outline and moderate relief to the east and south, but the northwestern portion lies in the deep and narrow canyon of Twenty-mile Creek, where extremely rugged and precipitous conditions prevail. The part of the valley of this creek which lies in our map is V-shaped, and about 4,000 ft. in depth. The slopes on either side are very steep, and frequently impossible to climb. Broken rock talus slopes topped by precipitous bluffs are everywhere very common, while the narrow box-canyons cut by the torrential streams in the mountain side are nothing more than mere gashes almost imperceptible from the opposite side of the valley. These canyons are frequently the only possible means of ascending or descending the mountain side, while the ridges between them are quite impossible to explore.

The action of erosion in this canyon is very strong,

and is equal to, if not in advance of, the decomposition of the rocks by oxidation, and the finding of secondary surface deposits of oxidized ores is not to be expected where such conditions prevail. Every

three miles through the canyon, have to keep men on the watch night and day to guard against or repair accidents from falling rocks. Drift does not cover the rocks in this section, so that in its accessible parts



Valley of the Similkameen River at Hedley. Daly Reduction Company's 40-Stamp Mill at base of nearest mountain.

shower of rain throughout the summer washes down the canyon sides masses of rock that only a little undermining was sufficient to dislodge, so that the Daly Reduction Company, whose flume runs for

the geological relations are easily studied.

On the slope of Eighteen-mile Creek and overlooking the Similkameen River, the physical features are not so bold, and the conditions are not unlike those

which hold over the rest of the Interior Plateau. This part is not heavily wooded and the southern faces are usually devoid of all timber. The slopes are not so steep that drift will not rest, and unless exposed by the pick and shovel of the prospector outcrops of rock are rare. The prospector who owns claims on this side of the hill is likely to incur a great deal more expense in prospecting, and he is also more likely when he does locate an ore body to find it very much more oxidized and enriched on the surface than in the Twenty-mile Canyon.

For the diversity of physical conditions on the two sides of the hill, one must look to glacial causes. Looking at the valley of the Similkameen River from the top of the gravity tram-line, and particularly to the southward, one is at once struck by its glacial outlines. The steep sides and broad drift-filled bottom make a well-defined U-shape that is characteristic of all valleys modified by the scouring action of a glacier. Typical also are the many hanging valleys that may be noted on the south side. Henry Creek, Susanne Creek and John Creek all steepen suddenly in grade on approaching the main valley, and have not yet had time since the disappearance of the glacier to carve out a valley of uniform grade. The deep canyon of Twenty-mile Creek may be also attributable to the same cause. The retreating glacier which filled the Similkameen Valley eventually left the Twenty-mile Creek occupying a hanging valley and emptying into the main valley by a short, steep fall at its mouth. While the smaller streams were unable in the time since the disappearance of the glacier to cut down their valleys, Twenty-mile Creek, with its larger volume and greater erosive power, was able to deepen its own bed in the rock and to form its present V-shaped valley. In this work it may have been materially assisted by taking advantage of the numerous faults and fractures that are found in these rocks, and which are the results of many and long-continued periods of vulcanism. The only other way to account for this Twenty-mile Canyon is by a recent uplift of this portion of the earth's crust, of which there is not any corroborative evidence to be found in the surrounding country.

The whole Camp Hedley area was covered by ice during the glacial period. Though glacial striae were never noted, boulders transported by glacial action are found scattered over the summits of its highest hills.

#### GENERAL GEOLOGY.

The geological history of the area is somewhat complicated, and while the general sequence of events has been roughly worked out, there are yet many details which will require more study both in the field and in the office.

From the time its first sediments were laid down in the sea, the region has been the scene of much volcanic activity. Igneous rocks of different kinds have been instrumental in altering the older rocks, so that now it often is impossible to state definitely

whether some of these older rocks were originally igneous or sedimentary.

The oldest rocks are the sedimentaries that cover the greater proportion of the surface. They all belong to one series, and have been referred to the Cache Creek group of Dawson's classification. No determinable fossils have yet been found in them, but the lithological characters of the strata are very similar to the original Cache Creek rocks first described farther to the north.

These sediments are of great thickness, and as their prevailing dip is towards the west, a section from east to west across the sheet would give the succession in ascending order. This east and west section shows the following: (1) red, grey and some black argillaceous and silicious beds interstratified in thin bands; (2) blue and white limestone, much altered and crystalline, with some silicious beds and breccia; (3) argillaceous and silicious beds on the west side of Twenty-mile Creek and extending some distance beyond the limits of the sheet. Interbedded with these are a great number of sheets of andesite highly mineralized with arsenopyrite and weathering to a reddish colour that gives to the sides of the mountain the beautifully banded appearance which evoked the name of Striped Mountain from Dr. Dawson.

All of these beds have been more or less altered by igneous intrusions, but those which have suffered most are the calcareous ones of the middle division. This division has also proved the most congenial for the formation of ore deposits, for in it lie the two producing claims on the hill, the Nickel Plate and the Sunnyside. The beds in which the orebodies of these two claims occur have probably been originally limestone beds which become more or less impure towards the top, and near the contact of the igneous rocks have been altered by the addition of more silica to a rock made up largely of epidote and garnet with quartz and calcite. In other parts the alteration has been to pyroxene, or again to actinolite, but always with more or less garnet, epidote and calcite, depending upon the purity of the original beds. Irregular bodies of cherty rock are also frequently found in the contact metamorphic zone. About the centre of the sheet, in the P. S. draw, the alteration of the sediments has been to a rock made up almost entirely of garnets, and which is called garnetite. In portions of the Nickel Plate mine the metamorphosed rock has a distinctly banded appearance due to the alternations of epidote and garnet in thin layers. Arsenopyrite is always a constituent of the contact metamorphic zone except where the igneous rock is granite. The monzonite and all its offshoots contain this mineral, and from them it migrated to the sediments.

The sediments on the eastern edge of the sheet are nearly horizontal. At the Nickel Plate mine they dip about 20 deg. to the west, but gradually steepen on the west side of the hill to 35 and 40 deg. Across Twenty-mile Creek and westward the angle of dip increases until it reaches 90 deg., and the strata become closely folded and compressed.

Some volcanic activity probably took place while the rocks were yet beneath the sea, which would account for the interstratified beds of breccia and of possible tuffs. Numbers of andesite sheets were injected before the sediments were folded as they now are, while other dykes of the same material could only have been injected after the folding took place.

The rock next in age to the sediments is a mass



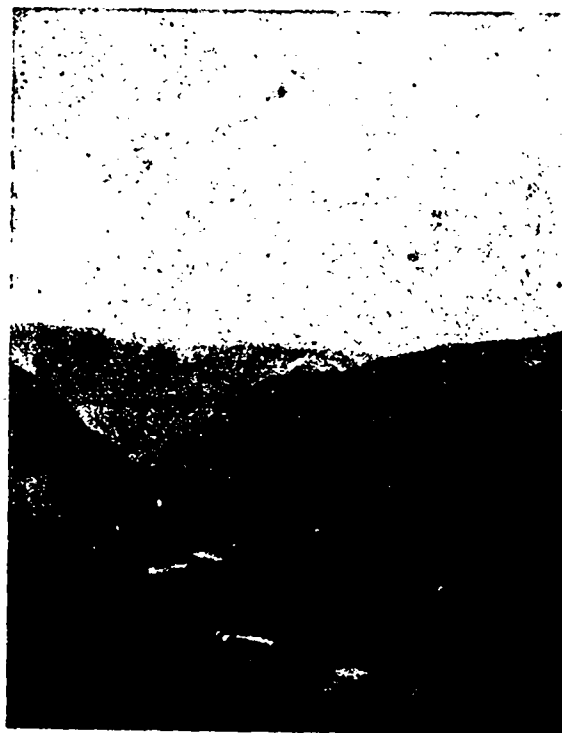
Looking down the Similkameen River from Hedley.

of monzonite forming a core nearly in the centre of the camp, and extending to the west side of Twenty-mile Creek. The normal phase of this rock is rather basic in composition, and is made up of orthoclase and plagioclase in about equal proportions, much hornblende and some augite, biotite and quartz. A more acid rock, containing none or few of the dark-coloured constituents, lies to the east of this and forms the very prominent Climax bluff. Each of these rocks sends off innumerable dykes and sheets of so-called andesite into the surrounding sedimentary rocks. The relation of these two rocks to each other is puzzling. Well-marked contacts between the two are sometimes found, and these invariably show the acid rock to be the more recent. Apophyses of the more acid rock are also found in the basic. On the other hand, gradual transitions from the one to the other are frequently seen, and wide areas occur which appear to be intermediate in composition between the two extremes. Altogether it is probable that the two varieties were derived from the same magma, though their formation of crystallization may not have been contemporaneous. If not contemporaneous, then the acid variety is later in age than the basic. The coarseness and evenness of the texture

show their plutonic origin and that their crystallization took place below the surface.

The dykes and sheets derived from this monzonitic core are also of two varieties, and show much the same composition as the mass, but with the development of a porphyritic structure. The acid variety appears to be more often connected with ore deposits than the basic.

Later than the monzonite is a large batholithic mass of granite, which forms the base of the hill overlooking Similkameen River, and extends eastwards across Eighteen-mile Creek. This granite is similar to the large area of granite through which the river cuts for 15 miles between Hedley and Princeton, and is probably part of the same intrusion, though separate for a short distance from it. It holds both orthoclase and plagioclase, with quartz, hornblende and biotite. A dyke-like mass as an offshoot from this, 100 to 400 ft. wide, is connected with the main mass on Eighteen-mile Creek and runs diagonally across the hill to a point on Twenty-mile Creek, one mile above the town. The composition of this dyke is slightly different in that the hornblende is almost entirely replaced by biotite. Overlooking Similkameen River the granite is in contact with the older sedimentary rocks, and this contact shows the granite truncating at an angle of about 30 deg. the edges of the sedimentary strata as well as the andesite sheets that are interbedded with them. The



Canyon of Twenty-mile Creek, near Hedley, Similkameen.

granite-monzonite contact on the Kingston draw shows many inclusions of monzonite in the granite, as well as apophyses of the granite in the monzonite.

Quartz porphyry and aplite dykes that cut both



the granite and the sediments in several places are probably to be referred to the final stages of the granite intrusion.

A number of dykes of different composition follow the granite intrusion. Of these the most important are black and fine-grained, and are found in the northern and eastern parts of the sheet. They appear to radiate from a common centre near the foot of Bradshaw Canyon. The texture of these dykes is felsitic, and in colour dark and reddish. For convenience it is called a felsite. It is rather silicious and like the monzonite contains much arsenopyrite. Segregated masses of this rock are met with in the monzonite apparently as a product of differentiation of the magma, showing that the two rocks are genetically connected, and under certain conditions the one might pass into the other.

The latest rocks in the camp are dyke rocks, lamprophyres, rhyolites and soft green dykes. These, like the granite, appear to be barren of any arsenopyrite, and are not associated with the ore bodies except perhaps accidentally.

#### ECONOMIC GEOLOGY.

Camp Hedley up to date has been entirely a gold producer, though it gives promise of some copper production in the future.

The ore deposits belong to the class known as



The Nickel Plate Mine, near Hedley, Similkameen.

contact metamorphic deposits, that is to say, deposits that occur as the result of metamorphism of sedimentary rocks by igneous intrusions. The principal ore mineral is arsenopyrite, and the deposits are unique in the respect that arsenopyrite has never hitherto been found in such proportion to the other sulphides in contact deposits of this kind.

The orebodies lie in the sedimentary rocks and particularly in the second division of the section already mentioned. The large eruptive mass of monzonite lying nearly in the centre of the camp has itself been the cause of intense contact metamorphism in the sediments that it cuts. Moreover, the large number of dykes and sheets of andesite which had

their source in the monzonite are also responsible for a great deal of local metamorphism. It is along the contact of these igneous rocks and in the zone of contact metamorphism that orebodies have been found. Primarily these igneous rocks may have been responsible for the introduction of the values, but other causes have been instrumental in concentrating these values to render them economically important.

The granite is not important in this connection, while all the dykes have not been sufficiently studied to justify an opinion as to what influence they have exerted in the formation of orebodies.

The more acid variety of monzonite, and the sheets which it gives off, have caused, as a rule, the most intense contact metamorphism in the intruded rocks, and apparently the payable deposits are more generally associated with this variety.

The sphere of influence of the monzonite core with its dykes and sheets covers the whole camp, but the action becomes feebler at a distance. Where the sediments have felt the direct influence of the mass the alteration has been extreme, and whole areas of what were originally calcareous rocks have been altered to garnetite.

The zone of metamorphism in the sediments varies largely with their composition and the angle at which they are cut. The calcareous rocks lend themselves more readily to metamorphism than the siliceous or argillaceous rocks. They are also more congenial for the formation of ores. Both in the Nickel Plate and Sunnyside mines the orebodies lie in what were originally limestones, the Nickel Plate stratum having been more impure than the Sunnyside.

The contact metamorphic minerals developed in the sediments are garnet, epidote, calcite, pyroxene and actinolite, and with these are associated as ore minerals arsenopyrite, pyrrhotite, chalcopyrite, pyrite and specularite. The association of the oxides with the sulphides shows that they must have crystallized out under considerable pressure. Irregular bodies of hard cherty rock also occur near the contact, and probably owe their origin to an introduction of silica from the igneous rock.

Though the gold is always associated with the arsenopyrite, a great deal of arsenopyrite occurs scattered through the metamorphosed rock in which very little gold is found. It is almost impossible to tell, except by assay, what the value of the ore will be, for it all looks very much alike.

As a rule, pyrrhotite is not associated with high gold values. Specularite, however, is a good indication. Chalcopyrite is common, though rarely in such quantities as to become important as an ore of copper. On the Warhorse mineral claim chalcopyrite occurs associated with pyrrhotite in sufficiently large bodies to make this claim a very promising one, particularly as the ore also carries some values in gold and silver. Pyrrhotite is found massive on the Toronto and Galena workings and probably as a product of magmatic differentiation. On the Red Mountain it oc-

curs in such quantities as to make the compass absolutely useless for surveying.

The Yale Mining Company own some 25 claims in the camp, of which only two, the Nickel Plate and the Sunnyside, are being worked at present. The ores from these claims are treated by the Daly Reduction Company in a 40-stamp mill and cyanide plant in the valley below. The capacity of this mill is about 3,500 tons per month. The mine and mill are run by water power obtained from a flume three miles long. The company own an electric tram line about a mile and a half long to carry the ore from the mine to the tippie, and a gravity tram line of 9,500 ft. in length and 3,500 ft. vertical height, which carries the ore in 5-ton skips to the mill.

The Nickel Plate and Sunnyside are the most important claims in the camp, and up to the close of 1906, or in less than three years, have produced more than 77,000 tons of ore. The Nickel Plate orebody lies in altered sedimentary rocks, which dip about 16 deg. to the west. Interbedded with these or cutting them at an angle are intrusive sheets of andesite. A vertical quartz porphyry and a black dyke cut all these strata. The orebody now being worked lies in the upper side of a large andesite intrusion, which dips 40 deg. to the west and cuts the sediments at a sharp angle. The andesite acts as the footwall, and the orebody lies in the sedimentary rock in the zone of contact metamorphism due to the andesite intrusion. The metamorphosed rock consists of garnet, epidote and calcite carrying much arsenopyrite. The richest ore lies on the footwall and gradually fades out on the upper side into low-grade rock. The greatest width of the pay ore is about 80 ft. The orebody is bounded on two sides by dykes and the third side by a zone of fracturing running across the hill. Both arsenopyrite and pyrrhotite occur, but the gold is always associated with the former mineral and the greater the mineralization by arsenopyrite the higher the values in gold.

The Sunnyside claim adjoins the Nickel Plate on the south and the orebody lies in a lower stratum. In all four workings the orebody always lies in altered limestone at or near the contact of an andesite sheet or dyke. Epidote and garnet are not so abundant as in the Nickel Plate, but there is more calcite, quartz and pyroxene, all of which are more highly developed. The rock is very porous and has been much fissured, the fissures being now filled with calcite. Specularite is found in most of the Sunnyside workings, particularly on the footwalls.

In each of these claims the andesite sheets play an important part, and with other cross-cutting dykes have been the cause of confining the high values to certain restricted areas. Whether these igneous rocks are responsible for the introduction of the gold in the first place is uncertain, but the later concentration required the peculiar physical conditions that are now found in each of these claims. And in the search for other orebodies in this camp, the apparently acci-

dental conjunction of dykes and of dipping strata such as are here found should be borne in mind.

The Kingston group of mineral claims consists of the Warhorse, Kingston, Metropolitan and the Kingston fraction, all lying on the Twenty-mile slope of the hill. The Warhorse orebody lies on a contact of massive blue limestone with an andesite sheet, and not far from the central core of monzonite. The limestone dips 30 deg. to the west, and carries irregular masses of cherty rock. It is cut by irregular dykes of andesite, which alter the limestone to an epidote-garnet-calcite rock. This constitutes the gangue of the ores, and the ore minerals are pyrrhotite, chalcopyrite, arsenopyrite and galena. These are scattered through the gangue in varying proportions, pyrrhotite forming with chalcopyrite the largest percentage. The chief values are in copper, but this is supplemented by some gold and silver.

On the Kingston claim, farther down the hill, the working are in the sediments within a few feet of the edge of the monzonite core. Injections from the monzonite have penetrated the bedding planes of the sediments, altering and mineralizing them, as in the case of the Nickel Plate mine. The chief values are in gold, which is associated with arsenopyrite. Some later dykes cut both the sediments and igneous rocks, forming favourable localities for the concentration of the gold by circulating waters. The Kingston group of claims is very favourably situated for the occurrence of orebodies, and more extensive development may prove their existence.

It was possible to examine only a few of the many claims in the camp, and only those on which some development work had been done. A group in the northern part of the sheet, owned by T. Bradshaw and others, gives promise of containing some valuable bodies of ore. Besides this, there are many other claims, which with cheaper transportation and better facilities will be worked to advantage.

As a result of reports submitted to it by J. J. Davies on the Eagle Lake district coal fields, Saskatchewan, the government of that province has decided to operate the coal mine for the benefit of settlers in the district. The action of the government is largely prompted by the special circumstances of the case. The fuel problem in the district affected is one of the utmost importance and requires immediate attention if settlers are not to leave the country. The government proposes to start necessary operations for opening the mine without delay. It is expected the first coal will be mined by February 1. Operations will be carried on all winter. The mine is a hundred miles west of Saskatoon, in a country quite barren of timber.

The extension of the Great Northern railway from Fernie to Michel, in the Crow's Nest Pass, is being actively proceeded with. Grading has been practically completed and several miles of steel rails laid.

## INVESTIGATION INTO WAGES DISAGREEMENT AT ST. EUGENE MINE.

Report of Board of Conciliation.

**D**IFFERENCES AS TO WAGES to be paid at the St. Eugene lead-silver mine, situated at Moyie, East Kootenay, and owned by the Consolidated Mining and Smelting Company of Canada, Limited, having arisen, and no agreement thereon having previously been arrived at, the matter was referred to the Dominion Department of Labour. The official account of the difficulty and the proceedings taken to facilitate a settlement follows:

The Department of Labour received on December 28 the report of the Board of Conciliation and Investigation established for the adjustment of differences between the Consolidated Mining and Smelting Company of Canada, Limited, and certain of its employees working in and around the St. Eugene mine, a silver-lead mine, situated at Moyie, British Columbia. The application for the board was received on September 11, the difference being stated as follows: "That the said company and its employees are unable to arrive at an agreement regarding the wages to be paid for the different classes of labour in and around the above-mentioned mine." The number of men concerned in the dispute was estimated at 350 to 400. The board was established as follows, viz.: S. S. Taylor, K.C., Nelson, B.C., recommended by the employees; J. A. Harvey, Cranbrook, B. C., recommended by the employing company; and His Honour Judge Peter Wilson, Cranbrook, B. C., recommended by the foregoing members of the board. Judge Wilson's appointment was dated September 23. The board met first on October 7 at Moyie, remaining in session until October 9, and thereafter at various dates in October, November and December, the later sessions being held at Nelson, B. C.

The investigations of the board showed the contention of the employees to be a demand for the same wages as those paid in the Boundary District of British Columbia, while the company maintained that not only should such an increase as would bring the wages to this scale not be granted, but that the then existing scale of wages at the St. Eugene was excessive. A considerable amount of evidence was therefore taken, ranging over a wide field, and relating to the cost of living now as compared with that in prior years since 1900, to increases of wages since 1900 in other lines of industry, and to the scale of wages paid in other mining camps in North America. Evidence was adduced showing the cost of living also in a great number of other mining camps, working under similar conditions, and also as to the scale of wages paid in each mining camp in British Columbia, Yukon Territory, and Alaska, and in various important mining camps in the United States.

Eventually the board formulated what its members believed to be a fair wage scale applicable to a number of districts in British Columbia as well as to the

St. Eugene mine. The board, however, took into account the fact that operating conditions were variable, and devised, therefore, three recommended schedules to be applicable respectively during normally favourable conditions, abnormally unfavourable conditions, and abnormally favourable conditions, the market price of silver and lead and of copper, as the case may be, to determine, as provided, which scale shall be applicable; the "abnormally unfavourable" scale—an average reduction from the then existing rate of 50 cents per day was recommended for adoption at the present time.

The findings of the board under such circumstances are believed to be of special value to all concerned in the mining industries of Western Canada.

The conclusions of the board were not formally accepted by the parties to the difference, but in a letter to the department from the chairman of the board it is stated that the executive of the Miners' Union at Moyie is quite satisfied with the findings, and the chairman of the board adds: "I believe that the feelings of the company will be the same."

### TEXT OF REPORT.

The text of the findings of the board is as follows: In the Matter of the Industrial Disputes Investigation Act, 1907, and of a Dispute between The Consolidated Mining and Smelting Company of Canada, Limited (Employer),

and

Certain Employees of the said Company in and around the St. Eugene Mine, Moyie, B. C. (Employees).

The Board of Conciliation and Investigation herein appointed beg to report as follows:

On our appointment, we proceeded to Moyie on the earliest possible day that could be arranged, and held our first meeting on the 7th day of October. The sessions held on the 7th, 8th and 9th days of October were devoted to ascertaining the exact cause of dispute as between the parties, and our purpose then was to proceed as a Board of Conciliation in as far as we could to ascertain the real basis of the difficulties between the parties, and, if possible, to narrow down the issue for the purpose of any investigation that it might be necessary to hold. At the end of that period we had fully acquainted ourselves with all the facts in dispute, but at that time we found we could do no more as a Board of Conciliation, and were then ready to proceed with the investigation. The company, however, had instructed counsel in the matter, who was fully prepared, and their officials were not in a position to proceed without his assistance unless they had an adjournment to more fully inform themselves as to the evidence to be adduced.

As the men objected to counsel appearing, we were compelled to grant that adjournment, and the matter then stood over until the 17th day of October, when we again met in Moyie, and attempted again as a Board of Conciliation to bring the parties together.

We sat for such purpose on the 17th and part of the 18th days of October, and on the afternoon of the

18th a proposition was prepared, and the men then agreed to hold a meeting that evening to discuss the proposition, and determine whether or not the proposition submitted by the company should be accepted. On the following morning the men reported that they could not consider any proposition for a reduction, and the company refused to agree to the submission to the board of the question as to three classes of labour in dispute, and we therefore had to proceed with the hearing as to the whole matter.

In our investigation as a Board of Conciliation, we found that the dispute arose from the desire by the men to have their wages increased to what is known as the Boundary scale. Prior to June 1, the men had been working under what was known as the old Slocan scale, fixed in 1900. On June 1 they had received a very material increase, but did not receive the same rate of wages as was being then paid in the Boundary district. The men maintained that the rate of increase as given was not sufficient, that they should receive the same rate of wages as that paid in the Boundary district, and that the increase as given discriminated in regard to certain classes of labour. They based their demands for an increase on the fact that the cost of living had materially increased since the old scale was fixed, that the wages in other departments of industry had increased during the last ten years from 25 to 100 per cent.; that they were entitled to the same rate of wages as that paid in the Boundary country, where conditions are practically the same as at Moyie, and that more especially in the case of muckers in Rossland and the Boundary, the increase had been from 16-23 to 30 per cent., while in Moyie the increase had only been 8 1/2 per cent. The company met this issue and maintained that not only should an increase not be granted, but that the present scale of wages was excessive under the conditions, and that the old Slocan scale, which prevailed prior to June 1, should be restored.

On that dispute we then proceeded on the 19th and 20th days of October to take evidence at Moyie, and then dealt principally with the prices of commodities and the cost of living at the present time as compared with the period from 1900 to 1904. On the 20th, we adjourned until the 27th of October, when we again sat at Moyie and proceeded with taking further evidence on the cost of living, the wages paid other mining camps, and the conditions of labour at Moyie itself. That session lasted until the 30th day of October, and the evidence produced before us covered a very wide field on the cost of living now as compared with the cost of living in prior years since 1900, on the increase of wages since 1900 in other lines of industry, and on the scales of wages paid in other mining camps in North America. Evidence was adduced showing the cost of living in a great number of mining camps working under the same conditions, and also as to the scale of wages paid in each mining camp in British Columbia, in Yukon Territory, and Alaska, and in all the various important mining camps of the United States, including

Michigan, Utah, Montana, Idaho, Colorado and California.

On the 20th day of October, our sittings at Moyie were adjourned to Nelson, to take further evidence from the Slocan and Boundary countries. The Boundary scale being that demanded by the men, and the Slocan scale being the old rate paid, it was deemed necessary to inquire into the conditions on which those scales were based. Owing to certain business engagements of one of the members of the board, and owing to an affliction in the family of another member, the sitting at Nelson was delayed until the 29th day of November. The men then requested a further adjournment, owing to the absence of Mr. Mills, who had been their leading representative in presenting their case to the board. On the consent of all parties, that adjournment was granted, and while the board desired to expedite matters, they did not feel that they could proceed in the face of the men's statement that to do so, in the absence of Mr. Mills, would prejudice their case. A further adjournment was then taken until the 19th day of December, when the board again sat at Nelson and completed their work of taking evidence on the points which were referred to our session at Nelson.

Since we have undertaken the settlement of the particular dispute submitted to us, it has been made to appear by all parties to the dispute that we are expected to fix a scale of wages that would apply to practically all the mining districts of Kootenay and Yale, and to that end the miners adduced evidence from all parts of those districts; the company followed the same course, and in addition, pressed upon us the fact that they were operating a large mine in the Boundary district, two large mines in Rossland, a smelter at Trail, in addition to the St. Eugene at Moyie, all of which would be affected by our findings. Recognizing this turn in the arbitration proceedings, and the evident benefit to all persons in such districts if some such broader disposition of the matter of wage scale was included in our determination, we have concluded that our first duty was to establish a fair wage scale, applicable to the districts named, including the particular mine interested, namely, the St. Eugene at Moyie. But we also deem it necessary, in view of existing abnormally unfavourable operating conditions that have prevailed, that we should provide a recommended scale to be acted upon under such normal conditions; hence we have determined that the scale named below as the "Recommended Fair Wage scale for normally favourable conditions" is the scale that all mines, including the one particularly affected by these proceedings, should pay under all normally favourable conditions. But as we find that present operating conditions are abnormally unfavourable, we recommend that the scale provided below and entitled "Recommended wage scale for abnormally unfavourable operating conditions" should be now adopted and continued whilst such conditions prevail, and should the industry, either as to lead, silver-lead, copper, copper-gold, and

Employment.	Recommended Fair Wage Scale for Normally Favourable Conditions.	Recommended Wage Scale for Abnormally Unfavourable Operating Conditions.	Recommended Wage Scale for Abnormally Favourable Operating Conditions.
Shaftmen .....	4.25	4.00	4.50
Machinemen, including machinemen in raises above 40 ft. ....	3.75	3.50	4.00
Hammersmen .....	3.65	3.40	3.90
Blasters .....	4.25	4.00	4.50
Powdermen .....	3.50	3.25	3.75
Timbermen .....	3.75	3.50	4.00
Timber framers .....	3.75	3.50	4.00
Timbermen's helpers .....	3.25	3.00	3.50
Pumpmen .....	3.75	3.50	4.00
Pipemen, underground or on surface .....	3.50	3.25	3.75
Trackmen .....	3.75	3.50	4.00
Trackmen's helpers .....	3.50	3.25	3.75
Nippers .....	3.25	3.00	3.50
Muckers and carmen .....	3.25	3.00	3.50
Car loaders for motor .....	3.50	3.25	3.75
Top carmen .....	3.25	3.00	3.50
Common labourers .....	3.00	2.75	3.25
Teamsters .....	3.25	3.00	3.50
Watchmen .....	3.00	3.00	3.25
Skip tenders .....	3.75	3.50	4.00
Hoistmen for geared hoists, double and single drum..	4.00	3.75	4.25
Licensed engineers .....	4.25	4.00	4.50
Firemen .....	3.50	3.25	3.75
Motormen .....	3.50	3.25	3.75
Electrician in charge of generator .....	4.25	4.00	4.50
Electrician not in charge of generator .....	3.75	3.50	4.00
Machinists .....	4.25	4.00	4.50
Machinists' helpers .....	3.25	3.00	3.50
Blacksmiths and tool sharpeners .....	4.25	4.00	4.50
Blacksmiths' helpers .....	3.50	3.25	3.75
Bench carpenters .....	4.25	4.00	4.50
Rough carpenters .....	3.75	3.50	4.00
Carpenters' helpers .....	3.25	3.00	3.50
Millmen, except bullcooks .....	3.75	3.50	3.75
Bullcooks .....	3.25	3.00	3.50

the like mines, again pass to abnormally favourable conditions, then any such class of the industry so abnormally favourably affected should at once adopt the scale provided below entitled "Recommended wage scale for abnormally favourable conditions."

We find that the present most pronounced conditions affecting the lead and silver-lead mines, entitling them to be considered as operating under abnormally unfavourable conditions, are:

- (a) The panic conditions of the metal market.
- (b) The difficulties found in marketing the metal products.

(c) The loss sustained continuously of late by lead declining after the ore is received by the smelters, in which case the bounty (payable only on the value of the lead contained in the ore at the time of receipt by the smelter) does not re-

lieve against the loss thus sustained.

(d) The abnormally low price of the silver contents of the ore.

We find also that the copper mines affected are operating at present under abnormally unfavourable conditions, for the following most pronounced reasons:

(a) Because of conditions similar to those given above in respect of the lead and silver-lead mines.

(b) The present abnormally low price of copper.

We find also that abnormally favourable operating conditions in lead and silver-lead mines arise when silver is quoted for 30 days on the metal market at 62 cents and over per lb., and lead is quoted for 30

days at £19 per long ton and over. And in copper or copper-gold mines and the like, as far as evidence has been adduced before us, we suggest that abnormally favourable conditions are experienced when copper is quoted on the metal market for 30 days at 18 cents and over per lb.

We, therefore, while strongly recommending the adoption of the scale provided and entitled "Recommended wage scale for abnormally unfavourable conditions" until such conditions can be said to be normally favourable, have determined that the accompanying scales are under the several conditions set out, right and proper, and should be followed as those conditions rise.

In witness whereof we have hereunto set our hands at Nelson, B.C., this 21st day of December, A.D. 1907.

(Signed) P. E. WILSON.  
J. A. HARVEY.  
S. S. TAYLOR.

Board of Conciliation and Investigation.

## MINING PROGRESS IN KOOTENAY AND BOUNDARY DISTRICTS.

### Notes on Properties in Interior Mining Camps.

**D**URING JANUARY the editor of the *MINING RECORD* spent nearly three weeks in West Kootenay and Boundary towns, at which he met numbers of men actively connected with the mining and smelting industries of those parts of the Province. The primary object of his visit to the interior was to attend the meeting of members of the Canadian Mining Institute convened to be held at Nelson on January 15 and 16 to consider a proposal that a Western Branch of the Institute should be organized, and to take such action in this matter as should be determined upon after due consideration of the proposal. An account of the proceedings at that meeting is printed elsewhere in this number of the *MINING RECORD*.

After the business of the meeting had been disposed of, Mr. Jacobs spent several days at Northport, Washington, U.S.A., where Thomas Kiddie was in charge of the smelting works, having succeeded Albert I. Goodell, who had accepted the position of manager of the Sullivan Group Company's lead-silver smelter at Marysville, East Kootenay; made a shorter visit to Rossland; gone thence to Greenwood for four days, and spent a day at Grand Forks on the return trip towards the Coast.

#### AT AND ABOUT NELSON.

Business at Nelson was stated to be generally satisfactory, noteworthy exceptions being continued inactivity at the Hall Mining and Smelting Company's smelter at Nelson, and a suspension of work at several district mines that earlier had contributed appreciably to the trade of the town. However, these drawbacks had been offset by material progress at

other properties, so that on the whole conditions were regarded as indicating a continuance of similar commercial prosperity to that enjoyed by Nelson and surrounding districts during 1907 and before.

From mine managers and others actively associated with mining in their respective districts, assurances were received that on the whole the outlook for mining was hopeful. In the Ainsworth mining division there had been more properties at work in 1907 than for years previously. While several had recently temporarily suspended operations, it was confidently expected they would shortly be working again. The work of erecting the 200-ton concentrating mill at the Canadian Metal Company's Blue Bell mine, situated just across Kootenay Lake from the town of Ainsworth, was well forward, so it was thought probable that mine would be producing next spring from its big reserves of lead-zinc ore. Further progress was also looked for at several mines on the south fork of Kaslo Creek, and Whitewater camp was expected to steadily maintain a considerable output of ore.

In Sloean mining division, the Rambler-Cariboo mine was regarded as having been sufficiently opened up in its lower levels, made accessible a year or so ago by the completion of the long deep-level cross-cut tunnel, to allow of a comparatively large production of high-grade silver-lead ore. Near Sandon, the recent installation of an aerial ropeway from the Consolidated M. and S. Company's Richmond-Eureka mine down to a convenient railway shipping point had made it practicable for that property to send out ore. Other mines in the vicinity were working as well, while in the Sloean Lake section of this mining division there was more development and ore-production in progress than for several years—probably more than at any previous period in the history of that part of the Sloean. The mines that were being most actively worked were several on Four-mile Creek and on the mountains above it, in the neighbourhood of either New Denver or Silverton, viz., the Standard, Vancouver group, Lorna Doone, Hewitt, and one or two more.

Nearer Nelson, the La Plata (silver-lead) to the east, and the Queen Victoria (copper) to the west, had both been affected by the fall in prices of metals. The former had been shipping concentrates practically all through the winter, but the latter had not yet been equipped with power machinery requisite to admit of its being worked on a scale large enough to make its operation profitable under existing circumstances.

Several of the smaller properties in Ymir district had been doing fairly well, but at the big Ymir mine the position had remained disappointing so far as output results were concerned.

From Salmo and Eric, south of Ymir, were received reports that were encouraging. The Queen mine had done well through 1907, and Wm. Waldie, its enterprising owner, was increasing the number of stamps at his stamp mill, so as to provide for treat-

ing a larger tonnage of ore. The Kootenay Belle, Nugget, Emerald, and Arlington (Eric) were all contributing to the general activity marking this part of the Nelson mining division.

#### AT NORTHPORT, WASHINGTON.

At Northport, Mr. Jacobs found that Mr. Kiddie, well known on the Coast as an experienced and competent metallurgist, had pretty well found his bearing amid his new surroundings, after having been six or seven weeks in charge of the smelting works, which are owned by the Le Roi Mining Company. At present there is not a sufficiently large supply of ore available to allow of more than one blast furnace being regularly operated, but it is expected that in the spring there will be enough received for two furnaces or possibly for three. For several weeks last autumn, before Mr. Kiddie took charge, three furnaces were in blast, but the ore supply did not remain adequate for such a desirable state of affairs to be continued indefinitely. The Northport plant is a comparatively large one, with six blast furnaces and all other copper smelting appliances in keeping. Mr. Kiddie is confident that if sufficient ore can be obtained for three furnaces to be continuously operated, the works will make a profitable showing.

#### IN ROSSLAND CAMP.

At Rossland the larger mines—Centre Star group, owned by the Consolidated Mining and Smelting Company of Canada, Limited; Le Roi, and Le Roi No. 2—continue to be actively operated, these together producing 5,000 to 6,000 tons of ore per week. Development work is also in progress on the Giant-California group, and on two or three smaller properties.

Le Roi.—During 1907 the Le Roi mine produced about 112,000 tons of ore, the greater part of which was smelted at Northport. The most important development work done by the Le Roi Mining Company last year was the completion of sinking the main five-compartment shaft from the 1,350- to the 1,650-ft. level and connecting the shaft with the winze, distant about 300 ft., on the latter level, which is the deepest in the Le Roi mine. A new vein has been met with in diamond-drilling to the south of the ore shoots heretofore worked, and cross-cuts are being driven to open this vein on the 800-ft. level. A. J. McMillan, managing director, and W. A. Carlyle, recently appointed consulting engineer to the company, are expected to arrive in Rossland from England early in February, and thereafter to arrange for increasing the output of ore from the mine.

Le Roi No. 2.—The Le Roi No. 2, Limited, is working the Josie mine in Rossland camp, and the Vancouver in the vicinity of Silverton, Slocan Lake. The latter is a silver-lead-zinc mine. During 1907 there were shipped from the Josie to Trail 22,199 tons of ore, while 12,963 tons were milled at Rossland, and from this latter 768 tons of concentrates were made. Much prospecting was done with the diamond drill; 5,088 ft. were drilled at a cost of \$2.61 per foot. At the Vancouver mine the year's

product was 71 tons of sorted ore shipped and 17,867 tons of ore sent to the Wakefield mill. Some 768 tons of lead concentrate were made, besides which 263 tons of zinc concentrate were shipped. Paul S. Coudrey, manager of the Le Roi No. 2, Limited, left Rossland about the middle of January on a visit to England. During his absence Ernest Levy, who lately came from England for the purpose, is managing the company's mines. Mr. Levy is by no means a stranger in Rossland, he having been manager of the Le Roi No. 2 two or three years ago.

Centre Star Group.—This group includes the Centre Star, War Eagle, Iron Mask, Mugwump, Pilgrimage, Monita, Red Mountain, Idaho, and Enterprise mineral claims. The Centre Star shaft is down below 2,000 ft. on the incline (about 1,800 ft. vertical depth). Some notes on this and other Rossland mines, by R. W. Broek, now acting director of the Geological Branch of the Dominion Department of Mines, are printed on another page of this issue.

The output of the Centre Star group in 1907 was about 132,000 tons of ore, which was smelted at Trail. Developments at these mines were satisfactory last year and quite recently the discovery of another shoot of ore of good grade was reported. The big hoist, a 1,100-h.p. Nordberg engine, installed at the Centre Star mine in 1906-7, is running smoothly and doing its heavy work effectively. It has a hoisting capacity of 1,350 tons from 3,000 ft. depth, in 10 hours.

#### COAL MINING IN SOUTHEAST KOOTENAY.

The Crow's Nest Pass Coal Company was stated to be employing a large number of men at its Coal Creek and Michel collieries, respectively; new machinery is being installed at both collieries mentioned, and preparations are being made at Michel to substitute for the existing wood tippie one of steel and of considerably larger capacity.

Four new seams of coal are being opened by the company, which has under consideration plans for important enlargements of its coal mining operations and additions to plant, so as to substantially increase the regular output of its coal mines and coke ovens. James McEvoy, the company's chief engineer and geologist, was met at West Robson by Mr. Jacobs, but unfortunately there was not time before each continued his journey in an opposite direction to obtain more detailed information concerning the expenditure of the large sum of money that has been appropriated for further development and equipment of the Crow's Nest Pass Coal Company's large mines.

#### SMELTING WORKS AND REFINERY AT TRAIL.

Mr. Jacobs did not on this occasion stop over at Trail, where are located the copper and lead smelting works and the refinery of the Consolidated Mining and Smelting Company of Canada. He learned, though, that during its last fiscal year the company's new construction and improvements here included enlargements of both copper and lead smelting furnaces; additions to the Huntington-Heberlein ore-roasting and converting plant; construction of new

ore bins and trestles; provision of more electric locomotives and electric haulage; enlargement of the refinery lead plant; building of a plant for the manufacture of hydro-fluosilicic acid, and the putting in of a plant and appliances for recovering antimony. The metals produced at the Trail works in 1907 were of a total value of nearly \$5,000,000. This production included about 2,000,000 oz. of silver of a fineness averaging over .999. The gold produced here—about 15,000 oz. per year—is of a fineness of about .995. Of the silver, already 300,000 oz. have been sold to the Royal branch mint at Ottawa. It will, therefore, be seen that the statements sent out from Ottawa and Toronto for publication in the press to the effect that gold and silver refined in Canada is not of a degree of fineness requisite for minting purposes, are not warranted so far as Trail is concerned. Silver refined at Trail has been sold to both the United States and Japan, for coinage uses. Gold refined here has also been sold to the United States, and at no time has this refinery been assessed the parting charge which is made by the United States on all gold running under .990 fine.

#### IN THE BOUNDARY DISTRICT.

In the Boundary, things generally were found to be quiet, Mr. Jacobs said, except at the Granby Company's mines at Phoenix, and smelting works at Grand Forks.

B. C. Copper Co.—J. E. McAllister, general manager of the British Columbia Copper Company, left Greenwood on January 25 for New York, to attend the annual meeting of the company. Nothing definite was known locally as to the prospects for a resumption of work at the company's several mines in various parts of the district, and at its smelting works at Greenwood. The company's officials were reticent concerning the reasons for the continued inactivity, but from other reliable sources it was learned that local labour conditions became intolerable, a number of agitators having so harassed the company as to make it almost impossible to continue operations under the circumstances. While the low price of copper is an important factor in the present situation, it is quite likely the British Columbia Copper Company would resume operations, notwithstanding that at current market values there is but a small margin of profit, were it assured of a "square deal" at the hands of the local labour unions, but the better-disposed men are as yet unable to overcome the aggressive unreasonableness of the agitators, consequently the company is understood to prefer to keep its mines and smelter closed down rather than operate them under labour conditions considered very unfair and found unbearable.

Granby Co.—The Granby Consolidated Mining, Smelting and Power Company, Limited, is operating at present full capacity, with eight furnaces in blast at Grand Forks, treating about 3,000 tons of ore per diem. The number of men now on its payrolls at mines and smelter is about 875, and it is proposed to increase it to about 1,000 during the coming sum-

mer, when much additional construction work will be undertaken at the smelter. New ore and coke storage bins are nearly completed, the former having a holding capacity of about 6,000 tons and the latter 4,000 tons. These will bring the total storage bin capacity at the smelter up to 15,000 to 18,000 tons for ore and 8,000 tons for coke. All the heavy timbers, most of them 12x12 in., used in construction of the new bins were obtained from Coast sawmills, while local mills supplied most of the lighter lumber. The steel elevated flue-dust chamber, about 16x14 ft. and 380 ft. long, big enough for a furnace capacity of 5,000 tons of ore a day, has been finished and will be in use as soon as the 6-ft. downtakes from the furnaces shall be connected with it and a conveyor to the briquetting plant shall be installed, which will be during February. The old brick flue-dust chamber has been removed, so as to admit of the lengthening of the blast furnaces from 18 ft., their present length, to 22 ft. 6 in. The furnaces will be lengthened one at a time, commencing in the spring, and all will be completed by the autumn, by which time the daily ore-treatment capacity of the plant will have been increased to about 4,500 tons per diem. Another improvement to be made shortly will be the relaying of the charging floor of the furnace building, substituting steel for the material of which it was originally constructed. The big building itself was rebuilt in steel last winter. The main converter building, now 180 ft. long, is to be lengthened to 260 ft., and its wings widened. One of the existing three 72x100 in. copper converter stands is to be broken up and three 84x126 in. stands installed. The five stands will then be equal to converting the matte from about 5,000 tons of ore daily. The existing blowing engine building at the south end of the south end of the works, built of wood, is to be taken down next summer and a much larger building of steel, now being constructed by the Hamilton Bridge Works Company of Ontario, erected in its place. The cement used in the substantial foundations of all the new buildings is that made by the Vancouver Portland Cement Company, of Victoria, and it has given so much satisfaction as to lead to its having been generally used rather than imported cement.

It is intended to install another blowing engine with a capacity of about 10,000 cu. ft. of air per minute. This will be driven by a 500-h.p. Canadian Westinghouse motor, rope drive. There are already in use here, beside several smaller blowers, two Connersville blowers, capacity of each 300 cu. ft. per rev., and each driven by two Canadian Westinghouse 150-h.p. motors, and two more of similar size, with the requisite complement of motors, are to be installed.

Other noteworthy extensions and improvements are planned by the Granby Company, but the details of these are not yet worked out. This company's mining and smelting enterprise is steadily growing in extent and importance, and it is already one of the most prominent industries in Western Canada.



ANNUAL CONVENTION OF ASSOCIATED  
BOARDS OF TRADE OF EASTERN  
BRITISH COLUMBIA.

Proceedings at Meeting Held at Moyie.

**B**OARDS OF TRADE are established at nearly all the more important towns in East and West Kootenay and the Boundary district, and the yearly convention of delegates from these various public bodies is generally regarded as one of the most important gatherings held in Eastern British Columbia. The following partial report of the proceedings at the 1908 convention has been taken from the *Nelson Daily News*. The addresses of the president and vice-president, respectively, are here reprinted in full, notwithstanding that other subjects than mining and smelting are dealt with therein. The account of the discussions and the information concerning resolutions adopted is, however, restricted chiefly to subjects of more particular interest to those connected with the mining industry:

The tenth annual convention of the Associated Boards of Trade of Eastern British Columbia was convened at Moyie, East Kootenay, on the afternoon of January 22. The meeting was called to order by the president, G. O. Buchanan.

The delegates in attendance were as follows: Cranbrook—J. A. Harvey, M. A. Beale; Greenwood—James Russell; Kaslo—G. O. Buchanan; Moyie—E. O. Kamm, J. P. Farrell, R. Campbell; Nelson—S. S. Fowler, I. G. Nelson, F. A. Starkey; Rossland—L. A. Campbell, A. B. Mackenzie; Frail—J. D. Anderson, G. F. Weir, F. W. Guernsey.

An address of welcome was made by President Campbell of the Moyie board.

The Moyie Miners' Union showed a splendid spirit by turning their hall over to the delegates in which to hold their sessions.

The first business transacted was the presentation of the president's and vice-president's reports, given in full hereunder:

ADDRESS OF THE PRESIDENT.

"Gentlemen: The year with which it is my fortune to deal in my present report has been one of exaggerated features and sharp contrasts.

"The machinery of finance has run as if without a balance wheel. Enormous expansion of business—the spirit of enterprise never more dominant—production of commodities upon an immense scale—prices reaching record figures—a demand for labour that could not be satisfied—a rush of population into Northwest America, and especially into our own Northwest, including British Columbia, and succeeding to this healthy state of affairs—or perhaps brought about by it—a sudden drying up of the source of money supply; a sudden call upon the producing and speculating classes for the replacement of borrowed money upon which their operations were dependent; a sudden suspension of many lines of industry, followed by reduction of wages, dearth

of employment, and the sacrifice of commodities and commercial securities in the effort to meet the demand for cash.

"It is true that the vortex of these disturbances was not within our own borders, and that the scale of our operations is not yet large enough to constitute us an influential factor in bringing about such a state of things, but dependent as we are upon the markets of the world for the sale of our products, we share the general fortunes, and profit by, or suffer from, conditions in the creation of which we have had little influence.

"Prices of Metals.—In copper, the chief item of our metallic production, prices have ranged from 26 cents per lb. in March to 11 $\frac{7}{8}$  cents in October. The average for the year has been 19 $\frac{1}{2}$  cents, a normal price being about 17 cents.

"In lead, an important item, the range has been from £21 5s per ton in June to £13 in December.

"Silver has graduated throughout the year from 70 $\frac{1}{8}$  cents per oz. in January to 52 $\frac{1}{2}$  cents in December, a loss of 25 per cent. in its value.

"I have the satisfaction of mentioning, however, that prices in the present month (January, 1908) show signs of recovery. Copper has been quoted at 13 13-16 cents per lb., silver at 58 $\frac{3}{8}$  cents per oz., and lead at £14 12s. 6d. per ton.

"Coal and Coke.—In the production of coal and coke there has also been much irregularity. The mines and coke ovens of the Crow's Nest Pass were shut down for two months in the latter part of 1906 owing to disagreements in regard to wages. In consequence, we entered upon a winter, which happened to be one of exceptional severity, with depleted stocks. The difficulties of transportation were great. There was some suffering and great inconvenience in regard to fuel for domestic use, and for a time some of the smelters were idle.

"In the spring labour troubles at the coal mines again became acute; there was a protracted period of idleness and reserve stocks of fuel were everywhere exhausted, with the result that for a time a number of smelter stacks were idle for lack of coke.

"In deference to representations made to some of the smelter managers, backed up by some of our local boards of trade, an enquiry was instituted by the Provincial Government with a view of ascertaining whether coke was being exported to the detriment of our own industries. The result of this enquiry has not as yet been made public, nor is it at present a matter of consequence. The conditions are now quite reversed, the supply of coal and coke is ample and reserve stocks are again accumulating.

"Labour Conditions.—In the spring of 1907 there appeared to be a scarcity of labour, especially of good miners. Wages were generally raised to a higher rate than had hitherto been paid in the country.

"With the phenomenal fall in prices of metals, in the latter part of the season, came a demand for a readjustment of wages. This delicate operation has

at this date been submitted to and in a manner, on the whole, creditable to all parties.

"In Rossland camp a settlement was made by friendly conference. In the Boundary district, the mines and smelters were generally closed down, and a new scale of wages was offered, which, after some demur, was accepted.

"At the St. Eugene mine, Moyie, both parties asked for a reference to a Board of Conciliation and Investigation, under the Industrial Disputes Investigation Act, 1907. This board, which consisted of P. E. Wilson, judge of county court, chairman; S. S. Taylor, representing the employees, and J. A. Harvey, representing the company owning the mine, went very fully into all aspects of the case, and un-animously recommended a schedule arranged as maximum, medium and minimum scales, to come into force according to the varying prices of metals.

"After some informal negotiations between the men and the company, the recommendations of the board have gone into effect.

"It seems likely that until conditions shall have radically changed, this schedule will be a standard not only at the mine directly concerned with its formation, but also at all mines throughout our district. I am attaching a copy to my report in order that it may be printed for convenience of reference.

"I have endeavoured to ascertain the views of all parties as to the working of the 'Industrial Disputes Investigation Act, 1907,' and have heard stated as suggestions for the possible improvement of the act the following points:

"(a) That application for the appointment of a board should be possible without a declaration that a dispute has actually occurred.

"(b) That permanent boards of arbitration should be appointed, or in the alternative, that at least the chairman of the board should be a non-resident of the district in which he shall act.

"(c) That the clauses under which men are forbidden to quit work or employers to suspend operations during the pendency of an investigation, should be amended to exempt from their operation metal-liferous mines.

"Bureau of Mines.—Some results of the establishment of the Dominion Bureau of Mines are apparent.

"Robert R. Hedley, a gentleman we have often welcomed as a member of these conventions, has been employed throughout the year in the collection of material for a report to cover the whole field of the present condition of the mining industry in British Columbia. It is understood that this report will at an early date be printed and circulated as a Government bulletin. Mr. Hedley's report will no doubt stand as a record of permanent value of the present-day status of our development and will in the meantime afford an advantageous medium through which we may call the attention of the world to our resources as a mining country.

"Einar Lindeman, a Swedish expert in iron, has also been employed during the summer in the exam-

ination of the iron ores of the Province, for the purpose of reporting to the bureau upon the supply and suitability of such ore as a basis for the establishment of the iron-smelting industry.

"Mining Development.—The Hosmer Mines Company has carried on extensive development work at its coal properties at Hosmer, Crow's Nest Pass, during the year. This company expects to have its product (of coal) in the market in the latter part of this year, and will proceed to the installation of coke ovens at an early day.

"The first of all our mines, the historic Blue Bell at Kootenay Lake, has been systematically developed during the year, and has concentrating works of large capacity installed. This mine has in sight a large tonnage of lead and zinc ores.

"The establishment at Nelson of works for the electric smelting of zinc ores is an enterprise of public consequence, and one the success of which will solve the difficult problem of the treatment of our zinc ores. The works are under the auspices of F. T. Snyder and associates.

"The Lumber Industry.—The lumber industry has been severely affected by the shadow of financial stringency which fell upon the Provinces. The demand for house lumber suddenly fell off, and our mill men were compelled to meet the changed outlook by curtailment or suspension of milling and logging. The sawmills have generally been idle since September, and a small cut of logs is proposed for this winter.

"Railway ties for local use and for shipment to the prairies are in active demand, and their manufacture and shipment is at the present time affording employment to many of our lumbermen.

"The subject of forest preservation and the economical treatment of our timber resources we have frequently had before us.

"The feature of the past year in this particular has been the withdrawal in December last of all timber lands of the Province from every form of alienation.

"It is understood that the Government contemplates radical changes in the system heretofore in vogue, with a view to the conservation of our forest wealth.

"The question is one that is far from having received the attention it demands. It is a large and difficult question. The whole revenue of the Province might be appropriated, and the whole population might be constituted forest wardens, and still the service of forest preservation and culture be inadequately performed. The subject is fundamental. The continued habitability of the earth, the continued existence of the human species, depend upon the care of trees. The migration of men from older to newer countries, the wars of invasion and conquest are the outcome primarily of the wilful waste of forests. The countries that were the birthplace of the race and the cradle of civilization have been for thousands of years deserted. The Holy Land, once favoured, as we are taught, 'With God's peculiar smile,'

is almost without inhabitant, or the capacity to sustain life, and a representative of the aboriginal race of America was long ago poetically depicted as warning those who have displaced his people that

"The land his tribe was crushed to get

"Will be a barren desert yet."

"The degree of mental culture to which men have attained is measured by their capacity for forethought, their power to postpone a present enjoyment or relaxation for a greater future good, and viewed from this standpoint, there is no duty before the people of British Columbia comparable in importance to that of the formulation of, and afterwards the rigid persistence in, a policy calculated to preserve for the future, unimpaired, their forest wealth.

"As a preliminary to the adoption of a permanent policy it would, it seems to me, be well that the Legislature should authorize the creation of a commission charged with the duty of:

"1. Investigation of the timber resources of the Province, and an approximate determination of their value, especially as to unalienated lands.

"2. Investigation of the methods adopted for forest preservation, reproduction and utilization in Sweden, Germany, the United States and India.

"3. The recommendation of the best practicable policy applicable to the circumstances of the Province, as the basis for future legislation.

"I think we should do everything possible to create a public sentiment against the wasteful exploitation of our timber, and in favour of its judicious preservation, even at the cost of some present self-denial.

"Fruit.—We have a growing reputation as fruit producers. At the recent convention of fruit growers of the Northwest, held at Vancouver, collections of fruit from our district gained the highest awards. From the old country we continue to gather gold medals and the warmest encomiums. The axiom that vegetable products attain a maximum of perfection near the northern limit of their growth, is strikingly exemplified in our case.

"The whole Province may be made an orchard, and the elevated and more northerly tracts are found to excel, at least in quality of fruit grown, the warmer and more humid zones.

"The Dominion Department of Agriculture had had, during the year, an investigation made upon the subject of an experimental farm, or at least a sub-station, to be established at some interior and elevated point. We will do well to press for the carrying out of this project.

"The best experimental farm is, however, the privately-owned orchard or farm made commercially profitable, and the man who creates such is a public benefactor.

"I hope to secure for our publication this year a few photographs illustrative of the success as horticulturists that some of our neighbours have attained.

"Alaska-Yukon Exposition.—The Province has here an opportunity such as has not heretofore occurred for advertising its products. Hundreds of thou-

sands of people whose attention we most desire to catch will be brought to our threshold. We should make a supreme effort to be represented adequately at the exposition to be held in Seattle in 1909.

"Failing ample provision, it would perhaps be as well to do nothing. At Portland the British Empire had about 2,500 ft. of floor space, and of this British Columbia had an insignificant corner, while the States of Idaho, Washington and California had imposing buildings and elaborate displays. The appropriation of the State of California was \$100,000, and earloads of oranges and champagne were distributed to the visitors to her pavilion.

"The duty of providing funds and efficient management devolves upon the Provincial Government, but the work of collecting and forwarding exhibits should be undertaken by the boards of trade, and an intimation from our boards of their willingness to co-operate in this way, would probably be timely.

"Telephone and Telegraph Lines.—Government acquisition and operation of these services is one of the recommendations that is to come before us.

"The Province of Manitoba has purchased the telephone lines within its borders, and the Provinces of Saskatchewan and Alberta are preparing to follow the example thus set.

"It is but a matter of time for us to do similarly. These means of commercial intercourse, which are but extensions of the post office system, must in the near future be administered for the common good, at the minimum of cost. Vested rights can be extinguished now at less cost than later.

"Notwithstanding the many adversities that appear to have waylaid us in 1907 the statistics of production in our territory show an advance of \$1,750,000 over those of last year.

"We have good reason to hope for a greatly increased output, at least as to quantity, for 1908. With such improvement in prices as I confidently expect to see, we shall again establish a record.

"G. O. Buchanan, President."

#### APPENDICES.

"Estimated value of mineral and lumber products of Southern Kootenay and Southern Yale for the year 1907:

Gold, 220,000 oz., at \$20.....	\$4,400,000
Silver, 2,800,000 oz., at 65½c.....	1,834,000
Copper, 38,000,000 lb., at 19½c.....	7,410,000
Lead, 24,334¾ tons, at \$80.....	1,946,735
Coal, 876,730 long tons, at \$3.....	2,630,190
Coke, 207,879 long tons, at \$2.50 addit'l	519,697

Total, mineral ..... \$18,740,622  
Lumber, 150,000,000 ft., at \$14 per M. 2,100,000

Total mineral and lumber ..... \$20,840,622

"The Le Roi Mining Company employed throughout the year an average of about 245 men, and has paid in wages \$316,720. Its total tonnage (dry

ore) was 110,410 tons; gross value, \$1,081,007. Shafting and tunnelling, 4,796 lin. ft.; diamond-drilling, 3,740 ft."

"The Consolidated Mining and Smelting Company of Canada at its mines raised ore as follows:

"St. Eugene, Moyie, 134,626 tons of lead-silver ore, producing 23,068 tons of concentrates; Centre Star group, Rosland, 133,311 tons of copper-gold ore; Snowshoe, Boundary, 126,674 tons of copper-gold ore; Richmond-Eureka, Slocan, 23 tons of silver-lead ore.

"At its smelting works at Trail, the Consolidated Company smelted 282,323 tons of ore, the production of metals from which was:

	Value.
Gold, 87,371 oz.....	\$1,791,310
Silver, 1,959,796 oz.....	1,243,874
Copper, 4,241,063 lb.....	811,139
Lead, 30,094,080 lb.....	1,237,501

Total ..... \$5,083,821

"Men employed, 1,460; annual payroll, \$1,600,000. Since June 30, 1907, this company declared one quarterly dividend of  $1\frac{1}{4}$  per cent."

"The Crow's Nest Pass Coal Company, Limited, employed in 1907, 2,290 men; wages paid, \$1,962,799.79; coal mined, 876,730 long tons; coke made, 207,879 long tons. The capital of the company is \$3,727,500, and dividends paid in 1907 totalled \$355,178.98."

"The Hosmer Mines Company has expended to date \$1,500,000. Shipment of coal will be commenced in 1908 and will be increased, as the market requirements shall justify, to 3,000 tons a day. The first installation of coke oven will have an output capacity of 300 tons a day."

#### ADDRESS OF VICE-PRESIDENT.

Gentlemen: President Buchanan has covered in his very able address the whole field of work of last year and has pointed out to us the direction in which our energies should be directed at this convention. Still there are some points to which I would like to call particular attention. The first of these is the lead bounty.

"Most of the boards represented here have passed or have endorsed resolutions as to the extension of this bounty. The lead-mine owners, some of whom I am pleased to see are present, desire that the lead bounty should be extended from the time of its expiry in June next, to June, 1913, and that the bounty shall be payable upon lead at or under £18 instead of £16 as now prevailing. I will not anticipate their arguments and will content myself with pointing out that while this matter was taken up last year, this year it is of more pressing importance. I may say that the lead-mine owners have sent a petition to Ottawa to be presented by J. L. Retallack and L. Pratt. These gentlemen have been accredited by

the Nelson board of trade as its delegates on this question, and I am of the opinion that some such step should be taken by this convention.

"The next subject I have to refer to is the survey of available agricultural lands by the Provincial Government in the Kootenay districts. The Legislature seems likely to take up this matter at this session, and if the convention presses the point it is probable that, with this backing, the Provincial Government may take the definite and early proceedings so much needed.

"A resolution with regard to an improved press service, passed last year, will be again presented. I may say in this connection that during the past 12 months other boards in various parts of Canada have passed similar resolutions and that, moreover, a couple of visits from British journalists has strengthened British opinion upon this matter.

"Another subject is that of the working of the 'Industrial Disputes Investigation Act,' a resolution on which will be presented. The administration of this act in many instances during the past year has been shown to be beneficial. Any suggestion which this convention may be able to offer will doubtless be welcomed by the Dominion Government in furtherance of the objects of this law.

"I am sorry to say there has been little advance since we last met on the freight rate question, despite the unremitting activity of the Nelson board of trade in this regard. A resolution will be brought up, not upon the agenda, and therefore, subject to future ratification, dealing with the subject from the point of view only of the lowering of rates over the whole of Kootenay. I am, however, personally of the opinion that the Kootenay cannot expect much, if any, assistance from the remainder of Canada unless the whole subject is approached on the basis of a charge according to mileage.

"During the year much more work was accomplished in building roads and trails and bridges than was anticipated by us when we met at Greenwood last March. Still the work done, although valuable, has not been sufficiently systematic to give such relief to our pressing necessities as the large sum expended would warrant. I, therefore, again bring to the attention of this convention the need of elaborating a system of opening up the country and then pressing such a scheme upon the Provincial Government.

"The Kootenay has as yet not had given to it an experimental farm, but it may be thankfully noted that both the Dominion and Provincial Governments have evinced much interest in the development of Kootenay fruit culture, by the sending of many experts into the country for the instruction of the ranchers and by the despatch of experienced ranchers to Great Britain to inform the people of the old country as to the capabilities of this Province.

"The last subject to which I wish to refer is that of the Alaska-Yukon Exposition, to be held in Seattle next year. I think that if the Kootenay desires to be adequately represented at this exhibition, it must,

through this convention, formulate some scheme of representation to the Provincial Government, asking at the same time for a large enough appropriation to cover our needs.

"F. A. Starkey, Vice-president."

#### ELECTION OF OFFICERS.

The election of officers followed the reading of the foregoing addresses. G. O. Buchanan, Kaslo, was re-elected president; F. A. Starkey, Nelson, vice-president, and A. B. Mackenzie, Rossland, secretary-treasurer.

#### GENERAL BUSINESS.

The sessions of the delegates were continued on Wednesday evening and Thursday morning. The chief subject of discussion was the lead bounty question. There were three resolutions before the convention in this connection, one coming from Nelson, a second from Trail, and the third in the shape of a memorial to be presented by the lead-mine owners to the Dominion Government. After a long discussion, which was begun on Wednesday afternoon and not finished until late on Thursday morning, a resolution embodying those presented by delegates, was finally adopted by the convention; in addition, J. L. Retalack and L. Pratt, who as representatives of the lead-mine owners, were going to Ottawa to lay the matter before the Dominion Government, and who were also delegates of the Nelson board of trade, were accredited as delegates from the associated boards. The resolution read as follows:

"Whereas, the lead bounty has, by ensuring a stable minimum price, been most effective and beneficial to the lead mining industry, and with it to the smelting and lead manufacturing industries, and consequently to the general commerce of the Dominion; and,

"Whereas, such results have been produced by a relatively smaller expenditure than was anticipated and was represented when the original request for consideration was made to the Government, and that out of \$2,500,000 originally voted to be expended in the period of the bounty, terminating June 30 next, but \$616,976.02 has been expended up to December 1, 1907; and,

"Whereas, on account of the high tariff on lead ore and its products, still imposed by the United States Government (which it was anticipated might have been reduced ere this); of the recent imposition by the said government of a prohibitory duty on our zinc ores, a product of our lead-bearing veins, thus depriving us of a source of revenue, and of the fact that the lead-consuming capacity of Canada has not increased proportionately to our output since the inception of the bounty, we shall, at the expiration of the said bounty period, be still unable to rely on a stable minimum price for our lead, sufficient to justify its production in the form of ore, and the large expenditure on exploration and development work necessary to maintain our mines and with them the entire lead industry of Canada; and,

"Whereas, many of the larger lead mines of the district, either present or prospective producers, con-

tain ore of so low a grade as to make its production impossible or improbable, if at all, during periods of low prices, it becomes necessary to extend the sliding scale so that the bounty will be paid on lead when the price is £18 or lower, instead of £16 or lower, as at present:

"Therefore, be it resolved, that the Dominion Government be asked to extend the lead bounty for another period of five years, with the addition that the sliding scale be made to apply when lead is £18 or lower, instead of £16 or lower, as at present."

The outcome of an interesting discussion on railway freight rates was the adoption of a resolution as follows: "That the Associated Board of Trade, recognizing that the freight tariffs applying to the districts of Kootenay and Boundary being higher proportionately than those applying to the remainder of the Dominion and thus adding to the cost of living, and, in consequence, of labour, approve of the action of the Nelson board of trade in asking for a reduction from the authorities of the railway company, and if necessary from the Railway Commission."

Regarding the Alaska-Yukon Exposition, at Seattle, it was resolved that the Provincial Government should be asked to provide thereat a special building for Kootenay exhibits, and should meet charges incidental thereto, while the delegates of each board represented that his district would send specimens of its produce. The whole idea met with very strong support.

Kaslo had two resolutions before the convention, one relating to a reduction of charges by the lead-silver smelters in view of the reduction in the cost of labour, and the other stating that the operation of the "Industrial Disputes Investigation Act" was not entirely satisfactory. Neither of these resolutions found much support, so they were only tabled.

Other resolutions dealt with the construction of the Arrowhead and Gerrard railway, game preserves, mineral claims to expire at noon instead of midnight, experimental farms, the Franco-British Exposition, and the establishing of a gold and silver purchasing agency by the Dominion Government at Trail. These were all resolutions of former years, which so far have been neglected by the Government, or which have not received the attention otherwise due them, and were all reaffirmed.

It was decided that next year's convention shall be held at Trail.

It is stated that during 63 years—1845 to 1907, both inclusive—the United States has produced 5,819,249,768 lb. of copper, of which 5,104,729,545 lb. was the production of 25 years—1883-1907, inclusive.

It is stated the Tennessee Copper Company is preparing to extend its operations to Mexico, in which country Walter Harvey Weed, the eminent geologist, has already secured for the company options on a number of mining properties.

## ANNUAL REPORT OF DOMINION COPPER COMPANY, LIMITED.

Consulting Engineer's Review of the Year's Operations.

**COPPER MINING AT PHOENIX**, in the Boundary District, was on a larger scale during the greater part of the calendar year 1907 than at any other similar period in the history of lode mining in British Columbia. The Dominion Copper Company's mines were by no means the largest producers in that camp—the Snowshoe mine having slightly exceeded their tonnage for the year, while the Granby mines produced about five times as much ore—yet the quantity they contributed to the total output of the district was sufficiently large to be regarded as quite important. As, however, the company's fiscal year ends on July 31, a comparison of its ore production during that period with that of other mines during a different period would not be of much value, conditions varying at different times.

The report of the directors for the company's last fiscal year, together with that of the consulting engineer, M. M. Johnson, and the statements of accounts, are as follows:

### DIRECTORS' REPORT.

To the Shareholders:

Your directors respectfully present their report of the state and condition of the company for the year ending July 31, 1907.

During the year there has been spent a total of \$356,714.67 on improvements to the smelter, new development work at the mines, and installation of new machinery. The amount spent on the smelter was \$173,097.83, and covered the cost and installation of No. 3 furnace and blowers, a complete equipment for electrical operation in place of steam, additional land for slag dump, and a new waterworks system. The smelter now has a capacity of 1,200 tons of ore per day.

Owing to numerous delays beyond the control of the company, the complete installation of No. 3 furnace was not effected until the month of June. This was a great disappointment, as it had been expected this furnace would be in operation early in January. As much as 750 tons of ore a day has been treated in this furnace, but the most economical results will probably be secured with an output of about 600 tons. The new furnace is equipped with a mechanical feed operated by electric locomotives. This mechanical feed system will be extended to furnaces Nos. 1 and 2, which will result in a very material reduction in the cost per ton of smelting the company's ores.

The new waterworks system, in addition to giving better efficiency to the operation of the smelter, also furnishes an excellent fire protection, and reduces the rate of insurance.

During the year there has been spent at the mines on new development work and new machinery a total

of \$183,616.84. The mines are now completely equipped for operation by electricity instead of steam. New compressor plants have been installed at the Idaho and Sunset mines. These improvements will result in a decided saving in cost of mining the company's ore.

The new development work, consisting of drifts and upraises, amounted to a total of 8,519 ft. In addition to this, exploration work with diamond drill has been done aggregating 1,045 ft.

The physical condition of the company's mines, both in the total tonnage now in sight and the equipment for mining the same, has been greatly improved during the past year. A large amount of development work has been done on the Rawhide mine, and that property is now capable of furnishing 800 tons of ore per day for an indefinite period. A large tonnage is now available from the Idaho, and the ore will run about the average values of the camp. A new body of ore has been found in the Brooklyn. There has not yet been sufficient development work to fully prove the size of this orebody. The 50-ft., 150-ft. and 250-ft. levels are in the ore, and the values are very satisfactory. The Brooklyn mine has always carried good gold values, which is most desirable in these low-grade ores. The Sunset ore, which has been used largely as a flux, has been showing better copper values.

Consulting Engineer's Report.—In the report made by M. M. Johnson to the board of directors, he says:

"The development of the various mines has been very satisfactory, the year's work having shown an increased tonnage in all except the Brooklyn.

"The work on the Rawhide taken in conjunction with that done on adjoining ground by the Granby Company, has shown this property to contain a very large tonnage of ore. The mine can produce 800 tons of ore per day for an indefinite time.

"The work on the Brooklyn has shown some new ore on the north of the shaft, but this was found so late in the year that nothing definite as to its extent or value can be said about it. However, it looks very encouraging, and I expect that it will mine about the average of the former Brooklyn ores; the last samples taken show the average at 0.7 per cent. copper and nearly \$2 per ton in gold. Nothing below the 300-ft. level of the Brooklyn has yet been found.

"At the Sunset, outside of ore extraction, very little exploring was done. A short tunnel put in from the surface found the ore at a depth of 50 ft. below our present work. No further work was done to prove the extent and quality.

"The exploring work on the Crown Silver has shown the claim to contain a considerable amount of ore, but so far this has proved to be of very low grade and much broken up. Sufficient work was not done to allow of a definite conclusion or an estimate of tonnage.

"The Athelstan work was not very satisfactory, resulted in finding the ore narrow at a short distance

below the good showing on the surface. Several hundred tons of ore were extracted in the course of this development, containing \$6 and \$8 gold per ton. This ore has not been smelted.

"In the Idaho the work on the tunnel level and on the 100-ft. level has been very satisfactory, opening up a large tonnage of ore. The most encouraging feature is the finding of a better average grade of ore on the 100-ft. level than the upper work gave. A sample taken from the wide portion of the ore on the 100-ft. level gave 1.3 and 1.2 per cent. copper and \$1 gold per ton. The ore found on the upper level and on the surface has always been estimated at an average of about 1 per cent.

"During the year the wages of the workmen were advanced 50 cents per day. On an output of 1,000 tons daily this meant an extra outlay at the rate of at least \$125,000 per year, and increased the cost of production accordingly. The central air compressor located at the Idaho mine was fully completed and put in operation; you have here a plant that will furnish power for all purposes for the Idaho, Brooklyn and Rawhide mines, sufficient for an output of 2,000 tons per day.

"The Sunset mine has been equipped with an electric hoist and electric-driven compressor; these are in operation and will be sufficient for all requirements and should reduce the cost per ton very materially. The saving obtained in the use of powder alone at this point will quickly pay the cost of installation. At the smelter the No. 3 furnace, ore bins, crusher plant, etc., have been completed and the furnace was put in operation in June. This month and the month of July were used in experimenting and regulation. It has been shown that a very large tonnage can be treated, some of the day's runs being as high as 750 tons. The question as to what will be the safest amount for the best percentage of saving has not yet been determined. This furnace is mechanically fed and when properly adjusted as to tonnage, blast, etc., will reduce the cost of operation very materially, and with the two old furnaces put on the new plan of feeding, which can be done at small cost, the capacity of your smelting plant should be between 1,000 and 1,200 tons per day.

"On the whole, the year just closed has not been a satisfactory one in the mines or smelter, whether considered from an earning or operating point of view; mishaps and interruptions were so frequent that it was hard to get a good steady run and consequently difficult to regulate matters nicely. Perhaps these delays and misfortunes were felt the more keenly because of the exceedingly smooth manner in which everything ran throughout the preceding year. In an industry which operates on such a close margin, a great deal depends upon regularity and steadiness of operating. A little bad luck, the prevalence of extraordinary conditions, may change the result of a month's operations from profit to loss. Thus the operations' mishaps though of seeming small magnitude in themselves were very serious, because the

entire plant (mines and smelter) was carrying an organization calculated for a given tonnage, and when this output was interfered with, as was the case particularly in the latter half of the year, the efficiency of the organization was reduced and a great increase in cost per ton for extraction and reduction entailed.

"The most serious misfortune was the inability of the railway company to supply the smelter with ore. Early in January we commenced to have trouble from this source and operations were spasmodic for several months thereafter, not being able to tell from day to day whether we would receive ore enough to run the furnaces one hour or twenty-four. Finally, in the month of May, we were obliged to shut down entirely and continue closed for the whole of that month. Repeatedly shutting down or banking a furnace increases the expenses, both in consumption of fuel and in repairs. In the month of June No. 3 furnace was put in commission and its regulation and experiments carried on through the months of June and July under the most trying conditions, small tonnage reduced, inexperienced workmen, lack of coke, etc., all went to make a high cost per ton.

"By the installation of the power plants with electrical applications, and the facilities for increased tonnage at the furnaces, you have every reason to believe and every right to expect a great reduction in cost of production both at the mines and smelter for the ensuing year.

"I should expect your mining, smelting and freight should not now exceed \$2.75 per ton of ore treated, provided you run on capacity of 1,000 tons per day. This tonnage your mines are easily able to furnish."

Production, etc.—During the twelve months the company has mined and smelted a total of 187,981 tons, an average of 15,665 tons per month, from which 3,256.45 tons of matte were produced. This matte contained 10,321.05 oz. of gold, 42,606.81 oz. of silver, and 2,910,695 lb. of copper; from its sale \$820,184.84 was realized by the company. The total expenses were \$740,002.72, leaving a profit balance of \$80,942.91. This result was obtained in spite of shut-downs of the smelter, aggregating 4,271 hours and 50 minutes during the year, or a total smelter time lost of three months. The greater part of this loss was caused by the inability of the railways to transport the ore from the mines to the smelter, owing to the serious conditions existing during the winter months and from scarcity of equipment.

During the summer months the railway secured an increase in its equipment, and in the future it is expected that this cause will be eliminated. The month of May was almost a complete shut-down, owing to a strike among the miners at the coal mines making it impossible to secure a supply of coke. As profits can only be realized by smelting the ores mined, these constant shut-downs and interruptions have been very expensive to the company's net earnings.

It is proper to add, in this connection, that great difficulty was experienced in the proper adjustment

and operation of the new furnace; and that for this and other reasons, recoveries at the smelter, since the year ending July 31, 1907, covered by this report, up to the time of the shut-down in October, have not been satisfactory. Earnest efforts to remedy the trouble were made and considerable improvement has been effected, when your directors deemed it best, in view of the demoralized condition of the copper market, to close down the mines and smelter in the month of October, rather than to sell the company's assets in the form of copper at the prevailing low prices.

This move was in line with the action taken by some of the largest copper producers in the United States, and its wisdom is shown by its having been followed by the other producing mines in the Boundary district, where our properties are located. The company has on hand a full stock of coke, ore, and supplies of all kinds necessary for the operation of the mines and smelter, and it is hoped a permanent and satisfactory market price of copper will soon be established so as to justify the resumption of operations.

The properties of the company are now in excellent physical condition. The improvement and additions to the plant, contemplated in the last annual report, are now completely installed, and, with a fair average price for copper, the company should make a favourable showing.

During the year the company retired \$200,000 of its outstanding first mortgage bonds. The purchase of the Morrison mines and the Athelstan mines was completed and title taken to these properties. A railway spur more than 3,000 ft. long has been constructed at the Rawhide, at a cost of \$23,311.26. This cost, however, will be returned to the company in freight allowances. The Morrison mine has had some development work done, and the ore will be valuable as a flux. The Athelstan mine ore at the surface has shown exceedingly rich gold values for the Boundary District. Not enough work has been done, however, to prove the ores at depth.

The financial statement and trial balance set forth the condition of the company on July 31, 1907.

WARNER MILLER, President.

BALANCE SHEET FOR YEAR ENDING JULY 31, 1907.

Assets.	
Mines, smelters and other properties:	
Cost as at July 31, 1906 .....	\$3,875,286.16
Additions since:	
Discount on new capital, issue, etc., net.....	\$1,441,803.50
Less: Discount on bonds retired during year.....	30,000.00
	\$1,411,803.50
Smelter equipment, additional .....	173,097.83
Mines development and equipment .....	183,616.84
Athelstan mine purchase, balance .....	14,181.03
Morrison mine purchase, balance .....	6,301.00
Real estate, British Columbia .....	4,700.00
	1,793,700.20
	\$5,668,986.36
Stocks and shares .....	1,792.50
Office furniture, New York and British Columbia .....	1,292.31
Stores and fuel on hand, certified by superintendent.....	44,777.18
Sundry debtors:	
British Columbia Copper Company, account matte.....	\$ 31,552.35
Advance account construction of railway spur .....	23,211.26
Miscellaneous .....	38,015.77
	92,779.38
Cash in banks and on hand, New York and British Columbia .....	153,186.74
	\$5,962,814.47
Liabilities.	
Capital stock authorized—500,000 shares of \$10 each .....	\$5,000,000
Whereof issued: As at August 1, 1906—320,003 7-10 shares .....	\$3,200,937.00
Add: Issued during year—178,889 25-100 shares .....	1,788,892.50
First mortgage 6 per cent. gold bonds due June 1, 1915—Total authorized .....	\$1,000,000.00
Whereof outstanding at August 1, 1906.....	\$ 700,000.00
Balance issued during year .....	300,000.00
	\$1,000,000.00
Less: Retired and cancelled during year.....	200,000.00
	\$800,000.00



Sundry creditors:	
Open accounts, New York and British Columbia.....	\$ 11,206.35
Reserves for insurance and taxes .....	5,026.70
Properties acquisition suspense .....	1,836.00
Bond interest, coupons uncollected .....	1,395.00
Bond interest, accrued, not due .....	8,000.00
	27,464.05
Profit and loss:	
Balance surplus at August 1, 1906 .....	98,875.62
Profit for year to July 31, 1907.....	47,545.30
	146,420.92
Total, applied in partial discharge of Sinking Fund requirements in terms of company's mortgage .....	\$5,962,814.47

## OPERATIONS ACCOUNT FOR YEAR TO JULY 31, 1907.

Dr.	
Mine operating accounts:	
Operating expenses .....	\$ 325,144.27
Freight on ore .....	46,306.85
	\$ 371,451.12
Ore purchased .....	2,050.72
Smelter operating expenses:	
Sample mill .....	\$ 14,570.84
Blast furnace .....	241,357.89
Slag railway .....	13,228.10
Power and light .....	24,606.36
Pumping .....	1,615.05
General expense .....	3,788.46
	299,256.70
General expenses, British Columbia:	
General .....	\$ 19,123.53
Office .....	7,461.41
Laboratory .....	5,247.99
Damages .....	1,561.65
Office fixtures .....	372.33
	33,766.91
Matte freight .....	1,851.94
General expenses, New York:	
Salaries of officers, etc.....	\$ 12,217.38
Legal, mining expert and professional services.....	10,126.19
Travelling .....	1,623.55
Rent, New York office .....	907.67
General and office expenses .....	6,750.54
	31,625.33
Balance, being profit on operations carried down .....	80,942.91
	\$820,945.63
Cr.	
Sales of matte .....	\$820,184.84
Rents .....	760.79
	\$820,945.63

## PROFIT AND LOSS ACCOUNT FOR YEAR TO JULY 31, 1907.

Dr.	
Interest on 6 per cent. first mortgage bonds .....	\$ 48,150.79
Exchange .....	319.76
Balance, being profit, carried to balance sheet.....	47,545.30
	\$ 96,015.85
Cr.	
Profit on operations, brought down .....	\$ 80,942.91
Interest:	
On Bank deposits .....	\$ 5,214.86
On Underwriters' balances .....	9,858.08
	15,072.94
	\$ 96,015.85

## COMPANY MEETINGS AND REPORTS.

## BRITISH COLUMBIA COPPER COMPANY, LIMITED.

A copy of the report prepared for the annual meeting of shareholders in the British Columbia Copper Company, Limited, convened to be held on February 11 at Charleston, West Virginia, U.S.A., has not yet been received, but a press despatch gives the following information concerning it:

The report of President Colgate Hoyt has reached the shareholders and contains an assertion that he confidently expects "an early resumption of operations on a much larger scale and a more satisfactory earning basis."

In spite of the fact that the report shows a net income for the year ending November 30, 1907 of only \$88,155.42, this amount is arrived at after charging up \$114,898.41 for development, which has resulted in the blocking out of much more ore than has been taken from the mines. To find the year's net profit on the sale of copper, there must be added, also \$75,000, the purchase of the Lone Star and Washington mine, situated just south of the International Boundary line, in this district, and \$201,200 paid in dividends in July last, making the total earnings of the year at least \$479,253.83, or about \$500,000. Had the company been able to deliver its copper on quotations at date of shipment, the net profits would have been approximately \$308,400. As it is a large allowance of \$106,244.21 has been made for shipments in suspense at the close of the year. The company's surplus after deducting this allowance, first cost, development, charges, and dividends to date is \$176,041.31.

Referring to the various difficulties of the past year and of the condition of the affairs that led to the closing of the mines and reduction works last November, President Hoyt continues, hopefully, as follows:

"During the interim vigorous and successful efforts have been made to materially reduce the cost of production and I am pleased to be able to inform you that nearly all the embarrassing conditions which rendered our operations so difficult to carry out during the past year, have been removed. We do not fear again any embarrassment from the lack of railway cars and now have assurance of an ample fuel supply, which will permit of continuous operation at full capacity."

This is particularly important for during the last year in spite of the splendid equipment of the company's smelter at Greenwood, with its three blast furnaces and converting plant, capable of handling 2,000 tons of ore a day, under the conditions that existed the management was able only to operate the plant at half its capacity.

So far as can be learned from the officials of the company now here, instructions to prepare for the resumption of operations may be received any day from New York, and it is known that when work shall be resumed it will be with a view only to bring about the best results for the stockholders.

## COMPANY CABLES AND NOTES.

## British Columbia—CABLES.

*Le Roi*—December: Shipped to Northport smelter during the month 8,884 tons of ore, containing 2,250 oz. gold, 4,600 oz. silver and 203,600 lb. copper. Expenditure on development work \$4,000.

*Le Roi No. 2*—December: Josie mine (Rossland) report—Shipped 2,750 tons. The net receipts are \$34,010, being payment for 2,956 tons ore, and \$964 for 74 tons concentrates; in all \$34,974.

*Le Roi No. 2*—December: Vancouver mine (Slocan) report—Shipped 160 tons. The net receipts are \$6,075, being payment for 100 tons concentrates. In addition to this we have received \$1,185, being 80 per cent. advance on 100 tons of zinc concentrates shipped.

*Tyce*—December: Smelted in 11 days 110 tons of Tyce ore (value, after deducting refining charges, \$1,747) and 2,660 tons of custom ore; total, 2,770 tons, producing 278 tons of matte.

## U. S. A.—

*Alaska Mexican*—December: 120-stamp mill ran 29¼ days; crushed 19,396 tons ore; estimated realizable value of bullion, \$43,809. Saved 287 tons sulphurets; estimated realizable value, \$24,256. Working expenses, \$28,092.

*Alaska Treadwell*—December: 240-stamp mill ran 28 days and 300-stamp mill 29 days; crushed 75,187 tons ore; estimated realizable value of bullion, \$93,394. Saved 1,315 tons sulphurets; estimated realizable value, \$67,229. Working expenses, \$91,032.

*Alaska United*—December: Ready Bullion Claim. 120-stamp mill ran 29½ days; crushed 19,670 tons ore; estimated realizable value of bullion, \$23,520. Saved 304 tons sulphurets; estimated realizable value, \$10,069. Working expenses, \$28,906.

## DIVIDENDS.

A dividend (No. 49) of 50 cents per share has been declared by the Alaska Mexican Gold Mining Company, payable January 28; amount \$90,000. This will make the total of dividends paid by this company to date, \$1,806,381.

A dividend (No. 79) of 75 cents per share has been declared by the Alaska Treadwell Gold Mining Company, payable January 28; amount \$150,000. This will make the total dividends paid by this company to date, \$9,785,000.

A dividend (No. 5) of 15 cents per share has been declared by the Alaska United Gold Mining Company, payable January 28; amount \$27,030. This will make the total of dividends paid by this company to date, \$333,370.

A dividend (No. 5) of two per cent. has been declared by the International Coal and Coke Company, Limited, payable February 1; amount \$56,000. This will bring the total of dividends paid by this company up to \$210,000.

## NOTES.

James McEvoy, of Fernie, civil engineer, has been appointed attorney in British Columbia for the Crow's Nest Pass Coal Company, Limited, in place of Daniel Davies.

The annual meeting of stockholders in the Laborers' Co-operative Mining Company, which has mining interests in the Golden mining division, will be held at Chicago, Illinois, U.S.A., on February 28.

An order has been made in the Supreme Court of British Columbia for the winding up of the Elwood Tinworkers' Gold Mining Company, of Lardeau, British Columbia, Limited, and John E. Jones, of Camborne, B.C., has been appointed provisional liquidator.

A special general meeting of the shareholders of the Royal Victoria Gold Mining Company has been called at Greenwood, to pass a resolution authorizing the sale of the company's assets, which include the Golden Eagle mine, in Grand Forks mining division, Boundary district.

## SULLIVAN GROUP MINING COMPANY.

On January 25 the *Cranbrook Prospector* published the following:

A regular monthly meeting of the directors of the Sullivan Group Mining Company was held at Spokane on January 16, at which James Finlay was appointed general manager of the mines, and superintendent of the company's smelter at Marysville.

It was also decided that the head office of the company should be at Marysville.

Another matter of importance announced at the meeting was that the Sullivan ore was self-fluxing, and that in the future no ore would be obtained from outside places for fluxing purposes.

## EXTRA—PROVINCIAL COMPANY LICENSED.

*The Westmont Silver Mining Company, Limited*.—Head office at Toronto, Ontario. Capital, \$60,000, divided into 60,000 shares of \$1 each. Head office in British Columbia at Slocan City. Attorney, H. R. Jorand, barrister, Slocan City.

## COMPANIES INCORPORATED IN BRITISH COLUMBIA.

- Big Bend Mica Mines, Limited*, with a capital of \$50,000, divided into 50,000 shares of \$1 each.
- Queen Charlotte Island Development and Mining Company, Limited*, with a capital of \$100,000, divided into 1,000 shares of \$100 each.
- Standard Stock Exchange, Limited*, with a capital of \$10,000, divided into 10,000 shares of \$1 each.
- Copperhead Mining Company, Limited*, with a capital of \$300,000, divided into 300,000 shares of \$1 each.
- Gold Group Mining Company, Limited*, with a capital of \$200,000, divided into 200,000 shares of \$1 each.
- Klaskino Gold Mines, Limited*, with a capital of \$100,000, divided into 100,000 shares of \$1 each.

## JANUARY LEAD RECEIPTS AT TRAIL.

The lead contained in ores received at the smelter at Trail of the Consolidated Mining and Smelting Company of Canada, Limited, during the current month, and the mines which shipped the ores, were, according to the *Nelson Daily News*, as under:

Mines.	Lb. of Lead.
Arlington (Erie) .....	13,219
Arlington (Slocan) .....	15,655
Bluebird (Sandon) .....	24,558
Bluebird (Rossland) .....	2,742
Canadian Group .....	11,817
Emerald .....	68,429
Ferguson .....	92,954
Hewitt .....	9,275
Keystone .....	1,458
Kootenay Ore Company .....	2,232
Krao .....	29,749
Lone Bachelor .....	19,938
La Plata .....	153,013
Montezuma .....	29,184
New Jerusalem .....	23,936
Lightning Peak .....	12,199
North Star .....	132,930
Richmond-Eureka .....	47,516
Reco .....	39,260
Ruth .....	154,190
Revenue .....	19,582
Rambler-Cariboo .....	108,661
St. Eugene .....	1,896,677
Standard .....	198,003
Silver Cup .....	3,481
Sunshine .....	9,580
Sunset .....	85,021
Slocan Sovereign .....	15,939
Summit .....	502
Vancouver .....	305,687
Whitewater Deep .....	134,008
Whitewater .....	20,936
Nugget .....	263
Total.....	3,682,594

Canada's production of coal in 1886 was 2,116,653 tons; in 1896 it was 3,745,716 tons; the estimated quantity produced in 1906 was 9,916,177 tons. The value of production in the foregoing years was, respectively: In 1886, \$3,739,840; in 1896, \$7,226,462; in 1906, \$19,945,032.

Selwyn G. Blylock, late manager of the Hall Mining and Smelting Company's smelter at Nelson, succeeds W. P. White as superintendent of the St. Eugene mine at Moyie, East Kootenay, which mine is owned by the Consolidated Mining and Smelting Company of Canada, Limited.

## BOOKS, ETC., RECEIVED.

*Census and Statistics Office, Ottawa.*—"The Canada Year Book, 1906." Second Series. Published by the Department of Agriculture of Canada. Brings all available statistics of Canada down to the end of the fiscal year 1906. Also contains notes of Events of the Year, prepared from original and official sources of information. Pages, 507.

No. 949, "Report on the Cascade Coal Basin, Alberta." By D. B. Dowling. Pages, 37; illustrated. Accompanied by eight geological and topographical maps.

No. 953, "The Barytes Deposits of Lake Ainslie and North Cheticamp, N.S.;" with notes on the production, manufacture and uses of barytes in Canada. By Henry S. Poole. Pages, 43.

No. 958, "Report of the Section of Chemistry and Mineralogy" to December 31, 1905. By S. Christian Hoffman, chemist and mineralogist to the Geological Survey. Pages, 71.

No. 971, "Annual Report of the Mineral Industries of Canada for 1905." By Section of Mines, Elfric Drew Ingall, mining engineer to the Geological Survey. Pages, 172; illustrated.

No. 977, "Report on the Geology and Natural Resources of the area included in the North-west Quarter Sheet, No. 122 of the Ontario and Quebec Series, comprising portions of the Counties of Pontiac, Carleton and Renfrew." By R. W. Ells. With preliminary lists of organic remains, etc., by Henry W. Ami, assistant paleontologist to the Geological Survey. Pages, 71.

No. 979, "Report on Gold Values in the Klondike High Level Gravels." By R. G. McConnell. Pages, 34; illustrated.

*Geological Survey of Canada, Ottawa.*—

No. 1017, "Summary Report of the Department of Mines, Geological Survey." By R. W. Brock, acting director. Summary report of the operations of the Geological Survey during the year from November 30, 1906, to November 30, 1907. Pages, 123.

*Missouri Bureau of Geology and Mines.*—"Public Roads, Their Improvement and Maintenance." Vol. V, Second Series. By E. R. Buckley, Ph. D., director and state geologist. Dr. Buckley states that the report is not complete in certain named respects, yet the discussion it contains of methods of constructing the various pavements now in use embodies the latest ideas on this subject, and should serve as a guide to all cities and towns that are engaged in constructing permanent pavements. The hope is expressed that it will supply a widespread demand for information on the methods of highway improvement. Pages, 115; cloth; illustrated.

*New Zealand Geological Survey.*—Bulletin No. 4, "The Geology of the Coromandel Subdivision, Hauraki, Auckland." By Colin Fraser, assisted by James Henry Adams. Pages, 148; freely illustrated with half-tones, maps, etc.

*Ontario Department of Lands and Mines.*—"Sixteenth Annual Report of the Bureau of Mines, 1907." Vol. XVI, Part I. By Thos. W. Gibson, deputy minister. Contains statistical review of the mining industry of Ontario for 1906, together with account of operations of the Bureau of Mines, and a number of special reports on mining localities. Pages, 223; illustrated with numerous half-tones, maps, etc.

*Smithsonian Institution, Washington, D.C., U.S.A.*—"Annual Report of the Smithsonian Institution," showing the operations, expenditures and condition of the Institution for the year ended June 30, 1906. With general appendix, comprising a selection of miscellaneous memoirs of interest to those engaged in the promotion of knowledge. Pages, 553.

## COAL MINING NEWS.

J. R. McDonald has resigned as superintendent of the Hillcrest colliery in the Blairmore-Frank district of Alberta.

Some of the structural steel for the tippie at the C. P. R. Company's coal mine at Hosmer, Crow's Nest Pass, has been received at the mine.

The Walker compound condensing Corliss two-stage air compressing engine, sold to the Crow's Nest Pass Coal Company by Peacock Brothers, of Montreal, Canadian agents for the manufacturers, is being installed at the Coal Creek colliery, near Fernie.

The Crow's Nest Pass Coal Company's engineering department has lately been busy putting in the big new fan at No. 8 mine, Michel. The company's payroll for the month of December aggregated \$199,984 for its three collieries—Coal Creek, Michel and Carbonado.

The Great Northern Railway does not intend to get caught with any coal famine, says a Cranbrook newspaper. It is reported that more than 1,000 cars of coal are standing on the sidings in Kalispell County, Montana, beside several thousand tons stored at Rexford, British Columbia.

Raoul Green, who has been superintendent for the West Canadian Collieries, Limited, at the Lille colliery, near Frank, Alberta, has been appointed assistant to the general manager of the company, with headquarters at Blairmore. Mr. Green recently returned from a trip to the East.

The output of the mine of the International Coal and Coke Company at Coleman, Alberta, during January was 46,200 tons, the shipments for the month amounting to 43,700 tons. The output of this mine is steadily being increased, January showing an advance of 13,500 tons over that of November.

About the end of January, T. J. Smith, who returned to Vancouver from the upper country, reported that the Diamond Vale Company that week shipped four carloads of coal, one to Vancouver, one to Kamloops, one to Revelstoke, and the fourth to Spence's Bridge. The company is hard at work and it is understood that shortly two carloads of coal will be mined every day. The Nicola Valley requirements are large enough in themselves to assure steady custom.

A report from Nanaimo states that owing to the slackness in the coal trade, 20 men were laid off at the Fiddick mine on January 29, but it is expected that this will not be for long, as the management of the mine are anxious to have the coal measure developed as soon as possible. The present output is about 120 tons a day, and this will be increased as soon as facilities are completed for handling the output. A new tippie is being erected which, however, is only a temporary affair, as when the mine is thoroughly opened up a large and up-to-date tippie will be constructed.

From Edmonton, Alberta, comes the news that about the middle of January F. H. Sherman, of Taber, the Alberta president of the United Mine Workers of America, had been spending some time there in connection with the proposed coal legislation to come up at the session of the Alberta Legislature. "There are at the present time," said Mr. Sherman, "about 1,100 miners out of work, as a result of the closing of the Frank, Bellevue and Hillcrest mines and the small mines in the Taber district." "What is the cause of the men being idle?" was asked. "The trouble arises from a dispute between the Canadian Pacific Railway and the operators. The C. P. R. claim they are overstocked and are endeavouring to lower the prices. Rather than do this the operators resolved to close the mines." Mr. Sherman thought the enforced idleness might last a month or six weeks. The coal business is very slack in the south country at the present time, on account of the mild weather that has prevailed almost all through the winter.

## TRADE NOTES AND CATALOGUES.

The Jeffrey Manufacturing Company, of Columbus, Ohio, U. S. A., has published a booklet containing numerous illustrations of the firm's "Century Rubber Belt Conveyor," and other belt conveying machinery. The illustrations show the application of rubber belt conveyors in handling materials of various kinds—ore, tailings, crushed rock, coal, sawmill refuse, bulk grain, pulp mill chips, etc., also in use as an ore-picking table, in conveying mail sacks, barrels, and many other practical ways. To those on the lookout for labour-saving appliances this booklet should prove of particular interest and value.

Mussens Limited, of Montreal, Quebec, has sent out a folder showing a few standard styles and sizes of "Anvil Brand Wire Rope Blocks and Sheaves"; an illustrated catalogue, No. 1050, of the Atlas Car and Manufacturing Company, of Cleveland, Ohio, giving information relative to all classes of cars for industrial railway use, turntables, switches, skips and dumping buckets, floor trucks, etc.; an illustrated catalogue of a variety of steel castings manufactured by F. H. Lloyd & Co., Limited, England; and the firm's own catalogue, No. 16, illustrating and describing in detail the "Pulsometer Steam Pump." A very useful calendar for 1908, with large date figures, has also been issued by this firm, from whom any of these publications may be obtained on application.

The Westinghouse Companies' Publishing Department has published the following brief description of an "Electric Pumping Installation in the Anaconda Copper Mines": An interesting electric pumping installation is being made by the Anaconda Copper Company in its mines at Anaconda, Montana, U. S. A. The pump is a 6x12 Aldrich vertical quintuplex type made by the Allentown Rolling Mills, Allentown, Pa., and is designed to deliver 425 gallons of water per min. against a head of 1,100 ft. This pump is to be driven by a Westinghouse type "CCL" alternating current motor of 150 h.p. capacity, at 450 r.p.m. The duty calls for heavy, substantial construction, and acid-resisting material was required to be used in making the throat and plungers and other parts of the water end, on account of the bad condition of the mine water to be pumped. The use of five plungers operating from one crank shaft, having connecting rods placed 72 deg. apart, gives a uniform velocity of water in the pipes, thus adding greatly to the efficiency of the pump. The plungers are single-acting and outside packed. It is claimed that owing to the large size of the throats and valves and the comparatively low water velocity through all the orifices, a high efficiency is obtained. This type of pump is becoming very popular in the Montana copper country by reason of its reliability and high efficiency, both of which are particularly important in mining operations, especially where power is purchased from transmission lines.

E. F. Miltenberger, who was engaged in connection with F. T. Snyder's experiments in zinc-lead smelting at Vancouver some time since, is now in charge of the Canada Zinc Company's office at Nelson, where that company is erecting works for the electric treatment of zinc and lead ores.

The Pacific Coal and Transportation Company of New York is reported to have offered to deliver at San Francisco, Cal., Alaska coal for the United States battleships at \$3.90 per ton for the first 20,000 tons and \$8 per ton for the second like quantity.

In 1906 there was produced in Canada asbestos to the value of \$1,970,878, or more than four times that of 1897. In 1906 the quantity produced was 59,283 short tons, as against 15,570 tons in 1897, value \$473,274.

## MINING MEN AND AFFAIRS.

Lewis Hind, of Three Forks, Slocan, has been spending the winter in Victoria.

A. C. Garde is now manager of the La Plata mines, on Kokanee Creek, Nelson mining division.

George H. Barnhart has returned to Nelson from a trip to Colorado.

Francis A. Thomson is professor of mining and metallurgy at the Washington state college at Pullman, Washington.

W. E. Segsworth, who some time ago left Greenwood, in the Boundary district, for Houghton, Michigan, is now in Ontario.

John A. Finch, of Spokane, Washington, is spending the winter at Altadena, Los Angeles county, California, U. S. A.

W. C. Thomas, of Boundary Falls, has returned to British Columbia after having spent a vacation in Salt Lake City, Utah, U. S. A.

W. S. Keith has resigned his position as general superintendent of the Oregon Smelting and Refining Company, at Sumpter, Oregon.

A. D. McPhee, of Slocan City, manager of the Ottawa mine, is reported to be convalescent in Spokane, Washington, after a serious illness.

Paul S. Couldrey, of Rossland, manager of the Le Roi No. 2, Limited, has gone to London, England, on a business visit. During his absence Ernest Levy is manager.

The minister of mines of British Columbia has issued a certificate of efficiency as an assayer to George Kendall, who has passed the necessary qualifying examination.

J. L. Retallack, of Kaslo, is in Ottawa, Ontario, endeavouring to secure the continuation of payment of the bounty on lead beyond the period already authorized by the Dominion Parliament.

Frank B. Smith, of Edmonton, Alberta, has been appointed inspector of mines to look after the royalties due the Dominion Government on alienated coal lands in Saskatchewan and Alberta.

Richard M. Atwater, Jun., who three or four years ago was for a time manager of the Ymir mine, has been appointed general manager of the Black Mountain Mining Company, Magdalena, Sonora, Mexico.

R. Gilman Brown, of London, England, who holds among other positions that of consulting engineer to the Ymir Gold Mines, Limited, is examining mines in Chile, South America.

S. J. Speak, of the firm of Hooper & Speak, London, England, has gone to Siberia on professional business. Mr. Speak was for a time in charge of the Ymir Gold Company's mine and mill at Ymir, B. C.

H. W. Turner has removed from Portland, Oregon, to San Francisco, California. He was for some time associated with the management of mines on Prince of Wales Island, southeast Alaska.

W. H. Aldridge, of Trail, managing director of the Consolidated Mining and Smelting Company of Canada, Limited, left the Kootenay district on January 18 on a business trip to the East.

Thomas Kiddie, manager of the Northport Smelting and Refining Company's smelting works at Northport, Washington, U.S.A., spent two or three days in Nelson about the middle of January.

J. W. Bryant, of Mt. Sicker, Vancouver Island, mine superintendent for the Tyece Copper Company, Limited, is on a business visit to Mexico in the interests of that company.

J. E. McAllister, general manager of the British Columbia Copper Company, Limited, left Greenwood on January

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John Hopp was at Ashcroft about the end of January, superintending the shipment thence to Cariboo of additional plant and supplies for his placer gold mines near Barkerville, in that district.

M. S. Davys is expected to shortly return to Nelson from England and to remain while arranging for working the Silver King mine in the interest of himself and associates.

James F. Calbreath, Jun., of Denver, Colorado, U. S. A., secretary of the American Mining Congress, has been visiting Spokane and Seattle, it being the intention to hold a meeting of the Congress in the latter city in March.

C. J. Seymour Baker, who during recent years has been paying much attention to occurrences of gold-quartz in Cariboo district, has lately been engaged in opening up a mining property on the west coast of Vancouver Island.

W. H. Wall, for years master mechanic for the New Vancouver Coal Company, Nanaimo, has been appointed superintendent of the Wellington Colliery Company's No. 7 mine, Cumberland, which is also on Vancouver Island.

S. L. Reynolds, of Winnipeg, Manitoba, has resigned as assistant city engineer, having arranged to remove to Victoria. It is stated he will be engaged in mining engineering in connection with one of the new coal mines in the Nanaimo district.

James Stove, who died recently at Nanaimo, Vancouver Island, at an age of 81 years, was one of the first men engaged in the work of mining for coal at Nanaimo. His residence in and about that city extended over a period of 57 years.

E. C. Musgrave, formerly superintendent of the Tyece mine at Mt. Sicker, Vancouver Island, who a short time

since went to Montana as manager for the Deer Lodge Consolidated Mines Company, has been very ill with pneumonia, but is now convalescent.

G. G. S. Lindsey, of Toronto, Ontario, president of the Crow's Nest Pass Coal Company, Limited, and James McEvoy, of Fernie, the company's chief engineer and geologist, were in Victoria together during January. Both have since gone to Toronto.

A. H. Kelly, of Nelson, long known in that district as one of the owners of the May and Jennie and Dandy mines, left for New York early in January. He may visit his old home in New Brunswick before returning to British Columbia.

Louis Pratt, of Sandon, Slocan, manager of the Last Chance mine, is in Ottawa in connection with the movement to obtain an extension of the period during which the bounty will be paid by the Dominion Government on lead mined in Canada.

Wm. Gardner, of London, England, secretary of the Tyee Copper Company, Limited, is acting general manager in British Columbia for the company, and has removed its head office in this Province from Duncan to Victoria.

George S. Waterlow, of London, England, formerly active in the affairs of the Le Roi and Snowshoe mining companies, both owning mines in British Columbia, has been spending the winter in southern California. It is probable he will again visit British Columbia in the spring.

H. Harris, formerly superintendent of the Hall Mining and Smelting Company's smelting works at Nelson, B. C., and afterwards filling a similar position at the Alaska Smelting and Refining Company's smelter at Hadley,

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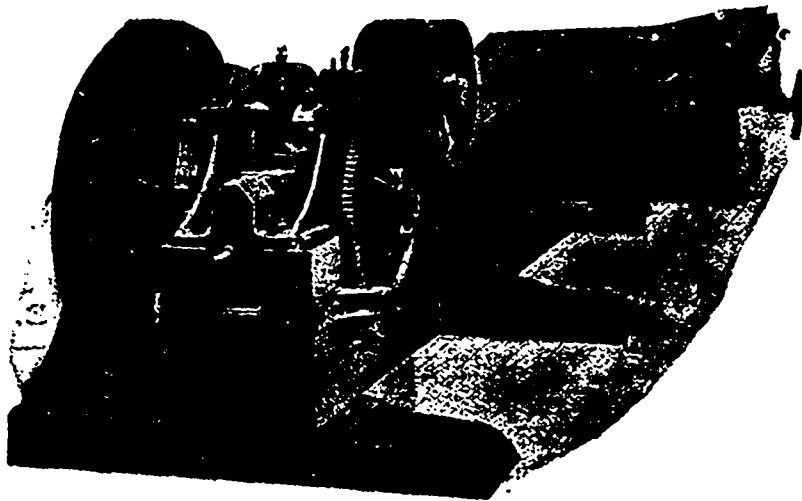
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southeast Alaska, has been appointed manager of the Tasmanian Smelting Company, at Zeehan, Tasmania.

John M. Harris, of Sandon, Slocan, was in Victoria during the early part of January in connection with further proceedings in the Star-White case, looking to the carrying into effect of the judgment of the full court in favour of the Star Company. W. J. Elmendorf, of Spokane, Washington, one of the experts for the defendant company, was also in Victoria about the same time.

Thomas R. Drummond, formerly manager of the Dominion Company at Greenwood, Boundary district, but for the last year in charge of the operations at the Nipissing mine at Cobalt, Ontario, will, it is stated, shortly proceed to Utah, to take an important position there. He will be succeeded at the Nipissing mine by R. H. Parks, who had charge of the Rawhide mine at Phoenix, B. C., under Mr. Drummond, and who has been his assistant at the Nipissing.

The following members constitute the mining standing committee of the Provincial Legislature: H. Brewster, C. H. Behnsen, M. Eagleson, R. Grant, G. A. B. Hall, S. Henderson, W. Hunter, H. Jones, W. T. Kergin, J. H. King, J. A. Macdonald, A. H. B. Macgowan, N. F. Mackay, G. A. McGuire, J. McInnis, G. R. Naden, H. G. Parson, W. R. Ross, J. H. Schofield, L. W. Shatford, T. Taylor, H. B. Thomson.



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

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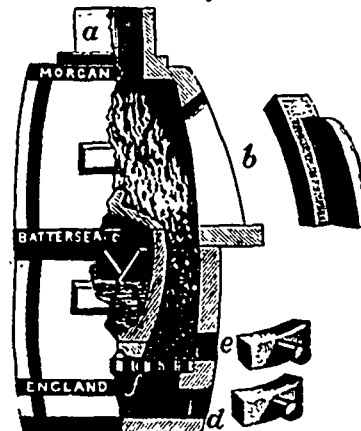
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